IMU-Net 83: May 2017
A Bimonthly Email Newsletter from the International Mathematical Union
Editor: Martin Raussen, Aalborg University, Denmark

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1. **EDITORIAL: GRAID: A NEW IMU PROGRAM FOR GRADUATE ASSISTANTSHIPS IN DEVELOPING COUNTRIES**

    In an editorial I wrote for IMU-Net six years ago, I pointed out that the penetration of fast internet in cities in the developing world and the willingness of mathematicians to post their research papers on openly accessible internet servers had opened up new possibilities.

    Mathematicians from developing countries who chose to return to their home country after obtaining a promising Ph.D. degree at a high quality research institution, used to find that it was virtually impossible to keep up with their field - their isolation from new directions, the lack of libraries, the high cost of travel to conferences or possible collaborators all too often would lead to their mathematical research slowly atrophying. They would remain on the lookout for talented students, foster their development, and help them obtain a fellowship to do graduate work and obtain a Ph.D. elsewhere. More often than not, they would then witness how those promising young mathematicians had to face in their turn the same agonizing decision: either not returning to their home country, so as to further develop their budding mathematical career but be less close to their relatives and culture, or go back but face the many obstacles that could end up slowly suffocating their research aspirations.

    Internet and its embrace by researchers have changed all that. Many researchers post their findings online, even before they are published, to share with the whole research community. Of course the level of interest, novelty and even correctness of materials that can be found in open repositories is uneven - but their availability makes it possible for motivated youngsters, especially when working together and challenging each other, under the guidance of a more experienced researcher, to build their own intellectual landscape of what is "out there", learn to recognize the most valuable parts and identify possible opportunities for further work of their own. In short, it is now possible for cohorts of graduate students in developing countries to reach mathematical levels achieved only rarely outside major research centers. This has potentially far-reaching consequences: as shown at the MENAO symposium, organized by the IMU CDC just prior to ICM 2014 in Seoul, Korea,

higher mathematical development in a developing country goes hand-in-hand with building a more technological society and a stronger economy, lifting the standard of living of the whole country.

This opportunity has been recognized by several organizations and institutions, which have responded by organizing initiatives that make graduate studies and research possible for eager, talented students in parts of the world that previously provided no such access. IMU welcomes and celebrates each of these initiatives: please, if you have a report about a successful meeting, a call for participation in an upcoming meeting or special semester, a fellowship program, consider letting the IMU CDC know so they can help spread the news. As more high quality graduate study opportunities are emerging in the developing world, there is often, however, only very limited and in many cases no funding to provide stipends for graduate students. The CDC recently launched the Breakout Fellowship program, funded through the generous contributions of every one of the winners of the Breakthrough Prize in Mathematics so far; last year saw the first cohort of Breakout Fellows. The Breakout Fellowship program is open to all students from a developing country undertaking their graduate study in a developing country; we will hopefully be able to issue a new call next year.

GRAID: Starting on June 1, another CDC graduate stipend program will open, aimed at students listed as Priority 1 and 2 countries among the developing countries listed on the CDC website. For descriptions of the program and the application procedure, please refer to MathPrograms.Org and this CDC website under the header Scholarships and Capacity Building. The GRAID program will be funded entirely by voluntary donations from individual mathematicians; those interested in donating should check the website of Friends of the IMU. Generous donations from several individual mathematicians, the DonAuction fundraising efforts at the 2014 ICM in Seoul (thanks again to everyone who made that possible), combined with a joint donation from the organizers of ICWM 2014 (thank you again!), provide the seed fund that are making possible the launch of GRAID, the GRaduate Assistantships In Developing countries. The stipends provided by GRAID will be modest, not to exceed USD 3,500/year, and it is expected that priority will be given to those regions where this modest amount would suffice to support a graduate student and free him/her from the obligation to seek an additional job to support themselves.
Please check the websites of CDC and Friends of the IMU to learn more about the CDC GRAID Program!

      Ingrid Daubechies (Duke)

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2. **CEIC: NOTES AND COMMENTS**

The MathJax CDN is closing! So the news at https://www.mathjax.org/cdn-shutting-down/ reads. Which prompts many to ask one or more of the questions:
What is MathJax? What is the MathJax CDN? Where has it moved from/to? Why has it moved? What's it got to do with me?

