

IMU News 105: January 2021

A Bimonthly Email Newsletter from the International Mathematical Union

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CONTENTS

1. Editorial relay: Many thanks and welcome
2. Greetings from the new editor
3. Programs of the Commission for Developing Countries (CDC)
4. News from the Committee for Women in Mathematics (CWM)
5. News from the International Commission on Mathematical Instruction (ICMI)
6. MCA 2021 – Mathematical Congress of the Americas
7. IDM 2021 – International Day of Mathematics
8. POP MATH: All upcoming math outreach events at a glance
9. ICM 2022 Grants
10. Subscribing to IMU News

1. EDITORIAL RELAY: MANY THANKS AND WELCOME

IMU-Net has been under the editorship of [Martin Rausen](#) since January 2016. Martin has been responsible for the edition of 30 issues of the newsletter, giving a fundamental contribution to mathematical outreach, as well as to the communication between the IMU and the mathematical community. Mere words cannot express faithfully the deep sense of gratitude that we all at the IMU feel for Martin's terrific job and personal engagement along the years.

Starting on January 1st, 2021, we have a new editor: Yoshiharu Kohayakawa. Yoshi, as most of his colleagues and friends know him, is a Full Professor at the University of São Paulo, Brazil. He obtained his PhD at the University of Cambridge in 1991, where he worked under the supervision of Béla Bollobás. His research interests lie mainly in combinatorics and in the theory of computing. On behalf of the IMU Executive Committee, I wish him the very best in embracing the challenges as our new editor.

[Paolo Piccione](#)

Member-at-Large

[IMU Executive Committee](#)

2. GREETINGS FROM THE NEW EDITOR

I am very honoured to write to you as the new editor of the IMU newsletter, now rebranded *IMU News*.

Having been a subscriber of this newsletter from its early days, I know that it has been playing very well its rôle as a means of communication between the IMU and the worldwide mathematical community.

Nevertheless, one can always consider the challenge of expanding and engaging the readership of this newsletter further.

Some aims are already set: for instance, we plan to enhance the technical production of IMU News, making it graphically more attractive, now that connectivity and bandwidth are less of a problem. Furthermore, we plan to expand the base of contributors, to include correspondents from around the world, to report on matters of their region that are of international interest. The primary focus of the newsletter will continue to be on news and information of interest to the worldwide mathematical community. We start with a small change, namely, this newsletter is now called *IMU News*.

I will be very happy to receive any suggestions or comments that you might have to strengthen this channel of communication between the IMU and you.

Feel free to write to me anytime at imu-news-editor@mathunion.org

[Yoshiharu Kohayakawa](#)

IMU News Editor

3. PROGRAMS FROM THE [COMMISSION FOR DEVELOPING COUNTRIES \(CDC\)](#)

3.1. New call of the Breakout Graduate Fellowship Program of the CDC

Thanks to a generous donation by the winners of the [Breakthrough Prize in Mathematics](#)—Ian Agol, Jean Bourgain, Simon Donaldson, Alex Eskin, Christopher Hacon, Martin Hairer, Maxim Kontsevich, Vincent Lafforgue, Jacob Lurie, James McKernan, Terence Tao and Richard Taylor—IMU with the assistance of [FIMU](#) is opening a new call of the [IMU Breakout Graduate Fellowship Program](#) to support postgraduate studies, in a developing country, leading to a PhD degree in the mathematical sciences. The *IMU Breakout Graduate Fellowships* offer a limited number of complete grants, with duration of up to four years, for excellent students from developing countries.

Professional mathematicians are invited to nominate highly motivated and mathematically talented students from developing countries who plan to complete a doctoral degree in a developing country, including their own home country. Nominees must have a consistently good academic record and must be seriously interested in pursuing a career of research and teaching in mathematics.

For a nomination to be eligible, the country of citizenship of the student, the country of residence and the country where the study will take place must be on the list of [Developing Countries](#), as defined by IMU for the period 2019–2022.

The 2021 call will be open from February 1 to May 30, 2021. For more information, visit [this webpage](#).

3.2. New call of the Project Support Program of the CDC

IMU CDC invites applications to the new call of the [Project Support Program](#) (PSP). This program supports higher education and capacity building projects as well as local initiatives in mathematics and mathematical education, be they international, regional or local initiatives in [Developing Countries](#), as defined by IMU for

the period 2019–2022. Research projects are not eligible. Projects financed in the past years are listed on the website of the program.

The projects should start between November 1, 2021, and October 31, 2022. In cases in which funding is granted, the grants will normally be in the range of 1.500 to 5.000 €. Exact amounts will depend on the mathematical quality and impact and on budget constraints.

The call will be open from February 1 to May 30, 2021. For more information, visit [this webpage](#).

