

## Ismael Ràfols -- Curriculum Vitae

Personal webpages: [www.ingenio.upv.es/en/Ismael-Rafols](http://www.ingenio.upv.es/en/Ismael-Rafols)  
[www.sussex.ac.uk/spru/irafols](http://www.sussex.ac.uk/spru/irafols)  
Google Scholar: <https://scholar.google.cat/citations?user=puqLKfsAAAAJ&hl=en&oi=ao>  
ORCID: <http://orcid.org/0000-0002-6527-7778>

### Summary

Employment:	Research Fellow, <a href="#">Ingenio</a> (CSIC-UPV)	2012-present
	Research Fellow & Senior Lecturer, <a href="#">SPRU</a> (Sussex, UK)	2005-2012
	Research Associate, Georgia Institute of Technology, US	2009-2011
	Postdoctoral Associate Researcher, Cornell University, US	2001
Education:	MSc in Science and Technology Policy, <a href="#">SPRU</a> , Sussex, UK	2004-2006
	PhD in Information Science, <a href="#">Tohoku University</a> , Japan	1998-2001
Recognition:	Selection in Thomson-Reuter's <a href="#">Highly Cited</a> researcher's Ziman Award by the European Association of Studies of Science and Technology (EASST)	2014, -15, -16 2016
	Organiser of S&T Indicators Conference	2016
	Editorial board member of <i>Scientometrics</i> , <i>Research Evaluation</i> , <i>J. of Informetrics</i> , <i>Science and Tech Studies</i>	Since 2009, 2015, 2015
	Best paper award at Atlanta Sci.& Innov. Policy Conf.	2011
Fellowships:	Ramón y Cajal Fellowship (~€280,000.)	2012-2017
	EU Marie Curie Postdoctoral Fellowship (~€20,000)	2006-2008
	Ministry of Education of Japan (~13.7M yen, ~€130,000)	1995-2001
Grants:	PI, EU Marie Curie Integration Grant (€100,000)	2013-2017
	Co-PI, Spanish National Plan, MINECO (€101,000)	2014-2017
	PI, Economic & Social Research Council (£467,844)	2011-2014
	Co-PI, Nat'l Science Foundation (\$460,000 & \$380,000)	2011-15, 08-11
Consultancy:	EC Tender: Monitoring of Responsible Research (€244,000)	2014-2017
Publications	50 at Web of Science, 45 at Scopus	
Presentations:	7 keynotes, 117 in conferences, 37 workshops, 58 seminars	
Policy advice:	US National Science Foundation – Sci. & Eng. Indicators	2015
	Medical Research Council UK – On interdisciplinarity	2014
Training:	Mentoring of 3 postdocs (1 at Sussex, 2 at UPV)	Since 2011
	Supervision of 3 PhD (2 completed)	Since 2011
	Examiner of 8 PhD theses (US, 2 UK, DK, SE, 2 ES)	Since 2009
Media:	Paper on portfolios mentioned in Editorial in <i>Nature</i>	2015

## Employment

Research Fellow, [Ingenio](#) (CSIC-UPV), joint institute of the Universitat Politècnica de València and the Spanish National Research Council (CSIC), València, 2012-present.

Visiting Professor, [CWTS](#) (Centre for Science and Technology Studies), University of Leiden, The Netherlands, 2017-present.

Associate Faculty, [SPRU](#) (Science Policy Research Unit), Univ. Sussex, UK, 2012-present.

Research Associate of Observatoire des Sciences et des Techniques (OST-[HCERES](#)), Paris, 2015-2016.

Senior Lecturer, [SPRU](#) -Science Science and Technology Policy Research University of Sussex, Brighton, UK, 2011-2012.

Senior Research Associate, [Technology and Policy Assessment Centre](#), [School of Public Policy](#), Georgia Institute of Technology, Atlanta, USA, 2009-2011

Research Fellow, [SPRU](#) -Science Science and Technology Policy Research University of Sussex, Brighton, UK, 2005-2011

Manager of Networks Programme, [International Association of Educating Cities](#) City Council of Barcelona, 2003-2004

Postdoctoral Associate Researcher, [Dept. Physics](#), [Nanobiotechnology Center](#) Cornell University, Ithaca, New York, USA, 2001

Assistant Manager, Education programme, [Intermón-Oxfam](#) (NGO for development). Barcelona, 1993-94.

## Education

MSc in Science and Technology Policy, with distinction  
[SPRU](#), University of Sussex, Brighton, UK, 2004-2006

PhD in Information Science (Developmental Biology and Statistical Physics)  
[Tohoku University](#), Sendai, Japan, 1998-2001

MSc in Statistical Physics  
[Chuo University](#), Tokyo, Japan, 1996-1998

Diploma in Japanese Language and Culture  
Osaka University of Foreign Languages, Osaka, Japan, 1995

BSc in Physics  
University of Barcelona, 1988-1993

## Languages

- **Catalan and Spanish:** Native.
- **English:** Excellent. TOEFL: 273/300 points, October 2001.
- **French:** Excellent. DELF, 1<sup>er</sup> degré, January 2003.
- **Japanese:** Excellent spoken and good written. 263/400 points in 1st Level Japanese-Language Proficiency Test, Dec. 2002. Aptitude Certificate, EOI Barcelona, June 2003.

## Recognition and Awards

- **Ziman Award 2016** by the European Association of Studies of Science and Technology (EASST) as co-author of the [Leiden Manifesto](#).
- **Nature Editorial** (20<sup>th</sup> August 2015, Vol. 254, p. 265) highlighting the publication [Research portfolios in science policy: moving from financial returns to societal benefits](#).
- **Selection in 2014, 2015 and 2016 Highly Cited researcher's list**, Thomson-Reuter's list of 3,200 researchers with various publications among the 1% most cited in their field in 2002-2012, 2003-2013, 2004-2014.
- **Nomination to best paper award.** 2012 DRUID Conference. [Big pharma, little science? A bibliometric perspective on big pharma's R&D decline](#).
- **William Page best paper award.** 2011 Atlanta Science and Innovation Policy Conference. [How journal rankings can suppress interdisciplinary research](#).
- **Fast Breaking Paper** in 2009 (identified as one of the most cited papers in the Social Science in the 2 years after publication) according Thomson-Reuter's Essential Science Indicators. *A Global Map of Science Based on the ISI Subject Categories*. Interview in the magazine [ScienceWatch](#).

## Grants

- Co-Investigator with Nick Vonortas at George Washington University of NSF Science policy research report on "The use of research portfolios in science policy", 2017, \$50,000.
- PI (as mentor) of Juan de la Cierva Fellowship (Spanish Government) to Nicolás Robinson-García. 2015-2017, €50,000.
- Co-PI (with Pablo D'Este and Elena Castro-Martínez). Spanish R&D Plan. "Scientific excellence and knowledge transfer, two riding together? Organisational factors, individual antecedents and societal impact." 2014-17. €101,000.
- PI. Marie Curie Integration Grant. European Commission. Mapping and assessment of research portfolios in biomedicine. 2013-2017. €100,000.
- PI, with P. Larédo (Univ. Paris-Est). ESRC-ANR Open Research Area in Europe award. *Mapping the dynamics of emerging technologies*. 2011-2014. ~€50,000 (£467,844 in Sussex).
- PI, with Alan Porter (Georgia Tech). National Science Foundation (US). *Revealing Innovation Pathways*. 2011-2015. \$380,000 plus \$80,000 extension (~\$160,000 in Sussex).
- Co-PI. With Alan Porter (Georgia Tech). National Science Foundation (US) Award 0830207. *Measuring and Tracking Research Knowledge Integration*. 2008-2011. \$392,000.

## Fellowships

- Ramón y Cajal Fellowship, Spanish Ministry of Education. 2012-2017. ~€280,000.
- Japanese Society for the Promotion of Science. Invitation Fellowship. 2011. ~1.25M yen. (about ~€2,500)
- Canon Europe Foundation. *Comparing Organisational Structures for Nanotechnologies*. 2008-09. €10,600.

- EU Marie Curie Postdoctoral Fellowship. *Patterns of multi and interdisciplinary research in bionanotechnology*. 2006-08. €220,000.
- Fellowship from the Ministry of Education of Japan. *Pattern formation and cell-differentiation in bacterial colonies and slime moulds*. 1995-2001. ~13.7M yen (about €130,000).

#### Small collaborative grants

- Co-Investigator (PI Jordi Molas-Gallart), call for preparatory joint proposals between the Universitat Politècnica de la València (UPV) and La Fe Hospital. "Social Impact Assessment Methods for research through the study of Productive Interactions in Home Hospitalisation Research". 2014-2015, €3,000.
- University of Sussex, Special Grant for Cross-departmental collaboration. *The diffusion of knowledge in scientific networks*. 2008. £4,000.
- The Daiwa Anglo-Japanese Foundation. *A systemic approach to policies for nanotechnology*. 2005: £1,000. 2006-07: £11,720.

#### Consultancy as PI

- Monitoring of Responsible Research and Innovation, for the EC, led by Technopolis. €3M of which €244,000 for Ingenio (2014-2017).
- Reports on Interdisciplinarity and Performance (in collaboration with CWTS, Leiden) for Innogen, University of Edinburgh and for Stockholm Resilience Centre, University of Stockholm. ~€10,000, 2012.
- Rindicate Project. 'The use of webometrics for the analysis of knowledge flows within the European Research Area'. Framework Service Contract for Expert Support with the Analysis of R&D Policy Indicators. With IDEA Consult and NIFU STEP, ~£10,000, 2009.

#### Consultancy

- Report on "[Relationship between interdisciplinarity and impact](#)" for ESRC (in collaboration with SPRU, Univ. Sussex). ~£9,500, 2014.
- NESTA reports on "Quantitative analysis of technology futures" ([Part1](#), [Part2](#)) £24,000, 2012.
- Advisory Board Member for *SRI International* on the NSF project 'SRS Task Order 45: Indicators of Interdisciplinary S&E Research', \$5,000, 2009.
- Report for the *Royal Commission on Environmental Pollution* (UK). [Regulatory Nanomaterials Innovation Systems: Their Structure, Dynamics and Regulation](#). 2008.
- Study for the OECD Working Party of Nanotechnologies. *Mapping the knowledge base of nanotechnologies*. 2008.
- Report for the network of *European Techno-Economic Policy Support* (ETEPS). Implementation Plan EURONANO: *Nanotechnology in Europe. Assessment of the Current State, Opportunities, Challenges and Socio-Economic Impact*. 2008.
- Report for JETRO (Japanese Ministry of Economy, Trade and Industry, METI): *The latest trends of life science and biotechnologies in Europe*. Univ. Sussex, Jan. 2005.

#### Participation in other projects

- Medical Research Council (UK) project, Novel methods for tracking biomedical translational research processes that lead to impact, led by Michael Hopkins. €12,700 as consultancy for Ingenio (2015-2016).

- COST Action KNOWeSCAPE ([Analyzing the dynamics of information and knowledge landscapes](#)), led by Andrea Scharnhorst (KNAW) (2013-2017). Member of Management Committee (MC).
- EC FP7 project FRIDA ([Fostering Regional Innovation and Development through Anchors and Networks](#)). With Paul Nightingale, in collaboration with Univ. Bologna, UPMF Grenoble, Tech. Univ. Kauserlautern and Univ. Catania (2009-2010)
- EC FP6 project Biopolis ([Analysis of public policies for biotechnology research in Europe in 2002–2005](#)). With J. Senker, in collaboration with NWO and ISI Fraunhofer (2006-2008).

#### Honorary Affiliations

- 2011-2013. International Affiliated Fellow of the National Institute of Science and Technology Policy (NISTEP), Tokyo, Japan.

#### Teaching activities

- Mentoring of postdoctoral fellows:
  - [Nicolás Robinson-García](#) Ingenio (CSIC-UPV). *Methods for mapping the local impact of social sciences and humanities*. 2015-2017.
  - [Matthew Wallace](#), Ingenio (CSIC-UPV). *Research priorities in Avian Flu*. 2013-14.
  - [Daniele Rotolo](#), SPRU, Univ. Sussex. 2011-13. *Mapping emerging technologies*.
- Supervision of PhD students:
  - [Erik Brattström](#), Univ. Lund, School of Economics and Management, Department of Business Administration. 2015-2019 (expected). *Setting priorities for research, development, and innovation: value choices in the intersection of policy-making and epistemic production*. Co-supervision with Tomas Hellström.
  - [Diego Chavarro](#), Univ. Sussex, SPRU, 2011-2016, *The development of alternative Journal Indexation Systems in Latin America*. Co-supervision with Puay Tang (SPRU).
  - [Leo Kim](#), Univ. Sussex, School of Global Studies, 2011-2015. *'Visualizing Biopolitics: Social Representation and Governance of Human Embryonic Stem Cell Research in South Korea'*. Co-supervision with Margaret Sleeboom-Faulkner (Dept. Anthropology)
- Temporal supervision of PhD students
  - Inma Aleixos, Universitat Politècnica de València, Ingenio (CSIC-UPV), 2014-2015, *The governance of data sharing and its evaluation*.
  - Edmond Karimzadeh, Univ. Sussex, SPRU, 2012-2014, *Predictive Factors in the success of Biotechnology research in reaching markets through commercialization*. Co-supervision with Michael Hopkins (SPRU).
- Supervision of visiting PhD students:
  - María Alejandra Tejada, student of University of Twente, 2017 (3 months).
  - Guadalupe Palacios Núñez, student of Public Policy at the Institute of Economic and Business Research (ININEE-UMSNH), Morelia, México. 2015 (3 months).
  - África Villanueva, Universitat Politècnica de València, Ingenio, 2007-08 (6 months). *Social Network Analysis in University Technology Transfer*.
  - Alfredo Yegros, Universitat Politècnica de València, Ingenio, 2008-09 (6 months). *Bibliometric analysis of the Food Science and Technology Programme in Spain*.
- Examiner of PhD thesis:

