

# ISSI NEWSLETTER

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## CALL FOR PAPERS ISSI 2015 CONFERENCE

BOĞAZIÇI UNIVERSITY, ISTANBUL, TURKEY  
29 JUNE — 4 JULY, 2015

The Organizing Committee would like to invite participants to submit to the 15th International Society for Scientometrics and Informetrics Conference to be held in Istanbul, Turkey (<http://www.issi2015.org>). The ISSI 2015 Conference will provide an international forum for scientists, research managers and administrators, as well as information and communication related professionals to share research and debate the advancements of informetric and scientometric theory and applications. The conference is organized under the auspices of ISSI – the International Society for Informetrics and Scientometrics (<http://www.issi-society.org/>).



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- **Dietmar Wolfram**: [dwwolfram\[at\]juwm.edu](mailto:dwwolfram[at]juwm.edu)

Accepted contributions are moderated by the board. Guidelines for contributors can be found at <http://www.issi-society.info/editorial.html>. Opinions expressed by contributors to the Newsletter do not necessarily reflect the official position of ISSI. Although all published material is expected to conform to ethical standards, no responsibility is assumed by ISSI and the Editorial Board for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material therein.



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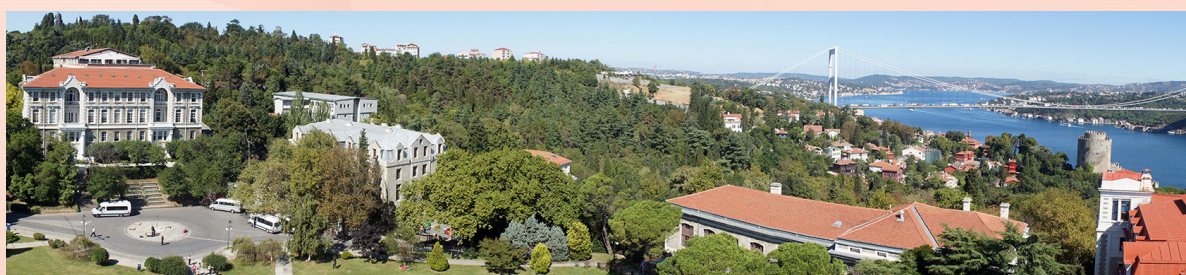


## ORGANIZING COMMITTEE

The 15th ISSI conference in Turkey is organised by three research institutions: Bogazici University, Hacettepe University, and Ulakbim Turkish Academic Network and Information Center.



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## SCOPE

Scientometrics and informetrics represents a broad field with a rich history. Scientometrics has been responsible for creating tools for research assessment and evaluation as well as for use in charting the flow of scientific ideas and people. Today, with the advancement of computing power, technology and database management systems, the impact of scientometrics has become ubiquitous for scientists and science policy makers. However, the high diffusion of scientometric and informetric research has also brought a new wave of criticism and concern, as people grapple with issues of goal displacement and inappropriate use of indicators. The question facing the field is how best to move forward given the

computational opportunities and the sociological concerns. Therefore, the goal of ISSI 2015 is to highlight the best research in this field and to bring together scholars and practitioners in the area to discuss new research directions, methods and theories, and to reflect upon the history of scientometrics and its implications. We ask for researchers worldwide to submit original full research papers, research-in-progress papers or posters within the area of informetrics, with a special emphasis on the Future of Scientometrics.

## CONFERENCE TOPICS

With this scope in mind, major conference topics of interest include, but not limited to:

- ▶ Theory
- ▶ Methods and techniques
- ▶ Citation and co-citation analysis
- ▶ Indicators
- ▶ Webometrics
- ▶ Altmetrics
- ▶ Mapping and visualization
- ▶ Science policy and research assessment
- ▶ University policy and institutional rankings
- ▶ Journals, databases and electronic publications
- ▶ Country-level studies
- ▶ Patent analysis
- ▶ Data Accuracy and disambiguation
- ▶ Scientific fraud and dishonesty



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## IMPORTANT DATES

Eugene Garfield Doctoral Dissertation Scholarship Submission	30.01.2015
Full Papers, Research-in-Progress & Special Sessions, Workshops and Tutorials	12.01.2015
Paper/Workshop/Tutorial notification of acceptance/rejection	06.03.2015
Poster submission deadline	13.03.2015
Doctoral Forum submission deadline	06.02.2015
Poster notification of acceptance/rejection	10.04.2015
Camera ready (at least one author must register)	17.04.2015
Doctoral Forum result announcement	02.04.2015
Early Bird registration	01.03.2015 — 01.05.2015
Conference Date	29.06.2015 — 04.07.2015

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## LOCATION

### *Bogazici University, Bebek, Istanbul*

Istanbul has always been a meeting place, a crosspoint and a destination. With a capacity of far over 25 million travelers per year Istanbul is surprisingly within reach – in fact, it's less than a three-hour flight from most European cities. Located at the

crossroads of East and West, Istanbul offers easy air connections and is served by more than 50 major airlines to hundreds of cities around the world.