[Olga Gil-Medrano](#)

[Secretary for Policy of the CDC](#)

4. NEWS FROM THE [COMMITTEE FOR WOMEN IN MATHEMATICS \(CWM\)](#)

4.1. Virtual CWM ambassadors regional meetings

CWM is organizing virtual meeting of its 150 ambassadors by continent. The aim is to discuss various aspects of the gender gap in mathematics, and initiatives taken to reduce it, in order to share best practices. The series will start with Europe in March and is jointly organized by CWM and EWM ([European Women in Mathematics](#)). In Africa, the organisers are CWM and AWMA ([African Women in Mathematics Association](#)), the first session will include a francophone meeting and an anglophone meeting followed by a global one at the end of March or beginning of April.

Plans are currently discussed for similar meetings in Asia, Latin America, North America, to take place before July, also organized by CWM with regional organisations for women in mathematics.

A global virtual gathering, with regional delegates, should take place before the end of 2021.

4.2. Success of SCGES – the Standing Committee for Gender Equality in Science

IMU is one of the nine founding unions of [SCGES](#). Besides mathematics and computer science, the founding unions represent several scientific disciplines such as astronomy, biology, chemistry and physics. Six more scientific unions joined representing several new disciplines such as psychology, geology and geography. More details can be found on the SCGES website gender-equality-in-science.org

SCGES will meet (virtually) on February 25.

4.3. Congratulations to Neela Nataraj

[Neela Nataraj](#), CWM member and Professor-in-Charge of the [IIT Bombay—Monash Research Academy](#), was elected fellow of the Indian Academy of Sciences. See www.ias.ac.in

4.4. Results of CWM call for 2021

CWM decided to support AWMA's proposal for a special day for women in mathematics at the [Pan African Congress of Mathematicians \(PACOM 2021\)](#), a project of several regional women in mathematics associations organising jointly a May 12 initiative to upgrade the reporting mechanism of the website

may12.womeninmaths.org, as well as the second phase of the exhibition project, “МАТЕМАТИКА, through a land of mathematics,” to be premiered at (WM)² in Saint Petersburg and [ICM 2022](#). The project proposed by [Indian Women in Mathematics](#) and two thematic mathematical activities in Latin America and Pakistan were also approved.

[Marie-Françoise Roy](#) and [Carolina Araujo](#)

Chair and Vice-chair of the IMU [Committee for Women in Mathematics](#)

5. NEWS FROM THE [INTERNATIONAL COMMISSION ON MATHEMATICAL INSTRUCTION \(ICMI\)](#)

5.1. Renewal of the Executive Committee

Despite the fact that the [International Congress on Mathematical Education \(ICME-14\)](#) has been postponed, the General Assembly of the [International Commission on Mathematical Instruction \(ICMI\)](#), which was supposed to take place just before the opening of ICME-14 in Shanghai, was organised electronically over a 24h period of time between 13th and 14th of July 2020. One of the main issues was the election of the new ICMI Executive Committee by the 84 ICMI country representatives.

This new committee, in service from 1st January 2021 for 4 years, is composed of

<i>President:</i>	Fredrick K.S. LEUNG	(Hong Kong, SAR, China)
<i>Secretary general:</i>	Jean-Luc DORIER	(Switzerland)
<i>Vice-presidents:</i>	Merrilyn GOOS	(Australia—Ireland)
	Anjum HALAI	(Pakistan)
<i>Members at large:</i>	Marta CIVIL	(USA)
	Patricio FELMER	(Chile)
	Mercy KAZIMA	(Malawi)
	Núria PLANAS	(Spain)
	Susanne PREDIGER	(Germany)

Moreover, the ex-president of ICMI, Jill ADLER, as well as the president and the secretary general of IMU, Carlos E. KENIG (USA) and Helge HOLDEN (Norway), are members ex-officio. Paolo PICCIONE (Brazil) is the liaison person for ICMI.

5.2. ICMI Awardees Multimedia Online Resources ([AMOR](#)): making the main trends in math education more visible

This 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 particular, the project could serve as a basis for a PhD training program and induction into mathematics education research.

ICMI was formed more than a century ago (see www.mathunion.org/icmi/organization/historical-sketch-

[icmi](#)) and international events such as the [International Congress on Mathematics Education \(ICME\)](#) have been held since 1969. Mathematics education research does not have an equally long history and is a rather young field of research, with its roots often embedded in local contexts. However, one can say that the field is now at a turn of its history when there is a need for a set of references with theories, methodologies, results and fields of investigation that the community can claim as the most important trends.

Of course, this begs the question as to how to select which are the most important trends to be represented, at least initially. Since 2003 ICMI has honored outstanding individuals every second year with two [awards](#):

- The [Felix Klein Award](#), named after the first president of ICMI (1908–1920), honors a lifetime achievement.
- The [Hans Freudenthal Award](#), named after the eighth president of ICMI (1967–1970), recognizes a major cumulative program of research.

In order to build our resources ICMI has decided to focus on each Klein and Freudenthal ICMI Awardee, through what we have called the [AMOR \(Awardees Multimedia Online Resources\)](#) project (A more recent award, the Emma Castelnuovo Award, is not strictly research oriented but more on practice so we have not yet included it in our quest.)