1. Roman Jurowetzki, Aalborg University, Denmark, “Exploring transition of large technological systems through relational data. A study of the Danish smart grid development”, Aalborg, August 2016.
  2. Francesca Bignami, Karolinska Institute, Unit of Bioentrepreneurship (half term examination), “Open innovation in the collaboration between industry and academia”, Stockholm, June 2016.
  3. Qi Wang, Royal Institute of Technology (KTH), School of Industrial Economics and Management, “Governance of Science: the Interdisciplinary Challenge”, Stockholm, Sweden, September 2015.
  4. Tammy-Ann Sharp, SPRU, University of Sussex. "Exploring the potential impacts of Carbon, Capture and Storages Technologies on the Diversity of the UK electricity system to 2050", Brighton, UK, 2014.
  5. David Minguillo, University of Wolverhampton, Research Institute for Information and Language Processing, “Mapping R&D support infrastructures: a webometric and scientometric study of science parks”, Wolverhampton UK, 2013.
  6. Stephen Carley, School of Public Policy, Georgia Institute of Technology, Atlanta, Georgia, US, 2013.
  7. Alfredo Yegros-Yegros, Universitat Politècnica de València, “Contribución del programa nacional de tecnología de alimentos al desarrollo de la actividad científica en ciencia y tecnología de alimentos en España”, València, Spain, 2011.
  8. Anabel Bonilla. Universidad Carlos III, “La Colaboración y la Visibilidad en las disciplinas de Física en Science Citation Index y arXiv (2000-2005)”, Madrid, Spain, 2009.
- Supervision of MSc students (2 in 2006-07)
  - Lecturer of the course ‘Impact Evaluation of R&D and Innovation’ organised by the University of Campinas and the University of Manchester, Campinas, Brazil, March 2017.
  - Lecturer and member of the organising committee of the [Eu-SPRI Winter School](#), on ‘Innovation Policy for Transformative Change’, SPRU, Brighton, January 2017.
  - Convenor and lecturer at the BSc in Business and Management Studies, Univ. Sussex, of the courses:
    - *Science, Technology and Innovation Systems* (2006-2012).
    - *Learning Portfolio* (2008-2011).
  - Lecture at the BSc in Industrial Technology Engineering, Universitat Politècnica de València at the course "Innovation and Entrepreneurship" (2014).
  - Lectures at SPRU MSc and PhD programmes in various courses on Science, Technology and Innovation:
    - *Research Methods* (2010-2013)
    - *Innovation for Sustainability* (2009-2012)
    - *Managing Knowledge* (2009-2011)
    - *Advanced Statistical Methods (Multivariate Analysis)* (2008-09)
    - *Sociological Perspectives on S&T* (2007)
  - Network Analysis workshop course for consultancies (Technopolis, 2010) and postgraduate programmes (Univ. Autònoma de Barcelona, Psychology Dept., 2015).
  - Chair and convenor of the seminar series [Controversies on S&T seminar series](#), 2005-07.
  - Teaching Assistant in Physics. Chuo University, Tokyo, Japan, 1997-98.

#### Organisation of academic events & meetings

- Member of the programme committee of the [EuroScience Open Forum](#) (ESOF) 2018, Toulouse, July 2018.

- Member of the programme committee of the 22<sup>nd</sup> Science and Technology Indicators Conference, Paris, September 2017.
- Member of the Student Travel Award committee of the 2017 ISSI Conference.
- Member of the organizing and programme committees of the [21<sup>st</sup> Science and Technology Indicators Conference](#), València, September 2016.
- Co-organiser (with Lili Wang) of workshop on “Indicators of innovation in peripheral countries”. MERIT, United Nations University, Maastricht, January, 2016.
- Co-organiser (with Sarah de Rijcke, Paul Wouters, Sybille Hinze and Jordi Molas-Gallart) of special session in ISSI conference, Istanbul, June 2015.
- Co-organiser (with Michele Garfinkel) of session *Metrics for Science Policy and Policy for Metrics* in the AAAS conference, San Jose, February 2015.
- Co-organiser (with Paul Wouters and Sarah de Rijcke) of plenary session on "Quality standards for evaluation indicators: Any chance for the dream to come true?" STI conference, Leiden, September 2014.
- Co-organiser (with Ghislaine Filliatreau, Paul Wouters and Sarah de Rijcke) of workshop on “Guidelines and good practices on quantitative assessments of research”, Paris, May 2014, with OST.
- Co-organiser (with Wolfgang Glänzel, Jochen Gläser and Paul Wouters) of plenary sessions on *Problems with Individual-level Bibliometrics*, ISSI Conference, Vienna, July 2013 and STI conference, Berlin, September 2013.
- Co-organiser (with Andy Stirling and James Wilsdon) of the policy-oriented workshop *Challenges on Interdisciplinary Science*, Royal Society, London, 7<sup>th</sup> March 2011. See [www.interdisciplinaryscience.net](http://www.interdisciplinaryscience.net)
- Organiser with Alan Porter of the full-day workshop on *Tracking and evaluating interdisciplinary research: metrics and maps*. 12th International Conference on Scientometrics and Informetrics (ISSI). Rio de Janeiro, Brazil. July 14<sup>th</sup>, 2009.

### Media Contribution

- *LSE Impact of Social Science Blog*. [How to make altmetrics useful in societal impact assessments](#). March 2013. ([Spanish](#) version)
- Digital Science blog. [Information Infrastructures for Inclusive Science](#). September 2016.
- *Research Europe*, [Zika needs a research portfolio, not another bandwagon](#), 17 March 2016.
- *LSE Impact of Social Science Blog*. [A call for inclusive indicators that explore research activities in “peripheral” topics and developing countries](#). March 1<sup>st</sup>, 2016. Also published in *Social Science Space*.
- *Investigación y Ciencia* (Spanish version of *Scientific American*), “[El Manifiesto de Leiden: Hacia un mejor uso de indicadores en la evaluación de la ciencia](#)”, September 2015.
- *HEFCE Blog*. [To capture interdisciplinary research we need more than unidimensional measures](#), 11 August 2015.
- *Research Fortnight*, “Research assessment needs a local dimension”, 8 July 2015.
- *Team Science Toolkit Blog*. US National Cancer Institute. [Science Overlay Mapping as a Tool to Explore Interdisciplinary Research](#). 20 March 2014.
- *The Guardian Science Blog*. [On the San Francisco Declaration on Research Assessment](#). May 16<sup>th</sup>, 2013.
- *LSE Impact of Social Science Blog*. [On effect of REF on interdisciplinary research](#). October 1<sup>st</sup>, 2012.

### Media Coverage (Selected)

- **Library System of the University of Sao Paulo.** [For a more inclusive research](#) (Portuguese and [English](#) versions). July 2016
- **Nature**, Editorial on research portfolios (Wallace and Rafols, 2015): 20 August 2015: <http://www.nature.com/news/portfolio-boost-1.18193>
- **UNI Radio**, radio interview, Montevideo, Uruguay: April 2015. <http://www.uniradio.edu.uy/?p=23163>
- **Scimaps exhibit** 2014. [http://scimaps.org/mapdetail/mapping\\_graphene\\_sci\\_179](http://scimaps.org/mapdetail/mapping_graphene_sci_179)
- Detail: [http://scimaps.org/maps/map/mapping\\_graphene\\_sci\\_179/detail](http://scimaps.org/maps/map/mapping_graphene_sci_179/detail)
- **Wired**: Review of paper on global map of patents. February 2014, pp. 22-23. [badhorse.izit.org/mags/WIRED.UK.TruePDF-February.2014.pdf](http://badhorse.izit.org/mags/WIRED.UK.TruePDF-February.2014.pdf)
- **Medical Marketing and Media**: News on article on big pharma. October 2013. <http://www.mmm-online.com/big-pharma-pulls-back-on-publishing/article/312617/>
- **MIT Technology Review**: Review of paper on global map of patents. 2 September 2013. <http://www.technologyreview.com/view/518991/global-patent-map-reveals-the-structure-of-technological-progress/>
- **ResearchResearch**: Quoted by on news articles on journal Rankings. 28 November 2012. <http://www.researchprofessional.com/news/article/1272893>
- **Radio Canada**: 5 min interview, Montréal (In French), science programme. 7 October 2012. *Les années lumière*. [http://www.radio-canada.ca/emissions/les\\_annees\\_lumiere/2011-2012/chronique.asp?idChronique=248750](http://www.radio-canada.ca/emissions/les_annees_lumiere/2011-2012/chronique.asp?idChronique=248750)
- **New Scientist**: Use of Rafols' global maps of science. "[Open your mind to interdisciplinary research](#)", 16 February 2011.

#### Reviewer and referee

- Member of **Editorial Board** of:
  - [Science and Technology Studies](#) (since April 2016)
  - [Research Evaluation](#) (since July 2015)
  - [Journal of Informetrics](#) (since January 2015)
  - [Scientometrics](#) (since June 2009).
  - [PeerJ Computer Science](#) (since January 2015)
  - [Frontiers in Scholarly Metrics and Analytics](#) (since 2016)
  - [Journal of Policy and Complex Systems](#) (since January 2013-April 2016)
- **Associate editor** of book series "*Eu-SPRI Forum on Science, Technology and Innovation Policy*" in [Edward Elgar Publishing](#)'s since December 2013.
- **Funding agencies and bodies**:  
Economic and Social Sciences Research Council (ESRC, UK), Framework Programme 7 – Science in Society (EU), Agence Nationale de Recherche (ANR, France), National Science Foundation (NSF, US), Sloan Foundation (US), Wellcome Trust (UK), Fonds de Recherche sur la Société et la Culture Québec (Canada), Humanities in the European Research Area (HERA), Research Council for Culture and Society at the Academy of Finland, Swiss National Science Foundation.
- **Journals**: I carry more than 20 reviews per year. I have carried out reviews for the following journals:



**Natural Sciences:** *Science, Proceeding of the National Academy of Science (PNAS), Science Advances, PLoS One, Environmental Conservation, Sustainability Science, Water Resources Management, BioScience, Organic Farming.*

**Science Policy and Innovation Studies:** *Research Policy, Social Studies of Science, Minerva, Science and Public Policy, Futures, Industrial and Corporate Change, Journal of Responsible Innovation, Review of Policy Research, [Science and Technology Studies](#), Technovation, Technological Forecasting & Social Change, Technology Analysis and Strategic Management*

**Other Social Sciences:** *Journal of Economic Geography, Regional Studies, Journal of Evolutionary Economics, Dynamics of Socio-Economic Systems International Journal (DySES), Journal of Policy and Complex Systems.*

**Scientometrics and evaluation:** *Research Evaluation, Scientometrics, Journal of Informetrics, Journal of the American Society for Information Science and Technology, Revista Española de Documentación Científica, Aslib Journal of Information*

**Management:** *Organization Studies, Organization, International Journal of Innovation Management, International Journal of Intellectual Property Management, International Journal of Organizational Design and Engineering, International Journal of Technology Intelligence and Planning*

- Books reviewed: *Yearbook of Nanotechnology in Society (2010)*
- **Member of the assessment committee for the appointment of:**
  - Professor in Innovation Studies and Data Science at Aalborg University, April 2017.
- **Member of conference scientific or program committee:**
  - [21<sup>st</sup> Science & Technology Indicators Conference](#), València, September 2016.
  - [EU-SPRI Annual Conference](#), (European Forum for Studies of Policies for Research and Innovation), Lund, June 2016.
  - [Atlanta Conference on Science and Innovation Policy](#), Atlanta, September 2015.
  - [20th Science and Technology Indicators Conference \(STI\)](#), Lugano, September 2015.
  - [15th International Conference on Scientometrics and Informetrics](#) (ISSI), Istanbul, Turkey, June 2015.
  - [EU-SPRI Annual Conference](#) (European Forum for Studies of Policies for Research and Innovation), Helsinki, June 2015.
  - [CASRAI-ORCID Conference](#), Barcelona, 19-20 May 2015.
  - [19th Science and Technology Indicators Conference \(STI\)](#), Leiden, September 2014.
  - [4th Global TechMining Conference](#), Leiden, September 2014.
  - [EU-SPRI Annual Conference](#) (European Forum for Studies of Policies for Research and Innovation), Manchester, June 2014.
  - [Atlanta Conference on Science and Innovation Policy](#), Atlanta, September 2013.
  - [3<sup>rd</sup> Global Tech Mining Conference](#), Atlanta, September 2013.
  - [18th Science and Technology Indicators Conference \(STI\)](#), Berlin, September 2013.
  - [14th International Conference on Scientometrics and Informetrics](#) (ISSI), Vienna, Austria, July 2013.
  - 17<sup>th</sup> Science and Technology Indicators Conference, Montreal, September 2012.
  - Society for the Study of Nanoscience and Emerging Technologies (S.NET), Twente, October 2012.
  - International Conference on Innovative Methods for Innovation Management and Policy (IM2012), Beijing, May 2012.
  - Atlanta Conference on Science and Innovation Policy, Atlanta, September 2011.

- 13th International Conference on Scientometrics and Informetrics (ISSI), Durban, South Africa, July 2011.
- Other conferences reviewed:
  - [27th Annual Conference of the American Evaluation Association](#), Research, Technology, and Development Interest Group, Washington, October 2013

### Expert Advice

- Advisory board of the *Observatori Social* de [La Fundació “La Caixa”](#), since June 2016.
- Advisor to US National Science Foundation for the [Science and Engineering Indicators](#) book, Washington, US, April 2016.
- Advisor in the Scientific Committee of the [Centre of Synthesis and Analysis of Biodiversity](#) (CESAB), Aix-en-Provence, France, 2015-2018.
- Advisor to [reports on interdisciplinarity](#) commissioned by the UK HEFCE and Medical Research Council to Elsevier and Digital Science, 2015.
- Advisory board of the Scientific Council of the Colombian [Observatorio de Ciencia y Tecnología](#) (OCyT), 2014-present.
- Evaluation group on indicators and assessment processes, in the context of *J-AGE Project*: <http://www.jp-demographic.eu/about/j-age-1> (June 2013-March 2014)
- External Reviewer of the [FP7 project ACUMEN](#) on research evaluation (2012-2013).

