IMU News 127: September 2024

A Bimonthly Email Newsletter from the International Mathematical Union
Editor: Yoshiharu Kohayakawa, University of São Paulo, Brazil
imu-news-editor@mathunion.org

CONTENTS

---

1. EDITORIAL

"How to ensure widespread and equitable access to back issues of mathematics journals" is one of the key questions in our community. It has been a recurring theme of IMU's Committee on Electronic Information and Communication (CEIC) since its inception in 1998, with recommendations starting as early as 2002. Ideally, we would like to see subscription-based journals become open access under a non-restrictive license after the shortest possible window, but this "moving wall" should be compatible with the subscription models of the various publishers, such as publishing companies or learned societies.

The IMU EC, on the advice of the CEIC, established an ad hoc Committee on Permissions in 2021 to prepare a recommendation for an IMU policy on the time frame for making articles freely available after publication, considering the experience of subscription journals over the past decade.

After much work and deliberation, the ad hoc Committee on Permissions submitted its final report to the IMU EC this August, and the report was endorsed by the IMU EC in September. The central proposal of the report is that the IMU should formally recommend that every mathematics journal should make all its articles freely available, ideally under a non-restrictive license, no later than five years after publication. This proposed five-year "moving wall" is based on the experience of publishers' subscription models mentioned above, and on earlier recommendations of the CEIC. This recommendation will be followed up by the IMU EC.

In addition, the report includes a summary of the recommendations to be followed up by the CEIC, detailed explanations of current publishing licenses, the different open access models such as Diamond Open Access and Subscribe to Open, feedback based on interviews with publishers, and background information to put the recommendations into context.

Please find below in this newsletter a more detailed description of the work of the Committee on Permissions, along with a link to the report. I would like to take this opportunity to thank all the members of the committee, Thomas Brennan (chair), Henry Cohn, Samuel Hansen, Evelyne Miot, Valeria Simoncini, and Stephen Watt, for the report and for all their work in this committee! The report is very rich, containing many details about the current state of mathematics publishing, and I invite all our readers to read it.

The above recommendation is for publishers, but we should not forget our own "best practices" as authors, among them the full use of the arXiv preprint server. After submitting a preprint to arXiv, please do not forget to upload further revisions, so that the latest version contains all updates that have been added to your initial version during the evaluation process. Once your preprint is published, please also add the journal reference and DOI of the published version. Also, if during the evaluation process a reviewer or colleague finds a flaw in your argument, or you suddenly realize that Lemma 1 is wrong, leading to the retraction of your article from the journal, please withdraw it from the arXiv as well. Also, if you change plans, as merging two preprints into one publication, please add a comment for your readers.

There is a lesser-known feature of the arXiv: when you submit your preprint, you can change its default license to a [CC-BY license]. Please make sure that the publisher of the journal you are submitting to allows this (which hopefully is usually the case). The arXiv is often considered to be "Green Open Access", but it would only be truly green if we followed the best practices above, eventually uploaded the published version if allowed, or at least the "Author Accepted Manuscript", and used a CC-BY license.

Speaking about the arXiv, you might know from the May issue of IMU News, that zbMATH Open recently started indexing arXiv's preprints of the mathematics category (see [arXiv:2401.08297] for the details). I now find it even easier and more precise to search the arXiv via zbMATH Open. When a preprint gets published, its zbMATH Open record is merged with the published version. Then the record for the merged preprint disappears, and the arXiv version appears just as an additional link. The "merge algorithm" works well but can't be perfect. If you find that the preprint and published versions of your article have not been merged, please notify zbMATH Open via its [contact form], and the records will be merged manually. All preprints since arXiv's inception have been indexed, so it might be a good idea to check this for your older articles and preprints as well. The indexing of the arXiv in zbMATH Open is another incentive to follow the author best practices above.

Finally, as we learned from the May issue of IMU News, Clarivate, the owner of "Web of Science", has specifically [excluded mathematics] from its list of highly cited researchers because of citation cartels and predatory publishers (see also Michele Catanzaro's [article in Science]). I guess that citation cartels exist in all fields, but that they are more visible in smaller communities like mathematics. It is not [difficult to detect them], and a reaction of our community is required. The IMU and ICIAM are currently preparing a joint statement on these issues, coordinated by CEIC Chair Ilka Agricola for the IMU. The statement will include a detailed discussion of the problem and concrete recommendations for our community. All of the above were discussed at the [CEIC workshop in September] (see Ilka's report below). It was a really well organized and successful workshop, and I would like to thank Ilka and the Simons Foundation for organizing it.