## MORE INFORMATION

For more information, please visit the conference website: [www.issi2015.org](http://www.issi2015.org)

# 20<sup>th</sup> INTERNATIONAL CONFERENCE ON SCIENCE AND TECHNOLOGY INDICATORS

## RESEARCH ORGANIZATIONS UNDER SCRUTINY. NEW INDICATORS AND ANALYTICAL RESULTS

UNIVERSITÀ DELLA SVIZZERA ITALIANA, LUGANO  
2—4 SEPTEMBER 2015

The 2015 Science and Technology Indicators conference ([www.sti2015.usi.ch](http://www.sti2015.usi.ch)), organized under the auspices of the European Network of Indicator Designers, will be hosted by the Università della Svizzera

italiana in Lugano and will be specifically focused on the role of organizations in the research system and, accordingly, on methodologies for the development of indicators at the organizational level, as well as for the

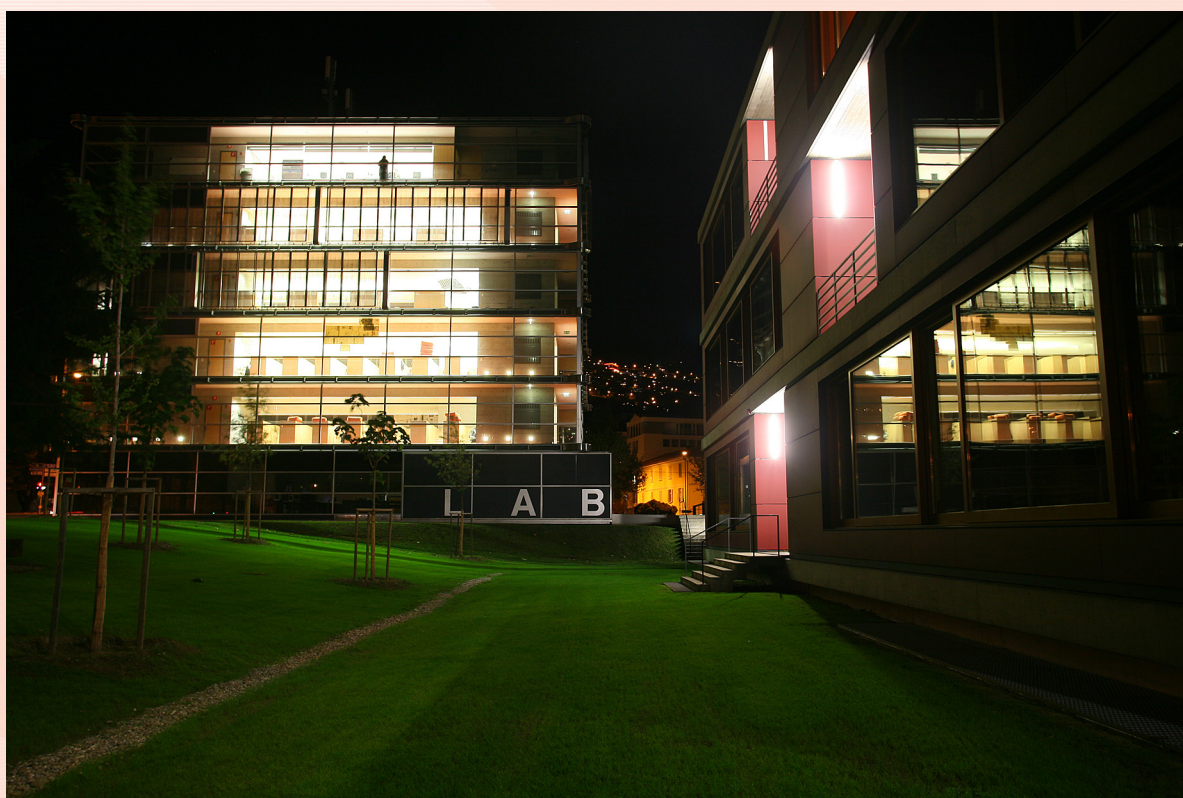
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analysis to answer to relevance S&T policy and scholarly questions. The conference will be supported by the EU-FP7 infrastructure initiative on Research Infrastructures for the Assessment of Science, Technology and Innovation Policy (RISIS).

