
# ISSI Newsletter

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# EDITORIAL
# INAUGURAL MESSAGE


by **GIOVANNI ABRAMO**
Laboratory for Studies in Research Evaluation at the Research Council of Italy (CNR)


Dear ISSI members, it is an honor, a privilege, and an immense pleasure to address you as the new President and Chairman of the Board of the International Society for Scientometrics and Informetrics.

I would like to thank all those who, with their vote, expressed their confidence and trust in me. I am grateful to the past and present members of the Laboratory for Studies on Research Evaluation that I co-founded with colleague Ciriaco Andrea D'Angelo about twenty years ago at the National Research Council of Italy. Most of what I know today about Scien-


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Accepted contributions are moderated by the board. Guidelines for contributors can be found at http://www.issi-society.org/editorial.html.

tometrics is the fruit of their steadfast research support. To them all, I dedicate this feat. Last but not least, my thoughts go to my parents who, notwithstanding their humble origins and financial straits, made sure that I received the best education possible and instilled in me what I find most precious in my life, a set of core beliefs and values that have guided my behavior as a civil servant. I will fill this office with the spirit and attitude of the civil servant.

When on 21 June 2023, I received the communication that I had been elected ISSI President, a feeling of unutterable joy invaded my being. Unable to describe it in words, to give an idea of its intensity, in my inaugural message to the participants of the ISSI Conference 2023, I showed the following video: https://www.youtube.com/watch?v=i-kCNWIbVcY.

As we all know, emotions have a brief life, and the more intense they are, the briefer it is. The mind immediately knocked at my door to remind me that: i) a four-year mandate implies that I have to postpone my retirement from work by at least two years; ii) more traveling abroad would be needed, translating into giving up my daily consumption of pasta when abroad; and iii) a position as a President of such an honorable society as ISSI, would prevent me from being (trying to be) funny all the time. I can promise, not without sacrifice, that I will meet the first two requirements, but I need to figure out the third one.

I step in as a President when ISSI is about to celebrate its 30th birthday. It was 14th September 1993 when our Society was founded at the Berlin Conference on Bibliometrics, Informetrics, and Scientometrics. Under the visionary guidance of eminent past Presidents, the Society has forged its identity and grown into an agile, dynamic, vivid, multidisciplinary epistemic community engaged in making the black boxes of research systems ever more transparent to scholars, research managers, policymakers, and society. For what we are now, on behalf of all members, I can not help expressing our deepest gratitude to all past Presidents: Hildrun Kretschmer (Germany) 1993-1995, Michael E.D. Koenig (USA) 1995-1997, Bluma Peritz (Israel) 1997-1999, César Macías-Chapula (Mexico) 1999-2001, Mari Davis (Australia), 2001-2003, Henry Small (USA) 2003-2007, Ronald Rousseau (Belgium) 2007-2015, and Cassidy R. Sugimoto (USA) 2015-2023.

I have received the baton from Prof. Cassidy Sugimoto, who, together with her board, made considerable progress for our Society regarding social engagement, financial security, membership counts, technical improvements, and the rise of new platforms for communication (including the establishment of the Society's journal, QSS). To further progress is a formidable challenge, but winning challenges is the spice of life, and I am here to take it up. I am confident because I can count on incredible board members, namely Wolfgang Glänzel, Stefanie Haustein Vincent Larivière, Jacqueline Leta, Ronald Rousseau, Vivek Kumar Singh, and Lin Zhang, and above all, I am sure I can count on you all. Any suggestions, ideas, or constructive criticism to strengthen our Society will be most welcome. I urge you to write to me (giovanni.abramo@uniroma2.it), and I promise you will receive an answer.

To date, we have already had three board meetings where I have presented my Presidency stance and *modus operandi* to the members: I will be *primus inter pares*, first among equals. We agreed to proceed along two trajectories: strategic and operational.

Along the strategic trajectory, our first step will be setting the Society's vision (management science taxonomy). To say it with Thomas J. Watson Jr. (IBM CEO 1956-71) words, "I firmly believe that any organization, in order to survive and achieve success, must have a sound set of beliefs on which it premises all its policies and actions. Next, I believe that the most important single factor in corporate success is faithful adherence to those beliefs. And, finally, I believe the organization must be

willing to change everything about itself except those beliefs as it moves through corporate life." Only when an organization institutionalizes its core values, can it progress to being an enduring, self-renewing institution. After setting our value system, we will formulate the Society's purpose, i.e. the fundamental reason for the Society's existence, its reason for being. It will provide meaning for the engagement of ISSI members. Considering where we come from and the future we envision for the Society, considering the current environment, we will formulate the mission for our four-year mandate. Of course, I have in my mind a possible vision of the Society, but I want it to be our vision, not only mine. For this reason, the board will adopt a top-down, bottom-up approach to its formulation. All ISSI members will receive a first draft for comments and feedback. After setting our vision, we will conduct a strategic analysis to identify the Society's strengths and weaknesses and the threats and opportunities in the environment concerning the mission we want to achieve. At that point, we can connect the dots and draft a strategic plan with long-, medium-, and short-term objectives and relative actions to achieve them. Our mandate should be evaluated on the achievement of the mission.

Along the operational trajectory, we agreed on adopting a few changes to improve transparency, communication, and engagement. Among others, all the minutes of the board meetings will be shared with the Society's members. The yearly financial statements of the Society will be sent to all members no later than June of the subsequent year. A meeting of all ISSI members will be institutionalized in presence during the ISSI conference, to discuss the implementation of the strategic plan, and agree on possible changes to it. Finally, even before its incorporation, the Society had its conference. More recently, the Society's journal QSS was launched. We all feel that times are mature to add a third pillar to strengthen further our Society's foundations: an official ISSI school, primarily geared to satisfy the needs of practitioners, allow a smooth knowledge transfer, and avoid bad implementation and the consequent negative perception of scientometrics among the scientific community, research managers, and policymakers.

Each board member feels a high responsibility to strengthen our Society. To do it, before acting, we must devote time and effort to thinking of what a strong Society means, along which dimensions a Society's strength can be deployed, and prioritize dimensions and actions within each dimension. We must be aware also that being strong may not be enough, as our stakeholders should have a perception aligned at the very least with our relevance but never below, as certain movements in the past and even recently and nowadays (see the CoARA agreement, https://coara.eu/) seem to show, to the detriment of our credibility as an epistemic community. ISSI cannot be indifferent or silent when a response is due.

Every entity tied to our Society, be it our ISSI conference, journal QSS, or will-be school, are brand names, i.e., our intangibles that contribute to the perception of our quality level. Most importantly, every single member of the Society, in its relations with stakeholders, more or less consciously, contributes to the goodwill of our Society. Personally, by nature, I pursue excellence in everything I do (see box), and I cannot imagine any involvement of mine in our board different from that, and the same, I dare say, for all board members, but it is not enough to succeed. I, we need the help of all members. I am confident in your invaluable contribution.

