

IMU-Net 78: July 2016

A Bimonthly Email Newsletter from the International Mathematical Union

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1. EDITORIAL: COMMITTEE FOR WOMEN IN MATHEMATICS

I am the vice chair of the IMU's Committee for Women in Mathematics (CWM), and I also manage our website <http://www.mathunion.org/cwm>.

CWM was created by the IMU Executive in March 2015 and we held our first meeting in the beautiful location of Cortona, Italy last September. We have ten committee members, at least one from each continent, and it was very exciting to meet in person and make plans. For the full list of members see our website <http://www.mathunion.org/cwm/home/about/>.

Between now and Rio 2018, CWM aims to help establishing worldwide networks of female mathematicians at the large scale – i.e. continental – level. IMU funding enabled us to launch a call for proposals with these aims, to which we received nearly 50 responses. We chose to fund seven groups whose key focus was to set up multi-national, non-subject specific, networks. Events are taking place throughout 2016 from Columbia to Khazakhstan and from Bali to Senegal. A full list can be found at <http://www.mathunion.org/events/cwm-sponsored-events/>.

CWM's aim is to complement rather than surplant other organisations for women mathematicians, such as the Association for Women in Mathematics (AWM) in the USA, European Women in Mathematics (EWM) in Europe, and the many other national groups and committees already in existence. The international meetings for women mathematicians which were held immediately before the ICM in both Hyderabad and Seoul were collaboratively organised by local and international committees, and were important precursors to CWM.

CWM's call and funding has furthered the formation of organisations in Central Asia, India, Indonesia and East Asia, and Latin America. [African Women in Maths Association](#) (AWMA) predates CWM, having been founded in 2013 in South Africa. CWM has helped to fund the AWMA website and meetings in Kenya, Senegal and Tunisia.

Besides lending its support to several Latin American initiatives, CWM is also planning an international meeting (*WM*)²: *World Meeting for Women in Mathematics*. This meeting, with a strong Latin American focus, will be held in Rio just before the ICM (see issue 4).

CWM's website <http://www.mathunion.org/cwm> is central to our work. It lists an impressive number of events in 2015-16 in all parts of the world. In addition, we have currently 24 countries listed with some form of group or activities. For countries without a formal organisation, we post basic contact details according to circumstance, providing a means for women in a given region to contact each other and giving them greater visibility. The site has a unique function as the only platform for coordinating so much diverse worldwide activity.

CWM very much appreciates being informed of material suitable for inclusion on the website, which should be sent to info-for-cwm@mathunion.org.

Caroline Series
CWM Vice-Chair

2. CEIC: NOTES AND COMMENTS

A thorough study of possible models for Open Access Article Processing Charges in the USA has been published by the Mellon Foundation under the title: [Pay It Forward](#).

Three major conclusions from the project are as follows:

- For the most research intensive North American research institutions, the total cost to publish in a fully article processing charge-funded journal market will exceed current library journal budgets;
 - This cost difference could be covered by grant funds already a major source of funding for publishing fees but
 - Ultimately, author-controlled discretionary funds that incentivize authors to act as informed consumers of publishing services are necessary to introduce both real competition and pricing pressures into the journal publishing system. Discretionary funds for authors exist today, in the form of research grants, personal research accounts, endowed chair funds, and departmental funds, but the consistent application of these funds for this purpose would, in some cases, require new funding from the institution.
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3. ICM 2018: CHAIRS OF PRIZE COMMITTEES APPOINTED

At every ICM, a number of very prestigious prizes are given to outstanding mathematicians. As part of the preparation for the [ICM in Rio de Janeiro](#) in 2018, chairs for the corresponding prize committees selecting the laureates have been named. These are:

Fields Medal:	Shigefumi Mori	chair@fm18.mathunion.org
Rolf Nevanlinna Prize:	Tony F. Chan	chair@nevanlinna18.mathunion.org
Carl Friedrich Gauss Prize:	Björn Engquist	chair@gauss18.mathunion.org
Chern Medal Award:	Caroline Series	chair@chern18.mathunion.org
Leelavati Prize:	Gert-Martin Greuel	chair@leelavati18.mathunion.org
ICM Emmy Noether Lecture:	Irene Fonseca	chair@noether18.mathunion.org

4. ICM 2018: WORLD MEETING FOR WOMEN IN MATHEMATICS

The World Meeting for Women in Mathematics - (WM)² - will take place in RioCentro, the same venue as the ICM 2018, on the day preceding the Congress. The (WM)² is a satellite event of the ICM 2018, organized by the IMU [Committee for Women in Mathematics](#). It will bring together mathematicians from all over the world to think about and discuss the gender issue in mathematics and its challenges, initiatives, and perspectives for the future, with a strong focus on Latin America. It will also include invited talks by Latin American female mathematicians.

