

IMU-Net 84: July 2017

A Bimonthly Email Newsletter from the International Mathematical Union

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1. EDITORIAL: TRAVEL SUPPORT FOR PARTICIPANTS IN GA AND IN ICM

I am writing this as a Member at Large of the IMU Executive Committee. I wish to draw attention to two initiatives the IMU Executive Committee has taken regarding the forthcoming [ICM](#) at Brazil.

The IMU EC holds the view that the IMU [General Assembly](#) and the International Congress are the two most important events which occur during its 4 year cycle. We are mindful of the fact that this is the first such pair of events, closely interlinked, which will take place in Latin America. Thus, the EC would like to make it possible to secure good participation, and also participation by a diverse group, representing all regions of the world, to the extent possible.

On the other hand, the trip to Brazil is a relatively expensive one for potential participants from many regions, and particularly from those places where funding to support such participation is limited.

Keeping these points in mind, the IMU EC has taken two initiatives. It has made an offer to financially support greater participation in the General Assembly at Sao Paulo, Brazil. This was announced earlier on the IMU-Net, and also directly communicated to all Adhering Organisations through a Circular Letter. The details of this offer are available on the IMU website, at the following link:

http://www.mathunion.org/fileadmin/IMU/Publications/CircularLetters/2015-2016/IMU_AO_CL_4_2017.pdf

A second initiative has been to provide the ICM organisers with a specific additional budget, meant to support participation of delegates at the ICM who qualify for (and have applied for) support to attend the ICM, and who are not based in Latin America (the participants based in Latin America are on the other hand eligible for certain other funds earmarked by the ICM organisers for this specific purpose). The IMU EC felt that this was a unique opportunity for increasing direct contact between mathematicians in Latin America and in other parts of the world, which has not usually been possible due to constraints of cost and distance.

In this context, it may be noted that the deadline for applications for such support, under the "Open Arms" program, is now **15th October, 2017**. The relevant link is <http://www.icm2018.org/portal/en/travel-grants-program>

The IMU EC hopes that these two initiatives will help in ensuring a vibrant, successful and diverse GA and Congress. The importance which we accord to these objectives is a

reason to have a specific editorial calling attention to this.
Vasudevan Srinivas (Tata Institute, Mumbai)

2. CEIC: NOTES AND COMMENTS

IMU/CEIC and the ICSU WDS, with relevance to ECRs.

What does that alphabet soup mean?

[ICSU](#) is the International Council for Science, an umbrella organisation to which IMU belongs, along with 30 other subject associations (e.g. International Union of Pure and Applied Physics) and 122 national academics. ICSU has established a "World Data System" (WDS), whose mission is to "promote long-term stewardship of, and universal and equitable access to, quality-assured scientific data and data services, products, and information across a range of disciplines in the natural and social sciences, and the humanities." While the origin was in experimental data, this also applies to computational data and indeed to mathematical information generally.

[CEIC](#) is responsible to IMU for IMU's associate membership of WDS. The [GDML initiative](#) is clearly related to WDS stewardship aim. CEIC's current revision of its publishing guidelines (contact J.H.Davenport@bath.ac.uk for details) will include more information about data publishing.

WDS also seeks to improve availability of data and promote best practice in data management and data sharing. As science, and indeed other fields, become more data- and computation-intensive, we need to improve our data handling and publishing practices. This is recognised by, for example, the [EU's Open Science initiative](#). Hence the WDS has started to create a [WDS Network of Early Career Researchers and Young Scientists](#) (collectively ECRs), and we are looking for enthusiastic and brilliant individuals to take this even further by helping foster better communication among ECRs, and to design activities targeting their interests and concerns". Those interested are urged to contact the WDS at ipo@icsu-wds.org.

James H. Davenport (Univ. of Bath, UK)

3. ICM 2018

The Program Committee for the [International Congress of Mathematicians](#) in Rio has selected more than 20 plenary and more than 180 invited speakers, distributed in 19 special sections. These outstanding mathematicians have been appointed by the IMU, and they are invited by the Organizing Committee. Here is the list of plenary speakers:

- Alex Lubotzky (Israel)
- Andrei Okounkov (Russia/USA)
- Assaf Naor (USA)
- Carlos Gustavo Moreira (Brazil)
- Catherine Goldstein (France)
- Christian Lubich (Germany)
- Geordie Williamson (Australia/Germany)

- Gil Kalai (Israel)
- Greg Lawler (USA)
- Lai-Sang Young (USA)
- Luigi Ambrosio (Italy)
- Michael Jordan (USA)
- Nalini Anantharaman (France)
- Peter Kronheimer (USA) and Tom Mrowka (USA)
- Peter Scholze (Germany)
- Rahul Pandharipande (Switzerland)
- Ronald Coifman (USA)
- Sanjeev Arora (USA)
- Simon Donaldson (UK/USA)
- Sylvia Serfaty (France/USA)
- Vincent Lafforgue (France)

Detailed further information with the [full list of speakers and sections](#) can be obtained on the ICM2018 website.

4. INSIDE IMU: LUXEMBOURG NEW IMU MEMBER. CALL FOR NOMINATIONS.

By postal ballot among the IMU adhering organisations, the application of Luxembourg to become a new member was approved. As of July 2017, Luxembourg is a Member in group I of the IMU.

In a [circular letter](#) to the adhering organisations, a call for nominations was issued for the offices of

- IMU Vice Presidents and IMU EC Members-at-Large
- President, Secretaries and Members-at-Large of the Commission for Developing Countries

([CDC](#))

- IMU Representatives to the International Commission on the History of Mathematics ([ICHM](#))

for the term 1 Jan 2019 – 31 Dec 2022.

