

## **Curriculum Vitae Henk F. Moed (version 15 January 2015)**

**Family Name:** Moed  
**First Name:** Henk  
**Middle Name:** Floribert  
**Gender:** Male  
**Date of birth:** 25 June 1951  
**Place of birth:** Weesp (the Netherlands, a small city at about 15 km from Amsterdam)

### **Education:**

1957-1963 Primary school (lagere school): Dr. A. Plesmanschool, Weesp.  
1963-1969 Secondary school (middelbare school): Vossiusgymnasium, Amsterdam (science/  $\beta$  specialisation).  
1969-1972 University of Amsterdam, Department (Subfaculteit) of Physics and Astronomy. Kandidaatsexamen (a degree obtained after 2.5 years of study) in Physics with subsidiary subjects Mathematics and Philosophy of Science, in May 1972.  
1972-1978 University of Amsterdam, Department (Subfaculteit) of Mathematics and Computer Science. Master degree in Mathematics (specialisation: Mathematical Biology) with subsidiary subjects Physics and Environmental Science, in September 1978.

### **Command of languages:**

Active: Dutch, English, Italian.  
Passive: German, French, Spanish.

### **Professional career**

1972-1976 Student-assistant, teaching experimental physics to first-year medicine students at the University of Amsterdam, Department of Physics and Astronomy.  
1975-1978 Student-assistant, teaching topics in the field of 'Science, Technology and Society' to first-year physics students at the University of Amsterdam, Department of Physics and Astronomy.  
1978-1981 Staff member in the 'Science, Technology and Society' programme at the University of Amsterdam, Department of Physics and Astronomy, giving teaching courses to both bachelor and master students.  
1979 Part-time Mathematics teacher at the Vossiusgymnasium, Amsterdam.  
1981-1985 Junior researcher at the Research Policy Unit of the Executive Board of Leiden University (the Netherlands), a part of the University Administration Department of Educational and Research Affairs.  
1985-1986 Staff member of the Science and Technology Indicators Unit at the Advisory Council for Research Policy (RAWB, currently AWT), the Hague, the Netherlands.

1986-2010	Senior staff member at the Centre for Science and Technology Studies (CWTS), in the Department (Faculty) of Social Sciences at Leiden University (until 1 February 2010).
1989	Ph.D. degree in Science Studies at the University of Leiden. Promotor: Prof. P. Vincken. Co-promotor: Prof. A.F.J. van Raan.
2009	Professor of research assessment methodology at Leiden University (as from 1 September 2009)
2010-2014	Senior Scientific Advisor at Elsevier, Amsterdam, the Netherlands (as from 1 February 2010). Founder of the Elsevier Bibliometric Research Program (EBRP, running until August 2013) and of the Elsevier Metrics Development Program (as from January 2014). As from August 2012 Director of the Informetric Research Group, until 1 November 2014.
2014	As from 1 September 2014, visiting professor at the Scuola Superiore di Studi Avanzati della Sapienza, Sapienza University of Rome, Italy

### Major scientific/scholarly achievements

- Published over 100 research articles and letters in the journals *Scientometrics*, *Journal of the American Society of Information Science and Technology*, *Nature*, *Research Policy*, *Journal of Information Science*, *Research Evaluation*, *Journal of Documentation*, *Library Trends*, *R&D Management*, *Chemical Intelligencer*, *Current Science*, *Information Processing & Management*, *Higher Education*, *Science and Public Policy* and *European Journal of Cancer*.
- Supervised at CWTS many large projects commissioned and funded by external agencies, including the Netherlands Organisation for Scientific Research (NWO) Elsevier Science, the Ministry of the Flemish Community, The European Commission, and the Flemish Advisory Council for Research Policy.
- Associate editor of the journal *Scientometrics* as from 1990. Editorial Board member of the *Journal of Informetrics* as from 2007.
- Carried out internationally collaborative studies with colleagues from Flanders/Belgium, Hungary, UK, Italy, USA and Spain.
- Program Chair of the Fifth (Hinxton, UK, 1998) and the Sixth (Leiden, the Netherlands, 2000) International Conference on Science and Technology Indicators; Editor of the conference proceedings.
- Winner of the Derek de Solla Price Award in 1999. The Price Medal is periodically awarded by the journal *Scientometrics* to scientists who made outstanding contributions to the fields of quantitative studies of science (among previous winners: Eugene Garfield, Francis Narin, Robert K. Merton, Henry Small).
- Published several letters and commentaries in the journal *Nature*, about political relationships among countries in the Gulf region prior to the Gulf War (in 1991); journal impact factors (1996); the effects of funding upon research performance (1998, 1999); and about criteria for proper use of bibliometric indicators in research evaluation (2002).

- Co-founder and principal presenter/teacher at the CWTS Graduate Course on Measuring Science between 2001 and 2010, a 5 days course organized annually by CWTS at the Department of Social Sciences at Leiden University.
- (Co-)Editor of the *Handbook of Quantitative Science and Technology Research: The Use of Publication and Patent Statistics in Studies of S&T Systems*, published by Kluwer/Springer in 2004 (with Wolfgang Glänzel and Ulrich Schmoch).
- Published in 2005 a monograph, *Citation Analysis in Research Evaluation* (Springer, 346 pp.), which is one of the very few textbooks in the field, providing to a broad scientific/scholarly audience both technical information and a theoretical background, and proposing criteria for proper use of citation-based indicators in research evaluation
- Program chair of the International Conference of the International Society for Scientometrics and Informetrics (ISSI) in Madrid, 25-27 June 2007. (Co-) Editor of the Proceedings of this Conference (900 pp.).
- Developed a new indicator of journal impact, SNIP (Source Normalized Impact per Paper), currently included in Elsevier's Scopus and a so called "rolling year" journal metric.
- Program chair of the International Conference of the International Society for Scientometrics and Informetrics (ISSI) held in Vienna, Austria, summer of 2013.
- Member of the Board of the International Society for Scientometrics and Informetrics (ISSI) as from July 2011.
- Made numerous presentations on the potential and limitations of bibliometric indicators on research assessment at international conferences and workshops.
- Editor in Chief of the journal *Research Trends*, published by Elsevier (1 Jul 2010 - 1 Nov. 2014).