Each awardee has her/his unit which consists of a series of 8 to 12 modules between 10 and 30 minutes each up to a total of 120–180 minutes of videos. One module is basically a slide presentation with a speaker visible in the right below corner (sometimes full screen). The speaker can be, but is not necessarily, the awardee him/herself. There can also be variation from one module to the other or even within the same module. A range of additional multimedia including films and animations can be used. No doubt new media formats will emerge over time.

The idea is that each module gives some keys to help reading some research papers which are given as much as possible as free access resources attached to each module. There is also a global selected bibliography of the awardee's work and of connected researchers.

An introductory module (Module 0) on each awardee presents some biographical and scientific elements of the background of the awardee. All the videos are in English, as are most of the text. But some texts in other languages will sometimes be available.

At the moment, the Michèle Artigue Unit is complete. The Guy Brousseau Unit has about two third of its planned content online. The Yves Chevallard unit is nearly complete and the Anna Sfard unit is on its way, with 3 modules online. Some contacts have been made with other awardees. We will try to build as many units and modules as fast as possible but as can be imagined, the development of a unit takes time and not all awardees will have their resources online immediately.

You can access the website at www.mathunion.org/icmi/awards/amor

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

6. MCA 2021 – MATHEMATICAL CONGRESS OF THE AMERICAS

The goal of the [Mathematical Congress of the Americas \(MCA\)](#) is two fold: to highlight internationally the excellence of the mathematical achievements in the Americas and also to foster collaboration among researchers, students, institutions and mathematical societies in the continent. We would like to bring to your attention the next MCA, which will be held in 2021. The congress should have taken place in Buenos Aires, at the [Departamento de Matemática, Facultad de Ciencias Exactas y Naturales](#) of the [Universidad de Buenos Aires](#). But taking into account the pandemic, it will be an online meeting with the same local organization. Its web site is www.mca2021.org. We invite you all to take a look!

The past MCAs were held in 2013 in Guanajuato, Mexico, and in 2017 in Montreal, Canada. Both meetings have been important mathematical events that greatly increased communication and cooperation among mathematicians throughout the Americas. The 2017 Mathematical Congress of the Americas in Montreal, from July 24th to the 28th, received about 1100 participants.

The plenary speakers of MCA 2021 include Ian Agol, Julia Chuzhoy, Carlos Kenig, Alan Sly, Claire Voisin and Miguel Walsh. There will be 38 special sessions; information about them can be found at the [webpage of the congress](#).

[Andrea Solotar](#)
[MCA 2021](#)

7. IDM 2021 – NEWS OF THE INTERNATIONAL DAY OF MATHEMATICS

The 2021 theme for the [International Day of Mathematics \(IDM 2021\)](#) is [Mathematics for a Better World](#).

- The new map of events is now online on the [IDM website](#) and you are invited to post your events: preliminary announcements are welcome and can be modified later.
- Mathematics for a Better World [poster challenge](#): the deadline for participating is March 1, 2021. Help us spread the announcement in the school network of your country!
- Activities for your IDM celebrations, including some for the classroom, are now posted online in several languages such as Arabic, Portuguese, Spanish, and Turkish.
- A live coverage of celebrations around the world will be organized on March 14.

If you have not yet done so, sign up to the IDM Newsletter to receive all announcements.

[Christiane Rousseau](#)
[Chair of the IDM Governing Board](#)

8. POP MATH: ALL UPCOMING MATH OUTREACH EVENTS AT A GLANCE

Pop Math is online: popmath.eu! Pop Math is the calendar created by the [Raising Public Awareness \(RPA\) Committee](#) of the [European Mathematical Society \(EMS\)](#), to present on a map all the math outreach events in Europe and in the world. Everybody can submit an event using the webpage www.popmath.eu/submit-event.

Give it a try!

[Roberto Natalini](#)

[Raising Public Awareness Committee, EMS](#)

9. ICM 2022 GRANTS

Here are some excerpts concerning grants for attending the [2022 International Congress of Mathematicians](#), which will meet from 6 to 14 July 2022 in Saint Petersburg, Russia.

For details visit icm2022.org/grants

9.1. Chebyshev grants

The Chebyshev Grants program provides full support to 1000 participants from the developing countries as defined by the IMU. Priority will be given to applications received by March 31, 2021.

9.2. Kovalevskaya grants

The Kovalevskaya Grants program provides local support for up to 1000 early career participants from the developed countries as defined by the IMU. The grants will be administered in collaboration with national and regional mathematical societies and funding agencies, who will select grant recipients and help them find support to cover travel expenses. Information about application procedures will start appearing on the ICM website in 2021 as the Local Organizing Committee establishes partnerships with organizations in the developed countries interested in supporting this initiative.

9.3. World Meeting for Women in Mathematics

The second World Meeting for Women in Mathematics (WM)² will bring together mathematicians from all over the world to think about gender issues in mathematics, its challenges, initiatives, and perspectives for the future. Support will be available for qualified participants to cover lodging and registration fee. See the [\(WM\)² website](#) or write to wm2-cwm@mathunion.org for more information.

10. SUBSCRIBING TO IMU NEWS

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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