Christoph Sorger
IMU Secretary General

2. AD HOC COMMITTEE ON PERMISSIONS

The IMU Executive Committee (EC) – on the advice of the IMU Committee on Electronic Information and Communication (CEIC) – created in 2021 an ad hoc Committee on Permissions with the task of preparing a report regarding the following:

- A recommendation for IMU policy on the time frame for making papers freely available after publication, together with technical details such as licenses.
- A concrete proposal for how to implement this recommendation, for example by outreach to publishers, with the particular goal of negotiating access to existing back issues.
- Any additional considerations that may affect the availability of past papers, such as the demise of publishing companies or issues with archiving.

The committee members were Thomas Brennan (chair), Henry Cohn, Samuel Hansen, Evelyne Miot, Valeria Simoncini, and Stephen Watt.

The Committee on Permissions convened regularly from 2021 to 2024 and submitted its final report *Ensuring widespread and equitable access to back issues of mathematics journals* to the IMU EC in August 2024. The report was endorsed by the IMU EC in September 2024.

The Committee generally met biweekly over these years to gather information, discuss the above issues, and draft the report. A significant part of their work involved surveying a sample of publishers and interviewing representatives of key publishers.

The report's central proposal is for the IMU to formally recommend that every mathematics journal should make all its articles open access no later than five years after publication. This proposed five-year "moving wall" is based on the experience of several publishers' subscription models over the past decade and former recommendations from CEIC.

Additionally, the report includes a summary of recommendations to be followed up by CEIC, detailed explanations of current publishing licenses, and background information on the state of mathematics publishing.

The Committee on Permissions final report is available on the committee's webpage.

Christoph Sorger
IMU Secretary General

---

3. REPORT ON THE MPS WORKSHOP ON PERSPECTIVES ON ELECTRONIC INFORMATION & COMMUNICATION IN THE MATHEMATICAL SCIENCES

Twenty-five experts from all continents except Antarctica gathered in New York under the auspices of the IMU and upon invitation of the Simons Foundation to discuss recent developments in mathematical publishing in a very broad sense (videos will be available on the workshop webpage shortly).

Participants of the MPS workshop

Rather than a classical scholarly meeting, the participants understood their active participation as a service to the global mathematical community with the following goals:

- Developing together an expert opinion on key issues around mathematical publishing
- Formulating recommendations, milestones & guidance for the community
- Discussing the dissemination and communication of the results to the community, national societies, policy makers etc.

Five major points of action and interest were identified prior to the meeting and served to structure the workshop:

1. Steps towards a Global Digital Math Library (GDML)
2. Copyright strategies and legal issues
3. The future of mathematical libraries and research data infrastructure
4. The challenges of citation cartels and predatory publishers
5. The impact of AI and computer proof assistants on mathematical publishing

Clearly, topics (3) and (5) were more of strategic nature, while concrete actions were the goal of topics (1), (2), and (4). We review them all quickly below.

1. Steps towards a Global Digital Math Library (GDML). In the past two years, an ad hoc committee conducted a large investigation among publishers entitled *Ensuring widespread and equitable access to back issues of mathematics journals*.

The report and further actions were discussed (contacts with the publishers for further negotiations for a 5-year moving wall for back archives, develop an "IMU Code of Practice" for journals, make sure that recommendations are well communicated to the national societies, deepen cooperation with zbMath and arXiv).

2. Copyright strategies and legal issues. A few goals were identified as desirable, but it became clear that the math community does need some expert legal advice on this, and that this is highly desirable because individual researchers and even national societies do not have the necessary resources for clarifying international legal issues. The desiderata were: Support for diamond OA and control of mathematical publishing infrastructure by the mathematical community; encouraging systematic deposit of author-accepted manuscripts on arXiv, discussing with arXiv a possible modification of the standard license; formulating advice on copyright transfer for authors.

