

IMU News 121: September 2023

A Bimonthly Email Newsletter from the International Mathematical Union

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1. EDITORIAL

I am taking over this editorial to tell you about the Commission for Developing Countries, where I have held the position of Secretary for Policy since the beginning of this year. As you may know, the International Mathematical Union is now able to confirm the dates of the flagship event that has been part of its life for over 120 years. The next International Congress of Mathematicians, ICM 2026, will take place in Philadelphia (USA) from June 23 to June 30, 2026, and in accordance with tradition, it will be preceded by the IMU General Assembly in New York City (USA) on June 20 and 21, 2026. The ICM is an opportunity to celebrate numerous mathematicians, but not only that; it also allows the various IMU commissions to showcase their activities and interact with the community.

The IMU houses several commissions dedicated to the various challenges facing the mathematical community. Among these, the Commission for Developing Countries (CDC) focuses its attention on providing assistance and resources to our fellow mathematicians in economically disadvantaged countries. The new commission, chaired by the Argentine mathematician Andrea Solotar from the University of Buenos Aires, began its functions in early 2023, bringing together 11 members. It succeeds the previous commission led by Dipendra Prasad, to whom I extend my warmest thanks for the outstanding work done, with a special mention to my predecessor, Olga Gil Medrano, for her extraordinary dedication.

The CDC's mission is to manage and promote various IMU programs for developing countries, seek funding for them, and establish partnerships with other scientific organizations with common objectives. The CDC currently manages 7 funding programs, which are divided among institution funding, conference and project funding, individual funding, and scholarships. Each program is overseen by an ad hoc committee, typically involving members of the CDC and members from partner institutions. Over the years, the CDC has collaborated with organizations such as the Abel Committee, the International Center for Theoretical Physics, the American Mathematical Society, and the London Mathematical Society. It is important to

emphasize that all of these activities would not be possible without the unwavering and constant work of the IMU staff in Berlin.

The CDC is currently working on the implementation of a new platform for grants management interface to facilitate the work of our staff. Our programs will transition to the new interface one by one starting in mid-October 2023. To ensure the smoothest possible transition, we will shortly be organizing webinars to introduce the new platform. These virtual meetings will also provide an opportunity to engage with our fellow mathematicians around the world. I look forward to meeting up online soon. In the meantime, please visit the [Commission for Developing Countries website](#) for more information on our activities.

Nice, 21 September 2023

[Ludovic Rifford](#)

[Secretary for Policy of the CDC](#)

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

The [Commission for Developing Countries](#) (CDC) is actively working to improve its funding opportunities. It strongly encourages mathematicians and students from developing countries to apply to the calls below and to contact the CDC for further details [via email](#). We especially wish to draw the attention of our colleagues to the new format of the Volunteer Lecturer Program which now allows shorter courses devoted to Master students, PhD students and researchers.

Grants to Institutions

- [Volunteer Lecturer Program](#) (next deadline December 1, 2023)
- [Library Assistance Scheme](#) (no fixed deadline)

Grants for Conferences and Projects

- [Conference Support Program](#) (next deadline January 15, 2024, for conferences starting after May 15, 2024)

Grants to Individuals

- [Abel Visiting Scholar Program](#) (next deadline December 31, 2023, for visits between May 1 and August 31, 2024)
- [Individual Travel Support Program](#) (next deadline January 15, 2024, for visits starting between May 15, 2024, and May 15, 2025)

Graduate Scholarships

- [IMU Breakout Graduate Fellowship Program](#) (call for applications 2023 now closed; the 2024 call will open no later than February 14, 2024)

- [Graduate Research Assistantships in Developing Countries \(GRAID\) Program](#) (call for applications 2023 now closed; the 2024 call will be open in 2024)

[Ludovic Rifford](#)

[Secretary for Policy of the CDC](#)

3. NEWS FROM the INTERNATIONAL COMMISSION ON MATHEMATICAL INSTRUCTION (ICMI)

Launching the 27th ICMI Study on Mathematics Education and the Socio-Ecological, by Frederick Leung, President of ICMI. ICMI is happy to announce the launching of a new ICMI Study, namely the 27th ICMI Study on Mathematics Education and the Socio-Ecological. This envisioned theme of Mathematics Education and the Socio-Ecological is a timely one for exploring and consolidating theoretical knowledge in the area internationally, and for informing practice in mathematics education. Through the socio-ecological lens, research and practice that connect with social, political, and ecological (including environmental) issues and related ethical concerns, as well as their relations to mathematical knowledge and mathematics education, are valued.