### **Metrics**

- Number of publications up until November 2014 (includes articles in refereed journals, proceedings volumes and books, monographs and edited works): 112.
- Total number of citations to articles/books published by Henk F. Moed and collected by Google Scholar, up until 12 Dec 2014: 7,610.
- Most highly cited publication: The monograph *Citation Analysis in Research Evaluation* (2005, Springer, 346 pp.): 960 citations recorded in Google Scholar up until 12 Dec 2014.
- Number of lectures presented at international conferences, seminars and workshops during 2010-2014: 65.

### **Main topics of interest during the past 5 years**

- The creation, in close collaboration with several colleagues at CWTS, of a *bibliometric database* containing bibliographic data on all documents published from 1980 onwards, and processed by Thomson Scientific / Institute for Scientific Information for the Web of Science. A bibliometric database is a database primarily constructed to carry out all sorts of statistical analyses of bibliographical data.

- Analysis of *inaccuracies in citation matching*. Which major errors or discrepancies do occur, and how should one deal with these in order to obtain sufficiently accurate citation counts?
- *Journal impact factors*: what are their potentialities and pitfalls, pros and cons of the impact factors published by Thomson Scientific in the Journal Citation Reports? How can alternative measures be developed? Several suggestions for alternative measures were made in articles published in the serial literature.
- The development and application of science indicators for the measurement of research performance in the *basic natural- and life sciences*. In these domains of science and scholarship, the Web of Science has proven to have an excellent coverage. The methodologies were applied to numerous institutions and departments located in the Netherlands, Flanders (Belgium), UK, Italy, Sweden, Germany and several other countries. They are based on the notion that bibliometric indicators should be used as tools, supplementary to peer review, and that they cannot replace peer review.
- The use of bibliometric indicators as a tool *to assess peer review procedures* and to keep the peer review process honest. Citation analysis has its strengths and limits, and that the same is true for peer review. The challenge is to combine the two methodologies in a proper, productive way.
- The development and application of performance indicators in *social sciences and humanities*. There is evidence that in many subfields in these domains of scholarship the Web of Science's coverage of the literature is moderate. Alternative methodologies, using different data sources, need to be explored, in close collaboration with scholars who are active in the various subfields.
- Studies of the effects of 'Open Access' of research articles upon research impact and the role of other factors possibly influencing citation impact, including "early view" and author "self selection".
- Studies of patterns in 'usage' (downloading) behaviour of users of electronic scientific publication warehouses such as Elsevier's ScienceDirect.
- The analysis of national research systems, focusing on the relationship between research (disciplinary or institutional) concentration and research performance.
- Statistical analysis of the relationships between usage of research articles (downloads in full text format) and citations for thousands of journals covering all domains of science and scholarship.
- Studies on international scientific migration and collaboration based on bibliometric data.
- The role of altmetrics in research assessment.
- The multi-dimensional assessment of research impact.
- The development of a download metric (Article Evaluation Tool) in Elsevier's ScienceDirect, and the conceptualization of a Bibliometric Author Self-Assessment Tool in Elsevier's Scopus, and a Journal Competitor Analysis Tool for journal publishers and editors.

#### **Recent important activities and achievements.**

- Visiting scholar at the Departamento de Biblioteconomía y Documentación at the University of Granada (Spain) during March-April 2007.

- Invited speaker at the Colloque sur la Évolution des publications scientifiques - Le regard des chercheurs (Evolution of Scientific Publications: the Point of View of Scientists), organised by the Académie des Sciences, Paris, 14-15 May 2007.
- Invited speaker at the 3rd Meeting of the International Ranking Expert Group (IREG-3), Shanghai Jiao Tong University, Shanghai, China, October 28 - 31, 2007.
- Project leader, active researcher and advisor in a series of projects funded by the Higher Education Funding Council for England (HEFCE) aimed to develop a ‘metrics based’ national research assessment exercise (RAE).
- Project leader, active researcher and advisor in a project exploring the potentialities of the use of Elsevier’s SCOPUS database for evaluative-bibliometric purposes.
- Invited keynote speaker at a special Workshop Future Perspectives on the European Reference Index for the Humanities (ERIH), organised by the European Science Foundation in Granada (Spain), 19-20 November 2007.
- Program Co-Chair, 10th International Conference on Science and Technology Indicators 2008, Vienna, Austria, 17-20 September 2008.
- Co-promotor (with F. de Moya-Anegón) of the PhD thesis of Carmen López-Illescas, University of Granada, Granada, Spain, 15 October 2008.
- Member of the Expert Group on the Assessment of University-Based Research (AUBR) installed by the European Commission (2008-2009).
- Member of the Research Oversight Group of the project “Publishing and the Ecology of European Research (PEER), funded by the European Commission and major Scientific Publishers (2009)
- Member of the Peer Review Committee assessing the strategic plans of the institutes of the Spanish Research Council CSIC in the field of social sciences and humanities (2009).
- Core Member of the Advisory Board of the Global Research Benchmarking System created at the International Institute for Software Technology at the United Nations University in Macau (2011-2014).
- Chairman of the Scientific Board of the Bibliometric Research Program established by Elsevier, aimed to enable external researchers to carry out research in the field of bibliometrics and research assessment using Elsevier data (2011-2013).
- Editor in chief of the journal Research Trends (2010-2014).
- Teaching Course “Metrics-Based Research Assessment” (6 hours), at the Scuola Superiore di Studi Avanzati della Sapienza, Sapienza University of Rome, Italy.

**Colleagues who made important contributions to the articles written by – and the projects carried out by – Henk F. Moed during the past 5 years**

- Anthony van Raan, professor of Science Studies, Director of CWTS;
- Thed van Leeuwen, senior staff member at CWTS;
- Ed Noyons, senior staff member at CWTS;
- Martijn Visser, researcher at CWTS;
- Clara Calero-Medina, researcher at CWTS;
- Anton Nederhof, senior researcher at CWTS;
- Peter Negenborn and Erik van Wijk, technical staff members at CWTS;

- Marc Luwel, Ministry of the Flemish Community and Hercules Foundation, Belgium;
- Jan Reedijk, professor of Chemistry, Leiden University, the Netherlands;
- Wolfgang Glänzel, Steunpunt O&O Statistieken / Katholieke Universiteit Leuven, Leuven, Belgium.
- Eugene Garfield, Honorary President, Institute for Scientific Information, Philadelphia, USA.
- Eugene Stanley and Kaushik Matia, Boston University, USA.
- Abraham Bookstein, University of Chicago, USA.
- Daniel Torres-Salinas, University of Navarra and University of Granada, Spain.
- Carmen López-Illescas, CSIC, Madrid, Spain.
- Félix de Moya-Anegón, CSIC, Madrid, Spain.
- Cinzia Daraio, La Sapienza University, Rome, Italy.
- Gali Halevi, Elsevier, New York, USA.