The conference builds on an extensive concept of organizations, which includes research performing organizations (higher education institutions, public research organizations, private companies), as well as intermediaries with different functions in

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the research systems, like funding agencies and technology transfer offices.

The relevance of the topic is twofold: on the one hand, scholars increasingly recognized the importance of organizations in managing and steering the research system and in providing framework conditions for research activities of individuals and groups; on the other hand, S&T indicators design increasingly focused in the recent years on the organizational level. Moreover, a number of large-scale projects are currently producing comparable indicators at the level of research organizations for the whole European space, thus opening unprecedented opportunities for analytical work: these include projects like the European Tertiary Education Register and Multirank for higher education, but also similar developments concerning bibliometric indicators (Leiden ranking, Scimago Institutions Rankings) and patents (the academic patents project), as well as research programs and funding agencies (the JOREP project). Harmonization and interoperability of these databases within the Research Infrastructure for Science and Innovation Studies (RISIS) EU project is likely to further accelerate this process.

However, significant challenges remain, including: the availability of data which are comparable across countries, methodological issues concerning aggregation in the construction of indicators (normalized impact factors being a case in point) and the definition of organizational boundaries, the analytical methods for the exploitation of these indicators for scholarly work, taking into account also the interaction with the groups and individual level. Therefore the specific focus of the STI2015 conference will be on:

- a) Methodological advances in the development of new indicators at the organizational, including the refinement of the methodology and conceptual background, the identification of organizations and the definition of their boundaries, the exploitation of new datasets and data sources and approaches value for matching different datasets.
- b) New insights on research organizations based on the exploitation of these data, based on theoretical frameworks from sociology and economy of organizations, as well as on methodological advances and the use of novel analytical techniques.

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## TOPICS

The following topics are suggested but not exclusive for submissions:

- ▶ Country and European-level characterization of the landscape of research organizations (including higher education).
- ▶ Advancements in methodologies to develop organizational-level indicators (both on the output and input side): definitions, comparability, aggregation, data sources.
- ▶ Efficiency and performance measures and analyses.
- ▶ Analysis of the interaction between individuals and organizations (concerning careers, performance, etc.). Work dealing with interactions between organization and groups, respectively individuals will be particularly welcome (like studies of individual's careers taking into account also organizational characteristics).
- ▶ Indicator-based analysis of the interaction between public policies and

organizations, both at the intermediary and performer level (including the analysis of the impact of funding systems).

## SUBMISSION TYPES, REQUIREMENTS AND FORMATS

1. Short paper (max 3,000 words) with a comprehensive description of a completed study.
2. Poster (max 1,000 words) with an abstract of the study.
3. Special event session (max 90 minutes). Sharing experiences and ideas through non- traditional conference instruments. Special event sessions can take a variety of forms including: panels, fishbowls, roundtable discussions, wildcard sessions, demos/exhibitions

## DEADLINES FOR SUBMISSION

Papers for oral presentation:	28 Feb 2015
Proposals for special events:	31 Mar 2015
Posters:	31 Mar 2015

## PROGRAM OUTLOOK

Start of conference: 2 Sep (Wed) 2015, 10 AM

End of conference: 4 Sep (Fri) 2015, 3 PM

The program will include:

- ▶ Key note speeches by distinguished scholars in the field of organizational studies.
- ▶ Presentations of research papers in parallel tracks.
- ▶ Special events and panels on key issues for the STI community.
- ▶ A poster session on on-going research activities.

## CONFERENCE ORGANIZATION

### Program chair

Benedetto Lepori,  
Università della Svizzera italiana

### Conference committee

- ▶ Jordi Molas Gallart,  
INGENIO-CSIC, University of Valencia
- ▶ Magnus Gulbrandsen,  
University of Oslo
- ▶ Thed van Leeuwen,  
CWTS, University of Leiden
- ▶ Patrick Llerena,  
BETA, University of Strasbourg

### Responsible for RISIS events

Sibille Hinze, IFQ, Berlin.

### Responsible for the poster session

Emanuela Reale, CNR CERIS, Rome

## EVALUATION PROCESSES

Panels and special sessions proposals are evaluated internally by the conference committee. Once the proposals have been accepted, papers go through the normal review process in order to keep quality (the process will be managed together with convenors).

Papers: external peer review and then decision in the conference committee. Papers are assigned to individual members of the conference committee for referrals.

Posters are evaluated internally by the conference committee.