### Research Visits

- [CWTS](#) (Centre for Science and Technology Studies), University of Leiden, invited by Sarah de Rijcke, 3 weeks, January-February 2017.
- [Centre for Research on Evaluation, Science and Technology](#) (CREST), Stellenbosch University, Cape Town, South Africa, invited by [Johann Mouton](#), 2 weeks, October 2016.
- Espacio Interdisciplinario, Universidad de la República, Montevideo, Uruguay, invited by Bianca Vienni, 2 weeks, April 2015.
- Universidade Estadual de Campinas, Sao Paulo, Brazil, Prof. Janaina da Costa, 3 weeks, March-April 2015.
- University of Tokyo, Department of Technology Management for Innovation, Prof. Sotaro Shibayama, April 2014 (1 week).
- University of Tokyo, Innovation Policy Research Center, Tokyo, Prof. Y. Kajikawa. Jul.-Oct. 2011.
- National Graduate Research Institute of Policy Studies (GRIPS), Tokyo, Prof. A. Sunami, Aug.-Sep. 2009, Oct.-Dec. 2008, Feb.-Mar. 2007, Dec. 2006, Oct. 2005.
- Georgia Institute of Technology, Atlanta, Prof. A. Porter. Nov. 2007.
- Catholic Univ. Leuven, Policy Centre for R&D Statistics, Prof. W. Glänzel, Jun. 2006.
- Kyoto Univ., Dept. Botany, Dr. Kei Inouye, Jul.-Aug. 2000.
- Univ. Chicago, Dept. Biochemistry and Molecular Biology, Prof. J.A. Shapiro, Sept. 1999.
- Univ. Niigata, Japan, School of Medicine, Prof. T. Matsuyama, Jun. 1996, Dec. 1996.

### Membership in professional organisations

- European Network of Indicator Designers (ENID, since 2010)
- International Society for Scientometrics and Informetrics (ISSI, since 2005).
- Society for the study of Nanoscience and Emerging Technologies (SNET, 2011-2012)
- Society of Social Studies of Science (4S, 2008-12).
- European Association for the Studies of Science and Technology (EASST, 2006)
- Catalan Society of Physics (since 1992).

Software

- *VOSviewer* and *Pajek*, Programmes for Analysis and Visualization of Large Networks.
- *SPSS*, *Excel*, *R statistical programming*, standard user.

Broader interests, hobbies and experiences

<b>Performative arts</b>	<p>Member of the <i>Esvaraeta</i> grup, traditional Valencian dances, València, 2012-2013.</p> <p>Salsa and swing dancing, Brighton, UK, 2005-2008.</p> <p>Street performance. <i>Imperfect Harmony</i>. Brighton Festival, UK, 2006</p> <p>Street theatre with the global justice group <i>Sharks</i>, New York, USA, 2001.</p> <p>Performer in <i>Suzaku</i>, traditional Japanese dances. Sendai, 1998-2002.</p> <p>Actor and assistant producer in amateur theatre companies. Esparreguera, Barcelona, 1986-95, 2002-04.</p>
<b>Cooperation</b>	<p>Member of Social Committee in València of the <a href="#">Coop57</a>, ethical banking, 2013-2014.</p> <p>Volunteer lecturer, science and culture popularisation in Civic Centres of Sendai, Japan, 1999-2001.</p> <p>Member of the local group of <a href="#">Amnesty International</a>, Tokyo, 1996-98.</p> <p>Int'l cooperation camp, <a href="#">Setem</a> (NGO for development), Chad, 1993.</p> <p>Cooperation summer projects, <a href="#">Service Civil International</a> (SCI). Fair Trade Theatre, Denmark, 1988. Circus school for peace, Northern Ireland, 1990. Puppet theatre, Flanders, 1992.</p>
<b>Travel</b>	<p><u>The silk route</u>: Barcelona-Sendai crossing France, Italy, Austria, Hungary, Romania, Turkey, Syria, Lebanon, Iran, Pakistan, China and Japan. February-October, 2002.</p>



Periodic growth pattern in bacterial colonies (I.Rafols MSc thesis, 1998)

## Publications, conferences and presentations

ORCID: <http://orcid.org/0000-0002-6527-7778>

Google Scholar: <https://scholar.google.cat/citations?user=puqLKfsAAAAJ&hl=en&oi=ao>

Scopus: <http://www.scopus.com/authid/detail.uri?authorId=55916038700>

ResearchID: <http://www.researcherid.com/rid/D-1509-2009>

### **Journal articles (Social sciences)**

#### *Selected publications*

1. Hicks, D., Wouters, P., Waltman, L., de Rijcke, S., & Rafols, I. (2015). [The Leiden Manifesto for Research Metrics](#). *Nature*, 520, 429–431.
2. Rafols, I., Hopkins, M.M., Hoekman, J., Siepel, J., O'Hare, A., Perianes-Rodríguez, A., Nightingale, P. (2014) [Big Pharma, Little Science? A bibliometric perspective on big pharma's R&D decline](#). *Technological Forecasting & Social Change*, 81, 22–38. **Nominated to Best Paper Award in 2012 DRUID Conference.**
3. Rafols, I., Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A. (2012) [How journal rankings can suppress interdisciplinarity. The case of innovation studies in business and management](#). *Research Policy*, 41(7), 1262–1282. **Postprint. William Page Best Paper Award in the 2011 Atlanta Science and Innovation Conference.** See comment in Paul Wouter's [blog](#).
4. Rafols, I., Porter, A.L. and Leydesdorff, L. (2010) [Science overlay maps: A new tool for research policy and library management](#). *Journal of the American Society for Information Science and Technology* 61(9), 871–1887.
5. Rafols, I. and Meyer, M. (2010) [Diversity and Network Coherence as indicators of interdisciplinarity: case studies in bionanoscience](#). *Scientometrics*, 82(2), 263-287.

#### **The publishing system**

6. Diego Chavarro, Puay Tang, Ismael Rafols (2016). [Why Researchers Publish in Non-Mainstream Journals: Training, knowledge bridging, and gap filling](#). SPRU Working Paper Series (SWPS), 2016-22: 1-39. ISSN 2057-6668.

#### *Societal impact of research*

7. Wallace, M.L., Rafols, I., 2015. [Shaping the agenda of a grand challenge: Institutional mediation of priorities in avian influenza research](#). *Submitted*.
8. Wallace, M.L., Rafols, I., (2015). [Research portfolios in science policy: moving from financial returns to societal benefits](#). *Minerva*, 53(2), 89-115. doi: 10.1007/s11024-015-9271-8
9. Chavarro, Diego, Puay Tang, and Ismael Rafols (2014). [The Relationship between Interdisciplinary Research and Local Knowledge: The Case of Colombia](#). *Research Evaluation*, 23 (3), 195-209. doi:10.1093/reseval/rvu012
10. Molas-Gallart, J., Rafols, I., D'Este, P., Llopis, O., 2016. [Towards an alternative framework for the evaluation of translational research initiatives](#). *Research Evaluation* 25 (3): 235-243). doi: 10.1093/reseval/rvv027
11. Molas-Gallart, J., Rafols, I., Tang, P. 2014. [The relationship between interdisciplinarity and societal impact](#). *Journal of Science Policy and Research Management*, 29(2), 69-89.

#### *Science and technology dynamics*

12. Ciarli, T., Coad, A., & Rafols, I. (2016). [Quantitative Analysis of Technology Futures. Techniques, Contexts, and Organizations](#). *Science and Public Policy*, 43(5), 630-645. doi: 10.1093/scipol/scv059
13. Leydesdorff, L. and Rafols, I. (2011) [The Local Emergence and Global Diffusion of Research Technologies: An Exploration of Patterns of Network Formation](#). *Journal of the American Society for Information Science and Technology*, 62(5), 846–860.

14. Rafols, I. (2007) [Strategies for knowledge acquisition in bionanotechnology: why are interdisciplinary practices less widespread than expected?](#) *Innovation; The European Journal of Social Sciences*, 20(4), 395-412.
15. Rafols, I. and Meyer, M. (2007) [How cross-disciplinary is bionanotechnology? Explorations in the specialty of molecular motors.](#) *Scientometrics* 70(3), 633-650.

#### **Global and overlay maps of science**

16. Daniele Rotolo, Ismael Rafols, Michael Hopkins, Loet Leydesdorff (2017). [Strategic intelligence on emerging technologies: Scientometric overlay mapping.](#) *Journal of the Association for Information Science and Technology*, 68(1), 214-233. doi: 10.1002/asi.23631
17. Kay, L., Newman, N., Youtie, J., Porter, A.L., Rafols, I., (2014) [Patent Overlay Mapping: Visualizing Technological Distance.](#) *Journal of the American Society for Information Science and Technology*. 65 (12), 2432-2443. DOI: 10.1002/asi.23146.
18. Leydesdorff, L., Kushnir, D., Rafols, I., (2014) [Interactive Overlay Maps for US Patent \(USPTO\) Data Based on International Patent Classifications \(IPC\).](#) *Scientometrics* 98 (3), 1583-1599. DOI 10.1007/s11192-012-0923-2
19. Leydesdorff, L., Chen, C., Rafols, I., (2013) [Interactive Overlays of Journals and the Measurement of Interdisciplinarity on the basis of Aggregated Journal-Journal Citations.](#) *Journal of the American Society for Information Science and Technology*, 64(12), 2573-2586.
20. 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.
21. Leydesdorff L., Rotolo D., Rafols I. (2012) Interactive Overlay Maps of Medical Innovation using the Medical Subject Headings (MeSH) of PubMed. *Journal of the American Society for Information Science and Technology*, 63(11), 2239-2253.
22. Leydesdorff, L. and Rafols, I. (2012) [Interactive overlays: A new method for generating global journal maps from Web-of-Science data.](#) *Journal of Informetrics*, 6, 318–332.
23. Kiss, I. Z., Broom, M., Craze, P. and Rafols, I. (2010) [Can epidemic models describe the diffusion of research topics across disciplines?](#) *Journal of Informetrics*. 4, 74-82.
24. Rafols, I. and Leydesdorff, L. (2009) [Content-based and Algorithmic Classifications of Journals: Perspectives on the Dynamics of Scientific Communication and Indexer Effects.](#) *Journal of the American Society for Information Science and Technology*, 60(9), 1823-1835.
25. Leydesdorff, L. and Rafols, I. (2009) [A Global Map of Science Based on the ISI Subject Categories.](#) *Journal of the American Society for Information Science and Technology*, 60(2), 348-362. **Identified as a Fast Breaking Paper by Thomson-Reuter's Essential Science Indicators. See interview in the webzine ScienceWatch.**

#### **Measures and mapping of interdisciplinary research**

26. Yegros-Yegros, A., Rafols, I. and D'Este, P. (2015) [Does interdisciplinary research lead to higher citation impact? The different effect of proximal and distal interdisciplinarity.](#) *PLoS ONE* 10(8): e0135095. doi:10.1371/journal.pone.0135095
27. Liu, Y., Rafols, I. and Rousseau, R. (2012) A framework for knowledge integration and diffusion. *Journal of Documentation*, 68(1), 31-44.
28. Wagner, C.S., Roessner, J.D., Bobb, K., Klein, J.T., Boyack, K.W., Keyton, J., Rafols, I., Börner, K. (2011) [Approaches to Understanding and Measuring Interdisciplinary Scientific Research \(IDR\): A Review of the Literature.](#) *Journal of Informetrics* 5(1), 14-26.
29. Leydesdorff, L. and Rafols, I. (2011) [Indicators of interdisciplinarity of journals: Diversity, centrality, and citations.](#) *Journal of Informetrics* 5(1), 87-100. doi
30. 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.

#### **Governance of nanomaterials**

31. Rafols, I, van Zwanenberg, P., Morgan, M., Nightingale, P., and Smith, A. (2011) [Missing links in nanomaterials governance: bringing industrial dynamics and downstream policies into view](#). *Journal of Technology Transfer*, 36(6), 624-639.
32. van Zwanenberg, P., Rafols, I., Morgan, M., Nightingale, P., and Smith, A. (2009) [How can regulation shape the direction of nanomaterials innovation?](#). *Notizie de Politeia*, 94, 150-160.

### **Edited Books**

1. Rafols, I., Molas-Gallart, J., Castro-Martínez, E. and Woolley, R. (Editors) (2016). Book of proceedings of the 21ST international conference on science and technology indicators. Editorial Universitat Politècnica de València. València.  
<http://dx.doi.org/10.4995/STI2016.2016.4543>

### **Book chapters**

1. Huutoniemi, Katri and Rafols, Ismael (2017) [Interdisciplinarity in Research Evaluation](#). "The Oxford Handbook of Interdisciplinarity", 2nd edition, Edited by Robert Frodeman, Oxford University Press.
2. Kay, L., Porter, A. L., Youtie, J., Newman, N., and Rafols, I. (2017). [Visual analysis of patent data through global maps and overlays](#). In Lupu, M., Mayer, K., Kando, N., and Trippe, T. (eds.), *Current Challenges in Patent Information Retrieval*. Springer; ISBN 978-3-662-53817-3. Doi: 10.1007/978-3-662-53817-3\_10
3. Rafols, I., (2014) [Knowledge Integration and Diffusion: Measures and Mapping of Diversity and Coherence](#), in Ding, Y., Rousseau, R., and Dietmar, W. (Eds.), *Measuring Scholarly Impact: Methods and Practice*, Springer, 169-190. Doi 10.1007/978-3-319-10377-8\_8
4. Rafols, I., Rotolo, D. and Leydesdorff, L. (2013) El uso de múltiples mapas de la ciencia para la caracterización de la posición cognitiva en colaboraciones. In González-Alcaide, Gómez Ferri and Agulló-Calatayud (Eds.). *La colaboración científica: una aproximación multidisciplinar*. Nau Llibres, Edicions Culturals Valencianes, València, 203-206.
5. Youtie, J., Porter A.L., Boyack, K., Lobo, J., Klavans, R., Rafols, I., and Shapira, P. (2012), Using large-scale databases to understand the trajectories of emerging technologies, in van Lente, H., Coenen, C., Fleischer, T., Konrad, K., Krabbenborg, L., Milburn, C., Thoreau, F., and Zulsdorf, T.B. (eds.) *Little by Little: Expansions of Nanoscience and Emerging Technologies*, IOS Press(Akademische Verlagsgesellschaft), Heidelberg, Germany, 55-58.
6. Porter, A.L., and Rafols, I. (2011) Bibliometrics, *Encyclopedia of Nanoscience and Society*. 2010. SAGE Publications. <<http://sage-ereference.com/view/nanoscience/n28.xml>>.
7. Rafols, I., J.-H. Park and Meyer, M. (2010) '[Hybrid nanomaterial research—is it truly interdisciplinary?](#)' Rurack, K. and Martínez- Máñez, R. (Eds.) *The Supramolecular Chemistry of Organic- Inorganic Hybrid Materials*. John Wiley & Sons, Hoboken, NJ, US.