Let's make an impact, not just a scholarly one!

# ELECTIONS 2023
# A REPORT ON THE PROCEDURES & RESULTS

**BALÁZS SCHLEMMER**
election assistant

The ISSI Board is consisted of a President, a Secretary-treasurer and 6 (six) further Board Members. In order to continuously refresh the Board and to give chance to all eligible members to form the ISSI's policies, half of the Board is replaced by elections biennially. In 2023, upon expiry of their 4-year-long mandates, three Board members stepped down: Nees Jan van Eck (NLD), Lin Zhang (CHN) and Cinzia Daraio (ITA). ISSI President, Cassidy Sugimoto (USA) has completed her second 4-year term and therefore she also stepped down without being eligible for re-election. We would like to thank for all these Board Members for their service.

## THE ELECTION PROCEDURE

Due to the fact that ISSI currently has members from 5 continents' 43 countries, similarly to the earlier Elections the 2023 Elections were also organised online. The first – nominating – round took place between 1 and 21 April 2023. In this round every member in good standing had the opportunity to nominate up to 1 ISSI member as president candidate and up to 3 ISSI members as board member candidates. Then all nominees were asked to approve (or deny) their nominations. Only those were listed as electable candidates who expressed their explicit wish to take part in the Elections as nominees. Candidates that had been nominated for both positions had the opportunity to approve/deny their nominations for a particular position independently of their approval/denial for their other nomination.

The nomination round was followed by the second – voting – round. The voting was open from 3 May until 18 May 2023. Members in good standing were invited to select up to 1 president candidate and up to 3 board member candidates to vote for them.

In order to filter out unauthorised or multiple nominations and votes, person-

alised election-specific identifiers were assigned to members in the invitation letters; nevertheless anonymity was guaranteed throughout the whole Elections.

Within the nomination/voting window participants were provided with the option to send as many nominating/voting forms as they wanted but the last valid form automatically overwrote the earlier one(s) – that is, only the last ballot submitted was taken into account from each voter when summing up the results.

Nominating/voting for oneself was permitted. Board members stepping down were immediately re-electable.

ISSI is proudly promotes equal opportunities and diversity. As part of the effort, ISSI has adopted a policy that encourages a diverse board. The participants were informed that in accordance with this policy no more than one individual could be elected to the Board from a single institution and the number of Board members from a single continent was also maximised in three. (The President and Secretary are excluded from these provisions.) The participants were informed that the final results were going to be adjusted to take these into account; nevertheless all members were also encouraged to keep these principles in mind already when they were nominating/voting.

## THE NOMINATION ROUND

No suspicious activity or sign of election fraud was observed during the nomination round. In two cases members submitted repeated nominations. According to the election rules, their earlier nominations were disregarded.

Nearly one third (31.23%) of the members in good standing took part in the nomination round and they nominated 27 president candidates and no less than 91 board member candidates. All candidates were then requested to indicate whether they accept or reject their nominations – the candidates' answers are summarised by *figure 1.*

Eventually 4 members accepted the nomination for the president's position and 41 candidates accepted the nomination for the Board Member positions.

## THE ELECTION ROUND

Similarly to the nomination round, the election round was also carried out without any suspicious activity or sign of election fraud.

One ballot arrived after the closure of the voting – according to the election rules it was not taken into account when counting the results. It occurred 9 times that ballots were submitted repeatedly – similarly to the

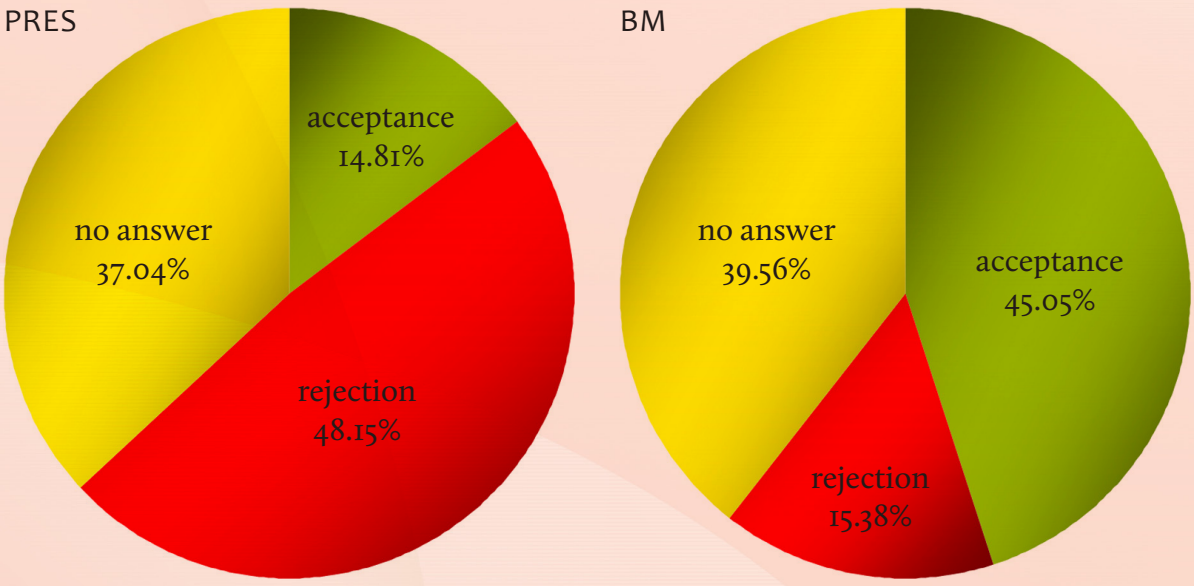



*Figure 1 Acceptances and rejections of nominations for President (left) and Board member (right)*