## List of Publications Henk F. Moed

(Includes articles in refereed journals, proceedings volumes and books, monographs and edited works)

### 1983

Moed, H.F., Burger, W.J.M., Frankfort, J.G., van Raan, A.F.J. (1983). *On the Measurement of Research Performance: The Use of Bibliometric Indicators*, University of Leiden, (monograph) (ISBN 90-9000552-8), 199 pp.

### 1985

Moed, H.F., Burger, W.J.M., Frankfort, J.G., van Raan, A.F.J. (1985). The Use of Bibliometric Data for the Measurement of University Research Performance. *Research Policy* **14**, 131-149

Moed, H.F., Burger, W.J.M., Frankfort, J.G., van Raan, A.F.J. (1985). The Use of Bibliometric Data as Tools for University Research Policy. *Int. J. of Inst. Manag. in Higher Education* **9**, 185-194

Moed, H.F., Burger, W.J.M., Frankfort, J.G., van Raan, A.F.J. (1985). A Comparative Study of Bibliometric Past Performance Analysis and Peer Judgement. *Scientometrics* **8**, 149-159.

Moed, H.F., van Raan, A.F.J. (1985). The Application of Bibliometric Indicators: Important Field- and Time-dependent Factors to be considered, *Scientometrics* **8**, 177-203

Moed, H.F., van Raan, A.F.J. (1985). Critical Remarks on Irvine and Martin's Methodology for Evaluating Scientific Performance, *Social Studies of Science* **15**, 539-547.

### 1986

Moed, H.F., van Raan, A.F.J. (1986). Observations and hypotheses on the phenomenon of multiple citation to a group's oeuvre. *Scientometrics* **10**, 17-34.

Moed, H.F., van Raan, A.F.J. (1986). Research Performance Analysis in Physics: The Leiden Example. *Czech. J. Phys. B* **36**, 92-96.

Moed, H.F., van Raan, A.F.J. (1986). Cross-field Impact and Impact Delay of Physics Departments. *Czech. J. Phys. B* **36**, 97-100.

### 1988

Braam, R.R., Moed, H.F., van Raan, A.F.J. (1988). Mapping of Science: Critical Elaboration and New Approaches. A Case Study in Agricultural Biochemistry. In: *Informetrics 87/88*. L. Egghe and R. Rousseau (eds.), Elsevier Science Publishers, Amsterdam, (ISBN 0-444-70425-6), 15-28.

Moed, H.F. (1988). The Use of Online Databases for Bibliometric Analysis. In: *Informetrics 87/88*. L. Egghe and R. Rousseau (eds.), Elsevier Science Publishers, Amsterdam, (ISBN 0-444-70425-6), 1988, 15-28.

Moed, H.F., van Raan, A.F.J. (1988). Indicators of Research Performance: Applications in University Research, Policy. In: van Raan, A.F.J. (ed.), *Handbook of Quantitative Studies of Science and Technology*, Elsevier Science Publishers, Amsterdam, (ISBN 0-444-70537-6), 177-192.

### 1989

Moed, H.F. (1989). Bibliometric Measurement of Research Performance and Price's Theory of Differences among the Sciences. *Scientometrics* **15**, 5-6, 473-485.

Moed, H.F., Vriens, M. (1989). Possible Inaccuracies Occurring in Citation Analysis. *Journal of Information Science* **15**, 2, 95-107.

Moed, H.F. (1989). *The use of bibliometric indicators for the assessment of research performance in the natural and life sciences: Aspects of data collection, reliability, validity and applicability*. Thesis Leiden. Leiden (Netherlands): DSWO-Press, ISBN 90 9002 736-X.

Moed, H.F. (1989). New developments in online bibliometric analysis. In: *Science Studies (Select Proceedings of the First International Workshop on Science and Technology Indicators, Leiden, 1988)*, van Raan, A.F.J., Nederhof, A.J., Moed, H.F. (eds.), DSWO-Press, Leiden, (ISBN 90-6695-036-6), 115-128.

Tijssen, R., Moed, H.F. (1989). Literature-based statistical analyses of international scientific co-operation, an exploratory case study of the Netherlands. In: *Science Studies (Select Proceedings of the First International Workshop on Science and Technology Indicators, Leiden, 1988)*, van Raan, A.F.J., Nederhof, A.J., Moed, H.F. (eds.), DSWO-Press, Leiden, 1989 (ISBN 90-6695-036-6), 129-146.

Braam, R.R., Moed, H.F., van Raan, A.F.J. (1989). Comparison and combination of co-citation and co-word clustering. In: *Science Studies (Select Proceedings of the First International Workshop on Science and Technology Indicators, Leiden, 1988)*, van Raan, A.F.J., Nederhof, A.J., Moed, H.F. (eds.), DSWO-Press, Leiden, (ISBN 90-6695-036-6), 307-338

Van Vianen, B.G., Moed, H.F., van Raan, A.F.J. (1989). The assessment of the science base of recent technology. In: *Science Studies (Select Proceedings of the First International Workshop on Science and Technology Indicators, Leiden, 1988)*, van Raan, A.F.J., Nederhof, A.J., Moed, H.F. (eds.), DSWO-Press, Leiden, (ISBN 90-6695-036-6), 407-420

### 1990

Van Vianen, B.G., Moed, H.F., van Raan, A.F.J. (1990). An Exploration of the Science Base of Recent Technology. *Research Policy*, **19**, 61-81.

De Bruin, R.E., Moed, H.F. (1990). The Unification of Addresses in Scientific Publications. In: Egghe, L., Rousseau, R. (eds.), *Informetrics 89/90. Selection of papers submitted for the 2nd International Conference on Bibliometrics, Scientometrics and Informetrics, London, Ontario, Canada, 5-7 July 1989*, Elsevier Science Publishers, Amsterdam, (ISBN 0-444-88460-2), 65-78

Moed, H.F., de Bruin, R.E. (1990). International scientific cooperation and awareness: a bibliometric case study of agricultural research within the European Community. In: Borgman, C.L. (ed.), *Scholarly Communication and Bibliometrics*, Sage,



London, (ISBN 0-8039-3879-9), 217-232.