## CONTACT

### Benedetto Lepori

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Conference website: [www.sti2015.usi.ch](http://www.sti2015.usi.ch)

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# ATLANTA CONFERENCE ON SCIENCE AND INNOVATION POLICY

## 6<sup>th</sup> BIENNIAL MEETING

GEORGIA INSTITUTE OF TECHNOLOGY  
GLOBAL LEARNING CENTER, ATLANTA, GA, USA  
SEPTEMBER 17—19, 2015

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The Atlanta Conference on Science and Innovation Policy provides a showcase for the highest quality scholarship addressing the multidimensional challenges and interrelated characteristics of science and innovation policy and processes.

The 6th Biennial Atlanta Conference on Science and Innovation Policy will be held



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September 17-19, 2015 in the Georgia Institute of Technology Global Learning Center, Atlanta, GA, U.S.A.

Spanning three days, the conference will include plenary sessions reflecting different facets of the science and innovation system, paper sessions for well-developed research, and an early career poster session to allow

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young researchers to present their work. Submissions should address issues relevant to the science and innovation system, and may fall into one or more of the following topic areas related to the STI/research system:

- Communication and engagement
- Metrics
- Ethics and values
- National/regional policy
- Evaluation
- Responsible innovation
- Funding and budgets
- Societal impact
- Gender and diversity
- STEM education/workforce
- Hot topics/emerging issues
- Team science/collaboration
- Innovation and entrepreneurship
- Theories and frameworks

Contributions may also focus on a domain, for example: energy, environment, nano, among others.

## SUBMISSIONS

The conference organizing committee invites submission of three types:

1. Abstracts for proposed papers. Well-developed two-page abstracts will be given priority for presentation space.
2. Proposals for sessions. These should reflect the international scope of the conference

3. Abstracts for proposed posters from undergraduate or graduate students and researchers within three years of receipt of a doctoral degree.

## EARLY CAREER POSTERS AND COMPETITION

The conference invites posters from students and post-doctoral fellows. Proposed work should be empirical in nature and reflect work in which the early career researcher has led the research, and/or played a significant role in the research. The poster session will be designed to be interactive and lively. Judging will be done during the session with a prize awarded during the meeting.

## DEADLINES

The deadline for all paper, session and poster proposals submissions is March 1, 2015. Questions can be addressed to the program chair at [info@atlantaconference.org](mailto:info@atlantaconference.org).

Conference website:  
[www.atlantaconference.org](http://www.atlantaconference.org).

We look forward to seeing you in Atlanta!

Diana Hicks & Julia Melkers  
Conference Co-Chairs,  
2015 Atlanta Conference on  
Science and Innovation Policy

# EUGENE GARFIELD DOCTORAL DISSERTATION SCHOLARSHIP — 2015

## CALL FOR NOMINATIONS

### 1. NATURE OF THE AWARD

The scholarship will consist of an award of \$3,000 (donated by the Eugene Garfield Foundation) to cover any research related expenses (including traveling) of the grant recipient, contingent upon the recipient's attending ISSI 2015, the next ISSI biennial

conference. This conference will be held in Istanbul, Turkey, from June 29 till July 4, 2015.

### 2. PURPOSE OF THE AWARD

The purpose of this scholarship is to foster research in bibliometrics, scientometrics, informetrics and webmetrics by encourag-



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ing and assisting doctoral students in the field with their dissertation research.

### 3. ELIGIBILITY

The scholarship recipient must meet the following qualifications:

- a) Be an active doctoral candidate pursuing research using bibliometric, scientometric, informetric or webmetric methodology in a degree-granting institution;
- b) Have a doctoral dissertation proposal accepted by the institution or by their dissertation advisor.

**Clarification:** an active doctoral student is someone who has not yet obtained the doctoral degree at the moment he/she receives the award. Moreover, the applicant need not be a member of ISSI to be considered for this scholarship.

### 4. ADMINISTRATION

The award is sponsored by the Eugene Garfield Foundation with the cooperation of the Chemical Heritage Foundation, and is administered by the Board of the International Society for Scientometrics and Informetrics (ISSI).

### 5. NOMINATIONS

Submission should include the following:

- a) The doctoral research proposal, including a description of the research, methodology, and significance, 10 pages or less in length, double-spaced, and in English;
- b) A copy of the paper submitted for presentation at the ISSI Conference;
- c) A cover letter from the dissertation advisor endorsing the proposal and

confirming that the contents of this proposal are accepted by the institute, or at least by the advisor;

- d) An up-to-date curriculum vitae.

### 6. SUBMISSION INSTRUCTIONS AND DEADLINE

Deadline for submission is January 31, 2015. All proposals should be submitted by e-mail to the society's president:

ronald.rousseau@kuleuven.be or  
ronald.rousseau@uantwerpen.be.