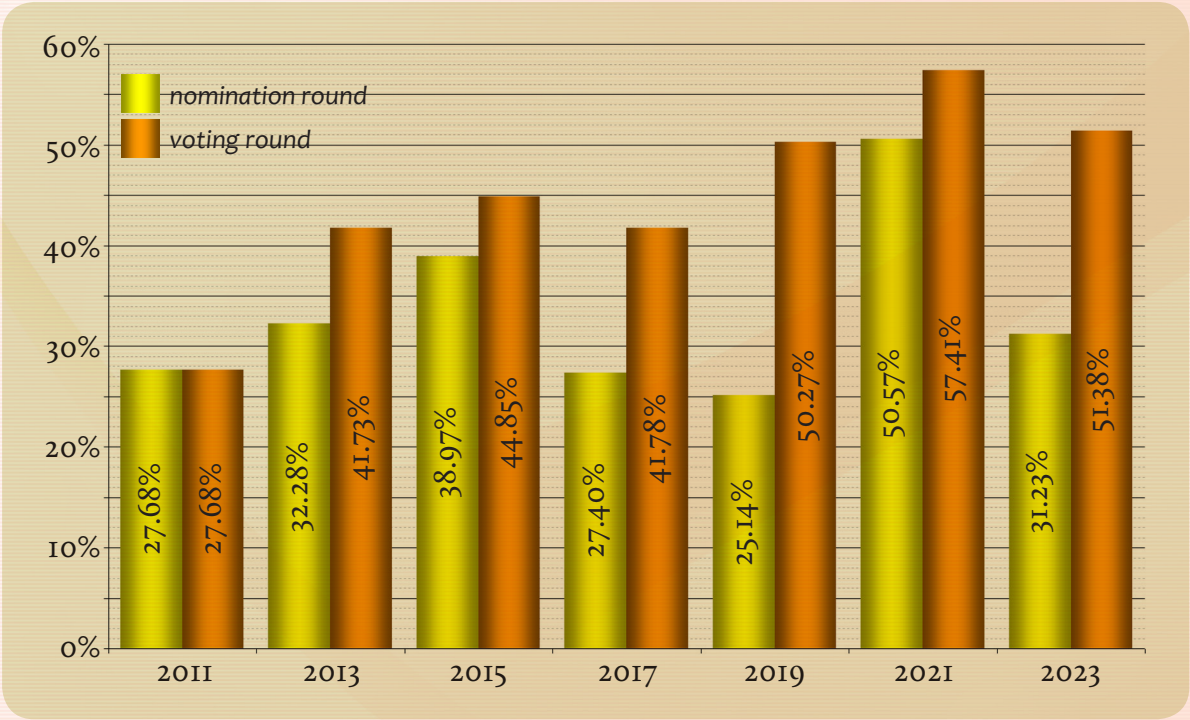



*Figure 2 Nomination and voting turnout rates in the last seven elections*

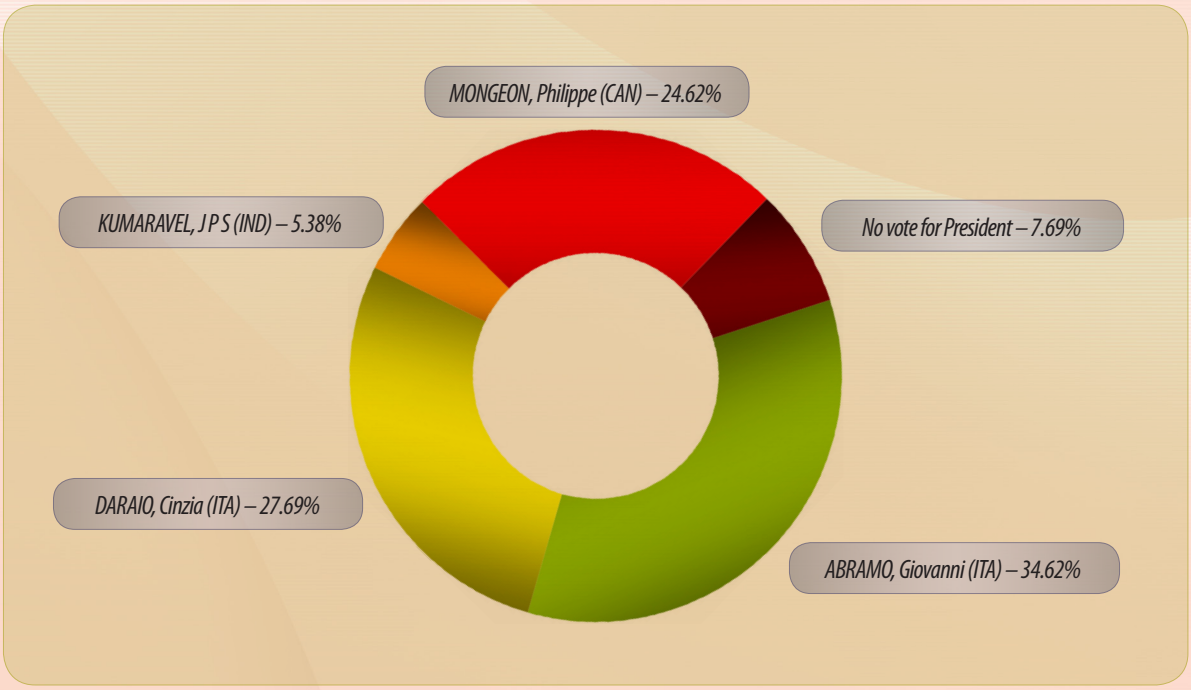



*Figure 3a Results of the ISSI Elections in 2023 – President*

nomination round, the earlier ballots were overwritten by the new ones. All in all, 130 out of the 253 eligible ISSI members took part in the voting round. It means a solid 51.38% voter turnout – which is slightly worse than the previous election's figure but it still is a rather impressive turnout. (See *figure 2* for turnouts in the last 7 elections.)

The results were distributed diversely enough for ISSI's policy for equal opportunities, so neither the institutional, nor the geographical quota was needed to be applied.

