

IMU-Net 101: May 2020

A Bimonthly Email Newsletter from the International Mathematical Union
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1. EDITORIAL: THE IMU EXECUTIVE COMMITTEE ENGAGES WITH YOUNG SOUTH AFRICAN MATHEMATICIANS

The IMU Executive Committee held its latest annual meeting in Cape Town, South Africa, from 22-23 February 2020. This was the first time in the history of the IMU that the Executive Committee met on the African continent and the opportunity was used to host a day of mathematical interaction with South African graduate students and young academics.

The “Day of Engagement,” as it was termed, was organised by the South African Mathematical Society (SAMS), the association of Mathematicians which has promoted the development of Mathematics in South Africa since 1957 and currently has over 400 members; see <http://www.sams.ac.za/>. It took place on Monday 24 February at the African Institute for Mathematical Sciences (AIMS) on the picturesque Cape Town coastline, close to where the Indian and Atlantic Oceans meet; see <https://aims.ac.za/>. As its name suggests, AIMS is focused on developing mathematics within Africa and is a partnership of three universities in the Cape Town area together with Oxford, Cambridge and Paris Sud XI; it served as the natural venue for this interaction.

The day’s programme was designed to utilise the executive committee members’ expertise and their view of world mathematics to give young mathematicians a broader vision of mathematics and allow them to meet and interact with some prominent mathematicians. It was a rare opportunity. “The visit of IMU’s Executive Committee to South Africa was an amazing, momentous occasion. This was especially due to the warm and wonderful hospitality that we were offered by AIMS and the South African Mathematical Society, as well as our very friendly colleagues in South Africa. “The “Day of Engagement” was memorable for us. It gave us a wonderful opportunity for meeting and interacting with the African mathematical community and with young African researchers and students who are the future of our field. We thank all of them for this unforgettable experience,” said Carlos Kenig, President of the IMU.

The activities began with a survey lecture by Carlos Kenig, titled “*Simplification*” in partial differential equations, in which he sketched some events from the long history of research in partial differential equations, ranging from important developments in the early 19th century to the use of computers in numerical approaches, leading to some of the open challenges in current day research.

This lecture was followed by an interview with IMU Vice-President, Nalini Joshi, headlined “Standing in the Gap” where Nalini’s personal experiences that led to her becoming a mathematician and also her experience as a woman in the mathematical community were examined. Nalini’s thought-provoking comments on the role of women mathematicians were inspiring and led to lively interaction with the audience.

Andrei Okounkov, a 2006 Fields Medalist and IMU Executive member, then gave a survey lecture titled *Lie theory without groups* in which he led the audience from a simple understanding of manifolds and linear algebra to giving an overview of modern geometric representation theory. Despite the depth of the material, he held the audience captive and demonstrated that for a mathematician a blackboard is still one of the best technologies for giving a good lecture.

IMU members were then joined by some prominent South African academics for two panel discussions – one on either side of the lunch break. The first addressed the question of *Internationalisation versus Geographical Isolation*, during which IMU Executive members Loyiso Nongxa (South Africa), Nalini Joshi (Australia), Paolo Piccione (Brazil) and RT Ramadas (India) spoke of their experiences overcoming the fact that they come from countries traditionally removed from the nexus of economic and academic power. The access to opportunities – in particular for young mathematicians – offered by the IMU Commission for Developing Countries (CDC) were highlighted, and delegates were encouraged to aim to attend the 2022 ICM in Saint Petersburg, Russia. The second panel discussion saw Helge Holden (IMU Secretary General), Daya Reddy (ISC President), Jill Adler (ICMI President) and Barry Green (CIMPA President) discuss global science and scientific bodies and the role these play in growing mathematics across the globe.

The day finished with an informal session of interaction between the delegates and the IMU visitors. Breaking up into small groups the young mathematicians had the chance to ask questions – and take “selfies” – with the IMU executive members as they rotated around the venue. This was a very animated time ending the day on a personal note and making more concrete the links between the IMU Executive members and young South African academics.

We trust that this will be the first of many IMU interactions on African soil, and hopefully before too long there will be an ICM Africa emerging from the seed that has been sown.

For photographs of the event see <https://photos.app.goo.gl/CqQp4XxVqBCcsJF89>

Sanne ter Horst (North-West University; SAMS council: Scientific Activities)

Kerstin Jordaan (University of South Africa; SAMS council: Immediate Past President)

David Holgate (University of the Western Cape; SAMS council: Co-opted member).

2. NEWS FROM CWM

a. CWM Newsletter Issue 3

The [CWM](#) newsletter can be found at

<https://www.mathunion.org/fileadmin/CWM/Initiatives/CWMNewsletter3.pdf> .

Some of the personal experiences of women in mathematics through the COVID-19 crisis are reported in an article written by five CWM ambassadors, from different continents. More testimonials appear on <https://www.mathunion.org/cwm/testimonies-covid-19-crisis> .

The newsletter also features an interview with one of CWM's members, Cheryl Praeger. Cheryl has been the second person to be appointed as a Professor of Mathematics at an Australian university (1983), and she received the Australian Prime Minister's Prize for Science in 2019. The newsletter continues with "News from CWM" and "Other News and Announcements". The last article, written by Christiane Rousseau, gives detailed information on the International Day of Mathematics, where the active participation of girls and women is visible.