An acknowledgement of receipt will be sent to candidates.

### 7. CONFERENCE PRESENTATION

The recipient of the award will be given the opportunity to present his/her work either during a normal session (if his/her paper has been accepted for presentation), either as a special lecture on the same level as research in progress. This presentation will be referred to as the special Eugene Garfield Doctoral Dissertation Scholarship Lecture.

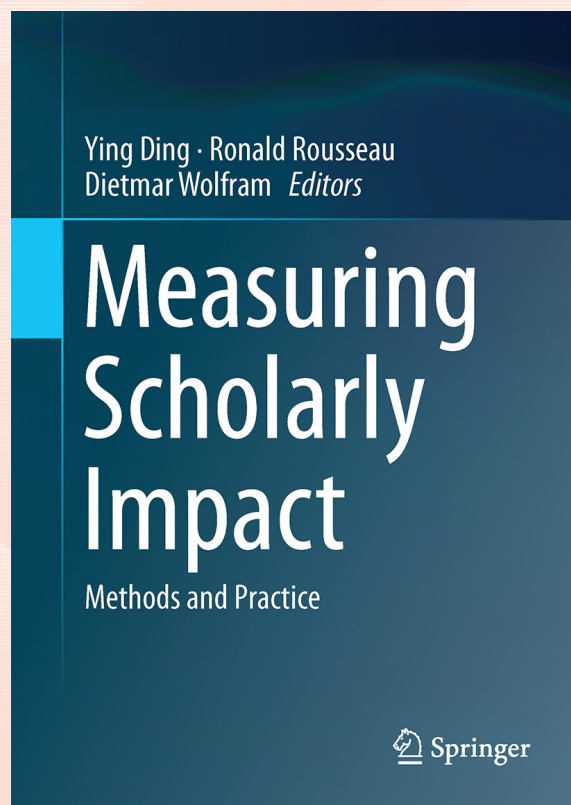
### SOME FURTHER CLARIFICATIONS

- a) The candidate must have the intention to attend the conference, as shown by a submitted paper.
- b) The awardee is free to use the award money as he/she pleases. The award does not have to (but of course may) be used for travelling to the conference.
- c) The awardee is not automatically entitled to an (extra) travel grant from the conference organizers or from ISSI. Of course he/she may apply for such a grant (if such grants are made available by the organizers) like any other conference participant.

# NEW MONOGRAPH ON MEASURING SCHOLARLY IMPACT

Editors and ISSI members Ying Ding, Ronald Rousseau and Dietmar Wolfram are pleased to announce the forthcoming publication of *Measuring Scholarly Impact: Methods and Practice* to be published by Springer this fall. The objective of this book is to provide an authoritative handbook of current topics, technologies and methodological approaches that may be used for the study of scholarly impact from different perspectives. Each contributed chapter presents an introduction to the selected topic and outlines how the topic, technology or methodological approach may be applied to informetrics-related research. Contributed chapters are included on the following topics:

- ▶ *Community detection and visualization of networks with the map equation framework* by Ludvig Bohlin, Daniel Edler, Andrea Lancichinetti, and Martin Rosvall
- ▶ *Link prediction* by Raf Guns
- ▶ *Network analysis and indicators* by Staša Milojević
- ▶ *PageRank-related methods for analyzing citation networks* by Ludo Waltman and Erjia Yan
- ▶ *Systems Life Cycle and its relation with the Triple Helix* by Robert K. Abercrombie and Andrew S. Loeb
- ▶ *Spatial scientometrics and scholarly impact: A review of recent studies, tools and methods* by Koen Frenken and Jarno Hoekman
- ▶ *Researchers' publication patterns and their use for author disambiguation* by Vincent Larivière and Benoit Macaluso
- ▶ *Knowledge integration and diffusion: Measures and mapping of diversity and coherence* by Ismael Rafols
- ▶ *Limited dependent variables models and probabilistic prediction in informetrics* by Nick Deschacht and Tim C.E. Engels
- ▶ *Text mining with the Stanford CoreNLP* by Min Song and Tamy Chambers
- ▶ *Topic modeling: Measuring scholarly impact using a topical lens* by Min Song and Ying Ding
- ▶ *The substantive and practical significance of citation impact differences between institutions: Guidelines for the analysis of percentiles using effect sizes and confidence intervals* by Richard Williams and Lutz Bornmann
- ▶ *Visualizing bibliometric networks* by Nees Jan van Eck and Ludo Waltman
- ▶ *Replicable science of science studies* by Katy Börner and David E. Polley



More information may be found at: <https://www.springer.com/computer/database+management+%26+information+retrieval/book/978-3-319-10376-1>

# THE LEIDEN MANIFESTO IN THE MAKING

FULL REPORT OF THE PLENARY  
SESSION AT THE 2014 STI CONFERENCE  
IN LEIDEN ON QUALITY STANDARDS  
FOR EVALUATION:  
ANY CHANCE OF A DREAM COME TRUE?