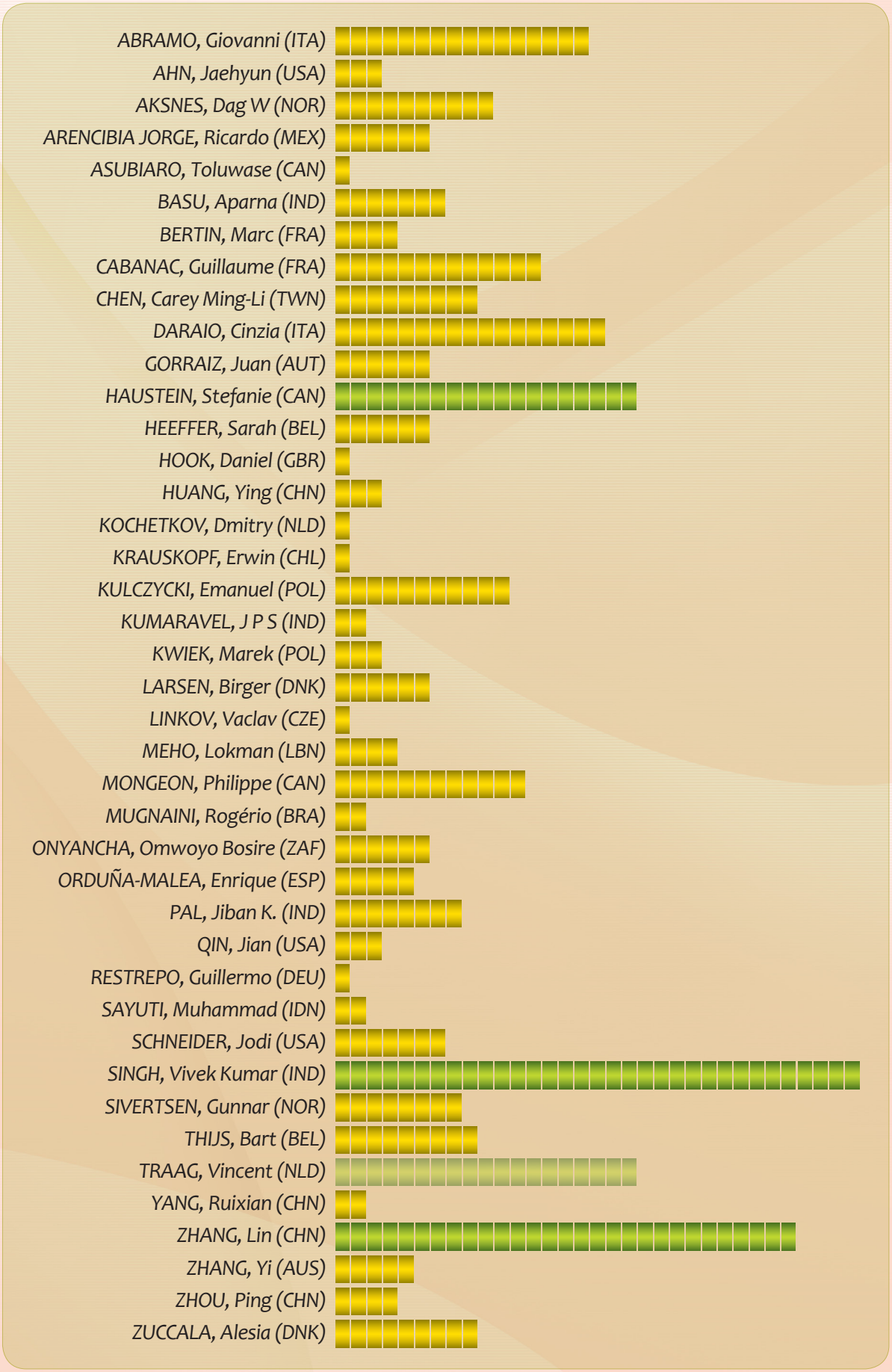



*Figure 3b Results of the ISSI Elections in 2023 – Board members*

## RESULTS

### PRESIDENT

Since only 4 candidates accepted the nomination for presidency, a rather balanced and exciting battle was expected – and as the ballots were coming in, for quite a while it was indeed very difficult to predict who would be the first one. Three out of the four candidates were racing head to head and the certainty of the person of ISSI's next president started to take shape only towards the end of the voting round. Since his inaugural message precedes this report, there is no point raising the tension anymore: the ISSI's next president is Giovanni Abramo from Italy. See *figure 3a* for the distribution of votes for the presidential candidates.

### BOARD MEMBERS

ISSI members were to elect three board members at the same time; therefore the first three candidates who got the most votes (given that they did not interfere with the institutional and geographical quotas) were supposed to become new (or re-elected) Board members. The first two nominees with the highest number of votes could be determined easily: Vivek Kumar Singh (IND) and Lin Zhang (CHN) received 10.51% and 9.24% of all the votes, respectively. However, for the third Board Member position a tie (6.05% each) occurred between Stefanie Haustein (CAN) and Vincent Traag (NLD). According to the election rules, *"[in] case of a tie it is for the old board (except for those who are involved in the tie) to decide who should win the position"*. All members of the old board agreed that both candidates were fully qualified and motivated for serving as board members. They also agreed that the candidates' professional experience as well as their previous activities within the fields of scientometrics and informetrics would make both of them equally good board members. After examining the nominees' professional and general adequacy for the position, the old board (with one absence) held an online vote, in course of which Stefanie Haustein won by a hairline (4 vs. 3 votes).

See *figure 3b* for a more comprehensive summary of the outcome of the board member voting round.

## THE NEW BOARD

In summary, the new board (old members + new members) was formed at the ISSI 2023 Conference in Bloomington as follows:

- President: Giovanni Abramo (ITA)
- Secretary-Treasurer: Wolfgang Glänzel (BEL)
- Stefanie Haustein (CAN)
- Vincent Larivière (CAN)
- Jacqueline Leta (BRA)
- Ronald Rousseau (BEL)
- Vivek Kumar Singh (IND)
- Lin Zhang (CHN)

Congratulations for the winners of the voting and thanks for all the nominating / voting ISSI members for participating in the Elections in 2023. See you in 2025!

# TOPICS IN DIGITAL AND COMPUTATIONAL DEMOGRAPHY

## 4–8 DECEMBER 2023

ONLINE | ROSTOCK, GERMANY

INTERNATIONAL MAX PLANCK RESEARCH SCHOOL FOR POPULATION, HEALTH AND DATA SCIENCE (IMPRS-PHDS)

International Advanced Studies in Demography (IDEM)

***ONLINE / OFFLINE* COURSE ANNOUNCEMENT**

IMPRS for Population, Health and Data Science
INTERNATIONAL MAX PLANCK RESEARCH SCHOOL

| | |
|---|---|
| **COURSE NAME:** | IDEM 187<br>Topics in Digital and Computational Demography |
| **COURSE COORDINATOR:** | Aliakbar Akbaritabar |
| **INSTRUCTORS:** | Aliakbar Akbaritabar<br>Risto Conte Keivabu<br>Jisu Kim<br>Tom Theile<br>Emilio Zagheni |
| **START DATE:** | 4 December 2023 |
| **END DATE:** | 8 December 2023 |
| **LOCATION OFFLINE:** | in-person for students in the PHDS network and/or already in Rostock |
| **ONLINE (ZOOM):** | everyone else |

### COURSE DESCRIPTION

Rapid increases in computational power and the explosion of Internet, social media and mobile phone use have radically changed our lives, how we interact, and our behavior, including demographic choices and constraints. The digitalization of our lives has also led to the so-called "data revolution" that is transforming the social sciences.

Data science tools allow social scientists to address core demographic questions in new ways. At the same time, demographic and social science methods enable researchers to make sense of new and complex data sources for which novel approaches and research designs may be needed.

The main goals for this course are:

1) To introduce students to core demographic and social science methods that are essential to interpret digital trace data.

2) To introduce students to core data science methods that are key to advance our understanding of population processes in the context of the increasing heterogeneity of data sources useful for demographic research.

3) To introduce students to recent substantive advances in the field of Digital and Computational Demography, with emphasis on fostering critical thinking about modern demographic analysis and (big) data-driven discovery.

4) To help students identify research questions in their own area of substantive interest that could be addressed with innovative data sources, and support them in the process of devising an appropriate research plan.