### **Book reviews**

1. Ràfols, I. (2014). Preguntes per a aprenents de bruixots. *Caràcters*, 68, 38, Review of Salvador Macip and Chris Willmott. *Jugar a ser déus. Els dilemes morals de la ciència*, Edicions Bromera i Publicacions de la Universitat de València, València, 2014.
2. Ràfols, I. (2014) Un diagnòstic discutible de la crisi de les humanitats. *Caràcters*, 66, 38-39. Review of Nuccio Ordine. *La utilitat de l'inútil*. Quaderns Crema, Barcelona, 2013.

### **Newsletters and general public outcomes publications**

1. Kay, Luciano; Porter, Alan L.; Youtie, Jan; Rafols, Ismael; and Newman, Nils. (2014) "[Mapping Graphene Science and Development: Focused Research with Multiple Application Areas](#)." *Bulletin of Association for Information Science and Technology* 41 (2), 22-25.

2. Kay, Luciano; Porter, Alan L.; Rafols, Ismael; Newman, Nils; and Youtie, Jan (2014). "[X.8 Mapping Graphene Science and Development: Focused Research with Multiple Application Areas](#)" Online map in "10th Iteration (2014): The Future of Science Mapping," *Places & Spaces: Mapping Science*, edited by Katy Börner and Samuel Mills.
3. I. Rafols (2006) SPRU celebrates its 40th anniversary. *ISSI Newsletter* 2(2), 8-9.

#### **Policy-oriented Reports (Social sciences)**

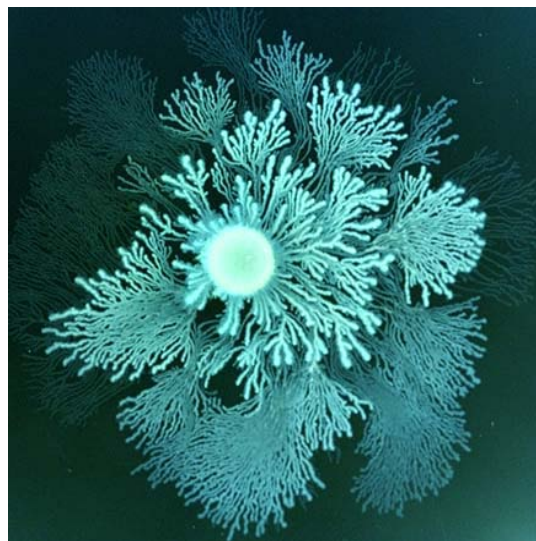
1. Anoushka Davé, Michael Hopkins, Joshua Hutton, Adam Krčál, Peter Kolarz, Ben Martin, Kalle Nielsen, Ismael Rafols, Daniele Rotolo, Paul Simmonds, Andrew Stirling (2016) [Landscape Review of Interdisciplinary Research in the UK](#). Report to HEFCE and RCUK by Technopolis and the Science Policy Research Unit (SPRU), University of Sussex.
2. Martin, B., Nightingale, P., Rafols, I. (2014) [Response to the Call for Evidence to the Independent Review of the Role of Metrics in Research Assessment](#). Brighton, UK: SPRU, University of Sussex.
3. Molas-Gallart, J., Tang, P. and Rafols, I. (2014) [The relationship between interdisciplinarity and impact](#). Report to ESRC.
4. Ciarli, T., Coad, A., & Rafols, I. (2013). [Quantitative Analysis of Technology Futures. Part I: Techniques, Contexts, and Organizations](#) (Nesta Working Paper No. 13/08). Brighton, UK: NESTA.
5. Ciarli, T., Coad, A., & Rafols, I. (2013). [Quantitative Analysis of Technology Futures. Part 2: Conceptual framework for positioning FTA techniques in policy appraisal](#) (Nesta Working Paper No. 13/09). Brighton, UK: NESTA.
6. Rafols, I., and Costas, R. (2012) [Innogen's scientific impact and interdisciplinary scope](#). Innogen, University of Edinburgh, Edinburgh.
7. Alice O'Hare and Ismael Rafols (2011) A bibliometric analysis of QUEST publications. Annex 6D to Lyall's et al. report on "Identifying key success factors in the quest for interdisciplinary knowledge". The report (not the annex) is available at <http://www.innogen.ac.uk/downloads/QUEST-Interdisciplinarity-FINAL-report-310111.pdf>
8. Nightingale, P., Meyer, M., Morgan, M., Rafols, I., and van Zwanenberg, P. (2008). [Nanomaterials Innovation Systems: Their Structure, Dynamics and Regulation](#). Report for the Royal Commission on Environmental Pollution.
9. Meyer, M., Makar, I., Rafols, I., Olsen, D., Wagner, V., Zweck, A., Porter, A.L., Youtie, J. (2008). Euronano: Nanotechnology in Europe: assessment of the current state, opportunities, challenges and socio-economic impact. ETEPS.
10. Rafols, I. (2007) BioPolis - Inventory and analysis of national public policies that stimulate research in biotechnology, its exploitation and commercialisation by industry in Europe in the period 2002-2005. National reports of [France](#), [Ireland](#), [Italy](#) and [Hungary](#). See also [Final report](#) with collaborators from TNO (NL), ISI Fraunhofer (DE) and SPRU at [http://ec.europa.eu/research/biosociety/library/brochures\\_reports-biopolis\\_en.htm](http://ec.europa.eu/research/biosociety/library/brochures_reports-biopolis_en.htm)
11. von Tunzelmann, N., Rafols, I., Patel, P., Senker, J. (2005) The latest trends of life science and biotechnologies in Europe. A report to JETRO (Japanese External Trade Relations Organisation). SPRU, University of Sussex, Brighton, UK.

#### **Journal articles (Natural sciences)**

1. Rafols, I. Amagai, A., Maeda, Y., MacWilliams, H.K., and Sawada, Y. (2001). Cell type proportioning in *Dictyostelium* slugs: lack of regulation within a 2.5-fold tolerance range. *Differentiation*, **67**, 107-116.
2. Wakita, J., Rafols, I., Itoh, H., Matsuyama, T. and Matsushita, M. (1998). Experimental Investigation on the Formation of Dense-Branching-Morphology-like Colonies in Bacteria, *J. Phys. Soc. Jpn.* **67**, 3630-3636.
3. Moriyama, O., Isoda, T., Kuroiwa, N., Kanda, M., Rafols, I. and Matsushita, M. (1998). Dynamics of Granular Flow through a Vertical Pipe: Effect of Medium Flow, *J. Phys. Soc. Jpn.* **67**, 1616-1624.
4. I. Rafols (1997) Formació d'estructures en colònies de bacteris. *Revista de Física* **13**, 20-33.
5. Matsushita, M., Wakita, J., Itoh, H., Rafols, I., Matsuyama, T., Sakaguchi, H. and Mimura, M. (1998). Interface growth and Pattern Formation in Bacterial Colonies, *Physica A* **249**, 517-524.



6. Frontera, C., Goicoechea, J., Rafols, I. and Vives, E. (1995). Sequential partitioning: An alternative to understanding size distributions of avalanches in first-order phase transitions, *Phys. Rev. E* **52**, 5671-5674.
7. J. Ortin, I. Rafols, Ll. Carrillo, J. Goicoechea, E. Vives, Ll. Manosa and A. Planes (1995). Experiments and Models of Avalanches in Martensites, *J. Phys. IV (France)* **5**, C8-209 C8-214.
8. E. Vives, J. Ortin, Ll. Manosa, I. Rafols and A. Planes (1995). Distribution of Acoustic Emission Avalanches in Martensitic transformations, *J. Phys. IV (France)* **5**, C2-59 C2-64.
9. Rafols, I. and Vives, E. (1995). Statistics of avalanches in martensitic transformations. II. Modelling. *Phys. Rev. B* **52**, 12651-12656.
10. E. Vives, J. Ortin, Ll. Manosa, I. Rafols and A. Planes (1995). Statistics of avalanches in martensitic transformations. I. Acoustic emission experiments., *Phys. Rev. B* **52**, 12644-12650.
11. Vives, E., Ortin, J., Manosa, Ll., Rafols, I., Perez-Magrane, R., and Planes, A. (1994). Distribution of Avalanches in Martensitic Transformations, *Phys. Rev. Lett.* **72**, 1694-1697.
12. Rafols, I. and Ortin, J. (1992). Heat conduction in a metallic rod with Newtonian losses, *Am. J. Phys.* **60**, 846-852.
13. I. Rafols (1992) Conducció de calor en una barra cilíndrica metàl·lica amb pèrdues newtonianes. *Revista de Física* **3**, 35-41.



**Branched growth in bacterial colonies (I.Rafols, 1998)**

#### **Invited lectures as keynote or plenary speaker in conferences and workshops**

1. Plenary Panellist in [4S/EASST conference](#) subplenary round table on “Futures: the effects of the neoliberal academy”, organised by Vincenzo Pavone and Miquel Domènech, Barcelona, September 2016.
2. Plenary lecture at the “[5 Encontro Brasileiro de Bibliometria e Cientometria](#)” (Brazilian Conference on Scientometrics), July 2016, University of Sao Paulo, "Capturando la investigación invisible: Hacia Indicadores más inclusivos de Ciencia y Tecnología”
3. Opening lecture at the conference “[Meso Innovación: Gobernanza, Territorios y Competitividad](#)”, March 2016. Pontificia Universidad Javeriana. “¿Qué investigación para el desarrollo humano? La aproximación de portafolios de innovación.”
4. Opening lecture of the academic year. Universitat Ramon Llull, Blanquerna, Barcelona, October 2015, School of Psychology and Education Sciences, “[Interaccions entre ciència i societat: de l'impacte a la co-creació](#)”.
5. [Thomson-Reuters Research Information Managers Summit](#) (RIMS), Vienna, September 2015. *Towards indicators for opening up S&T evaluation.*
6. Workshop on “[Investigating Interdisciplinary Practice: Methodological Challenges](#)”, Academy of Finland, Helsinki, June 2015. *Mapping Interdisciplinary Research Using Scientometric Tools: Methods, Potential Insights, and Pitfalls.*

7. [Eu-SPRI Forum Early Career Researcher Conference](#). Universitat Politècnica de València, April 2014. *Interdisciplinarity in STI studies: On problem-orientation and stakeholder engagement and knowledge modes*.
8. [18<sup>th</sup> Nordic Workshop on Bibliometrics and Science Policy](#). KTH, Stockholm, October 2013. *Towards indicators for opening up S&T policy*.
9. Conference “Science, Education and Business Cooperation: The Innovation Landscapes of Europe and Russia”. Saint Petersburg, October 2013. *Towards indicators for opening up S&T policy*.

#### **Conference presentations (Social science and policy-related)**

##### **2017**

1. 2<sup>nd</sup> International Conference on Academic Communication Journals. Universitat Pompeu Fabra, Barcelona, February 2017. *Towards more responsible use of S&T indicators in research evaluation*.

##### **2016**

2. International Research Conference on Scientometrics, STI Policy and Science Communication, Stellenbosch, South Africa, November 2016. *Exploring (mis)alignments between science supply and societal needs/demands: research portfolios on rice, influenza and obesity*. [Ismael Ràfols](#), Matthew Wallace, Tommaso Ciarli, Elisabeth de Turckheim, Pierre Sautier and Lorenzo Cassi.
3. International Research Conference on Scientometrics, STI Policy and Science Communication, Stellenbosch, South Africa, November 2016. *Under-representation of research in the global south. Biases in mainstream journal indexing systems*. Ismael Rafols, Diego Chavarro, Tommaso Ciarli and Puay Tang.
4. OECD Blue Sky Forum, Ghent, September 2016, *Towards more inclusive science and innovation indicators*. Ismael Rafols.
5. 21<sup>st</sup> S&T Indicators Conference, València, September 2016. *Scientific research on diseases: the distinct profile of developed and developing countries*. [Yegros-Yegros, Alfredo](#); [Rafols, Ismael](#); [Abad-García, María F.](#); [Mugnaini, Rogério](#); [Meijer, Ingeborg](#).
6. 21<sup>st</sup> S&T Indicators Conference, València, September 2016. *Knowledge integration through collaboration: building indicators using the Diversity/coherence and Proximity frameworks*. [Frédérique Lang](#), Ismael Rafols, Michael Hopkins.
7. 21<sup>st</sup> S&T Indicators Conference, València, September 2016. *Why researchers publish in journals not indexed in mainstream databases: training, bridging and gap-filling*. [Diego Chavarro](#), Puay Tang, Ismael Rafols.
8. 21<sup>st</sup> S&T Indicators Conference, València, September 2016. *The Evolution of Scientific Trajectories in Rice: Mapping the Relation between Research and Societal Priorities*. [Tommaso Ciarli](#), Ismael Rafols.
9. 21<sup>st</sup> S&T Indicators Conference, València, September 2016. *Monitoring the Evolution and Benefits of Responsible Research and Innovation (MoRRI) – a preliminary framework for measuring RRI dimensions*. [Niels Mejlgaard](#), Susanne Buehrer, Erich Griessler, Ralf Lindner, Nikos Maroulis, Ingeborg Meijer, Viola Peter, Ismael Rafols, Tine Ravn, Jack Stilgoe, Lena Tspouri, Richard Woolley, Angela Wroblewski.
10. 21<sup>st</sup> S&T Indicators Conference, València, September 2016. SSH & the City. A Network Approach for Tracing the Societal Contribution of the Social Sciences and Humanities for Local Development. [Nicolas Robinson-Garcia](#), Thed N. van Leeuwen, Ismael Rafols
11. SPRU 50<sup>th</sup> Anniversary Conference, Brighton, September 2016. *Transforming evaluation: How can research assessment help address global challenges and societal transformations?* Panel discussion organised by [Ismael Ràfols](#) (chair) and Michael Hopkins. Panellists: Jonathan Adams, Valeria Arza, Gavin Reddick, Judith Sutz, Paul Wouters.
12. SPRU 50<sup>th</sup> Anniversary Conference, Brighton, September 2016. *Mapping research priorities and their relation to societal needs over time: the case of rice research since the ‘80s*. [Tommaso Ciarli](#), Ismael Rafols.
13. SPRU 50<sup>th</sup> Anniversary Conference, Brighton, September 2016. *Towards a novel method of research evaluation: tracking proximity change in translational research projects*. [Frédérique Lang](#), Michael Hopkins, Jordi Molas-Gallart, Ismael Rafols, Puay Tang.

