ICMI

ICMI Newsletter 28

A Newsletter from the ICMI-International Commission on Mathematical Instruction

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1. MARYAM MIRZAKHANI BROKE THE SPELL AND BECAME THE FIRST FEMALE FIELD MEDALIST. EDITORIAL - FROM THE DESK OF ZAHRA GOOYA, MEMBER-AT-LARGE, ICMI EXECUTIVE COMMITTEE

At the ICM- 2014 in Seoul, for the first time since the establishment of the Field Medal, a female mathematician; Maryam Mirzakhani with three other young mathematicians (under 40), won this Medal.

Ralph Cohen, a professor of mathematics and the senior associate dean for the natural sciences in Stanford's School of Humanities and Sciences, described Professor Mirzakhani's work in mathematics as "an outstanding example of curiosity-driven research". Despite the potential applications of her work, Mirzakhani enjoys pure mathematics because of the elegance and longevity of the questions she studies (Stanford Report, August 12, 2014.)

It is exciting to see a normal human being whom I know become a first class world star! So, I would like to take this opportunity to say a few words about the Maryam who I met and the Maryam that I see today. When in 1997, I invited Miss Mirzakhani - a young undergraduate student of mathematics at Sharif University of Technology - to deliver a talk for more than 1000 high school students at the 2nd gathering of "Mathematics Blossoms" hosted by Shahid Beheshti University in Iran, the audience asked her to talk about the secret recipe for her success in winning two gold medal at the International Mathematics Olympiad (IMO). She talked about her experience as follows:

It is only in grappling with the process of solving problems that we become interested in mathematics and even if we don't arrive at the solution, we find other interesting things. Unless we engage with the solution process, we won't get close to mathematics and we see it as unreachable.

Amazingly, after 17 years, when she became the first female to win the Fields Medal, in replying to a reporter who asked about her approach to developing new proofs, the spirit of her response was the same: *I don't have any particular recipe . . . it is the reason why doing research is challenging as well as attractive. It is like being lost in a jungle and trying to use all the knowledge that you can gather to come up with some new tricks, and with some luck you might find a way out"* (Stanford Report, August 12, 2014.)

Maryam Mirzakhani; the deep, simple and humane undergraduate student of Sharif Institute of Technology in Tehran, who said she loves reading story books, still enjoys this and now she reads story books for her little daughter!

Maryam has broken various spells and myths and I refer to just three of them.

1. Maryam lived and grew up in Iran, a place where, for some people in the world, it is difficult even to imagine that girls could go to school and climb the ladder! This is one myth and Maryam has broken it.
2. This phenomenal event has surely dispelled the suggestion that women are inferior to men when it comes to mathematics.
3. The social image of mathematics as being inaccessible and of mathematicians residing in their ivory tower and being unable to communicate with ordinary people, is still strong. Many believe that mathematicians do not have broad interests, and thus are mainly isolated and rarely have friends except their colleagues in the same field. Maryam challenged this myth as well, since most of her classmates relied on her friendship and devotion, as well as her sweet and gentle personality.

Maryam reads stories, goes hiking and cycling, and takes part in other sports. She likes poetry, enjoys travelling, and is a superb mom! Changing the image of the world about mathematics was one of the three main goals of the World Mathematics Year 2000 initiated by UNESCO, and Maryam has contributed immensely to this goal.

Last but not least, I feel that when Maryam survived a horrible accident in 1997 that claimed the lives of seven young mathematics students, God had a plan for her! She had to survive to become a torchbearer for female mathematicians world-wide!

Maryam Mirzakhani at the press conference in Seoul, 2014, Copyright ICM 2014.

2. WELCOMING THE NEW IMU EXECUTIVE COMMITTEE

The Executive Committee of ICMI warmly welcomes the new Executive Committee of the IMU, recently elected for the period 2015-2018, at the ICM in Seoul:

Shigefumi Mori, President
Helge Holden, Secretary General
Alicia Dickenstein Vice-president
Vaughan Jones Vice-president

Members-at-large
Benedict H. Gross, Hyungju Park, Christiane Rousseau, Vasudevan Srinivas, John Toland, Wendelin Werner.