**ISMAEL RAFOLS**  
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CWTS,  
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**PAUL WOUTERS**  
CWTS,  
Leiden University

## SUMMARY

A set of guiding principles (a manifesto) on the use of quantitative metrics in research assessment was proposed by Diana Hicks (Georgia Tech) during a panel session on quality standards for S&T indicators at the STI conference in Leiden last week. Various participants in the debate agreed on the responsibility of the scientometric community in better supporting use of scientometrics. Finding the choice of specific indicators too constraining, many voices supported the idea of a joint publication of a set of principles which should guide a responsible use of quantitative metrics. The session also included calls for scientometricians to take a more proactive role as engaged and responsible stakeholders in the development and monitoring of metrics for research assessment, as well as in wider debates on data governance of, such as infrastructure and ownership.

In the closure of the conference, the association of scientometric institutes ENID (European Network of Indicators Designers) and Ton van Raan as president, offered to play a coordinating role in writing up and publishing a consensus version of the manifesto.

The need to debate these issues has come to the forefront in light of reports that uses of certain easy-to-use and potentially misleading metrics for evaluative purposes have become a routine part of academic life, despite misgivings within the profession itself about

its validity. A central aim of the special session was to discuss the need for a concerted response from the scientometric community to produce more explicit guidelines and expert advice on good scientometric practices. The session continued from the 2013 ISSI and

STI conferences in Vienna and Berlin, where full plenary sessions were convened on the need for standards in evaluative bibliometrics, and the ethical and policy implications of individual-level bibliometrics.

This year's plenary session started with a summary by **Ludo Waltman** (CWTS) of the pre-conference workshop on technical aspects of advanced bibliometric indicators. The workshop, co-organised by Ludo, was attended by some 25 participants, and topics that were addressed included 1. Advanced bibliometric indicators (strengths and weaknesses of different types of indicators; field normalization; country-level and institutional-level comparisons); 2. Statistical inference in bibliometric analysis; and 3. Journal impact metrics (strengths and weaknesses of different journal impact metrics; use of the metrics in the assessment of individual researchers). The workshop discussions were very fruitful and some common ground was found, but that there also remained significant differences in opinion. Some topics that need further discussion are technical and mathematical properties of indicators (e.g., ranking consistency); strong correlations between indicators; the need to distinguish between technical issues and usage issues; purely descriptive approaches vs. statistical approaches, and the importance of user perspectives for technical aspects of indicator production. There was a clear interest in continuing these discussions at a next conference. The slides of the workshop are available on request.

Ludo's summary was followed by a short talk by **Sarah de Rijcke** (CWTS), to set the scene for the ensuing panel discussion. Sarah provided an historical explanation for why previous responses by the scientometric community about misuses of performance metrics and the need for standards have landed in deaf ears. Evoking Paul Wouters' and Peter Dahler-Larsen's introductory and keynote lectures, she argued that the preferred normative position of scientometrics ('We measure, you decide') and the tendency to provide upstream solutions no longer serve the double role of the field very well.

As an academic as well as a regulatory discipline, scientometrics not only creates reliable knowledge on metrics, but also produces social technologies for research governance. As such, evaluative metrics attain meaning in a certain context, and they also help shape that context. Though parts of the community now acknowledge that there is indeed a 'social' problem, ethical issues are often either conveniently bracketed off or ascribed to 'users lacking knowledge'. This reveals unease with taking any other-than-technical responsibility. Sarah plugged the idea of a short joint statement on proper uses of evaluative metrics, proposed at the international workshop at OST in Paris (12 May 2014; <http://bit.ly/YsST6Y>). She concluded with a plea for a more long-term reconsideration of the field's normative position. If the world of research governance is indeed a collective responsibility, then scientometrics should step up and accept its part. This would put the community in a much better position to actually engage productively with stakeholders in the process of developing good practices.

In the ensuing panel discussion, **Stephen Curry** (professor of Structural Biology at Imperial College, London, and member of HEFCE steering group) expressed a deep concern about the seducing power of metrics in research assessment and saw a shared, collective responsibility for the creation and use of metrics on the side of bibliometricians, researchers and publishers alike. Thus according to him technical and usage aspects of indicators should not be separated artificially.