The 27th ICMI Study will highlight three aims: (1) to gather state-of-the-art scholarship in socio-ecological mathematics education around the world and to engage in across-perspective dialogues; (2) to explore the different ways in which a theorization of the socio-ecological influences the focus and methodological approaches of mathematics education research; and (3) to provide insight into the practical implications of socio-ecological research associated with the mathematics curriculum, pedagogy, teacher preparation and education-related policies, beyond traditional approaches.

Two distinguished scholars in the field, Professor Alf Coles from the University of Bristol in the United Kingdom, and Professor Kate le Roux from the University of Cape Town in South Africa, will serve as Co-Chairs of the Study to lead an International Program Committee (IPC) to guide us through the Study in exploring Mathematics Education from socio-ecological perspectives. The list of IPC members, who have been working in this area of research and who come from a variety of theoretical backgrounds and geographic areas, can be found at the end of this article.

As in all ICMI Studies, an IPC meeting will be arranged soon to initiate the Study, where the different aspects and emphases of the Study will be mapped out. A Discussion Document (DD) will be compiled out of the IPC meeting, and an announcement will then be sent to scholars in various parts of the world, inviting those working in this area to attend a Study Conference and to offer their expertise in providing insights on different aspects of the Study. A Study Volume will be produced at the end of the Study.

Meanwhile, if you have any comments or suggestions about this 27th ICMI Study, please do not hesitate to contact [Alf Coles](#) or [Kate le Roux](#) by email.

IPC members of the 27th ICMI Study on Mathematics Education and the Socio-Ecological:

- Alf Coles (UK), Co-chair
- Kate le Roux (South Africa), Co-chair

- Marcelo Borba (Brazil)
- Arindam Bose (India)
- Vince Geiger (Australia)
- Rochelle Gutiérrez (USA)
- Mariam Makramalla (Egypt)
- Natalie Sinclair (Canada)
- Armando Solares-Rojas (Mexico)
- Paola Valero (Sweden)
- Catherine Vistro-Yu (Philippines)
- Frederick Leung (Hong Kong), ex officio, President of ICMI
- Jean-Luc Dorier (Switzerland), ex officio, Secretary-General of ICMI

ICMI AMOR Updates. The [ICMI AMOR project](#) aims at building online resources reflecting highly significant and influential research in mathematics education at an international level, which could serve as a reference not only for researchers in the field, but also for educators, teachers, curriculum developers and policy makers and other agents in the field. In order to build our resources ICMI has decided to focus on each Felix Klein, Hans Freudenthal and Emma Castelnuovo ICMI Awardee, through what we have called the AMOR (Awardees Multimedia Online Resources) project.

Recently, the Celia Hoyles Unit was completed by an Epilogue in the form of a 30-minute interview of Celia by Nurià Planas. The Terezinha Nunes Unit was created with module 0 and 4 modules. We remind you that three units are complete: Michèle Artigue's, Yves Chevallard's and Anna Sfard's. The Guy Brousseau Unit is nearly finished and work on Ubiratan D'Ambrosio's has just started.

A discussion group about AMOR will be held at ICME-15.

[Jean-Luc Dorier](#)
[ICMI Secretary General](#)

4. NEWS OF THE INTERNATIONAL DAY OF MATHEMATICS (IDM)

The 2024 IDM theme. The 2024 theme for the International Day of Mathematics (IDM 2024) is [Playing with Maths](#). Countries are invited to adapt the spelling to their local tradition, for instance Playing with math. Depending on the language, the word “play” not only represents the action of playing a game but often conveys the meaning of fun, enjoyment and exploration in the realm of mathematics. See [here](#) for some translations.

IDM and the *International Decade of Sciences for Sustainable Development 2024–2032 (IDSSD)*. During the IDSSD (see the next piece in this edition of IMU News) the IDM will propose activities related to sustainable development.

Preparing for IDM 2024. As in the previous years, activities and material will be proposed on the website, including a poster, a challenge, classroom, schoolyard and street activities.

IDM Newsletter. If you have not yet done so, [register to the IDM Newsletter](#) on the [IDM website](#) to learn of all announcements in due time.

[Christiane Rousseau](#)

Chair of the [IDM Governing Board](#)

5. PROCLAMATION OF THE 2024-2033 INTERNATIONAL DECADE OF SCIENCES FOR SUSTAINABLE DEVELOPMENT BY THE UN GENERAL ASSEMBLY

On August 25, 2023, the United Nations General Assembly [proclaimed](#) 2024 to 2033 as the “[International Decade of Sciences for Sustainable Development](#)” (IDSSD), acknowledging the imperative to bridge across scientific disciplines and knowledge forms in order to address the complex and intricate challenges of our time. This decade a natural follow-up of the “[2022-2023 International Year of Basic Sciences for Sustainable Development](#)” (IYBSSD).