Moed, H.F., de Bruin, R.E., Nederhof, A.J., Tijssen, R.J.W. (1990). Measuring international scientific cooperation and awareness among EC Countries. In: Barré, R. en Removille, J. (eds.), Proceedings of the international conference on indicators for the evaluation of the impact of European Research Programmes, Paris, June 14-15, 1990, Commission of the European Communities, Brussels, 59-77.

### 1991

De Bruin, R.E., Braam, R.R., Moed, H.F. (1991). Bibliometric lines in the sand. *Nature* **349**, 559-562.

R.R. Braam, R.R., Moed, H.F., van Raan, A.F.J. (1991). Mapping of science by combined co-citation and word analysis, I: Structural Aspects. *Journal of the American Society for Information Science (JASIS)* **42**, 233-251.

R.R. Braam, R.R., Moed, H.F., van Raan, A.F.J. (1991). Mapping of science by combined co-citation and word analysis, II: Dynamical Aspects. *Journal of the American Society for Information Science (JASIS)* **42**, 252-266.

H.F. Moed, H.F., de Bruin, R.E., Nederhof, A.J., Tijssen, R.J.W. (1991). International scientific co-operation and awareness within the European Community: Problems and perspectives. *Scientometrics* **21**, 291-311.

### 1992

Van Raan, A.F.J., de Bruin, R.E., Moed, H.F., Nederhof, A.J., Tijssen, R.J.W. (eds.) (1992). Science and Technology in a Policy Context (Select Proceedings of the International Joint EC - Leiden Conference on Science & Technology Indicators, Leiden, October 1991), DSWO-Press, Leiden, (ISBN 90-6695-073-0), XXIII, 561 pp.

Moed, H.F., de Bruin, R.E., Nederhof, A.J., van Raan, A.F.J., Tijssen, R.J.W. (1992). State-of the art bibliometric macro-indicators: demand side. In: Science and Technology in a Policy Context (Select Proceedings of the International Joint EC - Leiden Conference on Science & Technology Indicators, Leiden, October 1991), Van Raan, A.F.J., de Bruin, R.E., Moed, H.F., Nederhof, A.J., Tijssen, R.J.W. (eds.), DSWO-Press, Leiden, (ISBN 90-6695-073-0), 1-16

De Bruin, R.E., Straathof, A., Moed, H.F. (1992). Measuring the effects of European science policy: the assessment of scientific output and international scientific co-operation in CEC target fields, 1985-1990. In: Science and Technology in a Policy Context (Select Proceedings of the International Joint EC - Leiden Conference on Science & Technology Indicators, Leiden, October 1991), Van Raan, A.F.J., de Bruin, R.E., Moed, H.F., Nederhof, A.J., Tijssen, R.J.W. (eds.), DSWO-Press, Leiden, (ISBN 90-6695-073-0), 1992, 453-467

### 1993

De Bruin, R.E., Moed, H.F. (1993). Delimitation of scientific subfields using cognitive words from corporate addresses in scientific publications. *Scientometrics* **26**, 65-80

Nederhof, A.J., Moed, H.F. (1993). Modeling multinational publication: development of an on-line fractionation approach to measure national scientific output. *Scientometrics* **27**, 39-52

Nederhof, A.J., Meijer, R.F., Moed, H.F., van Raan, A.F.J. (1993). Research performance indicators for university departments: a study of an agricultural university. *Scientometrics* **27**, 157-178.

Rinia, E.J., de Lange, C., Moed, H.F. (1993). Measuring national output in physics: Delimitation problems. *Scientometrics* **28**, 89-110.

De Bruin, R.E. , Kint, A., Luwel, M., Moed, H.F. (1993). A study of research evaluation and planning: the University of Ghent. *Research Evaluation* **3**, 1-14.

### 1995

Moed, H.F., de Bruin, R.E., 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**, 381-422.

Moed, H.F., van Leeuwen, Th.N. (1995). Improving the accuracy of Institute for Scientific Information's journal impact factors. *J. of the American Society for Information Science (JASIS)* **46**, 461-467

### 1996

Moed, H.F.(1996). Differences in the construction of SCI based bibliometric indicators among various producers: A first overview. *Scientometrics* **35**, 177-191.

Moed, H.F., van Leeuwen, Th.N. (1996). Impact factors can mislead. *Nature* **381**, 186

Moed, H.F., Hesselink, F.Th. (1996). The publication output and impact of academic chemistry research in the Netherlands during the 1980's: bibliometric analyses and policy implications. *Research Policy* **25**, 819-836.

Moed, H.F., van Leeuwen, Th.N., 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**, 105-116.

Korevaar, J.C., Moed, H.F. (1996). Validation of bibliometric indicators in the field of mathematics. *Scientometrics* **37**, 117-130.

Spruyt, E.H.J., de Bruin, R.E., Moed, H.F. (1996). Are bibliometric indicators appropriate policy tools in a young university? *Higher Education Management* **8**, 141-153.

### 1997

Van Leeuwen, Th.N., Moed, H.F., Reedijk, J. (1997). JACS still topping *Angewandte Chemie*: Beware of erroneous impact factors. *The Chemical Intelligencer* **3**, 32-36.

Moed, H.F., Luwel, M., de Bruin, R.E., Houben, J.A., van den Berghe, H., Spruyt, E. (1997). Trends in research output at Flemish universities during the 80's and early 90's: a retrospective

bibliometric study. In: Proceedings of the Sixth Conference of the International Society for Scientometrics and Informetrics June 16-19, 1997, The School of Library, Archive and Information Studies of the Hebrew University of Jerusalem, Israel, 277-287.

### 1998

Van den Berghe, H., Houben, J.A., de Bruin, R.E., Moed, H.F., Kint, A., Luwel, M., Spruyt, E.H.J. (1998). Bibliometric indicators of university research performance in Flanders. *Journal of the American Society for Information Science (JASIS)* **49**, 59-67.

Luwel, M., Moed, H.F. (1998). Publication delays in the science field and their relationship to the ageing of scientific literature. *Scientometrics* **41**, 29-40.

Moed, H.F., Luwel, M., Houben, J.A., Spruyt, E. (1998). Funding and research performance. *Nature* **392**, 119.