## ORGANIZATION

The course will be offered in a hybrid format: in-person for students in the PHDS network who are already in Rostock; online (via Zoom) for everyone else. Each day, there will be one lecture and one discussion session. The lecture will be pre-recorded and made available ahead of time.

Students are expected to watch the lecture carefully at their own pace and to complete the assignments before the discussion session, which will be held live every day from 14:00-17:00 CET (Central European Time). During the discussion session, homework assignments and/or hands-on computing exercises will be reviewed, assigned readings will be discussed and questions about the lecture will be addressed. Active participation of students is expected.

Each day, the lecture and discussion session will be presented by an experienced scholar in the field who will focus on a relevant research topic in which s/he is an expert.

Students should generally expect to spend about 6-8 hours/day on the course (lectures, discussion sessions, readings, assignments).

## SCHEDULE

*Day 1 (04 December)*

Instructor: Emilio Zagheni
Topics: Introduction to Digital and Computational Demography; Approaches for combining representative data and non-probabilistic samples; Identifying sources of bias in digital trace data and adjusting for them.

*Day 2 (05 December)*

Instructor: Tom Theile
Topics: How the internet works; Surfing the web and web scraping in R; Getting started on accessing web-APIs with R.

*Day 3 (06 December)*

Instructor: Jisu Kim
Topics: Using social media data for migration research; Case studies of X (ex-Twitter) in uncovering digital traces of migrants throughout their journey.

*Day 4 (07 December)*

Instructor: Aliakbar Akbaritabar
Topics: Using large-scale bibliometric data for demographic research; Advantages and pitfalls of using Scopus, OpenAlex, ORCID and similar data sources to trace internal and international scholarly migration worldwide

*Day 5 (08 December)*

Instructor: Risto Conte Keivabu
Topics: Introduction to geospatial and environmental data; Advantages and pitfalls of available open data on the environment; Handling of environmental data for demographic research.

## DIVERSITY OF STUDENT BACKGROUNDS

Students in this course have different backgrounds. Some students may have strong computational and statistical skills, others may not. Some students may be very familiar with demographic methods, some others may only have basic knowledge of population processes. The instructors will emphasize substance and key statistical, mathematical, computational and demographic concepts to accommodate the range of backgrounds. There will also be different types of homework assignments. Some of them will involve computing and coding. Some others may involve critical reflections about the readings. In short, we will facilitate the participation of students who do not have an extensive background in statistics, or computational methods, but are eager to learn.

## COURSE PREREQUISITES

Students should be familiar with programming with R/RStudio, Python (Anaconda), or an equivalent programming environment. Homework assignments that require programming can be completed using the programming environment of your choice. Solutions to the assignments will be discussed using R/RStudio or Python (Anaconda) and may include SQL (although knowledge of SQL before the course starts is not expected).

Instructions on how to download and install R can be found in "A (very) short introduction to R" by Torfs and Brauer (2014):

https://cran.r-project.org/doc/contrib/Torfs+Brauer-Short-R-Intro.pdf

Python (Anaconda) can be downloaded from the following webpage:

https://www.anaconda.com/download

and this link provides an introductory course:

https://www.kaggle.com/learn/python

## EXAMINATION

Students will receive a pass/fail grade based on a multiple-choice final quiz and active participation in class. Students who pass will receive a certificate of completion.

## TUITION

There is no tuition fee for this course.

## RECRUITMENT OF STUDENTS EXTERNAL TO THE IMPRS-PHDS NETWORK

Applicants should either be enrolled in a PhD program or have received their PhD. Applications from advanced master's students will also be considered.

## HOW TO APPLY

- Applications have to be submitted online via https://survey.demogr.mpg.de/index.php/239449?lang=en.
- You will need to attach the following items integrated into **a single pdf file**:
  - (1) Curriculum vitae, including a list of your scholarly publications.
  - (2) A one-page statement of your research and how it relates to the course. Please include a short description of your knowledge of the programming language R, Python and/or similar.
- The application deadline is 22 October 2023.
- Applicants will be informed of their acceptance by 20 November 2023.
- Applications submitted after the deadline will be considered only if logistically feasible.

Conference website: https://cns-iu.github.io/workshops/2023-07-02_issi/
Agenda: https://www.conftool.pro/issi2023/sessions.php

# ISSI 2023 — BLOOMINGTON

A CONFERENCE REPORT BY

**KATY BÖRNER, ANDREA SCHARNHORST, STAŠA MILOJEVIĆ, CAROLINE WAGNER, KEVIN BOYACK, LISEL RECORD, ANN MCCRANIE & YONG YEOL AHN**

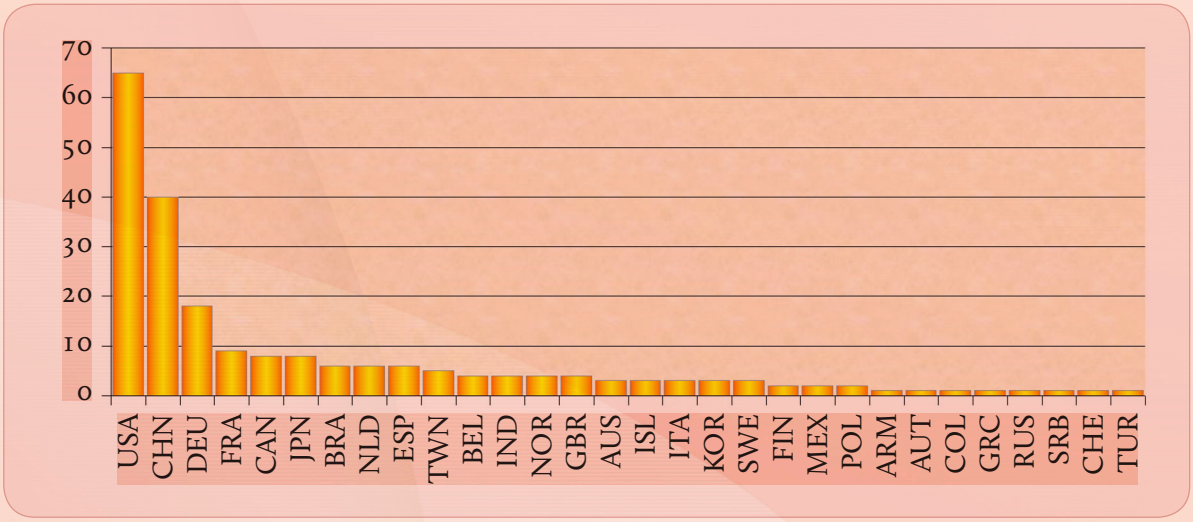
## OVERVIEW

The ISSI 2023 Conference took place at Indiana University in Bloomington, Indiana, USA on July 2-5, 2023. Indiana University is one of the top rated universities in the United States and consistently rates as one of the most beautiful campuses.