The full text of the resolution can be found [here](#). The proposal of proclamation by the UN General Assembly was made by the Permanent Mission of Serbia at the UN.

The IMU is part of the consortium of organizations which put forward the project of International Decade of Sciences for Sustainable Development. It looks forward to being part of the IDSSD 2024–2033. Many activities will take place worldwide throughout the decade to come, and we sincerely hope that mathematicians will take part in these activities and continue to show the fundamental role of mathematics among the sciences.

[Christoph Sorger](#)

[IMU Secretary General](#)

6. NEWS FROM THE 2025 MATHEMATICAL CONGRESS OF THE AMERICAS

The [Fourth Mathematical Congress of the Americas](#) (MCA 2025) will be held in Miami, Florida at the Intercontinental Hotel, July 21 to 25, 2025. It is being hosted by the [Institute of the Mathematical Sciences of the Americas](#) (IMSA) at the University of Miami. This marks the first time the MCA will be held in the United States.

The first MCA was hosted by the Centro de Investigación en Matemáticas (CIMAT) in Guanajuato, Mexico, August 5 to 9, 2013, followed, July 24 to 27, 2017, by the Montreal MCA, hosted by the Canadian Mathematical Society. The 2021 MCA was sponsored by the Department of Mathematics at the University of Buenos Aires. Due to the COVID-19 pandemic, it was held virtually over the time frame from July 9 to July 23.

The umbrella organization for the MCA is the [Mathematical Council of the Americas](#), a network for professional mathematical societies and research institutes based in the Americas, dedicated to promoting the development of Mathematics, in all its aspects, throughout the continent. As a continental collaborative effort, special attention is given to cooperating with UMALCA – [Mathematical Union for Latin America and the Caribbean](#). The Mathematical Council aims to highlight the excellence of mathematical achievements in the Americas within the context of the international arena and to foster the scientific integration of all mathematical communities in the continent. The principal vehicle by which the Math Council advances its goals is through the now well established quadrennial Mathematical Congress (MCA).

The 2025 Miami MCA will feature a roster of distinguished plenary and invited speakers and 50-60 Special Sessions across a full range of mathematical areas and applications. A particular opportunity for MCA 2025 arises from the burgeoning financial services and advanced knowledge industries in Miami. We expect to feature a Miami Tech evening dedicated to advancing mathematical entrepreneurship across the hemisphere. It also comes at special moment for the University of Miami. The University will mark its centenary on April 8, 2025, and MCA 2025 will be one of the premier events celebrating its centennial year.

Please visit the [MCA 2025 website](#) for more information.

[Robert Stephen Cantrell](#)

Chair of Organizing Committee, MCA 2025

[Susan Friedlander](#)

Chair, [Mathematical Council of the Americas](#)

7. ICM 2026 WEBSITE

The website of the International Congress of Mathematicians 2026 has now been launched: [visit the website](#) and [join the mailing list!](#)

8. BREAKTHROUGH PRIZE IN MATHEMATICS

Simon Brendle, of Columbia University, is the 2024 laureate of the Breakthrough Prize in Mathematics, for “transformative contributions to differential geometry, including sharp geometric inequalities, many results on Ricci flow and mean curvature flow and the Lawson conjecture on minimal tori in the 3-sphere.”

The 2024 New Horizons in Mathematics Prize laureates are Roland Bauerschmidt, New York University, for “outstanding contributions to probability theory and the development of renormalisation group techniques,” Michael Groechenig, University of Toronto, for “contributions to the theory of rigid local systems and applications of p -adic integration to mirror symmetry and the fundamental lemma,” Angkana Rüland, University of Bonn, for “contributions to applied analysis, in particular the analysis of microstructure in solid-solid phase transitions and the theory of inverse problems.”

The 2024 Maryam Mirzakhani New Frontiers Prize laureates are Hannah Larson, University of California, Berkeley (PhD Stanford University 2022), for “advances in Brill-Noether theory and the geometry of the moduli space of curves,” Laura Monk, University of Bristol (PhD University of Strasbourg 2021), for “advancing our understanding of random hyperbolic surfaces of large genus,” Mayuko Yamashita, Kyoto University (PhD University of Tokyo 2022), for “contributions to mathematical physics, index theory.”

Visit [this page](#) for the announcement of the 2024 Breakthrough Prizes.

9. THE 10TH HEIDELBERG LAUREATE FORUM

As this edition of IMU News is being finalized, the [10th 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 disciplines: recipients of the Abel Prize, ACM A.M. Turing Award, ACM Prize in Computing, Fields Medal, IMU Abacus Medal and Nevanlinna Prize. Visit the [HLF YouTube channel](#) for a wealth of information on the HLFs.

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

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