3. The future of mathematical libraries and research data infrastructure. To identify the biggest challenges, the discussion was organised around a few guiding questions, namely:

- What parts of the mathematics research cycle are currently underserved by libraries and information repositories/providers?
- What aspects of libraries and information repositories/providers are underused by mathematics?
- How do you think the informational needs of mathematicians will change in the next 5–25 years?
- What are the biggest informational challenges you foresee for mathematics in the next 5–25 years?
- What potential partnerships can you see between libraries/librarians and mathematics/mathematicians?

A massive and rather dynamic change of the role of math librarians is expected by all participants. The main risk perceived in the transition is that digitalisation might lead to the misunderstanding that math librarians are not needed anymore. National networks of math librarians in a quickly changing research environment should be encouraged and the role of librarians expanded to partners of the community in the whole publication process.

4. The challenges of citation cartels and predatory publishers. For this topic, a subgroup of five people had been working for several months on an assessment of the situation in mathematics. (In short: paper mills and predatory journals have strongly professionalised their activities in the past 10 years and are now creating a substantial revenue. There is a growing parallel universe of fake mathematical science that undermines the trust in science and devaluates the classical selection criteria for scientific excellence based on the (over-)use of bibliometrics). The concrete starting point was that in November 2023, Clarivate (the company computing impact factors of journals that owns "Web of Science") announced that it had excluded the entire field of mathematics from the most recent edition of its list of authors of highly cited papers because of extensive citation manipulation. A joint statement with the [International Council for Industrial and Applied Mathematics](#) (ICIAM) is under preparation. It will contain a detailed discussion of the problem and concrete recommendations for the scientific community.

5. The impact of AI and computer proof assistants on mathematical publishing. This was a rather fascinating open discussion on the possible benefits and risks of AI tools in publishing, and an overview of the abilities of modern theorem provers. To be followed more closely in the near future!

Concluding remarks. This was the first in-person meeting on publishing in the mathematical sciences in more than five years, and for many people it was their first opportunity for a personal encounter. It was extremely fruitful and we believe that it will be the starting point for many further activities and discussions.

Many thanks go to all participants for their engagement and to the staff of the Simons Foundation for their fantastic work.

Ilka Agricola
Chair of CEIC & *Lead Organiser*

---

4. ICM 2026 TRAVEL GRANTS

It has been a longstanding tradition that the organizers of the ICM offer support in order that mathematicians from developing countries can participate at the ICM.

For ICM 2026 in Philadelphia, USA, the organizers have announced the *ICM 2026 Travel Support Program*. With generous funding from the Simons Foundation and in collaboration with the IMU and the IMU's Commission for Developing Countries (CDC), the American Mathematical Society (AMS) is offering travel support for ICM 2026 participants that will provide partial support for mathematicians from eligible developing countries to attend the ICM.

The application deadline is

20 November 2024 (11:59 pm EST)

Applicants will be notified of their application status by 31 March 2025.

Further information can be found on the ICM 2026 website.

Readers are requested to disseminate this information among colleagues and students.

---

5. RAMANUJAN PRIZE 2024

The ICTP and the IMU have awarded the 2024 Ramanujan Prize for young mathematicians from developing countries to Ruochuan Liu, Professor at the Beijing International Center for Mathematical Research (BICMR) at Peking University, China, "for his fundamental contributions to p-adic Hodge theory, especially his foundational study of relative p-adic Hodge theory and his remarkable work on rigidity and the Riemann-Hilbert correspondence for p-adic local systems."

Liu obtained his BSc and master's degree in mathematics from Peking University, and his PhD at MIT in 2008. He was a member of the Institute for Advanced Study in 2010; in 2012, he returned to BICMR, where he has made a series of breakthroughs in p-adic Hodge theory, automorphic forms and the Langlands program.

Liu's work has received a number of recognitions, including the 2020 China Youth Science and Technology Award, the 2019 Tencent Xplorer prize, and the 2017 National Science Fund Award for Distinguished Young Scholars.

---

6. THE 11TH HEIDELBERG LAUREATE FORUM

As this edition of IMU News is being finalized, the 11th [Heidelberg Laureate Forum](#) (HLF) is taking place. The HLF is a networking conference where 200 carefully selected young researchers in mathematics and computer science spend a week interacting with the laureates of the most prestigious awards in their disciplines: the Abel Prize, ACM A.M. Turing Award, ACM Prize in Computing, Fields Medal, IMU Abacus Medal and Nevanlinna Prize. Select sessions were livestreamed. Visit the [HLF YouTube channel](#) for a wealth of information.