Moed, H.F., van Leeuwen, Th.N., Reedijk, J. (1998). A new classification system to describe the ageing of scientific journals and their impact factors. *Journal of Documentation* **54**, 387-419.

Moed H.F., Luwel, M., Houben, J.A., Spruyt, E., 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**, 231-255, 1998.

Noyons, E.C.M., Luwel, M., Moed, H.F. (1998). Assessment of Flemish R&D in the field of information technology - A bibliometric evaluation based on publication and patent data, combined with OECD research input statistics. *Research Policy* **27**, 285-300, 1998.

### 1999

Noyons, E.C.M., Luwel, M., Moed, H.F. (1999). Combining mapping and citation analysis for evaluative bibliometric purposes. *Journal of the American Society for Information Science (JASIS)* **50**, 115-131.

Moed, H.F., van Leeuwen, Th.N., Visser, M.S. (1999). Trends in publication output and impact of universities in the Netherlands. *Research Evaluation* **8**, 60-67.

Luwel, M., Noyons, E.C.M., Moed, H.F. (1999). Bibliometric assessment of research performance in Flanders: Policy background and implications. *R & D Management* **29**, 133-141.

Moed, H.F., Luwel, M. (1999). The business of research. *Nature* **400**, 411-412.

Moed, H.F., van Leeuwen, Th.N., Reedijk, J. (1999). Towards appropriate indicators of journal impact, *Scientometrics* **46**, 575-589.

Van Leeuwen, T.N., Moed, H.F., Reedijk, J. (1999). Critical comments on Institute for Scientific Information impact factors: a sample of inorganic molecular chemistry journals. *Journal of Information Science* **25**, 489-498.

Noyons, E.C.M., Moed, H.F., van Raan, A.F.J. (1999). Integrating research performance analysis and science mapping. *Scientometrics* **46**, 591-604.

Moed, H.F. (ed.). Selected papers presented at the Fifth International Conference on Science and Technology Indicators. Special issue of *Research Policy*, Vol 28, Nr 5, 1999.

Moed, H.F. (ed.). Selected papers presented at the Fifth International Conference on Science and Technology Indicators, Special issue of *Scientometrics*, Vol 44, Nr 3, 1999.

## 2000

Moed, H.F. (2000). Bibliometric indicators reflect publication and management strategies. *Scientometrics* **47**, 323-346.

## 2001

Nederhof, A.J., Luwel, M., Moed, H.F. (2001). Assessing the quality of scholarly journals in linguistics: An alternative to citation-based journal impact factors. *Scientometrics* **51**, 241-265.

Van Leeuwen, T.N., Moed, H.F., Tijssen, R.J.W., Visser, M.S., 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**, 335-346.

Moed, H.F. (2001). Bibliometric Assessment of Research Performance Based on the Science Citation Index: Opportunities for China. In: Proceedings of the Second International Symposium on Quantitative Evaluation of Research Performance, Shanghai, China, October 23-25, 2000, 2001.

Marchi, S, Visser, M.S., Moed, H.F. (2001). La valutazione del lavoro scientifico. *Universitas – Studi e Documentazione di Vita Universitaria* XXII 82, 25-28.

Moed, H.F. (ed.). Selected papers presented at the Sixth International Conference on Science and Technology Indicators, Special Issue of *Scientometrics*, Vol 51, Nr 1, 2001

Moed H.F. (ed.). Selected papers presented at the Sixth International Conference on Science and Technology Indicators, part I, Special issue of *Research Evaluation*, Vol 10. Nr 1, 2001.

Moed H.F. (ed.). Selected papers presented at the Sixth International Conference on Science and Technology Indicators, part II, Special issue of *Research Evaluation*, Vol 10. Nr 2, 2001.

## 2002

Glänzel, W., Moed, H.F. (2002). Journal impact measures in bibliometric research. *Scientometrics* **53**, 171-194.

Van Leeuwen, Th.N., Moed, H.F. (2002). Development and application of journal impact measures in the Dutch science system. *Scientometrics* **53**, 249-266.

Moed, H.F. (2002). Measuring China's research performance using the Science Citation Index. *Scientometrics* **53**, 281-296.

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### 2003

Van Leeuwen, T.N., M.S. Visser, H.F. Moed, A.J. Nederhof, A.F.J. van Raan (2003). The Holy Grail of science policy: Exploring and combining bibliometric tools in search of scientific excellence, *Scientometrics* **57**, 257-280.

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### 2004

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### 2005

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## 2006

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## 2007

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Moed, H.F. (2007). The Future of Research Evaluation Rests with an Intelligent Combination of Advanced Metrics and Transparent Peer Review. *Science and Public Policy* **34**, 575-584.

## 2008

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## 2009

Torres-Salinas, D., Moed, H.F. (2009). Library Catalog Analysis as a tool in studies of social sciences and humanities: An exploratory study of published book titles in Economics. *Journal of Informetrics* **3**, 9-26.

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López-Illescas, C., De Moya-Anegón, F., Moed, H.F. (2009). Comparing bibliometric country-by-country rankings derived from the Web of Science and Scopus: The effect of poorly cited journals in oncology. *Journal of Information Science* **35**, 244-256.

Moed, H.F. (2009). New developments in the user of citation analysis in research evaluation. *Archivum Immunologiae et Therapiae Experimentalis (Warszawa)* **17**, 13-18.

## 2010

Moed, H.F. (2010). CWTS crown indicator measures citation impact of a research group's publication oeuvre (Letter to the Editor). *Journal of Informetrics* **4**, 436-438.

Moed, H.F. (2010). Measuring contextual citation impact of scientific journals. *Journal of Informetrics* **4**, 265-277.

Colledge, L., De Moya-Anegón, F., Guerrero-Bote, V., López-Illescas, C., El Aisati, M., Moed, H.F. (2010). SJR and SNIP: two new journal metrics in Elsevier's Scopus. *UKSG Serials* **23**, 215-221.

## 2011

Moed, H.F. (2011). The source normalized impact per paper is a valid and sophisticated indicator of journal citation impact (Letter to the Editor). *Journal of the American Society for Information Science and Technology* **62**, 211-213.

López-Illescas, C., de Moya-Anegón, F., Moed, H.F. (2011). A ranking of universities should account for differences in their disciplinary specialization. *Scientometrics* **88**, 563-574.

Moed, H.F., de Moya-Anegón, F., López-Illescas, C., Visser, M. (2011). Is concentration of university research associated with better research performance? *Journal of Informetrics* **5**, 649-658.