MathJax is an open source, JavaScript platform for display of mathematics (including compatibility with screen readers). If you see mathematics properly displayed on the web (other than through a PDF), then it's highly likely this is via MathJax. Two examples would be the mathematics in MathSciNet and zbMATH reviews, or abstracts of journal articles. See Mike Doob's article in IMU-Net52. Nothing about MathJax itself is changing.

The MathJax Consortium hosted a free CDN service (content delivery network) at cdn.mathjax.org so that people can use MathJax without having to install their own copy. This service shut down on 30 April 2017. There is currently a redirect in place, which will last for 2017, but not indefinitely.

One place to find MathJax is at cdnjs: see the instructions at https://www.mathjax.org/cdn-shutting-down/. Another option, if you are a MathJax-dependent publisher, is to host it yourself: see the same instructions.

Mathjax has moved because the CDN's bill has become too great. In the last six years the amount of data to be served has grown from 1.3TB/month to 70TB/month, which is a tremendous success story.

What's it got to do with me? If you're simply a mathematics-reading user, probably nothing. But some mathematics that used to be pretty MAY cease to be - in that case, rather than suffering in silence, you should draw this article to the attention of the mathematics publisher. If you publish mathematics, though your own website or blog, or more substantially, then you may need to follow the instructions at https://www.mathjax.org/cdn-shutting-down/ , even if nothing seems broken now.

And finally, let's congratulate the folks at Mathjax for being such a success, and thank their supporters, especially AMS and SIAM.

James Davenport (Bath) & Patrick Ion (MR)

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3. **GENERAL ASSEMBLY: IMU COVERS EXPENSES FOR DELEGATES AND REPRESENTATIVES**

The next General Assembly (GA) meeting of the IMU will take place in São Paulo, Brazil, July 29-30, 2018. It is very important to the IMU that as many as possibly of its members can participate with full delegations at this meeting, as the GA is the highest body of the IMU, and all important decisions are taken there.

The Executive Committee (EC) of the IMU realizes that it will be very expensive, and for many prohibitively expensive, to participate at this GA meeting due to high travel costs. To compensate for this, the EC has decided to cover the accommodation expenses for all registered Delegates (full members of the IMU) and Representatives (Associate/Affiliated members of the IMU) at the 2018 GA meeting.

Furthermore, the IMU will also cover the travel expenses (economy class) for one registered Delegate from each of its full Members, and one Representative from each of its Associate or Affiliated Members. In special cases, upon request, the travel support can be extended to more than one Delegate or Representative.

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4. **NOMINATIONS FOR IMU-PRESIDENT AND SECRETARY FOR 2019 – 2022**

The Nomination Committee of the IMU has decided to propose
        Carlos Kenig (United States of America) and Helge Holden (Norway; incumbent)
for election as IMU-president and IMU-secretary for the period 2019 – 2022. Election will take place at the General Assembly in São Paolo. The President-nominee and the Secretary-nominee stated that they are willing to serve if elected.

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5. **ICM 2018 TRAVEL GRANTS**

The Organizing Committee has launched the "Open Arms program", which offers 550 travel grants for mathematicians, young and senior, from developing countries to attend the Congress; 200 of those grants will be for mathematicians working in Latin-American countries other than Brazil. The program is sponsored by IMPA and the Brazilian Mathematical Society, alongside with a generous offer of 50 travel grants from the International Mathematical Union.
Applications will be received until July 20, 2017**.** The list of grantees will be published by September 04, 2017**.**
For further information, please check http://www.icm2018.org/portal/en/travel-grants-program .

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6. **AN INTERNATIONAL DAY OF MATHEMATICS?**

At this year's annual meeting the Executive Committee of IMU decided to investigate the feasibility of having UNESCO declare an International Day of Mathematics (IDM).

An International Day of Mathematics, devoted to a specific theme each year, might be an opportunity for all mathematical communities around the world to join forces in reaching out to schools and the public. Clearly the success of an IDM will depend on the activities organized locally.

A consultation with IMU members on the matter, both regarding exploring the advantages of celebrating an IDM and choosing an appropriate date, is presently being conducted.