Young researchers interested in attending the HLF are encouraged to check out [their FAQ](#).

---

7. NEWS FROM THE INTERNATIONAL COMMISSION ON MATHEMATICAL INSTRUCTION (ICMI)

A Research Mathematician's Journey at ICME-15 in Sydney

by Paolo Piccione, University of São Paulo, IMU Liaison in the ICMI EC

Participating in ICME-15 was a unique and eye-opening experience for me as a research mathematician. Having never attended a mathematics education meeting before, I was intrigued by the depth and breadth of discussions surrounding the teaching and learning of mathematics. The congress offered a fresh perspective on how mathematical concepts are communicated and understood across different educational contexts. Engaging with educators and researchers from diverse backgrounds allowed me to appreciate the challenges and innovations in mathematics education, an area that, until now, I had only observed from a distance. With over 2,300 participants from 92 countries, I was deeply impressed by the diversity and cultural richness that the organizers of the meeting brought together.

Before the congress began, I had the privilege of participating in the meeting of the Executive Committee of the International Commission on Mathematical Instruction (ICMI) as the liaison person from the Executive Committee of the International Mathematical Union. I want to extend my heartfelt thanks to all members of the ICMI Executive Committee for warmly welcoming me into their group and to the IMU Executive Committee for assigning me this important role. I greatly enjoyed my time with them, and this experience has significantly broadened my career perspectives, inspiring me to contribute more actively to the global conversation on mathematics education.

The plenary sessions at ICME-15 were particularly enlightening, offering a comprehensive overview of current issues in mathematics education, from curriculum development to the integration of technology in

teaching. The first two days featured a series of talks and panels that set the tone for the congress. Many of the speakers explored the global challenges in mathematics education, emphasizing the need for inclusive and equitable practices.

Compared to research mathematics meetings, I found the group of participating math educators at ICME-15 to be more varied and internationalized. The diversity of perspectives and experiences was striking, with attendees representing a wide range of cultural and educational backgrounds. This diversity enriched the discussions and offered a global view of the challenges and opportunities in mathematics education.

One of the most thought-provoking realizations I had during the congress was the contrast in perspectives between mathematicians and math educators. While mathematicians, regardless of their geographical location or working conditions, tend to share a common view of mathematical research, math educators often have very different perspectives on teaching and learning. These perspectives are shaped by their local educational systems, cultural contexts, and the specific challenges they face in their regions. This diversity of views among educators underscores the complexity of mathematics education and the need for context-sensitive approaches to teaching and learning.

The Topic Study Groups provided a deep dive into specific areas of interest, and I found the collaborative atmosphere to be both stimulating and inspiring. It was fascinating to see how research in mathematics education intersects with and informs mathematical research, and I left the congress with a renewed sense of how my work as a mathematician can contribute to and benefit from these ongoing conversations.

Adding to the richness of the experience, the congress was held in the beautiful landscape of Sydney's harbor, with stunning views that provided a serene backdrop for the intense discussions and collaborations. The picturesque surroundings added a special dimension to the event, making it even more memorable.

Overall, ICME-15 broadened my understanding of the educational landscape and highlighted the importance of collaboration between mathematicians and educators in shaping the future of mathematics learning and teaching.

The ICMI Nominating Committee (NC) and the ICMI General Assembly (GA) – A brief personal report

by Abraham Arcavi, Chair of the Nominating Committee

Since 2008, it is an established tradition that the day preceding the opening of any ICME is devoted to the ICMI General Assembly (GA). The GA is constituted by the members of the ICMI Executive Committee and the ICMI Country Representatives, with the attendance of invited guests (Chairs of ICMI Thematic and Regional Affiliate Organizations and past ICMI officers).

This time, the GA took place on July 7, 2024 in Sydney. The meeting opened with welcoming addresses by the IMU President, Hiraku Nakajima and the ICMI President, Frederick Leung. The ICMI Secretary General, Jean-Luc Dorier presented a comprehensive quadrennial report of activities and Chairs of all the ICMI Affiliate Organizations presented brief pre-recorded reports. This time, the GA introduced a novel and successful component to the agenda: roundtables of 6-7 attendees who discussed issues of incumbency to the ICMI constituency, offering a space for attendees to know each other and interact.