5. FIELDS MEDALIST MARYAM MIRZAKHANI PASSED AWAY

Maryam Mirzakhani, the only woman to win a Fields Medal, died on July 14 at the age of 40.

Mirzakhani was a professor at Stanford University and a highly original mathematician who made a host of striking contributions to geometry and dynamical systems. Her work bridges several mathematical disciplines - including hyperbolic geometry, complex analysis, topology, and dynamics - and in return has deeply influenced them all.

Mirzakhani grew up in Iran. After obtaining her BSc in mathematics from the Sharif University of Technology, she came to the U.S. to attend graduate school, earning her PhD from Harvard University in 2004 under the direction of Curtis McMullen (1998 Fields Medalist). She was a professor at Princeton University before moving to Stanford in 2008. In addition to the Fields Medal, Mirzakhani also received the Blumenthal Award (2009), the Satter Prize (2013), and a Clay Research Award (2014).

For more on Mirzakhani's work, see an [article](#) by Curtis McMullen, which contains the *laudatio* he

delivered during the 2014 International Congress of Mathematicians in Seoul, where Mirzakhani received the Fields Medal, and in the [news release](#) the International Mathematical Union issued when Mirzakhani's Fields Medal was announced.
(extract of [AMS obituary](#); with permission)

6. FIELDS MEDAL SYMPOSIUM

[The Fields Institute](#), Toronto, Canada, will host the 2017 Fields Medal Symposium in honour of Martin Hairer (University of Warwick. Fields Medal 2014) from October 16 to 19.

Martin Hairer is currently the Regius Professor of Mathematics at the University of Warwick where his research interests include stochastic partial differential equations, non-equilibrium statistical mechanics, stochastic differential equations, stochastic processes with memory, and the general theory of Markov processes. He received the Fields Medal in 2014 for his major breakthrough in the study of stochastic partial differential equations, allowing the understanding of problems that had previously seemed out of reach.

The Symposium, featuring several presentations by Dr. Hairer, includes three separate events:

- Scientific Program (October 16-19): aimed at a wide audience, including graduate students, mathematicians in other research areas, and scientists who use mathematics in an important way.
- Public Opening (October 16): includes a lecture for a general audience by Martin Hairer followed by a reception.
- Student Night (October 17): geared towards high school and undergraduate students with a lecture by Martin Hairer followed by a networking reception.

All events of the Fields Medal Symposium, including the public lectures, will be broadcast online in real time, and will also be archived for future access. The Symposium is free to attend but [registration is required](#).

7. A MESSAGE FROM ICSU: A single voice for Science

The [ICSU](#) (International Council of Science) and the [ISSC](#) (International Social Science Council) face this October one of their greatest challenges: to unite two of the most important scientific councils that together encompass the whole of world science. The natural sciences and social sciences would thus speak with a single voice for all sciences, a voice that should be heard by all governments in all countries; a single voice that would reach the whole of society, bringing it closer to the advances in science and making it aware that science provides the only solution for all the problems confronting humanity; a vision for uniting all scientists under the same flag – humanity, its well-being, its progress and its continuity.

The unification of two councils that are so different in their organizational structure and their scientific practices is proving to be a complex task, but the firm decision of both executive

committees, endorsed by the joint General Assembly recently held in Oslo on October 24th, 2016, is helping to smooth the way forward.

I would like to draw attention to an achievement on this way forward, which as the Spanish poet, Antonio Machado, wrote, "is made by walking", and that is the deeper mutual knowledge that has arisen between the members of the two executives. This understanding will without doubt be helpful in traversing the road that still lies ahead.

Let us also add that the conviction that this goal is indispensable has taken root, and that there is no turning back. The successive meetings with their inevitable agreements and disagreements are unfolding fluently; the agreements are reached on the most important issues, and the disagreements concerning only on the details are thus easily remedied. A first draft of the Statutes of the new union is already under debate, as well as everything regarding budgets, quotas, internal structure and so on.

The last act in this process of unification will take place at the next General Assembly in Taipei (Taiwan), in October, when I trust that the members of both councils will cast a vote in favour of the ratification of the decisions made in Oslo.

Why is this union so important? First of all, because it is advisable that there is no distinction between some sciences and others and that this division of C.P. Snow's "two cultures" should be abolished forever. Furthermore, tackling the severe problems that face our world requires not only the use of the natural sciences. Indeed, an overpopulated planet with enormous social problems, threatened by massive migrations due to climate change, also requires a vision of the humanities and social sciences: economics and sociology must join forces with mathematics, physics and chemistry in order to overcome such problems.

In October this year we have the opportunity to celebrate an even greater achievement.

Manuel de León (Member of the Executive Board of ICSU, CSIC, Real Academia de Ciencias and Real Academia Canaria de Ciencias)

8. SUBSCRIBING TO IMU-NET

There are two ways of subscribing to IMU-Net:

1. Click on <http://www.mathunion.org/IMU-Net> with a Web browser and go to the "Subscribe" button to subscribe to IMU-Net online.

2. Send an e-mail to imu-net-request@mathunion.org with the Subject-line:
Subject: subscribe

In both cases you will get an e-mail to confirm your subscription so that misuse will be minimized. IMU will not use the list of IMU-Net emails for any purpose other than sending IMU-Net, and will not make it available to others.

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

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

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