14. EASST/4S (Society for the Social Studies of Science) Conference September 2016, Barcelona, “Revealing research prioritization against societal “needs” by means of semantic analysis”. Ismael Ràfols, Matthew Wallace, Tommaso Ciarli, Elisabeth de Turckheim, Pierre Sautier and Lorenzo Cassi.
15. EASST/4S (Society for the Social Studies of Science) Conference September 2016, Barcelona. “Contrasting the evolution of rice research and agricultural priorities.” Tommaso Ciarli and Ismael Ràfols.
16. EuroScience Open Forum (ESOF), Manchester, July 2015. Research assessment. More metrics? New metrics? No metrics. Ismael Rafols
17. EuroScience Open Forum (ESOF), Manchester, July 2015. Building interdisciplinary bridges. Ismael Rafols
18. Eu-SPRI Annual Meeting, Lund, June 2015. Towards a novel method of research evaluation: tracking proximity change in translational research projects. Frédérique Lang, Michael Hopkins, Jordi Molas-Gallart, Ismael Rafols and Puay Tang
19. Eu-SPRI Annual Meeting, Lund, June 2015. *On the dominance of quantitative evaluation in ‘peripheral’ countries: Auditing research with technologies of distance*. Ismael Rafols, Jordi Molas-Gallart, Diego Chavarro and Nicolás Robinson-Garcia.
20. Contested Agronomy Conference, Brighton, UK. February 2016. *Under-reporting research relevant to local needs in the global south. Database biases in the representation of knowledge on rice*. Ismael Rafols, Tommaso Ciarli and Diego Chavarro.

#### 2015

21. INRA Conference on “Impacts of agricultural research –towards an approach of societal values”, Paris, November 2015. *Mapping societal needs into research trajectories in agriculture and health: results from three exploratory studies*. Ismael Rafols, Tommaso Ciarli, Lorenzo Cassi, Matthew Wallace, Pierre Sautier and Elisabeth de Turckheim.
22. Globelics Conference, La Habana, Cuba. September 2015. *Under-reporting research relevant to local needs in the global south. Database biases in the representation of knowledge on rice*. Ismael Rafols, Tommaso Ciarli and Diego Chavarro.
23. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2015. Science to tackle global risk: Institutional mediation of avian influenza research priorities. Matthew Wallace and Ismael Rafols.
24. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2015. Exploring biases and potential effects of S&T indicators in “peripheral” spaces. Jordi Molas-Gallart, Ismael Rafols, Richard Woolley, Diego Chavarro.
25. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2015. Exploring (mis)alignments between science supply and societal demand: research portfolios on rice and obesity. Ismael Rafols, Tommaso Ciarli, Lorenzo Cassi, Matthew Wallace, Pierre Sautier and Elisabeth de Turckheim.
26. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2015. The emergence of molecular biology in the diagnosis of cervical cancer: A network perspective. Daniele Rotolo, Michael Hopkins, Ismael Rafols and Stuart Hogarth.
27. Global TechMining Conference. Atlanta, US, September 2015. *Under-reporting research relevant to local needs in the global south. Database biases in the representation of knowledge on rice*. Ismael Rafols, Tommaso Ciarli and Diego Chavarro.
28. 15<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, *ISSI*, Istanbul, July 2015. *Science and Technology Indicators In & For the Peripheries. A Research Agenda*. Ismael Rafols, Jordi Molas-Gallart, Richard Woolley
29. 15<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, *ISSI*, Istanbul, July 2015. *Under-reporting research relevant to local needs in the global south. Database biases in the representation of knowledge on rice*. Ismael Rafols, Tommaso Ciarli, Diego Chavarro.
30. 15<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, *ISSI*, Istanbul, July 2015. Looking for a better shape: Societal demand and scientific research supply on obesity. Lorenzo Cassi, Ismael Rafols, Pierre Sautier, Elisabeth de Turckheim
31. European Meeting on Applied Evolutionary Economics (EMAE), Maastricht, The Netherlands,

June 2015. Mapping the Evolution of Research: The Case of Rice Since the 80's. Tommaso Ciarli and Ismael Rafols.

32. Eu-SPRI Annual Meeting, Helsinki, June 2015. Exploring biases and potential effects of S&T indicators in "peripheral" spaces. Jordi Molas-Gallart, Ismael Rafols, Richard Woolley, Diego Chavarro.
33. ORCID-CASRAI Conference, Barcelona, May 2015. *Towards Indicators for Opening Up Science and Technology Policy*. Rafols, I., Ciarli, T., & Stirling, A.

#### 2014

34. 5th International Conference on Future-Oriented Technology Analysis (FTA), Brussels, November 2014, *Conceptual framework for positioning FTA techniques in policy appraisal*. Tommaso Ciarli, Ismael Rafols and Alex Coad.
35. CASRAI ReConnect Conference, Ottawa, November 2014, *Research portfolios in support of societal challenges: concepts, data and analysis*. Matthew Wallace and Ismael Rafols.
36. International Council for Scientific and Technical Information, Annual Conference, Tokyo, October 2014. *Towards Indicators for Opening Up Science and Technology Policy*. Rafols, I., Ciarli, T., & Stirling, A.
37. 14th International Conference on Science and Technology Indicators. Leiden, September 2014. *The Emergence of Molecular Biology in the Diagnosis of Cervical Cancer: A Network Perspective*. Daniele Rotolo, Michael Hopkins, Ismael Rafols and Stuart Hogarth.
38. 14th International Conference on Science and Technology Indicators. Leiden, September 2014. *Characterizing the research landscape of Influenza A: new tools to inform policymaking*. Matthew Wallace and Ismael Rafols.
39. 14th International Conference on Science and Technology Indicators. Leiden, September 2014. *The under-representation of developing countries in the main bibliometric databases: a comparison of rice studies in the Web of Science, Scopus and CAB Abstracts*. Tommaso Ciarli and Ismael Rafols.
40. 14th International Conference on Science and Technology Indicators. Leiden, September 2014. *Towards an alternative framework for the evaluation of translational research initiatives*. Jordi Molas-Gallart, Pablo D'Este Rafols, Oscar Llopis and Ismael Rafols
41. 4S (Society for the Social Studies of Science) Annual Meeting 2014, Buenos Aires, August 2014. *Mapping the evolution of research. The case of rice*. Tommaso Ciarli and Ismael Rafols.
42. Gordon Research Conference, Waterville Valley, August 2014. *Research portfolios for societal challenges: a conceptual framework*. Matthew Wallace, Tommaso Ciarli, Ismael Rafols.
43. Eu-SPRI Annual Meeting, Manchester, June 2014. *Avian influenza narratives and research landscapes: towards new science policy approaches in biomedicine*. Matthew Wallace, Ismael Rafols.
44. Eu-SPRI Annual Meeting, Manchester, June 2014. *Research portfolios for societal challenges: a conceptual framework*. Matthew Wallace, Ismael Rafols.

#### 2013

45. Annual Meetings of the Society for Social Studies of Science. San Diego, Oct, 2013. "Stumbling in a Complex New Direction: Notes from Underwater." Ed Hackett, John Parker, Ugo Corte, John Drake, Stephanie Hampton, Erin Leahey, Craig McClain, Bart Penders, Ismael Rafols, Stacey Rebich Hespanha, Laura Sheble, Niki Vermeulen, Todd Vision.
46. Annual Meeting of the American Evaluation Association, Washington, D.C., US. October 2013. *A Framework for the Evaluation of Translational Research Based on the Characterization of Social Networks and Knowledge Exchange Processes*. Molas-Gallart, J., Rafols, I., D'Este, P., & Llopis, O.
47. IX Congreso Iberoamericano de Indicadores de Ciencia y Tecnología, Bogotá, October 2013. *La investigación interdisciplinaria y la producción de conocimiento local: el caso de Colombia*. Diego Chavarro, Puay Tang, Ismael Rafols.
48. IX Congreso Iberoamericano de Indicadores de Ciencia y Tecnología, Bogotá, October 2013. *Indicadores para la apertura de las políticas de ciencia y tecnología*. Rafols, I., Ciarli, T., Van Zwanenberg, P., & Stirling, A.

49. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2013. *Towards Indicators for Opening Up Science and Technology Policy*. Rafols, I., Ciarli, T., Van Zwanenberg, P., & Stirling, A.
50. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2013. *Quantitative Analysis of Technology Futures: A Conceptual Framework for Positioning FTA Techniques in Policy Appraisal*. Ciarli, Tommaso, Alex Coad, and Ismael Rafols.
51. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2013. *Roundtable Discussion: Individual-level Evaluative Bibliometrics – The Politics of its Use and Abuse*. Rafols, I., Sugimoto, C., Holbrook, J. B., & Hicks, D. (2013).
52. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2013. *Patent Mapping in Geographic and Cognitive Dimensions: A Lens to Knowledge-Based Innovation Policies*, Loet Leydesdorff, Chaomei Chen, Duncan Kushnir, Ismael Rafols
53. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2013. *Mapping the De Facto Governance of Emerging Science and Technologies*. Daniele Rotolo, Ismael Rafols, Michael Hopkins, Loet Leydesdorff.
54. Atlanta Conference on Science and Innovation Policy, Atlanta, US. September 2013. *A Framework for the Evaluation of Translational Research Based on the Characterization of Social Networks and Knowledge Exchange Processes*. Jordi Molas-Gallart, Pablo D'Este, Oscar Llopis, Ismael Rafols.
55. Global TechMining Conference. Atlanta, US, September 2013. *The Trajectory of Rice Technology: Mapping the Evolution of Research since the Green Revolution*. Tommaso Ciarli and Ismael Rafols
56. 13th International Conference on Science and Technology Indicators. Berlin, September 2013. *Quantitative Analysis of Technology Futures: A conceptual framework for positioning FTA techniques in policy appraisal*. Ciarli, T., Coad, A., and Rafols, I.
57. 13th International Conference on Science and Technology Indicators. Berlin, September 2013. *Interactive Overlay Maps for US Patent (USPTO) Data Based on International Patent Classifications (IPC)*. Leydesdorff, L., Kushnir, D. and Rafols, I.
58. 14<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, ISSI, Vienna, July 2013. *Interdisciplinary research and the production of local knowledge: evidence from a developing country*. Chavarro, D., Tang, P. and Rafols, I.
59. 14<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, ISSI, Vienna, July 2013. *Interactive Overlays of Journals and the Measurement of Interdisciplinarity*. Leydesdorff, L., Rafols, I, Chen, C.
60. DRUID Conference 2013, Barcelona, June 2013. *Mapping the De Facto Governance in the Case of Emerging Science and Technologies*. Rotolo, D., Rafols, I., Hopkins, Leydesdorff, L.
61. Eu-SPRI Annual Meeting, Madrid. April 2013. *Towards indicators for opening up S&T policy*. Rafols, I., Ciarli, T., Van Zwanenberg, P., Stirling, A.
62. Eu-SPRI Annual Meeting, Madrid. April 2013. *Building a multi-perspective scientometrics approach on tentative governance in emerging technologies*. Rotolo, D., Rafols, I., Hopkins, M.M. and Leydesdorff, L.

## 2012

63. The Governance of a Complex World Conference, Nice. November 2012. *Towards indicators for opening up S&T policy*. Rafols, I., Ciarli, T., Van Zwanenberg, P., Stirling, A.
64. SNET (Society for the study of Nanoscience and Emergence Technologies) Conference. Univ. Twente, Enschede, October 2012. *Opening up the Future: an Assessment of Technology Futures Analysis*. Ciarli, T., Coad, A., and Rafols, I.
65. EASST/4S (Society for the Social Studies of Science) Annual Meeting 2012, Copenhagen, The Different Facets of Diversity: The Case of 'Interdisciplinarity' and Their Contrasting Effects on Scientific Impact. Rafols, I., Yegros-Yegros, A., D'Este, P.
66. EASST/4S (Society for the Social Studies of Science) Annual Meeting, Copenhagen, October 2012, Copenhagen, *The Emergence of a New Technology: A Multi-Perspective Analysis on the Case of HPV Molecular Diagnostic Tests*. Rotolo, D., Hopkins, M.M. and Rafols, I.
67. 4S (Society for the Social Studies of Science) Annual Meeting, Copenhagen, October 2012, Copenhagen. *The Trajectory Is on the Map, but We Miss the Pathways*. Ciarli, T., Rotolo, D., and Rafols, I.