A main component of all the GAs is the election of the upcoming ICMI Executive Committee, in which only the Country Representatives have the right to vote for the candidates in a slate, which is presented to them by an ad hoc Nominating Committee (NC). The statutes that rule the election, composition and functioning of the NC, and the subsequent election procedures, can be found on [this webpage](#).

I was honored by the invitation of the ICMI President, Frederick Leung, to chair the NC. The NC members were: Frederick Leung, Hiraku Nakajima (as core members) and David M. Bressoud (USA), Christine Chambris (France), Cristina Esteley (Argentina) and Catherine Vistro-Yu (Philippines) as members-at-large. The NC started to work in November, 2022, and presented its slate to the ICMI Secretary-General in May 2024 for distribution to the Country Representatives.

The work of the NC was confidential, and all the members were obliged to disclose conflicts of interest, if any. Before proceeding to the constitution of the slate itself, the NC agreed on a set of criteria for the selection of candidates. These criteria included: balancing between renewal (new and energetic candidates with ICMI/ICME involvement) and continuity (members involved with ICMI in the past), candidates with experience in mathematics education and committed to it, and having national, regional or international visibility. Also, the slate proposed should be, as much as possible, balanced in terms of gender and geographical spread. The NC deliberations took several rounds before achieving consensus among all its members, and it took into account all the nominations received by Country Representatives and IMU Adhering Organizations as well as those proposed by the NC.

According to the statutes, the slate selected included one candidate for ICMI President, one candidate for ICMI Secretary-General, two candidates for the two Vice-Presidents and eight candidates (selected from 16 submissions) out of which five would be elected to serve on the ICMI EC.

The smooth election procedure was carried out electronically, and was open to all Country Representatives (those present at the GA and those who could vote remotely). The result, namely the composition of the incoming ICMI Executive Committee, taking office on January 1, 2025 has been presented in the preceding IMU newsletter in Jean-Luc Dorier's editorial.

I extend my thanks to ICMI President, Frederick Leung, for inviting me to chair the NC. My gratitude to the all the NC members for their contributions to the efficient, sensitive, open, honest and unbiased deliberations. Finally, I express my wholehearted wishes that the upcoming ICMI EC will succeed in taking ICMI to new heights.

ICMI Study 27 "Mathematics Education and the Socio-Ecological": Update from the co-chairs

by Kate le Roux and Alf Coles

The ICMI 27 Study Conference is set to take place from January 22 to 25, 2025, in the Philippines. Over 70 submissions, authored from 29 countries, were received. In July 2024 the International Program Committee (IPC) reviewed most of the papers in our first in-person IPC meeting in Sydney. We are grateful to the full IPC for their reviews, prompting deep engagement with what it might mean to bring mathematics education into relation with the socio-ecological, and to Vince Geiger for organizing the productive thinking space. We also furthered the Conference program planning, including how plenaries and the Conference location itself – Ateneo de Manila University, Quezon City, Philippines – might contribute to our creative thinking about the topic.

The ICME-15 Discussion Group "Mathematics Education and the Socio-Ecological", led by members of the IPC (and Khemduth Singh Angateeah), was a rich space to converse with a number of paper authors, the Local Organizing Committee (LOC), and others in the community. Session 1 (75 participants) and Session 2 (85 participants) confirmed the high level of interest in the topic, and gave the IPC an opportunity to collaborate on the kind of conversations we envisage for the Conference.

First, the Group explored: How are socio-ecological issues/problems forming in your local space?; Which communities and territories are being affected and how? Responses gave place-based meanings to entangled ecological/environmental, social, economic and political experiences, and asymmetries in the role of humans in these entanglements. These contributions align with Study Theme B, Scales of Mathematics Education. The Group then asked: What aims does mathematics education pursue in the socio-ecological? (Theme A). Thinking about mathematics education for interrelations, community, making sense of connectivity, and balance, generated questions of: What aims for education? What mathematics? And how do we 'know' if re-imagined aims are realized? With the thinking prompted by Themes A and B, the Group zoomed in on Theme C, Resources of/for Mathematics Education (i.e. practices; concepts, constructs, objects; tools). Diverse notions of resources included: actions, time, cellphones, online materials, time, craft, big data, qualitative stories, home, and hope. Thus (re)turning us to issues of power, and what constitutes both mathematics and the mathematics classroom. Discussion to this point led us to think about Mathematics Education Futures (Theme D), and tensions in experiences of hope, creativity, actions, uncertainties, fears, helplessness, and violences; and opportunities for mathematics (education) to (re)story futures.