In the last couple of years, groups of women mathematicians have gathered to launch networks and develop gender-related activities in several Latin American countries. Among these initiatives, we mention the commission for equality and gender of the Mexican Mathematical Society, and the Collective of Women Mathematicians in Chile. In Brazil, the first meeting specifically for women in mathematics took place in March 2016. For the official biennium of Mathematics in Brazil, 2017-2018, a series of activities are being planned to foster debate on the gender issue in mathematics nationwide.

The IMU Committee for Women in Mathematics (CWM) was created in March 2015. Since then, it has been supporting several regional and continental networks for women in mathematics. The CWM understands the importance of helping the launching of a Latin American organization for women in mathematics. In this direction, the CWM has sponsored initiatives in Brazil, Colombia and Mexico. A list and description of events sponsored by the committee can be found at CWM's [webpage](#). The organization of the (WM)² fits this goal, and will be the most important event to be organized by the CWM since its creation.

5. 13th INTERNATIONAL CONGRESS ON MATHEMATICAL EDUCATION IN HAMBURG

About 3500 participants from 105 countries participated in the [13th International Congress on Mathematical Education](#), which took place from 24-31 July 2016 in Hamburg at the University of Hamburg and Hamburg Congress Centre, making it to the biggest congress in world congress series so far. ICME-13 was hosted by the Society of Didactics of Mathematics ([Gesellschaft für Didaktik der Mathematik - GDM](#)) and took place under the auspices of the [International Commission on Mathematical Instruction](#) (ICMI).

The German community is the first international mathematics educational community to host an ICME another time, after the Third International Congress in Karlsruhe in 1976. On the occasion of this special event a thematic afternoon was carried out devoted describing the development in the last 40 years under a European and a historical perspective. The presentations centred on European didactic traditions, German- speaking traditions in Mathematics Education Research and the legacy of Felix Klein.

At the Opening Ceremony the five [ICMI awards](#) were presented to Michèle Artigue and Alan Bishop (Felix Klein Award), Jill Adler and Frederick Leung (Hans Freudenthal Award), Hugh Burkhardt and Malcolm Swan (Emma Castelnuovo Award).

The heart of the congress formed 54 Topic Study Groups, devoted to major themes of mathematics education, in which about 745 presentations were given. In attached oral communications around 931 shorter papers were presented, complemented by 533 posters being presented in two sessions. Furthermore, a big variety of other activities took place such as two plenary panels, four plenary

lectures and 64 invited lectures. Initiated by congress participants, 38 discussion groups and 42 workshops were offered. Reflecting specific ICMI traditions five ICMI Survey Teams describing the state-of-the-art on their theme and three ICMI studies were presented in addition to six national presentations.

About 230 scholars from less-affluent countries could be supported by the solidarity grant spending a considerable amount of the congress budget. Before the congress an Early Career Researcher Day was offered tackling specific themes for this group. 450 early career researchers participated in this congress and made it to a specific asset of ICME-13.

ICME-13 was clouded by the dramatic political events in Turkey, out of 100 registered participants only 17 could come, however about 45 were able to give their presentation via video, nine posters were presented. At the closing ceremony the congress participants expressed their solidarity with the mathematics educators in Turkey by adopting a solidarity address.

6. 7TH EUROPEAN CONGRESS OF MATHEMATICS IN BERLIN

Around 1100 mathematicians from 80 countries all over the world, mostly Europeans, participated in the [7th European Congress of Mathematics](#) in Berlin in the week July 18-22. The majority of them gave a talk or presented a poster. Around 100 mathematicians, mainly from Eastern Europe, were supported by a grant.