Moed, H.F. (2011). Research type can affect citation rate. *Nature*, **470** (7332), 39.

Daraio, C., Moed, H.F. (2011). Is Italian science declining? *Research Policy* **40**, 1380-1392.

## 2012

Van Leeuwen, Th.N., Moed, H.F. (2012). Funding decisions, peer review, and scientific excellence in physical sciences, chemistry, and geosciences. *Research Evaluation* **21**, 189-198.

**2013**

Glänzel, W.G., Moed, H.F. (2013). Opinion paper: Thoughts and facts on bibliometric indicators. *Scientometrics*, 96, 381-394.

Moed, H.F., Aisati, M. and Plume, A. (2013), Studying scientific migration in Scopus. *Scientometrics*, 94, 929-942.

Halevi, G, Moed, H.F. (2013). The Thematic and Conceptual flow of Disciplinary research: A citation context analysis The Case of the Journal of Informetrics 2007. *Journal of the American Society for Information Science and Technology*, 64, 1903-1913

Moya-Anegón, F., Guerrero-Bote, V.P., Bornmann, L., Moed, H.F. (2013). The research guarantors of scientific papers and the output counting: A promising new approach. *Scientometrics*, 97, 421-434.

**2014**

Moya-Anegón, F., López-Illescas, C. and Moed, H.F. (2014). How to interpret the position of private sector institutions in bibliometric rankings of research institutions. *Scientometrics*, 98, 283-298.

Moed, H.F., Halevi, G. (2014). A bibliometric approach to tracking international scientific migration. *Scientometrics* 101, 1987-2001.

**2015**

Moed, H.F., Halevi, G. (2015). The Multidimensional Assessment of Scholarly Research Impact. *Journal of the American Society for Information Science and Technology*, to be published. Author copy available at: <http://arxiv.org/abs/1406.5520>.

Moed, H.F., Halevi, G. (2015). On full text download and citation distributions in scientific-scholarly journals. *Journal of the American Society for Information Science and Technology*, to be published.

Moed, H.F. (2015). Altmetrics as traces of the computerization of the research process. In: C. Sugimoto (ed.), Festschrift for prof. Blaise Cronin. To be published.



## **Lectures Henk F. Moed (2007-2014)**

### **2007**

The use of the Web of Science in research evaluation: Coverage and disciplinary limitations (Utilización de la WoS para la evaluación de la investigación: Cobertura y limitaciones disciplinares). University of Granada, Spain, Faculty of Biotheconomics and Documentation, 10 April 2007.

The effects of “Open Access” upon citation impact and downloads versus citations (Los efectos del “Open Access” sobre el impacto y Descargas vs citación). University of Granada, Spain, Faculty of Biotheconomics and Documentation, 11 April 2007.

The use of the Web of Science in research evaluation. Rectorate, University of Cordoba, Spain, 19 April 2007.

The use of bibliometric indicators in research evaluation and policy. Seminar “Evolution of scientific publications: The point of view of the scientists”. L’Academie des Sciences, Institut de France, Paris, 14-15 May 2007.

Citation Analysis in Research Evaluation. PHOENIX Workshop Road to Excellence: Research Evaluation in Social Sciences and Humanities. Bishkek, Kyrgyzstan, 21-22 May 2007.

Bibliometric assessment of research performance in social sciences and humanities. PHOENIX Workshop Road to Excellence: Research Evaluation in Social Sciences and Humanities. Bishkek, Kyrgyzstan, 21-22 May 2007.

Metrics, Research Evaluation and Funding Parameters. HEFCE Expert Seminar on UK Research Assessment Exercises. Leiden, the Netherlands, 8 July 2007.

Bibliometric ranking of European universities. ADEST Workshop on institutional affiliations of research laboratories. Paris, France, 28 September 2007.

Open access, downloads and citations. Springer Headquarters, Physics Publishing Group, Heidelberg, Germany, 16 October 2007.

Important factors to be considered in the interpretation of bibliometric rankings of world universities (with Carmen López, Clara Calero and Martijn Visser). Third Meeting of the International Rankings Expert Group (IREG 3), Shanghai Jiao Tong University, Shanghai, China, 28-31 October 2007.

Metrics for the Humanities? How do existing and emerging systems deal with Humanities? (with Janus Linmans). ERIH Stakeholder Meeting Making quality visible: A European Reference Index for the Humanities (ERIH) to better access and assess European Humanities research. Granada, Spain, 18-20 November 2007.

**2008**

The effect of Open Access on Citation Impact. APE 2008 (Conference of the Association of European Publishers), Berlin, Germany, January 2008.

Bibliometric indicators, research evaluation and funding parameters. Lecture presented at the Higher Education Funding Council for England (HEFCE) Consultation Event, London, UK, 10-11 January 2008.

Bibliometric indicators, research evaluation and funding parameters. Lecture presented at the Higher Education Funding Council for England (HEFCE) Consultation Event, Manchester, UK, 17 January 2008.

Bibliometric indicators, research evaluation and funding parameters. Lecture presented at the Higher Education Funding Council for England (HEFCE) Consultation Event, Royal Academy of Engineering, London, UK, 25 January 2008.

Multi-dimensional Assessment of University-based Research. European Commission, RTD, Brussels, Belgium, 21 April 2008.

Research Quality and Assessment in Humanities and Social Sciences. Lecture at a meeting of Rectors of the League of European Research Universities (LERU), University of Lund, Lund, Sweden, 17 May 2008.

Research Quality and Assessment in Humanities and Social Sciences. Lecture at a meeting of the League of European Research Universities (LERU), University of Milan, Milan, Italy, 23 May 2008.

Comparing Web of Science and Scopus on a Paper-By-Paper Basis. With M.S. Visser, presented by M.S. Visser. 10th International Conference on Science and Technology Indicators 2008, Vienna, Austria, 17-20 September 2008.

Differences among Thomson Scientific's Web of Science and Elsevier's Scopus in the Coverage and Citation Impact of Oncological Journals. With C. Lopez-Illescas and F. de Moya Anegon, presented by C. Lopez-Illescas. 10th International Conference on Science and Technology Indicators 2008, Vienna, Austria, 17-20 September 2008.

New Developments in the Use of Citation Analysis in Research Evaluation. Seminar The Past, Present, and Future of the Impact Factor and Other Tools of Scientometrics, Polish Academy of Sciences, Warsaw, 26 September 2008.