Arrangements for the Conference are well advanced, and we are grateful to the work of the LOC. Thank you to Merrilyn Goos for convening the ICME-15 session "Reports on ICMI Studies". Here, and in corridor conversations, co-chairs and IPC members of Studies 24, 25 and 26 generously shared their experiences and learnings.

Jean-Luc Dorier
ICMI Secretary General

8. NEWS FROM THE COMMISSION FOR DEVELOPING COUNTRIES (CDC)

The next International Congress of Mathematicians will take place in Philadelphia, USA, from June 23 to June 30, 2026. The Commission for Developing Countries (CDC) is pleased to announce that the call for applications for the ICM 2026 Travel Support Program is now open. This program will offer partial support for mathematicians from eligible developing countries to attend the ICM, helping to ensure that mathematicians from all over the world are well represented on the global stage in mathematical research. For more details about the ICM 2026 Travel Support Program, visit the AMS website. For information about the ICM 2026, visit the ICM 2026 website.

We would also like to remind you about our new IMU-Simons Research Fellowship Program for Developing Countries, generously funded by the Simons Foundation. This new grant program supports mathematicians based in developing countries in undertaking collaborative research at mathematical institutions abroad. The CDC strongly encourages mathematicians and students from developing countries to apply to our calls listed below and to contact us for further details via email.

Grants for Institutions

- Volunteer Lecturer Program (next deadline December 1, 2024, for courses to be held between June 1, 2025, and June 1, 2026)
- Library Assistance Scheme (no fixed deadline)

Grants for Conferences and Projects

- Conference Support Program (next deadline January 15, 2025, for conferences starting after May 15, 2025)

Grants to Individuals

- Abel Visiting Scholar Program (next deadline December 31, 2024, for research visits between May 1 and August 31, 2025)
- IMU-Simons Research Fellowship Program for Developing Countries (next deadline January 15, 2025, for research visits starting between June 1, 2025, and June 1, 2026)

Graduate Scholarships

- IMU Breakout Graduate Fellowship Program (the 2025 call for nomination will open no later than March 1, 2025)
- Graduate Research Assistantships in Developing Countries (GRAID) Program (the 2025 call for applications is open with deadline on March 15, 2025)

Ludovic Rifford
Secretary for Policy of the CDC

9. NEWS FROM THE COMMITTEE FOR WOMEN IN MATHEMATICS (CWM)

SCGES Webinar "Women in Geography: Paths and Perspectives from Around the World". On October 2nd, 2024, the [Standing Committee for Gender Equality in Science](#) (SCGES) will host its 11th Webinar: "[Women in Geography: Paths and Perspectives from Around the World](#)". The webinar will take place online, from 13:00 to 15:00 UTC.

More information and the registration form can be found on the [SCGES webpage](#).

SCGES was established in September 2020, with the IMU and the [International Council for Industrial and Applied Mathematics](#) (ICIAM) among its founding members. Since 2022, the regular SCGES Webinar Series has highlighted various topics of interest around the focus tasks of the committee.

CWM Call 2025 coming soon. The CWM Call 2025 will be launched in mid-October 2024, inviting proposals for activities or initiatives to support women in mathematics taking place from March 2025 to February 2026. More information will be available soon at the [CWM Calls webpage](#).

[Carolina Araujo](#) and [Hélène Barcelo](#)
Chair and Vice-Chair of the IMU [Committee for Women in Mathematics](#)

---

10. SUBSCRIBING TO IMU NEWS

To subscribe to IMU News, please visit www.mathunion.org/organization/imu-news and go to the "Subscribe to IMU News" section at the bottom of the page.

When you subscribe, you will receive an e-mail message to confirm your subscription so that misuse will be minimized. IMU will not use the list of IMU News emails for any purpose other than sending IMU News, and will not make it available to others.

IMU News is the electronic newsletter of the [International Mathematical Union](#).

More details about IMU News can be found at www.mathunion.org/organization/imu-news

---