The ICMI community would express its gratitude to the outgoing committee, and especially to President Ingrid Duabechies and to Secretary General Martin Grötschel for their ongoing support throughout their tenure. We are confident that the close relationships between IMU and ICMI will go on with the new Executive Committee.

3. MICHÈLE ARTIGUE AWARDED THE LUIS SANTALÓ MEDAL

The Executive Committee of the *Inter-American Committee on Mathematics Education* (http://ciaem-iacme.org) announced its decision to award the *Luis Santaló Medal* to the French Researcher and Educator, Michèle Artigue, past President of ICMI.

This medal is the most important international recognition awarded by IACME. It carries the name of Luis Santaló, who was a Spanish-Argentinian mathematician and educator, President of IACME, and who contributed significantly to the teaching and learning of Mathematics in Latin America. It is presented every four years to someone who has provided considerable support to the actions of IACME and to Mathematics Education in the Americas. The medal will be presented on May 3, 2015 during the inaugural ceremonies of IACME XIV (http://xiv.ciaem-iacme.org) in the city of Tuxtla Gutiérrez, Chiapas (México). On that occasion Michèle will give the opening plenary address.

4. NOMINATION OF THE NEXT ICMI EXECUTIVE COMMITTEE

According to ICMI's regulations, the process for the nomination of the next Executive Committee (which will take office on January 1st. 2017) should start about two years before the next ICMI General Assembly convenes in Hamburg, Germany, in July 2016 (immediately before the opening of the ICME 13) to elect the next EC. The task of the Nomination Committee is to propose the candidates. ICMI reiterates its invitation to select, in consultation with the Adhering Organisations of the member countries, one candidate for the Nomination Committee.

Submission of candidacies should be sent to the ICMI Secretary General before December 1st, 2014. The members will be randomly selected from the whole pool of candidates submitted by the country representatives. For details about the process of formation of the Nomination Committee and its functioning, please see http://www.mathunion.org/fileadmin/IMU/EC/Procedures_ICMI_2006-31-12_2012-01.pdf and http://www.mathunion.org/icmi/icmi/executive-committee/recent-and-forthcoming-elections/

5. CANP TANZANIA

CANP (Capacity and Network Project) is a joint project of the International Mathematical Union (IMU) and ICMI, in conjunction with UNESCO and the International Congress of Industrial and Applied Mathematics (ICIAM). CANP aims to enhance mathematics education at all levels in developing countries by developing the educational capacity of those responsible for mathematics teachers, and by creating sustained and effective regional networks of teachers, mathematics educators and mathematicians, also linking them to international support. For more details about the CANP Project please see http://www.mathunion.org/icmi/activities/outreach-to-developing-countries/canp-project/

Three CANPs were already held in the past, and recently CANP 4 took place in Tanzania, with 80 participants from Kenya, Uganda, Rwanda and Tanzania and an international International Program Committee (IPC). It was funded by the International Council for Science (ICSU), UNESCO, ICMI, Aga Khan University and IMU-CDC. Anjum Halai and the staff of Aga Khan University in Dar es Salaam were in charge of the organisation. The event consisted of public and plenary lectures, broadcast in different parts of the country, regional presentations, panels and workshops. The meeting had a wide appeal in the media: many articles about it were published in the National newspapers, and some interviews of participants were broadcast on TV.

The ICMI EC was represented by its President, Ferdinando Arzarello. He reported that the contributions of the invited people (outstanding Mathematicians and Mathematics Educators from Africa and from the wider IMU-ICMI international community) were excellent and the involvement of participants was very high during the whole period. Some special sessions concerned the state of mathematics teaching in the four countries: they were made possible by intense preparation before the meeting and the resulting papers will constitute the core of a forthcoming book about mathematics education in Eastern Africa.
The enthusiastic participation resulted in a resolution to constitute a regional ICMI conference for East Africa.