For the first time since the COVID-19 pandemic, ISSI2023 brought scientists, research managers, authorities and information professionals back together **in person** to engage in an open and proactive debate of the current status and advancements of informetric and scientometric theories and their deployment. Two hundred and ten scholars from 30 countries attended the conference.

The organizer of the conference – in close collaboration with scientific committee members and under the auspices of ISSI (International Society for Informetrics and Scientometrics, http://www.issi-society.org) – brought the conference back to North America after 28 years.

The conference made a particular effort to focus outward, drawing participants




*Participants of the ISSI 2023 Conference by country*

Photos courtesy of © Michael P. Ginda and © Katy Börner

***Top:*** *Group photo;* ***lower left:*** *local organizers and student volunteers;* ***middle:*** *keynote speakers Roberta Sinatra and Katy Börner at IU's iconic sample gates;* ***lower right:*** *Lin Zhang, Gunnar Sivertsen, and a friend discussing paper plans for ISSI2025.*

working in adjacent fields but new to ISSI. Dr. Roberta Sinatra delivered the keynote address, a plenary panel focused on the role of AI on the field, and new ISSI members were integral to the work of the organizing committee. About one third of the conference participants had not previously attended an ISSI conference – and many of them were young scholars.

## DOCTORAL FORUM

The ISSI 2023 Doctoral Forum (DF) was chaired by Andea Scharnhorst (remote) and Staša Milojević (on-site). It attracted 20 submissions, all of high quality. Designed to be run in a hybrid form, 15 students participated on-site and 5 remotely. The PhD topics were diverse, ranging from classical topics of foresight and topic identification to bibliometric mapping of the dynamics of new scientific domains. Open science and open access were recurring themes, as well as gender. Concerning the latter, gender is investigated in terms of equal participation but also how agenda setting is pursued in different ways by experts of different genders. Some contributions reached out to philosophical foundations such as possibilities to trace different epistemic perspectives using quantitative studies. Students came from different stages of the PhD trajectory. The scientific committee took special efforts to make the PhD student contributions visible (starting with an extra tab on the website) but still guarded a safe space in particular for Early Career researchers. Of those who agreed, paper submissions were visible in the ConfTool to all registered participants. Extra poster stands were offered. The exit survey (14 students responded) revealed that the majority of students enjoyed the exchange with peers and experts, although time for feedback was limited and the connection between the remote and on-site participants was not ideal. We would like to thank the expert team on zoom: Alesia Zuccala, Jens-Peter Andersen (who stayed on air from afternoon to almost midnight), and at IU (some of which joined on short notice)

Guillaume Cabanac, Johan Bollen, Santo Fortunato, Yong Yeol Ahn, and Katy Börner.

## WORKSHOPS AND PANELS

On the first day of the conference, 2 July 2023, we had three workshops and two tutorials. These events were very well attended by about 180 experts.

### WORKSHOP 1

"Causal Inference in Scientometrics" organized by Yi Bu (Peking University, China), Zaida Chinchilla-Rodríguez (Spanish National Research Council, Spain), Ying Ding (University of Texas at Austin, USA), Meijun Liu (Fudan University, China), Xianlei Dong (Shandong Normal University, China)

The objective of this hybrid workshop was to bridge the scientometrics community with causal inference communities and to showcase how future scientometricians can establish their research in a causal inference way instead of purely at a correlation level. The workshop featured four talks: "Interaction and subgroup analysis in causal inference" by Dongbo Shi (Shanghai Jiaotong University), "The role of reputation and prestige in scientific citations: A theory and research overview" by Caroline Wagner (Ohio State University), "Constructing a causal graph with scientific text mining" by Jian Du (Peking University) and "AI exposure predicts unemployment risk" by Morgan Frank (University of Pittsburgh).

### WORKSHOP 2

"The Science of Team Science and Innovation" reflected on interdisciplinary teams, and was organized by Lingfei Wu (University of Pittsburgh, USA), Staša Milojević (Indiana University Bloomington, USA), and Erin Leahey (University of Arizona, USA).

*Photos courtesy of © Michael P. Ginda and © Katy Börner*

***Top left:** poster session in IU Tudor room; **top right:** PhD Forum; **middle right:** VR workshop; **lower:** Lunch in Luddy Hall*

The objective of this hybrid workshop was to provide an opportunity for researchers from different communities (e.g., scientometrics, sociology of science, the science of science, the economics of science, and others) to discuss new evidence on the roles and functions of interdisciplinary teams in science—what they do and what they can do. The workshop featured two invited talks: "Filling the Gaps or Falling Through the Cracks" by Bruce Weinberg (The Ohio State University) and "On Collaboration and Conception: Studying the Birth and Development of Interdisciplinary Ideas in Science Teams" by Stephen Fiore (The University of Central Florida). Samuli Reijula (The University of Helsinki) presented the article "The Division of Cognitive Labor and the Structure of Interdisciplinary Problems", which was commented on by Lianghao Dai (Zhejiang University). The rest of the workshop program included three contributed talks and a group discussion.

## WORKSHOP 3

"Show me in VR?" visualized network data in virtual and augmented reality, and was organized by Andreas Dominic Bueckle (Indiana University Bloomington, USA), Kilian Buehling (Weizenbaum Institute for the Networked Society, Berlin, Germany), and Michael Ginda (Indiana University Bloomington, USA).

The objective of this workshop was to showcase the design and implementation of Virtual Reality (VR) visualizations of network data (such as co-author networks, flight connections between cities, and social networks). The participants were taught how to prepare data for a "VR ready" format, how to utilize native functionalities of the Unity platform (https://unity.com) to store large amounts of data points and bind them to 3D objects in a fully interactive, 3D environment, and how to implement VR interactions for letting the user perform standard (details on demand, filter, select) and advanced interaction types (brush and link, 3D selection, node-dragging) using state-of-the-art VR controllers. This was exemplified through a discussion of "Lateral Thinking Gone VR," a narrative VR visualization allowing the user to explore cross-references, and a geospatial layout of German-speaking Telegram groups and channels between April 2020 and December 2021.

## TUTORIAL 1

"Transitioning towards Open Scientometrics with Open Science Graphs" was organized by Paolo Manghi (Institute of Information Science and Technologies "A. Faedo" – National Research Council (ISTI-CNR), Italy), Andrea Mannocci (Institute of Information Science and Technologies "A. Faedo" – National Research Council (ISTI-CNR), Italy; OpenAIRE AMKE, Athens, Greece), Dimitris Sacharidis (Université Libre de Bruxelles Brussels, Belgium), and Thanasis Vergoulis (OpenAIRE AMKE, Athens, Greece; Athena Research Centre, Athens, Greece).