68. 4S (Society for the Social Studies of Science) Annual Meeting, Copenhagen, October 2012, Copenhagen. *Multiple Scientometric Perspectives on Medical Innovation: Using the Medical Subject Headings (MeSH) of PubMed in the case of "RNA Interference"*. [Leydesdorff, L.](#), Rotolo, D., and Rafols, I.
69. 12th International Conference on Science and Technology Indicators. Montreal, September 2012. *Towards indicators for opening up S&T policy*. [Rafols, I.](#), Ciarli, T., Van Zwanenberg, P., Stirling, A.
70. 12th International Conference on Science and Technology Indicators. Montreal, September 2012. *The Emergence of a New Technology: A Multi-Perspective Analysis on the Case of HPV Molecular Diagnostic Tests*. Rotolo, D., Hopkins, M.M. and Rafols.
71. DRUID Conference 2012, Copenhagen, June 2012. [Big Pharma, Little Science? A bibliometric perspective on big pharma's R&D decline](#). Rafols, I., Hopkins, M.M., Hoekman, J., Siepel, J., O'Hare, A., Perianes-Rodríguez, A., Nightingale, P. **Nominated to Best Paper Award**.
72. DRUID Conference 2012, Copenhagen, June 2012. *The Emergence of a New Technology: A Multi-Perspective Analysis on the Case of HPV Molecular Diagnostic Tests*. [Rotolo, D.](#), Hopkins, M.M. and Rafols.
73. Eu-SPRI Conference 2012, Karlsruhe, June 2012. *Interdisciplinary research and the production of scientific knowledge on local issues: the case of Colombia*. [Chavarro, D.](#), Puay, T. and Rafols, I.
74. Eu-SPRI Conference 2012, Karlsruhe, June 2012. *Innovation as a non-linear process and the bibliometric perspective*. [Leydesdorff, L.](#), Rotolo, D. and Rafols, I.
75. Science of Team Science Conference 2012, Chicago. *How journal rankings can suppress interdisciplinary research*. (Poster) [Rafols, I.](#), Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A.

#### 2011

76. Conference on Patent Statistics for Decision Makers, [Newman, N.C.](#), Rafols, I., Porter, A.L., Youtie, J. and Kay, L., *Patent Overlay Mapping: Visualizing Technological Distance*. Alexandria, Virginia, November 2011
77. Wang, W., [Porter, A.L.](#), Rafols, I., Newman, N.C., Liu, Y., Analyses of the Effect of Patent Category Diversity on Patent Quality, American Evaluation Association Conference, Anaheim, 2011.
78. SNET (Society for the study of Nanoscience and Emergence Technologies) Conference. Phoenix, November 2011. *Diffusion and Network Formation of Emerging Technologies: The Case of RNA Interference*. [Rafols, I.](#), Hopkins, M.M., Leydesdorff, L.
79. 4S (Society for the Social Studies of Science) Annual Meeting 2011, Cleveland, November 2011. *How journal rankings can suppress interdisciplinarity*. [Rafols, I.](#), Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A.
80. 4S (Society for the Social Studies of Science) Annual Meeting 2011, Cleveland, November 2011. *Interactive Overlays: A New Method for Generating Global Journal Maps from Web-of-Science Data*. [Leydesdorff, L.](#), and Rafols, I.
81. 3rd European Conference on Corporate R&D (CONCORD-2011). The dynamics of Europe's industrial structure and the growth of innovative firms. IPTS, Seville, Spain, October 2006. *A Global Map of Technology .A useful tool for analysing corporations' inventive profiles*. [Schoen, A.](#), Cointet, J.-P., Villard, L., Laurens, P., Rafols, I.
82. 2011 Atlanta Conference on Science and Technology Policy. Atlanta, September 2011, *How journal rankings can suppress interdisciplinarity*. [Rafols, I.](#), Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A. **Best Paper Award**.
83. 2011 Atlanta Conference on Science and Technology Policy. Atlanta, September 2011. *Does interdisciplinary research lead to higher impact?* Yegros-Yegros, A., Amat, C.B., D'Este, P.; Porter, A.; [Rafols, I.](#)
84. 1<sup>st</sup> Global Tech Mining Conference, Atlanta, Septemeber 2011. *Benchmarking and visualising the knowledge base of pharmaceutical firms (1995-2009)*. [A. Perianes](#), O'Hare, A., Hopkins, M.M., Nightingale, P. and Rafols, I.
85. 2011 Colloquium EGOS (European Group for Organizational Studies), Gothenburg, July 2011, *How journal rankings can suppress interdisciplinarity*. [Rafols, I.](#), Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A.

86. 13<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, ISSI, Durban, July 2011. *Benchmarking and visualising the knowledge base of pharmaceutical firms (1995-2009)*. A. Perianes, O'Hare, A., Hopkins, M.M., Nightingale, P. and Rafols, I.
87. 13<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, ISSI, Durban, July 2011. *How journal rankings can suppress interdisciplinarity*. Rafols, I., Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A.
88. DRUID Conference 2011, Copenhagen, June 2011. *How journal rankings can suppress interdisciplinarity*. Rafols, I., Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A.

## 2010

89. American Evaluation Association Conference, San Antonio, November, 2010. *Science Overlay Maps: A New Research Evaluation Tool*, Porter, A.L., and Rafols, I.
90. International Conference 'Tentative Governance in Emerging Science and Technology'. University of Twente, Enschede, The Netherlands, October 2010. *Collaborative practices and technological trajectories in large pharmaceutical firms*. Rafols, I., O'Hare, A., Perianes, A., Hopkins, M.M. and Nightingale, P.
91. Colloquium on 'Les 20 ans de l'OST'. Ministère de l'Enseignement supérieur et de la Recherche. Observatoire des Sciences et des Techniques (OST). Paris. October 2010. *Indicateurs pour "ouvrir" le débat. Le cas de l'interdisciplinarité*.
92. 11th International Conference on Science and Technology Indicators. Leiden, September 2010. *Analyzing SPRU's research capabilities: A survey-based method for mapping knowledge domains in interdisciplinary research organizations*. Rafols, I. and Leydesdorff, L.
93. 11th International Conference on Science and Technology Indicators. Leiden, September 2010. *Indicators of the interdisciplinarity of journals: diversity, centrality, and citations*, Leydesdorff, L., and Rafols, I.
94. 11th International Conference on Science and Technology Indicators. Leiden, September 2010. *Does interdisciplinary research lead to higher impact? A research group based analysis*. Yegros-Yegros, A., Amat, C.B., D'Este, P.; Porter, A.; Rafols, I.
95. 'Regulation in the Age of Crisis' Conference, European Consortium for Political Research (ECPR), Dublin, June 2010. *Missing links in nanomaterials governance: bringing industrial dynamics and downstream policies into view*. I. Rafols and P. van Zwanenberg.
96. UCSB-Center for Nanotechnology in Society Conference. Lyon, April 2010. *Missing links in nanomaterials governance: bringing industrial dynamics and downstream policies into view*. I. Rafols and P. van Zwanenberg.
97. Science of Team Science Conference, Chicago, April 2010. *Interdisciplinarity Research Assessment Tools*. Porter, A.L., Newman, N.C. and Rafols, I.
98. European Network Indicator Designers Conference, Paris, March 2010. *The use of global maps of science in management and policy contexts*. Rafols, I., Porter, A.L. and Leydesdorff, L.

## 2009

99. 4S Conference. Washington, November 2009. *Knowledge acquisition strategies in interdisciplinary research*. Rafols, I. and Laudel, G.
100. Atlanta Science Policy Conference. Atlanta, October 2009. *A model of interdisciplinarity in nanotechnology: local integration, packaging and diffusion*. Rafols, I. and Porter, A.
101. Atlanta Science Policy Conference. Atlanta, October 2009. *Using global maps of science in policy and management*. Rafols, I., Porter, A. and Leydesdorff, L.
102. Manchester University. International Conference on Nanotechnology, Society, and Policy. Organised by Phil Shapira and Sally Randles. September 2009. *A Model of Interdisciplinarity in Research Communities: Local Integration, Packaging and Diffusion*. Rafols, I.
103. Conference of the Society for the study of Nanoscience and Emerging Technologies. Seattle, September 2009. *A model of interdisciplinarity in nanotechnology: how local knowledge integration links a globally fragmented field*. Porter, A.L. and Rafols, I.
104. 12<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, ISSI, Rio de Janeiro, July 2009. *Content-based vs. Algorithmic Classifications of Journals: Perspectives on the Decomposition of the Science Matrix*. Rafols, I. and Leydesdorff, L.

105. 12<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, ISSI, Rio de Janeiro, July 2009. *Can epidemic models describe the diffusion of research topics across disciplines?* Kiss, I. Z., Broom, M., and Rafols, I.
106. 12<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, ISSI, Rio de Janeiro, July 2009. *Measuring and Mapping Interdisciplinarity in Six Research Fields over Time (1975-2005).* Porter, A.L. and Rafols, I.
107. Triple Helix VII, Glasgow, June 2009. *Mapping interdisciplinarity in hybrid nanomaterials research in terms of disciplinary diversity and topic coherence.* I. Rafols and M. Meyer.
108. Conference Dynamics & Governance of Transitions to Sustainability. Amsterdam, June 2009. *The 'hour-glass shape' in nanomaterials innovation systems and its implications for governance .* P. van Zwanenberg, M. Morgan, A. Smith, P. Nightingale and I. Rafols.

#### 2008

109. 10th International Conference on Science and Technology Indicators. Vienna, September 2008. *Locating the sites of knowledge integration in nanotechnology, using diversity and coherence as indicators of interdisciplinarity.* I. Rafols, M. Meyer, and A.L. Porter.
110. EASST and 4S joint Conference, Rotterdam, August 2008. *The Direction of Nanomaterial Innovation.* P. van Zwanenberg, M. Morgan, A. Smith, P. Nightingale and I. Rafols.
111. DRUID Conference 2008, Copenhagen, June 2008. *Disciplinary diversity and network coherence as indicators of interdisciplinarity.* I. Rafols and J.-H. Park.
112. PRIME Indicators Conference, Oslo, Norway, May 2008. *Capturing interdisciplinarity through global diversity and local coherence.* I. Rafols, L. Leydesdorff and M. Meyer.
113. 'Managing The Uncertainty Of Nanotechnologies Challenges to Law, Ethics, and Policy-Making' Rovigo, Italy, May 2008. *How can regulatory regimes shape the directions of nanomaterials innovation?* I. Rafols, M. Meyer, M. Morgan, P. Nightingale, A. Smith and P. van Zwanenberg.
114. NBER Conference on Emerging Industries: Nanotechnology and NanoIndicators, May 2008, Cambridge, MA, US. *The cognitive geography of nanotechnologies: location and knowledge flows of nano-research in the Map of Science.* A.L. Porter, M. Meyer and I. Rafols.

#### 2007

115. 2007 Technology Transfer Society Annual Conference, Palm Springs, USA, Oct. 2007. *Technology convergence through 'modular' combinations in bionanotechnology: why are research teams and collaborations less interdisciplinary than expected?* I. Rafols and M. Meyer.
116. UK Social Network Conference, London, UK, July 2007. *Diversity measures and network centralities as indicators of interdisciplinarity: case studies in bionanoscience.* I. Rafols and M. Meyer.
117. Conference of Amsterdam Science, Technology and Innovation Studies (ASTIS). Amsterdam, July 2007. *Organizational approaches to integration processes in emergent fields: strategies for knowledge acquisition in bio-nanotechnology.* I. Rafols and M. Meyer.
118. 11<sup>th</sup> International Conference of the International Society for Scientometrics and Informetrics, Madrid, June 2007. *Diversity measures and network centralities as indicators of interdisciplinarity: case studies in bionanoscience.* I. Rafols and M. Meyer.
119. Triple Helix VI, Singapore, May 2007. *Diversity Measures and Network Centralities as Indicators of Interdisciplinarity: Case Studies in Bionanoscience.* I. Rafols and M. Meyer.
120. Converging Science and Technologies: Research Trajectories and Institutional Settings, Vienna, May 2007. *Strategies for knowledge acquisition in two research specialties of bionanotechnology.* I. Rafols and M. Meyer.

#### 2006 and before

121. 4S (Society for Social Studies of Science) Conference, Vancouver, Canada, Nov. 2006. *Knowledge-sourcing strategies for cross-disciplinarity in bionanotechnology.* I. Rafols and M. Meyer.
122. 2006 Technology Transfer Society Annual Conference, Atlanta, USA, Sept. 2006. *Knowledge-sourcing strategies for cross-disciplinarity in bionanotechnology.* I. Rafols and M. Meyer.
123. SPRU 40th Anniversary Conference. Brighton, UK, Sept. 2006. *Knowledge-sourcing strategies for cross-disciplinarity in bionanotechnology.* I. Rafols and M. Meyer.



124. 9<sup>th</sup> International Conference on Science and Technology Indicators. Leuven, Belgium, September 2006. *Measures of cross-disciplinarity in bionanotechnology: cognitive versus social dimensions*. I. Rafols and M. Meyer.
125. EASST Conference. Lausanne, Switzerland, August 2006. Variety of sourcing strategies and the trade-off between cross-disciplinarity and integration in a specialty of bionanoscience. I. Rafols and M. Meyer.
126. 7<sup>th</sup> COLLNET Meeting. Nancy, France, May 2006. Diversity of knowledge - sourcing strategies for cross-disciplinarity in bio-nanotechnology. I. Rafols and M. Meyer.
127. 20<sup>th</sup> Annual Meeting of the Japan Society for Science Policy and Research Management, Tokyo, October 2005.
128. 10<sup>th</sup> International Conference on Scientometrics and Informetrics, ISSI 2005 Doctoral Forum. Stockholm, Sweden, July 2005. *Patterns of multi- and inter-disciplinary research in bionanotechnology*. I. Rafols.
129. Forum 2004 on Cultural rights and human development. Barcelona, Spain, August 2004. *Cultural policies for art in Educating Cities*. M.-A. Cabeza and I. Rafols.