The use of bibliometric indicators in the assessment of research performance. Séminaire Indicateurs Bibliométriques de l'INRA, INRA, Paris, 1 October 2008.

La Valutazione dei ricercatori e delle istituzioni scientifiche in Europa. Seminar Un Futuro per la Ricerca Italiana: Autonomia, Valutazione, Risorse, organised by the

Associazione Nazionale Professionale per la Ricerca (ANPRI), Rome, Italy, 24 November 2008.

Appraisal of Citation Data Sources: Web of Science versus Scopus. Seminar Towards the REF: Defining Bibliometric Requirements for Research Assessment, organized by Kings College London, and supported by the Higher Education Funding Council for England (HEFCE), London, UK, 28 November 2008.

Research Assessment in Social Sciences and Humanities. Seminar Evaluation in the Human Sciences: Towards a Common European Policy. Department of Modern Languages and Literature, University of Bologna, Bologna, Italy, 12-13 December 2008.

## **2009**

Bibliometric assessment of research performance: Where do we stand? APE 2009 (Conference of the Association of European Publishers), Berlin, Germany, 20-21 January 2009.

Towards a bibliometric database for the social sciences and humanities. With Carmen Lopez Illescas, Felix de Moya Anegon, Janus Linmans, Anton Nederhof. Seminar on Databases for Social Sciences and Humanities, SPRU, University of Sussex, Brighton, UK, 18 March 2009.

Electronic publishing and bibliometrics. Keynote at ELPUB Conference, Milano, Italy, 11-12 June 2009.

Towards a bibliometric database for the social sciences and humanities. With Carmen Lopez Illescas, Felix de Moya Anegon, Janus Linmans, Anton Nederhof. Special Seminar on Databases for Social Sciences and Humanities, under the auspices of the European Science Foundation, Berlin, 14 October 2009.

## **2010**

Measuring contextual citation impact of scientific journals: A new measure for a new era? APE 2010 (Conference of the Association of European Publishers), Berlin, Germany, 18 January 2010.

Towards indicators of research performance in social sciences and humanities. IREG Round Table Conference, Warsaw, Poland, 8 March 2010.

Research Assessment, Bibliometrics and Electronic Publishing. STM 20th Intensive Course in Journal Publishing, London, UK, 12 May 2010

New developments in electronic publishing and bibliometrics. International Conference on Biomedical Publishing, Leiden University, Leiden, Netherlands, 25 May 2010.

New developments in electronic publishing and bibliometrics. European Summer School for Scientometrics (ESSS), Humboldt Universität, Berlin, Germany, 16 June 2010.

Evaluation of Researchers and Scientific Institutions in Europe. With Cinzia Daraio (Univ Bologna, Italy), presented by Cinzia Dario. ANPRI Workshop Towards Criteria of Evaluation of Research and Researchers. ESO2010 (European Open Science Forum), Torino, Italy, 2 July 2010.

Producing data on Social Sciences and Humanities: Opportunities at Elsevier. ESF Workshop “Addressing the Shortage of Data on Social Sciences and Humanities”, Strasbourg, France, 13-14 September 2010.

The use of bibliometric indicators in research assessment: A critical overview. Elsevier and SLA Research Connect Seminar, Washington DC, USA, 26 October 2010.

## **2011**

The Assessment of Journal Performance Using Bibliometric Indicators. Elsevier Library Connect Seminar, Kuala Lumpur, Malaysia, 22 February 2011.

The Assessment of Research Performance Using Bibliometric Indicators. Elsevier Research Connect Seminar, Kuala Lumpur, Malaysia, 23 February 2011.

The Assessment of Journal Performance Using Bibliometric Indicators. Elsevier Library Connect Seminar, Bangkok, Thailand, 24 February 2011.

The Assessment of Research Performance Using Bibliometric Indicators. Elsevier Research Connect Seminar, Bangkok, Thailand, 25 February 2011.

La Valutazione dei Ricercatori e delle Istituzioni Scientifiche in Europa. Università La Sapienza, Rome, Italy, 3 March 2011

New Journal Metrics: SNIP and SJR. Nanjing University and Elsevier Library Connect Seminar at Nanjing University, China, 23 March 2011.

The Use of Bibliometric Indicators in Research Assessment. Nanjing University and Elsevier Research Connect Seminar at Nanjing University, China, 23 March 2011.

How to write a world class paper, get published, downloaded and cited? With Carmen Lopez-Illescas (CCHS/CSIC, Madrid, Spain). Nanjing University, China, 24 March 2011.

The Multi-Dimensional Research Assessment Matrix. LANL and Elsevier Research Connect Seminar, Santa Fe, New Mexico, USA, 10 May 2011.

SNIP and Beyond. International Conference of the International Society for Scientometrics and Informetrics (ISSI 2011), Durban, South Africa 5-7 July 2011.

On Standards in Science Metrics and Classifications. Workshop on Science Metrics, Classifications, and Mapping Standards. School of Library and Information Science, Indiana University, Bloomington, USA, 11-12 August, 2011.

Positioning Elsevier's SciVal Products Using the Multi-Dimensional Research Assessment Matrix. International Federation of Library Associations (IFLA) Conference, San Juan, Puerto Rico, 13-18 August 2011.

Studying scientific migration patterns in Scopus. With M. Aisati and A. Plume. International Conference of the European Network of Indicator Developers (ENID) and on Science and Technology Indicators (STI), CNR, Rome, 7-9 September 2011.

The Multi-Dimensional Research Assessment Matrix. European Summer School for Scientometrics (ESSS), University of Vienna, Vienna, Austria, 12 Sept 2011.

Using bibliometrics to increase international visibility. Science Strategy Forum, Sofia, Bulgaria, 4 October 2011.

A framework to characterize bibliometric methods in research assessment. Politecnico di Milano, MIP School of Management, 20 October 2011.

La Valutazione dei Ricercatori e delle Istituzioni Scientifiche in Europa. Politecnico di Milano, MIP School of Management, 20 October 2011.

The Multi-Dimensional Research Assessment Matrix. Elsevier and Bar-Ilan University Research Connect Seminar, Bar-Ilan University, Israel, 27 October 2011.

Research Assessment in Social Sciences and Humanities. ECOOM Colloquium, Centre for R&D Monitoring, University of Antwerp, Antwerp, Belgium, 9 December 2011.