The main objective of this tutorial was to offer an introduction to Open Science Graphs (OSGs), (e.g., the OpenAIRE Research Graph, ORKG, Dimensions, MAG, and OpenAlex), educating the audience about the relevant state-of-the-art technologies, standards and respective open challenges, like the need for creating OSG interoperability standards. In addition, the presenters informed the audience about popular applications of the OSGs (e.g., scientific knowledge discovery), focusing on and delving into those for the field of Open Scientometrics. The tutorial concluded with a hands-on session demonstrating the use of OSGs in practice, using as an example the OpenAIRE Research Graph.

## TUTORIAL 2

"AND-Ez: An open-source tool for author name disambiguation using machine learning" was organized by Jinseok Kim and Jason Owen Smith (Institute for Social Research, University of Michigan Ann Arbor, USA).

The objective of this tutorial was to introduce an open-source tool for author name disambiguation developed by a research team at the University of Michigan Institute for Social Research under a three year NSF grant named 'AND-Ez' (Author Name Disambiguation made Easy). The tool was designed using a variety of machine learning techniques to assist scholars in conducting author name disambiguation without the need to write code from scratch. In the tutorial the participants learned about the basic design of the tool and gained hands-on experiences by running the tool on sample data.

## TALKS, POSTERS & KEYNOTE

ISSI 2023 featured 128 oral presentations organized into major themes such as Indicators, Bibliometric Analysis, Funding and Policy, Content Analysis, Collaboration Networks, Mobility and Career, Maps and Macro-analysis, Open Science and Science Communication, Current Events, and Equity. While most of these are traditional topics, the Current events sessions featured contributions on the SARS-CoV-2 pandemic, war in Ukraine, and growing political tensions. The poster session featured 57 papers. It was held in the IMU Tudor room, a big historical dining hall with old collegiate gothic architecture. The full program is available at https://cns-iu.github.io/workshops/2023-07-02_issi.

We were delighted to have Dr. Roberta Sinatra as the keynote speaker. She is a professor in computational social science at the University of Copenhagen (KU), and holds visiting positions at IT University of Copenhagen (ITU), ISI Foundation (Turin, Italy) and Complexity Science Hub (Vienna, Austria). She co-founded the NEtwoRks, Data, and Society (NERDS) Research group at ITU, which she led in 2019-2022, and is a co-lead of the pioneer centre for AI in Copenhagen.

In her talk on *Quantifying biases and inequalities in science,* she argued that the measures and algorithms that we use to quantify, search, and rank scientific information are trained on citations that reflect human biases. She then presented her original research on (1) uncovering bias mechanisms in science, (2) using this knowledge about biases to uncover inequalities in the scientific enterprise, and (3) creating fair metrics and algorithms.

## MEMORIAL TALKS

This plenary session remembered the work of recently departed, long-time members of the scientometrics and informetrics community: Dr. Tibor Braun, founder and honorary editor-in-chief of Scientometrics and Journal of Radioanalytical and Nuclear Chemistry, Professor Emeritus of the Institute of Chemistry of Eötvös Loránd University and honorary member of the Romanian Academy of Sciences; Dr. Judit bar Ilan, Professor of Information Science, Bar-Illan University, Israel; Professor Emeritus Loet Leydesdorff, University of Amsterdam School of Communications Research; and Henk Moed, Leiden University Center for Science & Technology Studies and Sapienza University, Rome, Italy.

Panel members included bibliometrician Dr. Katherine McCain, Derek deSolla Price winner (2007) and Professor Emerita, Drexel University; Dr. Andrew Plume, Vice President of Research Evaluation at Elsevier and President of the International Center for the Study of Research (ICSR); and Dr. Richard Klavans, President of SciTech Strategies and Derek deSolla Price Medal winner (2023). Prof. Caroline S. Wagner, The Ohio State University, moderated the panel.

Each of the honored ISSI members were remembered first for their kindness, friendship, and brilliance. Tibor Braun was remembered for founding the journal *Scientometrics* – the flagship journal for the field. Judit Bar-Ilan was remembered for her curiosity and insightful research and for often attending and contributing to the ISSI an-

nual conference and for her contribution to the journal *Quantitative Social Sciences*. Loet Leydesdorff was remembered for the breadth of his work across many topics and methods, and for his generosity in developing data and software that he widely shared with the community through his website. His book, *The Challenge of Scientometrics: The Development, Measurement, and Self-Organization of Scientific Communications,* published in 1995, stands as a seminal work for the community. Henk Moed was remembered as a wonderful teacher and stalwart colleague. These scholars left the community with a solid base of theory, data, processes, and products that provide a rich legacy upon which to draw as the ISSI community looks towards the future.

## BRIDGE TO THE FUTURE PANEL

The *Bridge to the Future* panel discussed current advancements in machine learning and their implications for ISSI and beyond. Following a brief overview of the most recent wave of machine learning technologies, the panelists delivered expert presentations on how these advances might contribute to scientific progress and societal benefits. Professor Johan Bollen argued that large language models, such as ChatGPT, may revolutionize bibliometrics and informetrics by bringing operationalizations of social constructs, such as impact or innovation, closer to ground truth than ever before. Professor Yi Zhang examined the challenges and opportunities of "intelligent bibliometrics" for improving scientometrics scholarship. Professor Katy Börner discussed how machine learning technologies could be used to support data-driven predictions and help us choose more desirable futures. Professor Yong-Yeol Ahn offered glimpses of how machine learning could be used to model knowledge as an emergent space with peculiar features such as black holes and dynamics such as foraging. Before concluding, the panelists shared the stage and answered audience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***Top left:*** *Forward panel presenter, Y.Y. Ahn.* ***Top right:*** Mapping Science *exhibit tour.* ***Bottom left:*** *Memorial Talks, from left, Richard Klavans, Andrew Plume, Katherine McCain, and Caroline Wagner.* ***Bottom right:*** *Banquet and dancing on July 4th, 2023.*

questions. Despite acknowledging the dangers of uncritically embracing machine learning, they all expressed excitement about the potential it opens up for students, scholars, and society as a whole.

## AWARDS

In the Wednesday morning plenary session, the 2023 Derek de Solla Price Memorial Medal, administered by the international journal *Scientometrics*, was awarded to the team of Drs. Richard Klavans and Kevin Boyack. A recorded laudation speech detailing their careers and contributions to the field was then presented by outgoing ISSI president, Dr. Cassidy Sugimoto. This was followed by a response and keynote talk given by the award winners which promoted the use of global models of the research literature for analysis by comparing the results of local and global analysis of the journal *Scientometrics*. Both recordings will be accessible at https://cns-iu.github.io/workshops/2023-07-02_issi by the end of August.