**Lisa Colledge** (representing Elsevier as Snowballmetrics project director) talked about the Snowballmetrics initiative, and presented it as a bottom-up and practical approach with the goal to meet the needs of funding organizations and university senior level management. According to Lisa, while it primarily addresses research officers, feedback from the academic community of bibliometrics is highly appreciated to contribute to the empowerment of indicator users.

**Stephanie Haustein** (University of Montreal) was not convinced that social me-

dia metrics (a.k.a. altmetrics) lend itself to standardization due to heterogeneity of data sources (tweets, views, downloads) and their constantly changing nature. She stated that meaning of altmetrics data is highly ambiguous (attention vs. significance) and a quality control similar to the peer review system in scientific publications does not yet exist.

**Jonathan Adams** (Chief scientist at Digital Science) approved the idea of setting up a statement but emphasized that it would have to be short, precise and clear to also catch the attention of government bodies, funding agencies and senior level university management who are uninterested in technical details. Standards will have to live up to the fast-paced change (data availability, technological innovations). He was critical of any fixed set of indicators since this would not accommodate the strategic interests of every organization.

**Diana Hicks** (Georgia Institute of Technology) presented a first draft of a set of statements (the “Leiden Manifesto”), which she proposed should be published in a top-tier journal like Nature or Science. The statements are general principles on how scientometric indicators should be used, such as for example, ‘Metrics properly used support assessments; they do not substitute for judgment’ or ‘Metrics should align with strategic goals’.

In the ensuing debate, many participants in the audience proposed initiatives and problems that need to be solved. They were partially summarized by **Paul Wouters** who identified four issues around which the debate evolved. First, he proposed that a central issue is the connection between assessment procedures and the primary process of knowledge creation. If this connection is severed, assessments lose part of their usefulness for researchers and scholars.

The second question is what kind of standards are desirable. Who sets them? How open are they to new developments and different stakeholders? How comprehensive and transparent are or should standards be? What interests and assumptions are included within them? In the debate it became clear that scientometricians do not want to

determine the standards itself. Yet standards are being developed by database providers and universities, now busy building up new research information systems. Wouters proposed that the scientometric community sets as its goal to monitor and analyze evolving standards. This could help to better understand problems and pitfalls and also provide technical documentation.

The third issue highlighted by Wouters is the question of who is responsible. While the scientometric community cannot assume full responsibility for all evaluations in which scientometric data and indicators play a role, it can certainly broaden out its agenda. Perhaps an even more fundamental question is how public stakeholders can remain in control of the responsibility for publicly funded science when more and more meta-data is being privatized. Wouters pleaded for strengthening the public nature of the infrastructure of meta-data, including current research information systems, publication databases and citation indexes. This view does not deny the important role for for-profit companies who are often more innovative. Fourth, Wouters suggested that taking these issues together provides an inspiring collective research agenda for the scientometrics community.

Diana Hicks’ suggestion of a manifesto or set of principles was followed up on the second day of the STI conference at the annual meeting of ENID (European Network of Indicators Designers). The ENID assembly, and Ton van Raan as president, offered to play a coordinating role in writing up the statement. Diana Hicks’ draft will serve as a basis, and it will also be informed by opinions from the community, important stakeholders and intermediary organisations, as well as those affected by evaluations. The debate on standardization and use will be continued in upcoming science policy conferences, with a session confirmed for the AAAS (San José, February) and expected sessions in the STI and ISSI conferences in 2015.

*(Thanks to Sabrina Petersohn for sharing her notes of the debate.)*

# HOW TO DETERMINE THE H-INDEX OF A SET OF PUBLICATIONS IN THE WOS?



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## ABSTRACT

We explain to our readers how it is possible to find an h-index of a (large) set of articles in the Web of Science (WoS), in particular if one wants to find the value of an h-index as it was some years ago.

## INTRODUCTION

Recall that the h-index (Hirsch, 2005) of a set of articles, typically the set of all publications co-authored by a scientist, is defined as the largest natural number  $h$  such that, when ranking these publications according to the number of received citations over a

given citation window, there are  $h$  publications which received at least  $h$  citations.

Although this definition is very general (and can be applied to many source-item systems, not necessarily publications and citations, see e.g. (Liu & Rousseau, 2009)) in practice publications are items covered by the Web of Science (WoS) or Scopus or

captured from Google by a tool such as Publish or Perish, and the citation window is the period beginning with the publication year of the oldest publication in the set and ending with the day of data retrieval.

If this is indeed the citation window then Thomson Reuter's Web of Science (WoS) provides a tool to determine the h-index for publications covered in its database. Once the dataset has been retrieved (in the WoS) one may push the "Create Citation Report" button. The next screen shows on the upper right-hand side the h-index of this set of publications. This is fine, but a first problem is that this works only for sets containing at most 10,000 items.