During the opening ceremony on July 18, twelve prestigious [prizes](#) were awarded. Ten mathematicians under the age of 35 with a varied mathematical background were selected as winners of the EMS prizes: Sara Zahedi (KTH, Sweden), Mark Bravermann (Princeton Univ., USA), Vincent Calvez (ENS Lyon, France), Guido De Philippis (SISSA Trieste, Italy), Peter Scholze (Bonn, Germany), Peter Varjú (Cambridge, UK), Thomas Willwacher (ETH Zurich, CH), James Maynard (Oxford, UK), Hugo Duminil-Copin (Geneva, CH), Geordie Williamson (MPI Bonn, Germany).

The Felix Klein prize to a young scientist for using sophisticated methods to give an outstanding solution to a concrete and difficult industrial problem was awarded to Patrice Hauret (Michelin, France). The Otto Neugebauer Prize for highly original and influential work in the field of history of mathematics went to Jeremy Gray (Open University, UK). All prize winners gave a prize lecture.

The scientific committee had chosen 10 plenary speakers and 31 invited speakers. Special features were the Hirzebruch lecture by Don Zagier, the Abel lecture by Endre Szemerédi, four history lectures, a public lecture on architecture and mathematics and a next generation outreach lecture. Panels discussed the future of mathematical publishing, public awareness, funding agencies etc.

Two special exhibitions accompanied the congress: "[Transcending Tradition – Jewish Mathematicians in German-Speaking Academic Culture](#)" in the Jewish Museum and a portrait gallery "[Women of Mathematics throughout Europe](#)". The program was complemented by 46 mini-symposia, 17 contributed sessions, lots of posters, mathematical movies, a career day, and exhibitions by IMAGINARY and by many academic publishers.

During the congress week, participants noted with concerns the political developments in Turkey that had made it impossible for many colleagues to participate. A note of [protest against persecutions and of solidarity with Turkish colleagues](#) was read by EMS president Pavel Exner at the closing ceremony.

7. EMS COUNCIL MEETING IN BERLIN

At its bi-annual meeting at Humboldt University in Berlin on July 16-17, the EMS council determined that the [8th European Congress](#) will be organized by mathematicians in Slovenia at the coastal town Portoroz at the Adriatic coast in the week July 5-11, 2020. Apart from hearing many reports about the work of the society, delegates voted [new members of the executive committee](#) into office starting from January 2017.

8. MSC 2020: REVISION OF THE MATHEMATICS SUBJECT CLASSIFICATION

Mathematical Reviews (MR) and zbMATH cooperate in maintaining the Mathematics Subject Classification (MSC), which is used by these reviewing services, publishers, and others to categorize items in the mathematical sciences literature. The current version, MSC2010, consists of 63 areas classified with two digits refined into over 5000 three- and five-digit classifications. Details of MSC2010 can be found at www.msc2010.org or www.ams.org/msc/msc2010.html and zbmath.org/classification/.

MSC2010 was a revision of the 2000 subject classification scheme developed through the collaborative efforts of the editors of zbMATH and MR with considerable input from the community. zbMATH and MR have initiated the process of revising MSC2010 with an expectation that the revision will be used beginning in 2020. From the perspective of MR and zbMATH, the five-digit classification scheme MSC is an extremely important device that allows editors and reviewers to process the literature. Users of the publications of zbMATH and MR employ the MSC to search the literature by subject area.

In the decade since the last revision, keyword searching has become increasingly prevalent, with remarkable improvements in searchable databases. Yet, the classification scheme remains important. Many publishers use the subject classes at either the time of submission of an article, as an aid to the editors, or at the time of publication, as an aid to readers. The arXiv uses author-supplied MSC codes to classify submissions, and as an option in creating alerts for the daily listings. Browsing the MR or zbMATH database using a two- or three-digit classification search is an effective method of keeping up with research in specific areas.

Based in part on some thoughtful suggestions from members of the community, the editors of MR and zbMATH have given preliminary consideration to the scope of the revision of the MSC. We do not foresee any changes at the two-digit level; however, it is anticipated that there will be refinement of the three- and five-digit levels.

At this point, zbMATH and MR welcome additional community input into the process. Comments should be submitted through the Web at msc2020.org. You may also send email to feedback@msc2020.org. All information about the MSC revision is jointly shared by MR and zbMATH. This input will be of great value as the process moves forward.

Edward Dunne, Executive Editor, *Mathematical Reviews*

Klaus Hulek, Editor-in-Chief, *zbMATH*

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