### **Workshops (Social sciences)**

1. Workshop on 'Innovation pathways to inclusive structural change' organised by Tommaso Ciarli for an IDRC project. February 2<sup>nd</sup> 2016. Discussant to 'What kind of evidence do we need? Indicators on innovation, structural change and inclusion'.
2. Workshop on 'Diversity Approach to Research Evaluation' organised by Michael Hopkins for an MRC project on evaluation of translational research. December 2016. *Introduction to the diversity framework*.
3. Workshop on 'Exploring mechanisms for a long-term strategy in health research' organised Karin Sipido for the EC Scientific Panel for Health. September 2016. *Research Portfolio analysis informing health research*.
4. Workshop on Excellence policies in Science, organised by Rathenau Institute and CWTS, Leiden, 2-3 June 2016, *On the dominance of quantitative evaluation in 'peripheral' countries: Auditing research with technologies of distance*.
5. Workshop on Bibliometric Indicators organised by the National Center for Science and Engineering Statistics of the US National Science Foundation. Washington, US, April 2016. *From measuring interdisciplinarity to mapping knowledge dynamics*.
6. III Encuentro Nacional de Observatorios, Asociación Colombiana para el Avance de la Ciencia. Bogotá, March 2016. *Towards indicators for opening up S&T policy*.
7. Workshop "Innovation indicators in the peripheries", organised by Lili Wang and Ismael Rafols, Maastricht, The Netherlands, January 2016, *Exploring biases and potential effects of STI indicators in "peripheral" spaces*.
8. Workshop "Qualitative and Mixed Methods in Research Evaluation and Policy Workshop", organised by Gemma Derrick, October 2015, *Towards a novel method of research evaluation: Tracking Translation in biomedical research using a proximities framework*. Presented by Frederique Lang (SPRU).
9. Workshop "Towards an observatory of health research", organised by Paula Santos, Fundação Oswaldo Cruz, Rio de Janeiro, June 2015. *Methods for the evaluation of social impact*.
10. Workshop "Citations scientifiques et réseaux sociaux", organised by Beatrice Milard. Université de Toulouse Jean Jaurès, Toulouse, June 2015. *Exploring biases and potential effects of S&T indicators in "peripheral" spaces*.
11. 3rd Brunel Pragmatic Impact Winter Meeting, organised by Averil Horton. Brunel University, London, December 2014. *Exploring science maps as a method for linking scientific topics and application areas*.
12. Workshop "In metrics we trust? Prospects & pitfalls of new research metrics" organised by James Wilsdon, SPRU, University of Sussex, October 2014. *Norms and guidelines for a responsible use of metrics. The governance of a social technology*.

13. Workshop "Standards in bibliometrics" organised by Ludo Waltman, CWTS, Leiden University, Leiden. *Use of journal metrics in research evaluation. Looking at indicators as social technology?*
14. Workshop "Measuring diversity in science" organised by Jochen Gläser, Humboldt University, Berlin, September 2014. *Measuring changes of diversity for a field over time.*
15. Workshop "Research funding & the dynamics of science", organized by Research Network 24 - Sociology of Science and Technology Network (SSTNET) of the European Sociological Association (ESA), CWTS, Leiden, June 2014. *Research portfolios for societal challenges: a conceptual framework.*
16. VTT Colloquium "Mapping knowledge structures and flows", hosted by Hannes Toivanen, VTT, Helsinki, Finland, May 2014. *Interdisciplinary research: why it matters, and how it can be measured.*
17. OECD Workshop "OECD-experts dialogue on scientometrics: Improving the use of bibliometric indicators and analysis for policy-making", hosted by Fernando Galindo-Rueda, Paris, the Directorate for Science, Technology and Industry, March 2014.
18. Workshop ICONO (Observatorio Español de I+D+I), FECyT(Fundación Española para la Ciencia y la Tecnología), invited by José Ignacio Fernández Vera (director), Madrid, November 2013.
19. Workshop on Foresight at NESTA (National Endowment for S&T Advancement). December 2012. *Quantitative analysis of technology futures.*
20. Workshop on 'La recherche en sciences humaines et sociales', Agadir, Morocco. Organised by British Council. June 2012. *Challenges on research assessment in the UK. Struggles for excellence and impact.*
21. Workshop on "The Organisation, Economics and Policy of Scientific Research", Turin. *How journal rankings can suppress interdisciplinary research.* May 2012. Presented by Paul Nightingale.
22. International Workshop on Technology, Innovation and Equity in Health, Salvador de Bahia, Brazil. *Big Pharma, Little Science? A bibliometric perspective on big pharma's R&D decline.* March 2012.
23. Utrecht University, Interdisciplinarity and Transdisciplinarity: Exploring, Mapping, and Anchoring the Field. Organised by Ria van der Lecq and Machiel Keestra. June 2011. *How journal rankings can suppress interdisciplinarity.*
24. CNRS Paris IdF Complex Systems Institute, Mapping the digital traces of science. Organised by David Chavalarias. March 2011. *The use of mapping tools in science policy: 'Opening up' or 'Closing down?'*
25. University of Brighton, CENTRIM, New Horizons in Innovation Management. Organised by Jonathan Sapsed. *Trends in large pharma on the externalisation and globalisation of R&D.*
26. Royal Society, London. Challenges in Policy Relevant Interdisciplinary Science. Organised by Ismael Rafols and Andy Stirling. March 2011. *How journal rankings can suppress interdisciplinarity.*
27. Porter, A.L., and Rafols, I., Measuring and Tracking Research Knowledge Integration, NSF SciSIP Workshop, Washington, DC, Oct. 19, 2010.
28. Dutch Royal Academy of Sciences. Virtual Knowledge Studio, Amsterdam. October 2010. Workshop on 'Modelling knowledge dynamics'. Organised by Andrea Scharnhorst. *Does interdisciplinary research lead to higher impact?*
29. Udo Keller Stiftung Forum Humanum, Hamburg, Germany. Workshop on "Philosophy of /as interdisciplinarity". Organised by Jan C. Schmidt and Michael Hoffmann. September 2010. *Visualisation of knowledge domains in interdisciplinary research organizations.*
30. Humboldt University, Berlin. September 2010. Workshop on "Measuring the diversity of research". Organised by Jochen Gläser. *Does interdisciplinary research lead to higher impact?*
31. Georgia Institute of Technology, Atlanta, US. Transatlantic Workshop on Nanotechnology Innovation and Policy. Organised by Philip Shapira and Jan Youtie. March 2010. *Missing links in nanomaterials governance: bringing industrial dynamics and downstream policies into view.*
32. Georgia Institute of Technology, Atlanta, US. Workshop on "Philosophy of interdisciplinarity". Organised by Jan C. Schmidt and Michael Hoffmann. September 2009. *A Model of Interdisciplinarity in Research Communities: Local Integration, Packaging and Diffusion.*
33. Humboldt University, Berlin. September 2009. Workshop on "Measuring the diversity of research". Organised by Jochen Gläser. *On diversity and interdisciplinary research.*

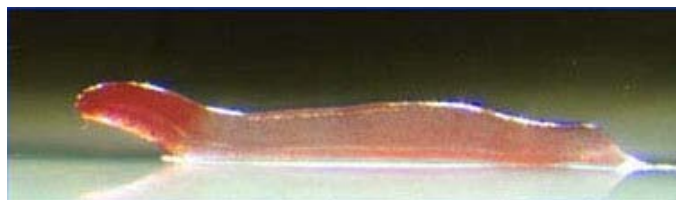
34. Eindhoven Technical University, Eindhoven, The Netherlands. May 2009. DIME workshop on ‘*The Structure and Dynamics of Knowledge Networks*’. Organised by Alessandro Nuvolari. *Tracking the diffusion of research topics over the map of science*.
35. UK-China workshop, RCUK Beijing, January 2009, Nano: Regulation & Innovation, Organised by Mathew Kearnes. *The Direction of Nanomaterials Innovation*.
36. [Japan Eco-material Forum Working Group](#), Japan Science and Technology Agency (JST). Organised by Hideki Yoshida., November 2008. *The Direction of Nanomaterials Innovation*.
37. [Porter, A.L.](#), and Rafols, I., Science Overlay Maps: Easy-to-use Tools to help Visualize and Track Bodies of Research, *A Deeper Look at the Visualization of Scientific Discovery in the Federal Context [A Workshop at the National Science Foundation]*, Washington, DC, Sep 11-12, 2008.
38. [Porter, A.L.](#), and Rafols, I., Science Overlay Maps & Metrics: Analyzing Interdisciplinarity (Diversity & Coherence), *A Deeper Look at the Visualization of Scientific Discovery in the Federal Context [A Workshop at the National Science Foundation]*, Washington, DC, Sep 11-12, 2008.
39. Manchester University. International Workshop on Nanotechnology, Society, and Policy. Organised by Phil Shapira and Sally Randles. September 2008. *Nanotechnology as a multipolar science*.
40. Maison des Sciences de l’Homme, Paris, April 2007. Workshop on “*Intellectual and Laboratory Dynamics of Nanoscience and Nanotechnology*” organised by Terry Shinn. *Strategies for knowledge acquisition in two research specialties of bionanotechnology*.
41. Sociology of Science and Technology Network (SSTNet) Workshop. Manchester, April 2006. *Cross-disciplinary practices and the role of instrumentalities in a specialty of bionanotechnology*. [I.Rafols](#) and M.Meyer.

#### **Lectures as invited speaker (Social sciences)**

1. CWTS, University of Leiden, Leiden, The Netherlands, January 2017, organised by Sarah de Rijcke. *Towards indicators for ‘opening up’ science and technology policy*.
2. CREST, Stellenbosch University, Stellenbosch, South Africa, October 2016, organised by Johann Mouton. *Towards indicators for ‘opening up’ science and technology policy*.
3. CREST Stellenbosch University, Stellenbosch, South Africa, October 2016, organised by Johann Mouton. *Mapping diversity and coherence of interactions to capture knowledge bridging*.
4. Aarhus University, Aarhus, Denmark, August 2016, organised by Jesper W. Schneider, *Beyond the Leiden Manifesto*.
5. Aarhus University, Aarhus, Denmark, August 2016, organised by Jesper W. Schneider, *Exploring (mis)alignments between science supply and societal demand: research portfolios on flu, rice and obesity*.
6. Karolinska Institute, Stockholm, Sweden, June 2016, organised by Pauline Mattson, *Evaluation of translational research initiatives: A novel method based on the proximity framework*.
7. NIFA (National Institute of Food and Agriculture), Washington, US, April 2016, organised by Robbin Shoemaker. *Exploring (mis)alignments between science supply and societal demand: research portfolios on flu, rice and obesity*.
8. CIRAD, Montpellier, France, February 2016, organised by Ludovic Temple, *Mapping societal needs into research trajectories in rice*.
9. Food and Agriculture Organisation (FAO), Rome, January 2016, organised by Karna Wegner, via a webinar. Recording available at FAO [AIMS website](#).
10. Leiden University, CWTS, Leiden, January 2016, organised by Sarah de Rijcke, *Exploring biases and potential effects of S&T indicators in “peripheral” spaces*.
11. Utrecht University, Department of Innovation Studies, Utrecht, organised by Koen Frenken, January 2016, *Exploring biases and potential effects of S&T indicators in “peripheral” spaces*.
12. SPRU, University of Sussex, Brighton, December 2015, *Exploring biases and potential effects of S&T indicators in “peripheral” spaces*.
13. Ingenio (CSIC-UPV), Universitat Politècnica de València, València, July 2015. *Exploring biases and potential effects of S&T indicators in “peripheral” spaces*.
14. Universidad Federal de Rio de Janeiro, Institute of Economics, Rio de Janeiro, organised by Caetano Penna, June 2015. *Exploring biases and potential effects of S&T indicators in “peripheral” spaces*.

15. Universidad de la República, evaluation meeting of Espacio Interdisciplinario, Montevideo, Uruguay, organised by Bianca Vienni. April 2015. *Towards indicators for opening up science and technology policy*
16. Instituto Nacional de Investigación Agropecuaria (INIA), Montevideo, Uruguay, organised by Nicolás Gutiérrez, April 2015. *Towards indicators for opening up science and technology policy*.
17. Universidad de la República, project workshop on drought in Uruguay, Maldonado, Uruguay, invited by Bianca Vienni, April 2015. *Towards indicators for opening up science and technology policy*.
18. Universidade Campinas, Campinas, Brazil, organised by Janaina da Costa, April 2015, *Towards indicators for opening up science and technology policy*.
19. Universidade de Sao Paulo, Sao Paulo, Brazil, organised by Rogério Mugnaini, March 2015, *Towards indicators for opening up science and technology policy*.
20. Sussex University, SPRU, Brighton, organised by Alex Coad, October 2014. *Trajectories in rice research*. Tommaso Ciarli and Ismael Rafols.
21. University of Harvard, Kennedy School of Government, Center for International Development, invited by Ricardo Gaussman, August 2014.
22. Observatoires des Sciences et des Techniques (OST), invited by Ghislaine Filliatreau, July 2014.
23. University of Kyoto, Institute for Integrated Cell-Material Sciences, invited by Shintaro Sengoku, April 2014.
24. University of Tokyo, Department of Technology Management for Innovation, invited by Sotaro Shibayama, April 2014.
25. Sussex University, SPRU, Brighton, organised by Alex Coad, February 2014. *How can the notion of research portfolios be applied to public science*. With Matthew Wallace.
26. OECD, Directorate for Science, Technology and Industry, invited by Fernando Galindo-Rueda, November 2013.
27. Department of Political Science and Government, Danish Centre for Studies in Research and Research Policy, University of Aarhus, invited by Jesper Schneider, October 2013.
28. Image Knowledge Gestaltung. Cluster of Excellence Humboldt-Universität zu Berlin, invited by Wolfgang Schäffner, September 2013. *Mapping interdisciplinary research*.
29. Ingenio (CSIC-UPV), Universitat Politècnica de València, organised by Carolina Cañibano, May 2012. *Towards indicators for opening up S&T policy*.
30. STIP (Science Technology and Innovation Policy), IDA, Washington D.C., organised by Bhavya Lal, April 2012. *How journal rankings can suppress interdisciplinary research*.
31. Innogen, University of Edinburgh, organised by Catherine Lyall, March 2012. *How journal rankings can suppress interdisciplinary research*.
32. Sussex University, SPRU, Brighton, organised by Alex Coad, November 2011. *Does interdisciplinary research lead to higher impact?*
33. University of Tokyo, Innovation Policy Research Center, invited by Yuya Kajikawa, October 2011. *Opening-up versus closing down using bibliometric tools*.
34. University of Tokyo, Sustainability Science Programme, invited by Masaru Yarime. October 2011. *Challenges in interdisciplinary research*.
35. University of Tokyo, Innovation Policy Research Center, invited by Yuya Kajikawa, August 2011. *How journal rankings can suppress interdisciplinarity*.
36. University of Leiden, CWTS, invited by Paul Wouters, June 2011. *How journal rankings can suppress interdisciplinarity*.
37. Georgia Institute of Technology, School of Public Policy, invited by Diana Hicks and Alan Porter, March 2011. *How journal rankings can suppress interdisciplinarity*.
38. University of Georgia, invited by Barry Bozeman, March 2011. *How rankings suppress interdisciplinarity*.
39. Sussex University, SPRU, invited by Florian Kern, February 2011. *How rankings suppress interdisciplinarity*.
40. Technical University of Berlin, Institute of Sociology, invited by Werner Rammert, Berlin, Germany, November 2010. *Mapping the dynamics of emergent technologies*.
41. Universidad Carlos III de Madrid. Dept. de Biblioteconomía y Documentación, invited by Carlos Olmeda Gómez, Madrid, Spain, November 2010. *Analyzing SPRU's research capabilities. A mixed survey-bibliometric method for mapping interdisciplinary organizations*.