## EVENTS AND CAMPUS TOURS

Conference participants enjoyed a diversity of cuisine from nearby restaurants and local breweries, and engaged in diverse entertainment ranging from the outdoors to cultural activities like live music, museums, and more. Some attendees even ventured out to take in the local Independence Day parade and fireworks display. The conference hosted a banquet in Alumni Hall, a gracious hall on the university campus, followed by a dance party as evening fell.

Two campus tours introduced ISSI participants to the *Places & Spaces: Mapping Science* exhibit on display at the Cook Center for the Public Arts and Humanities and the *Amatria: Sentient Architecture* installation that foreshadows a future where human and machine intelligence learn, work, and live together in a continuously evolving symbiosis.

## PUBLICATIONS

Conference papers that were presented at ISSI will be published online via Zenodo, both individually and as the ISSI 2023 Conference Proceedings (ca. 2,000 pages). Authors of accepted papers are also invited to submit their work to journals associated with the conference.

*Scientometrics* (Impact Factor 3.901) welcomes ISSI full papers or research-in-progress papers accepted for oral presentation for ISSI2023. Authors are asked to submit a substantially extended version (ca. 25%) no later than November 15, 2023 for a special issue edited by Katy Börner, Staša Milojević, and Caroline Wagner. Submit directly to the *Scientometrics* website and note that the paper was presented at the ISSI 2023 conference.

The open-access *Frontiers* journal on *Research Metrics and Analytics* welcomes ISSI conference papers. Yi Zhang will serve as the editor of the section of the journal that covers research policy and strategic management. *Frontiers* publishers have kindly offered to accept three papers from the conference without charging the usual author processing charges (APCs).

*Quantitative Science Studies* (QSS), an ISSI journal, is accepting papers for peer review. QSS is unable to waive author processing charges at this time. The journal is accessible via the ISSI website.

# CHINA CONTINUES TO IMPROVE IN TOP-CITED RESEARCH IN CRITICAL AREAS

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Recent research published in Nature, "China topics Nature Index: What a new milestone means for science," by Christopher Woolston, can be further supported by recent findings. This report supports work published by Wagner, Zhang, and Leydesdorff (2022) reporting China's top showing in 1% most-highly cited work. An analysis of Web of Science data of 2022 publications reveals China progressively widening gains over the United States of American (USA) in the top 1% most highly cited works across 14 critical research domains. By segregating research output published solely by Chinese authors and a similar limitation on United States publications in the year 2022, we show that China outperforms the USA in the most highly cited work.

For 14 critical fields, China's publications top the United States in the top 1% most highly cited in 13 of the fields. The table below shows 2022 outputs and results for the top 1% most highly cited scholarly works. The citation count is field-normalized, meaning it considers the specific field of study in which the work was published. This count is presented for each field, allowing for meaningful comparisons. Only in quantum computing does the United States surpass China with top-cited works. By comparison, for the same fields in 2019, the average proportion of highly cited documents in the top 1% across 14 fields in China was 1.7%, while the corresponding figure for the United States was 2.59%. In 2022, China's average percentage is currently 1.1% whereas the United States' average dropped to 0.74

For 2022, the USA produced more domestic publications compared to China in these fields. When examining the proportion of documents referenced by other researchers, China, with 55% of articles cited, outperforms the United States with 50% cited. A similar trend was observed in 2019, where China accounted for 87% of all domestic documents cited, while the USA accounted for 84%[1], suggesting that Chinese work is getting more

[1] The large difference in percentage shares between 2019 and 2022 is due to the lesser amount of time for 2022 publications to attract citations.

attention than US work. The selection of domestic-only documents cited in this study is indicative of the target audience.

A point of significance lies in the examination of the percentage of documents cited in a comparison with all publications in that field for the year. This metric represents the summation of all citations within a specific academic discipline for a given year, which is then divided by a subset of citations attributed to a particular country, relative to the total citations within that discipline. Category-normalized citations serve to equalize citation rates across different fields, accounting for variations in the impact of highly cited papers, publication practices, and disciplinary disparities. In the present analysis, China surpasses the United States in overall performance in the year 2022, as compared to the data recorded in 2019. In the year 2022, the average category-normalized citation number for domestic works in China across 14 fields was 1.12, whereas the United States recorded a lower value of 0.96. This represents a reversal in the ranking order compared to 2019, where China had a citation number of 1.12 and the USA had a higher value of 1.48. Keep in mind that publications from the year 2019 have had a longer duration to accumulate citations compared to works that were published in the year 2022.

The analysis is restricted solely to domestic output for each country, a deliberate choice made to facilitate comparisons at the national level. Collaborative research between China and the United States remains highly cited in academic literature, surpassing the impact of research conducted solely by either nation. The figures presented in this brief report exclusively pertain to the level of attention garnered by domestic publications in the year 2022. It is important to note that these publications have had limited time to accumulate citations. Future analysis will vary for a given set of fields across different nations. This report provides an update to previous research, acknowledging the potential for evolving analysis.

| | CHINA % DOCUMENTS IN TOP 1% | USA % DOCS TOP 1% MHC | DIFFERENCE |
|---|---|---|---|
| AGRICULTURE | 1.49 | 0.63 | -0.86 |
| BIOCHEMISTRY & MOLECULAR BIOLOGY | 0.85 | 0.72 | -0.13 |
| BIOTECHNOLOGY & APPLIED MICROBIOLOGY | 1.10 | 0.70 | -0.40 |
| APPLIED CHEMISTRY | 1.08 | 0.90 | -0.18 |
| ARTIFICIAL INTELLIGENCE | 1.14 | 0.69 | -0.45 |
| HARDWARE & ARCHITECTURE | 1.04 | 0.72 | -0.32 |
| SOFTWARE ENGINEERING | 1.64 | 0.93 | -0.71 |
| ENGINEERING, ELECTRICAL & ELECTRONIC | 1.14 | 0.75 | -0.39 |
| MATERIALS SCIENCE | 1.42 | 0.89 | -0.53 |
| APPLIED MATHEMATICS | 1.10 | 0.67 | -0.43 |
| NANOSCIENCE & NANOTECHNOLOGY | 1.35 | 0.88 | -0.47 |
| PHARMACOLOGY & PHARMACY | 0.89 | 0.74 | -0.15 |
| PHYSICS, PARTICLES & FIELDS | 0.78 | 0.62 | -0.16 |
| QUANTUM SCIENCE & TECHNOLOGY | 0.33 | 0.50 | 0.17 |
| | *15.35* | *10.34* | *-5.01* |

*Source: Web of Science*

## REFERENCE

Wagner, C. S., Zhang, L., & Leydesdorff, L. (2022). A discussion of measuring the top-1% most-highly cited publications: quality and impact of Chinese papers. *Scientometrics*, 127(4), 1825-1839.