We invite your feedback and suggestions about the Newsletter. Please distribute it in your country and your scientific network.

b. May 12 Celebrating Women in Mathematics

The May 12 initiative is coordinated by representatives from the European Women in Mathematics, the Association for Women in Mathematics, the African Women in Mathematics Association, Indian Women and Mathematics, Colectivo de Mujeres Matemáticas de Chile and the Women's Committee of the Iranian Mathematical Society. Due to the COVID-19 crisis, most of the 2020 events were on-line. In particular, thanks to an agreement with zalafilms, a free screening of "Secrets of the Surface, the mathematical vision of Maryam Mirzakhani" was offered, with an option for subtitles in Farsi, French, Italian, Portuguese, Spanish and Turkish. The success was huge, with over 20 000 registrations in 131 different countries. See <https://may12.womeninmaths.org/>.

3. INTERNATIONAL DAY OF MATHEMATICS 2021

Following a call for proposals the International Day of Mathematics Governing Board has decided the theme for IDM 2021. It will be

Mathematics for a Better World

This choice is motivated in part by the present pandemic of COVID-19 and the role that mathematical sciences can play in understanding the dynamics of epidemics and proposing strategies to control them. But the chosen theme is much broader. Subthemes and explanations of the theme will be posted on the website www.idm314.org. Material related to the theme will start to be posted in the fall of 2020.

If you have not done so, register to the IDM newsletter at <http://www.idm314.org>. This is how you will be told of the new developments, including more information on the IDM 2021 theme.

4. INSIDE THE IMU

a. IMU launches COVID-19 Resource Website

The ongoing COVID-19 pandemic has affected modern society globally. Tragically, many thousands have died, many more have lost their jobs, and it has changed the working conditions of billions of people.

In response to the situation, the IMU has launched the website <https://www.mathunion.org/corona> containing links to some resources pertaining to the pandemic. It focuses on three aspects:

- general websites with information on the COVID-19 pandemic
- online seminars for a global audience
- websites which concentrate on mathematical research on the pandemic

For this website to be useful, active feedback from the community is solicited. Please send links to be included to corona@mathunion.org .

b. Nominations open for plenary and sectional speakers at the ICM 2022

The IMU invites its Adhering Organizations and the mathematical societies worldwide to nominate plenary and sectional speakers for the International Congress of Mathematicians 2022 in St. Petersburg. A document listing the ICM 2022 sections, as proposed by the ICM Structure Committee and decided by the Executive Committee of the IMU can be found [here](#).

The Chair of the Program Committee (PC), Martin Hairer, handles all communication concerning the scientific program of ICM 2022. Please direct all your proposals for invited plenary and sectional speakers to Martin Hairer using the email address chair@pc22.mathunion.org . Further details can be found [here](#).

Nominations should be received by the PC Chair no later than **1 November 2020**.

c. ICMI: General Assembly with election of the Executive Committee

The General Assembly for the International Commission on Mathematical Instruction [ICMI](#) will take place as a virtual event on 13–14 July 2020. It will concentrate on the election of the new Executive Committee for ICMI. The webpage for the General Assembly will be made active by 30 June. Further information: [here](#).

d. Mathematics without borders

Due to the COVID-19 pandemic, the IMU regrets to announce that the conference **Mathematics without Borders**, The Centennial of the International Mathematical Union, Strasbourg, 28–29 September 2020, had to be rescheduled for **Strasbourg, 27–28 September 2021**.

e. Heidelberg Laureate Forum

With much regret, the organizers have decided to postpone the 8th Heidelberg Laureate Forum, originally scheduled to take place in Heidelberg, Germany between 20–25 September 2020

to **19–24 September 2021** due to the global COVID-19 pandemic. Further details can be found at <https://www.heidelberg-laureate-forum.org/forum/8th-hlf.html> .

5. EUROPEAN CONGRESS OF MATHEMATICIANS

After careful consideration of all available options and in view of the safety and well-being of all participants, a final decision was made to move the date of the 8th European Congress of Mathematics - 8ECM, due to the coronavirus pandemic (COVID - 19).

The 8ECM organizers and the European Mathematical Society (EMS) announce a new date for the Congress, which is **20 – 26 June, 2021 in Portorož, Slovenia**.

Detailed information: <https://www.8ecm.si/news/68> .

At an ECM, the EMS awards several highly prestigious awards: 10 ECM Prizes, the Felix Klein Prize (Industrial Mathematics) and the Otto Neugebauer Prize (History of Mathematics).

Normally, the prize winners are announced during the ECM opening ceremony. Since this is impossible this year, the list of awardees has been published online already.

The EMS prize winners for 2020 are:

- Karim Adiprasito (Hebrew University of Jerusalem / University of Copenhagen)
- Ana Caraiani (Imperial College London)
- Alexander Efimov (Steklov, Moscow)
- Simion Filip (Chicago)
- Aleksandr Logunov (Princeton)
- Kaisa Matomäki (Turku)
- Phan Thành Nam (LMU Munich)
- Joaquim Serra (ETH Zurich)
- Jack Thorne (Cambridge)
- Maryna Viazovska (EPFL, Lausanne)

The 2020 Felix Klein Prize goes to Arnulf Jentzen (Münster). The 2020 Otto Neugebauer Prize is awarded to Karine Chemla (CNRS, Paris).

Detailed information: <https://www.8ecm.si/news/69> .

6. SUBSCRIBING TO IMU-NET

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Subject: subscribe

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IMU-Net is the electronic newsletter of the International Mathematical Union.

More details about IMU-Net can be found at <http://www.mathunion.org/organization/imu-net/>.

You can find here, for instance, detailed information about subscribing to the IMU-Net mailing list and unsubscribing from it.