42. INGENIO, CSIC-Universitat Politècnica de València, invited by Jordi Molas-Gallart, València, Spain, June 2010. *Medidas y mapas para explorar interdisciplinariedad. Un caso de estudio en bionanotecnología.*
43. Science-Metrix (bibliometrics consultancy), invited by Éric Archambault, Montréal, Québec, June 2010. *Mapping and measuring diversity in science.*
44. University of Sussex, SPRU, invited by Florian Kern, Brighton, UK, May 2010. *Can we have purposive 'governing' with distributed 'governance'? The case of nanomaterials.*
45. University of Indiana, School of Library and Information Science, invited by Katy Börner, Bloomington, USA, March 2010. *A Model of Interdisciplinarity: Local Integration, Packaging and Diffusion.*
46. Eindhoven University, ECIS, School of Innovation Sciences, invited by Koen Frenken, Eindhoven, December 2009. *A Model of Interdisciplinarity in Research Communities.*
47. Royal Academy of Sciences (NL), Virtual Knowledge Studio, Amsterdam, invited by Andrea Scharnhorst, December 2009. *A Model of Interdisciplinarity in Research Communities.*
48. University of Twente, STEPS (Dept. of Science Technology and Policy Studies), Enschede, invited by Stefan Kuhlmann. December 2009. *A Model of Interdisciplinarity in Research Communities: Local Integration, Packaging and Diffusion.*
49. University of Tokyo, Tokyo, Japan. Graduate School of Public Policy, invited by Tatsujiro Suzuki. September 2009. *How to shape the direction of innovation in nanomaterials? Broadening the agenda from risk regulation to innovation governance.*
50. University of Tokyo, Tokyo, Japan. Global Center of Excellence. Center for Medical Innovation. Department of Pharmacology. Invited by Takashi Funatsu. September 2009. *Strategies for interdisciplinary research: How and why do they differ and how could they be changed?*
51. University of Tokyo, Tokyo, Japan. Institute of Innovation Policy Research Center. Invited by Yuya Kajiwaka. August 2009. *Capturing interdisciplinarity through diversity and network coherence. Case studies in nanobioscience.*
52. Georgia Institute of Technology, Atlanta, US, invited by Alan Porter. March 2009. *The Direction of Nanomaterials Innovation.*
53. University of Tokyo, Japan. Invited by Masaru Yarime. November 2008. *The Direction of Nanomaterials Innovation.*
54. Georgia Institute of Technology, Atlanta, US, invited by Phil Shapira. November 2007. *Finding shortcuts in the map of science. Interdisciplinarity as integration of diverse geographies.*
55. Rathenau Institute, The Hague, Netherlands, invited by P. van den Besselaar. January 2007. *Mapping cross-disciplinarity in bionanotechnology.*
56. Tohoku Univ., Sendai, Japan. Dept. Physics, invited by T. Hondou, December 2006. *Knowledge acquisition strategies for cross-disciplinarity in bionanotechnology.*
57. Tokyo Institute of Technology, Japan. Graduate School of Innovation Management. Invited by K. Miyazaki, December 2006. *Knowledge acquisition strategies for cross-disciplinarity in bionanotechnology.*



**Multicellular phase of social amoebae (I.Rafols, 2001)**

#### **Proceedings and Conference publications (Natural sciences)**

1. I. Rafols, J. Wakita, T. Matsuyama and M. Matsushita (1999). Concentric rings in bacterial colonies: patterning and differentiation, in *Statistical Mechanics of biocomplexity* p. 291, D. Reguera, J.M.G. Vilar, J.M. Rubi (Eds.), Springer, Berlin.

2. M. Matsushita, J. Wakita, H. Itoh, I. Rafols, T. Matsuyama, H. Sakaguchi and M. Mimura (1998). Pattern formation in bacterial colonies and its modelling, in *Statistical physics: Experiments, Theories and Computer Simulations*, pp. 135-138, M. Tokuyama and I. Oppenheim (Eds.), World Scientific, Singapore.
3. I. Rafols, J. Wakita, H. Itoh, T. Matsuyama and M. Matsushita (1998). Experimental study of concentric ring patterns in bacterial colonies, in *Statistical physics: Experiments, Theories and Computer Simulations*, p. 146, M. Tokuyama and I. Oppenheim (Eds.), World Scientific, Singapore.

#### **Conferences and meetings (Natural sciences)**

1. Meeting of the US National Nanotechnology Initiative. Ithaca, New York, November 2001. *Intracellular dynamics: chemotaxis*. I. Rafols, D.Greenhouse, H.Levine, W.F. Loomis, B. Baird and E. Bodenschatz
2. 2001 International Conference in Biophysics. Kyoto, Japan, August 2001. *Proportion opposes precision in the proportion regulation of cell types*. I. Rafols, H.K. MacWilliams, A. Amagai, Y. Maeda and Y. Sawada.
3. 2001 International Dictyostelium Conference. San Diego, California, USA, July 2001. *A tolerance range in proportion regulation*. I. Rafols, H.K. MacWilliams, A. Amagai, Y. Maeda and Y. Sawada.
4. Meeting of the US National Nanotechnology Initiative. New York City, June 2001. *Control of cell polarity by chemoattractant gradients*. I. Rafols, T.Tanaka, H.Levine, W.F. Loomis and E. Bodenschatz.
5. 3<sup>rd</sup> Annual Meeting of *Dictyostelium* Researchers in Japan. Tsukuba, Japan, March 2001. *Model for proportion regulation: Differential sensitivity of prestalk and prespore cells to DIF-1 brings forth stability at the expense of precision*. I. Rafols, H.K. MacWilliams, Y. Maeda and Y. Sawada.
6. International Conference on Dynamical Aspects of Complex Systems from Cells to Brain. Sendai, Japan, November 2000. *Cell type regulation in Dictyostelium: prestalk proportion takes any value between upper/lower thresholds*. I. Rafols and Y. Sawada.
7. 38<sup>th</sup> Annual Meeting of the Biophysical Society of Japan. Sendai, Japan, Sept. 2000. *Cell type regulation in Dictyostelium: correlation between prestalk proportion and spatial pattern*. I. Rafols and Y. Sawada.
8. 33<sup>rd</sup> Annual Meeting of the Japanese Society of Developmental Biologists. Kochi, Japan, May 2000. *Regeneration of Dictyostelium slugs: possible regulation of cell type proportion through spatial patterning*. I. Rafols and Y. Sawada.
9. 2<sup>nd</sup> Annual Meeting of *Dictyostelium* Researchers in Japan. Tsukuba, Japan, March 2000. *Cell type proportion and spatial pattern regeneration in amputated slugs*. I. Rafols and Y. Sawada.
10. 1999 International Dictyostelium Conference. Bar Harbor, Maine, USA, August 1999. *A study of cell type proportion in relation to slug morphology in Dictyostelium*. I. Rafols and Y. Sawada.
11. 1<sup>st</sup> Annual Meeting of *Dictyostelium* Researchers in Japan. Tsukuba, Japan, March 1999. *Cell type pattern and the variation of its proportions in Dictyostelium*. I. Rafols and Y. Sawada.
12. XV International Sitges Conference on Statistical Mechanics. Sitges, Barcelona, Spain, June 1998. *Concentric rings in bacterial colonies: patterning and differentiation*. I. Rafols, J. Wakita, T. Matsuyama and M. Matsushita.
13. 2<sup>nd</sup> Tohwa University International Meeting on Statistical Physics, Fukuoka, Japan, November 1997. *Experimental study of concentric ring patterns in bacterial colonies*. I. Rafols, J. Wakita, H. Itoh, T. Matsuyama and M. Matsushita.
14. 1997 Fall Meeting of the Physical Society of Japan, Kobe, Japan, October 1997. *Characterization of ring patterns in bacterial colonies*. I. Rafols, J. Wakita, H. Itoh, T. Matsuyama and M. Matsushita.
15. International Conference on Fractals. Nagoya, Japan, July 1995.
16. III European Symposium on Martensitic Transformations, Barcelona, Spain, September 1994. *Distribution of Acoustic Emission Avalanches in Martensitic Transformations*. E. Vives, J. Ortin, Ll. Manosa, I. Rafols and A. Planes.
17. Gordon Research Conference on Phase Transitions in Non-metallic Materials, Volterra, Italy, May 1994. *Distribution of Avalanches in Martensitic Transformations*. A. Planes, E. Vives, I. Rafols, Ll. Manosa and J. Ortin.

#### **Seminars as invited speaker (Natural sciences)**

1. Univ. Barcelona, Spain. Dept. Physics. Prof. J.Ortin. April 2001. *Pattern formation in social amoebae: proportion regulation of cell types.*
2. Cornell Univ., Ithaca, NY, US. Dept. Physics. February 2001. Prof. E. Bodenschatz. *Pattern formation in social amoebae: proportion regulation of cell types.*
3. Univ. Dundee, UK. Dept. Life Sciences. Prof. K. Weijer. February 2001. *Cell type proportioning in Dictyostelium slugs: lack of regulation within a 2.5-fold tolerance range.*
4. Univ. Barcelona, Spain. June 1998. Dept. Physics. Prof. J. Ortin. *Concentric rings in bacterial colonies: patterning and differentiation.*
5. Univ. Tokyo, Japan. March 1998. Lab. Prof. Kaneko. *Concentric rings in bacterial colonies: patterning and differentiation.*
6. Univ. Kyushu, Fukuoka, Japan. Mathematical biology Lab. November 1997. *Experimental study of concentric ring patterns in bacterial colonies.*
7. Univ. Kyoto, Japan. Dept. Physics. October 1997. *Characterization of ring patterns in bacterial colonies.*

### **Proceedings and Conference publications (Social sciences)**

1. Rafols, I., Leydesdorff, L., O'Hare, A., Nightingale, P. and Stirling, A. (2011) How journal rankings can suppress interdisciplinarity. The case of innovation studies in business and management. In E. Noyons, P. Ngulube & J. Leta (Eds.), *The 13th Conference of the International Society for Scientometrics and Informetrics*. Durban, South Africa: ISSI, Leiden University and the University of Zululand.
2. Perianes-Rodríguez, A., O'Hare, A., Hopkins, M. M., Nightingale, P., & Rafols, I. (2011). Benchmarking and visualising the knowledge base of pharmaceutical firms (1995-2009). In E. Noyons, P. Ngulube & J. Leta (Eds.), *The 13th Conference of the International Society for Scientometrics and Informetrics*. Vol. 2, pp. 656-661. Durban, South Africa: ISSI, Leiden University and the University of Zululand.
3. Rafols, I. and Leydesdorff, L. (2009) Content-based vs. Algorithmic Classifications of Journals: Perspectives on the Decomposition of the Science Matrix. In Larsen, B. and Leta, J. (Eds.), *Proceedings of the 12th International Conference of the International Society for Scientometrics and Informetrics*, Vol. 1, pp. 460-471, Rio de Janeiro.
4. Kiss, I. Z., Broom, M., and Rafols, I. (2009) [Can epidemic models describe the diffusion of research topics across disciplines?](#) In Larsen, B. and Leta, J. (Eds.) *Proceedings of the 12th International Conference of the International Society for Scientometrics and Informetrics*, Vol. 2, pp. 857-861, Rio de Janeiro.
5. Rafols, I and Park (2008) [Diversity and network coherence as indicators of interdisciplinarity: Case studies in bionanoscience](#). DRUID conference.
6. Rafols, I. and Meyer, M. (2007) [Diversity measures and network centralities as indicators of interdisciplinarity: case studies in bionanoscience](#). In Torres-Salinas and Moed (Eds.) *Proceedings of the 11th International Conference of the International Society for Scientometrics and Informetrics*, Madrid.
7. Rafols, I. and Meyer, M. (2006) [Knowledge-sourcing strategies for cross-disciplinarity in bionanotechnology](#). Technology Transfer Society Annual Conference. Atlanta, 2006.
8. Rafols, I. and Meyer, I. (2006) [Knowledge-sourcing strategies for cross-disciplinarity in bionanotechnology](#). SPRU 40th Anniversary Conference. Brighton, UK.
9. Rafols, I. and Meyer, M. (2006) [Diversity of knowledge-sourcing strategies for cross-disciplinarity in bionanotechnology](#). Proceedings of the 7<sup>th</sup> COLLNET Meeting. Nancy, France. E-prints in Library and Information Science.
10. Rafols, I. (2005) 'Patterns of multi- and interdisciplinary research in bionanotechnology'. In *Proceedings of the 10th International Conference of ISSI*. Ingwersen and Larsen, B. (Eds.) Karolinska University Press, Stockholm, p. 724.