L'analisi dei sistemi di ricerca nazionali. Colloquio "Verso la valutazione". Dipartimento di Economia, Università Insubria, Varese, Italia, 19 December 2011.

## **2012**

Research Assessment in Social Sciences and Humanities. Università Ca' Foscari, Venice, Italy, 16-17 March 2012.

Journal Metrics and Research Performance. Institute for Scientific and Technical Information of China (ISTIC), Beijing, China, 28 March 2012.

Journal Metrics and Research Performance. Chinese Academy of Sciences (CAS), Beijing, China, 11 May 2012.

An Introduction to Bibliometrics. Research Trends Bibliometric Master Class, Canberra, Australia, 15 May 2012

The use of large datasets in bibliometric research. Research Trends Seminar on Large Datasets, Canberra, Australia, 16-17 May 2012.

New developments in bibliometrics and research assessment. European Summer School for Scientometrics (ESSS), Leuven, Belgium, 4 July 2012,

Nuevo Enfoque de la Evaluacion de la Investigacion Cientifica (New approaches to the assessment of scientific research). IX Foro Evaluacion, FECIES, Santiago de Compostela, Spain, 12-15 June 2012.

Scientific Migration Balances. With M. Aisati and A. Plume. 12th International Conference on Science and Technology Indicators (STI2012), Montreal, Canada, 4-7 September 2012.

The Technological Impact of Library Science. With G. Halevi. Presented by G. Halevi. 12th International Conference on Science and Technology Indicators (STI2012), Montreal, Canada, 4-7 September 2012.

Statistical Properties of Bibliometric Indicators. With W. Glanzel. Presented by W. Glanzel. 12th International Conference on Science and Technology Indicators (STI2012), Montreal, Canada, 4-7 September 2012.

New developments in bibliometrics and research assessment. University of Rome La Sapienza, Rome, Italy, 19 Sept 2012.

New developments in bibliometrics and research assessment. Institute for Scientific and Technical Information of China (ISTIC), Beijing, China, 27 September 2012.

A bibliometric approach to international scientific migration. With M'hamed Aisati, Andrew Plume and Gali Halevi. Washington University and Elsevier Seminar on Scientific Migration, Washington University, Washington D.C., USA, 9 October 2012.

The Multi-Dimensional Research Assessment Matrix. National Geographic Society and Elsevier Seminar Research Evaluation in Practice, National Geographic Society, Washington DC, USA, 17 October 2012.

Research Assessment Using Bibliometric Indicators. Seminar on Research Evaluation, Universita di Milano, Milan, Italy, 29 November 2012.

Research Assessment in Social Sciences and Humanities. Seminar on Research Evaluation in Social Sciences and Humanities, University of Hamburg, Hamburg, Germany, 7 December 2012.

**2013**

New developments in bibliometrics and research assessment. Lecture at the Institute for Software Software Technology (IIST), United Nations University, Macau, 5 March 2013

Bibliometrics as Big Data Science: How the Combination of Large Datasets Enhances Research assessment Methodologies. FORO X, FECIES, Granada, Spain, 26 June 2013

Author Level Bibliometrics. Invited lecture at a Special Session on Author Level Bibliometrics, ISSI2013 Conference, Vienna, 18 July 2013

Potentialities and limitations of citation-based indicators. Invited lecture at a Special Session on "The wondrous world of bibliometric indicators", ISSI2013 Conference, Vienna, 17 July 2013.

New developments in bibliometrics and research assessment. Lecture at the European Summer School for Scientometrics (ESSS), Berlin, 10 Sept. 2013.

Correlations between full text article downloads and citations. Seminar Assessing Science and Technology, University La Sapienza, Roma, 19 Sept 2013.

Statistical relationships between downloads versus citations. Department of Information Science, Bar Ilan University, Ramat Gan, Israel, 15 October 2013.

Full text downloads versus citations. Lecture at the Department of Information Science, University of Wolverhampton, UK, 7 December 2013.

**2014**

The role of metrics in the multi-dimensional assessment of academic research impact. Workshop Knowledge, Diversity and Performance in European Higher Education. Sapienza University of Rome, 12 Feb. 2014.

The role of metrics in research assessment. National Workshop on Research Assessment, Vilnius, Lithuania, 19 March 2014.

The multi-dimensional assessment of research impact. Seminar Faculty of Economical sciences, Katholieke Universiteit Leuven, Leuven, Belgium, 4 April 2014.

The Role of Bibliometric Indicators in the Assessment of Authors, Departments, Institutions and Countries. University of St Petersburg and Elsevier Seminar, University of St Petersburg, 8 April 2014.

The Role of Bibliometric Indicators in the Assessment of Authors, Departments, Institutions and Countries. University of the Ural and Elsevier Seminar, University of the Ural, Ekaterinenburg, 10 April 2014.

Potential and Limits of Altmetrics. Key note lecture at the Workshop Altmetrics '14, Indiana University, Bloomington, USA, 23 June 2014.

Differences and similarities between full text download and citation distributions in scientific-scholarly journals. Lecture presented at the European Summer School for Scientometrics (ESSS), Vienna, 10 July 2014.

(Alt)Metrics-Based Research Assessment. Key note at the 13<sup>th</sup> Science and Technology Indicators Conference (STI ENID), Leiden, 3-5 Sept. 2014.

Analysis of usage and citations patterns: Some observations. With G. Halevi. 13<sup>th</sup> Science and Technology Indicators Conference (STI ENID), Leiden, 3-5 Sept. 2014.

Teaching Course "Metrics-Based Research Assessment" (6 hours), at the Scuola Superiore di Studi Avanzati della Sapienza, Sapienza University of Rome, Italy, 21 October 2014.

Metrics-Based Assessment of Scientific-Scholarly Research. Lecture at the seminar 'How to Measure Estonian Productivity'. Tartu, Estonia, 6 Nov 2014.

Research assessment in humanities and social sciences: General observations and new developments. Lecture presented at the ANVUR Workshop on Research Assessment in Humanities and Social Sciences, Rome, 17 Nov 2014.

Ten base notions in metrics-based research assessment. Invited lecture presented at the conference Teaching and Research Evaluation in Europe, organized by the National Agency for the Evaluation of Universities and Research Institutes (ANVUR, Italy), and the Conference of the Italian University Rectors (CRUI, Italy), Rome, 4 - 5 December 2014.