If this set contains more than 10,000 items, then it is still possible to determine an h-index. One has to rank the retrieved set according to received citations from highest to lowest and find the rank where the number of citations is equal to this rank. This works also if the set itself contains more than 100,000 items. For instance, the database to which we have access contains 16,089,962 publications with an American (USA) address. Ranking according to "Times cited – highest to lowest" and some trial and error (to find the correct page) quickly leads to an h-index equal to 1,981. Applying this method to the whole Web of Science, determining, so to speak, the h-index of all scientific publications (since 1955) leads to an h-index of 2,347. Of these 2,347 records, 1390, or 59.2% have (at least one) American address.

### WHAT TO DO WHEN THE CITATION WINDOW DOES NOT END ON THE DAY OF RETRIEVAL, BUT EARLIER?

This question came up when collecting data for (Zhang & Glänzel, 2012) and popped up again in a recent investigation (Rousseau & Rousseau, 2014) where such h-indices were needed. As far as we know it is impossible to find an h-index of a set

of publications on a specific day in the past. It is, however, possible to find an h-index on January 1 of any year Y. Note that this is just a symbolic date. What is actually meant is the h-index for publications with a publication date before the year Y. One major restriction of what follows is that it is an h-index related only to publications included in the WoS. The solution we provide is a 'poor men's solution', in the sense that we assume that the user only has an Excel sheet available (besides access to the WoS, of course). Surely, more elegant solutions are available when using a 'real' programming language.

Let us assume first that the set of which one wants to determine the h-index contains at most 10,000 items. This restriction is derived from the fact that we will need its Citation Report. As an example we will determine the h-index on January 1, 2000, of all publications written in Norwegian. First, we search for all publications written in Norwegian between 1955 (the first year to which we have access) and 1999 (inclusive). This leads to a set of 5,728 publications. This number is not larger than 10,000 so we can ask for a Citation Report. This report shows us that this set's h-index is now (not on January 1, 2000) equal to 12. This is an upper limit for the h-index we try to find. Now we save these 5,728 publications in Excel format in bunches of 500. Actually, we only saved the first 500 as number 500 had received just one citation. Anyway, one can always stop when publications with zero citations begin. Just remember that one has to go further than the h-core as it is on the day of retrieval (concretely, in this example we had to go further than 12).

Now we have in an Excel file yearly citations for each of these records. We remove the columns corresponding to the year 2000 and all later ones. In the next step we have to find the sum of all remaining citations of each article. Yet numbers are downloaded as text and cannot be summed in this form. This problem is solved as follows. Select all numbers which refer to ci-

tations. You will see a small menu on the right-hand side of the selected zone from which you choose “convert to numbers”. Once this is done one can sum so that the total number of citations received over the period ending on December 31, 1999 can be determined. Sorting these numbers from highest to lowest and comparing with a column of natural number leads to the h-index. In this example the h-index is 10. One article although published in 1977 had only 3 citations by the year 2000 and has now 12 citations, illustrating the fact that the h-core at the moment of retrieval may differ (sometimes considerably) from the h-core one is interested in.

Next we come to the problem of determining an h-index in the past for a set containing more than 10,000 items. We present the following solution, again only using an Excel sheet. As an example we determine the h-index of all Belgian publications in the WoS for the period ending on December 31, 1980. There are 34,765 such publications in the WoS version to which we have access. By showing these ranked from most cited to least we find that their h-index today is 205. Can we extract a set of less than 10,000 items, consisting of the most cited items, so that we can ask for a Citation Report and continue as before? This is ‘almost’ possible. First, one forms a marked list. This is possible for at most 5,000 items (not 10,000, that is why we say ‘almost’). Clicking on Marked List shows this list and now, on this page, the system can provide a Citation Report. So, we can continue as before. In this case we found that the h-index of Belgian publications in the WoS on January 1, 1981 was 70. Again, we actually did not retrieve all 5,000 items but stopped after 3,000 (with 39 citations). As the h-index in 1981 was 70, we went far enough. In hindsight we

could have stopped after 1,500 items (65 citations) or even somewhat earlier. Anyway, we may safely conclude that the h-index of all Belgian publications as on January 1, 1981 was 70 (but remember that all this is under the assumption that there are no errors in the WoS). If, moreover, some records were added later then the h-index as it actually was on January 1, 1981 might have been somewhat less.

## CONCLUSION

It is possible to find h-indices in the WoS for large sets of items on a date in the past.

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