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7. **KOMARAVOLU S. CHANDRASEKHARAN (1920 – 2017)**

Komaravolu Chandrasekharan, a mathematician from India, passed away on April 14, 2017 in Zürich. He was a first rate mathematician, with important contributions in analysis and analytic number theory. He was responsible for the development of the School of Mathematics at the Tata Institute of Fundamental Research, India into a leading international centre for mathematics.

Chandrasekharan had a long and important association with the IMU, in diverse roles: as a Member of the Executive Committee of the IMU (1955-1978), as Secretary (1961-1966), and as President (1971-1974). He was a member of the Consultative Committee for the Stockholm Congress (1962), a member of the Fields Medal Committee for the Edinburgh Congress (1958) and Chairman ex-officio for the Vancouver Congress (1974). He edited and published, through the Tata Institute, the

first three editions of the ``World directory of Mathematicians'', on behalf of the IMU, which was an important resource in the pre-internet era. He was also a Member of the first Constitutive Committee in New York in 1950 that prepared the Enabling Resolution which led to the formation of the IMU in its present form, and was involved in the drafting of the IMU statutes.

Komaravolu Chandrasekharan was born on November 20, 1920, at Machilipattanam in Andhra Pradesh, and was educated in India, receiving a Ph.D. from the University of Madras in 1943. He became an Assistant to Hermann Weyl at the IAS, Princeton in 1946, and joined the Tata Institute in 1949. In 1965, Chandrasekharan moved away from Bombay, taking up a Professorship at the ETH, Zürich, where he remained until he retired.

He was an extraordinarily gifted organiser and administrator of Science. Apart from his achievements at the Tata Institute, and his extensive involvement with IMU, he was also a Vice-President of ICSU (1963-66) and Secretary-General of ICSU (1966-70); this helped to strengthen the relationship of IMU with ICSU. His personal contacts with a large number of influential mathematicians from all over the world and his administrative skills made the functioning of IMU effective and strengthened it, especially during the cold war period. He was one of the influences behind the IMU's increasing involvement with Developing Countries.

``For decades he was a spiritus rector in the Union'', in the words of Olli Lehto, in ``Mathematics Without Borders -- A History of the International Mathematical Union''.

      Vasudevan Srinivas (Tata Institute, Mumbay)

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8. **NEWS FROM ICSU**

The International Council of Science (ICSU) has issued a new report in order to help countries achieve the UN Sustainable Development Goals (SDG): A Guide to SDG interactions: from Science to Implementation. The report offers a blueprint to help countries implement and achieve the 17 goals and the 169 targets that sit underneath them. The ICSU report is a first-of-its-kind attempt to quantify SDG synergies and conflicts. "This report demonstrates the unique role that science can and must play in the implementation of the SDGs. We combined the rigor of scientific thinking with the in-depth expertise of scientists from diverse fields like agronomy, oceanography, and epidemiology. The result was an independent analysis that can help policymakers and others engage with the goals and define their own priorities," said ICSU Executive Director Heide Hackmann.

ICSU at the U.N. Ocean Conference of June 5-9 2017: ICSU will play an active role in this conference at the United Nations in New York as part of its commitment to support the implementation of the Sustainable Development Goals, and ensure a robust voice for science as an advisor and convener in the process. It is convening two side events at the conference, as well as facilitating scientist participation in the conference.

Disaster Risk Reduction Policy Briefs (2017): ICSU and Integrated Research on Disaster Risk (IRDR) produced five Disaster Risk Reduction Policy Briefs for the 2017 Global Platform for Disaster Risk Reduction in Cancún, Mexico.

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9. MATHEMATICAL CONGRESS OF THE AMERICAS 2017

MCA 2017 will take in Montreal, Canada on July 24-28, 2017. The many activities planned include 25 invited lectures by very distinguished mathematicians from across the Americas, 72 special sessions covering a broad spectrum of mathematics, public lectures by Étienne Ghys and Erik Demaine, the presentation of the MCA Prizes and much more.

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10. SHAW PRIZE 2017 TO KOLLÁR AND VOISIN

The Shaw Prize in the Mathematical Sciences 2017 has been awarded ex aequo to János Kollár (Princeton University) and Claire Voisin (Collège de France) for "their remarkable results in many central areas of algebraic geometry, which have transformed the field and led to the solution of long-standing problems that had appeared out of reach".

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11. SUBSCRIBING TO IMU-NET

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