For more details, please see, http://www.mathunion.org/icmi/activities/outreach-to-developing-countries/canp-project-2014-east-africa/?no_cache=1&sword_list%5B%5D=tanzania

6. KLEIN PROJECT UPDATES

Readers of the ICMI Newsletter will already be familiar with the Klein Project--an ICMI/IMU project to produce easily readable materials for secondary teachers of senior classes on contemporary mathematics.

Please see http://blog.kleinproject.org or just Google "Klein Blog".
Recently we have added many translations of the Vignettes--they are nearly all available in Arabic, English, French, German, Italian, and Spanish, with some available in Portuguese and Mandarin. We have also been posting Book and Site of the month.
We are now in the process of converting this site from a Blog into a Website with multiple indexes and new features.

We welcome feedback on what teachers would like to have on this website--remembering that the main aim of the Klein Project is mathematics for teachers, not for students.

Please contact Bill Barton b.barton@auckland.ac.nz with your comments.

7. UPDATES ON ICMI STUDIES

ICMI studies 21 (Mathematics Education and Language Diversity) and 22 (Task Design) are in the last stages of production and will appear in print in early 2015.

ICMI Study 23 on Primary Mathematics Study on Whole Numbers is ongoing. The Study Conference will convene in Macau, June 3-7, 2015.
For more details, please see http://www.mathunion.org/icmi/conferences/icmi-studies/ongoing-studies/icmi-study-23/?no_cache=1&sword_list%5B%5D=macau

8. XIV CIAEM 2015

The 14th Interamerican Conference on Mathematics Education (Conferencia Interamericana de Educación Matemática, CIAEM) will take place in Tuxtla Gutierrez, Chiapas, Mexico, May 3-7, 2015.

CIAEM (http://www.ciaem-iacme.org/?q=en/principal) is affiliated with ICMI and its conferences attract participants from the Americas with special guests from all over the world.

For more details about the event please see http://xiv.ciaem-iacme.org/index.php/xiv_ciaem/xiv_ciaem

9. INTERNATIONAL MATHEMATICS EDUCATION CONFERENCE, CATANIA 2015

The 12th International Conference of the Mathematics Education for the Future Project in Montenegro, September 2014, was attended by 174 people from 29 countries.

The next conference, whose theme is Mathematics Education in a Connected World will be held near Catania, Sicily, Italy from September 16-21, 2015, and will explore innovative ways in which mathematics, science, computing and statistics education can succeed in an increasingly connected world.

The call for papers is open, for details and updates, contact the organiser, Alan Rogerson at alan@cdnalma.poznan.pl

10. EMMA CASTENUOVO AWARD - REMINDER

The Executive Committee of ICMI created a third award in order to celebrate outstanding achievements in the *practice* of mathematics education. The new award will be named after Emma Castelnuovo, an Italian mathematics educator born in 1913, in celebration of her 100th birthday and honoring her pioneer work. The Emma Castelnuovo Award seeks to recognize and to encourage efforts, ideas and their successful implementation in the field, as well as to showcase models and exemplars of inspirational practices to learn from.

The deadline for receiving nominations is December 15, 2014.

For more details, see http://www.mathunion.org/icmi/activities/awards/call-for-proposals-for-the-first-emma-castelnuovo-award/

11. HAVE YOU READ?

The *Encyclopedia of Mathematics Education* is a 672 page comprehensive reference text, covering every topic in the field with entries ranging from short descriptions to longer pieces where the topic warrants more elaboration. The 163 entries, written by 177 international experts, provide access to theories and to research in the area and refer to the leading publications for further reading. The Encyclopedia is aimed at graduate students, researchers, curriculum developers, policy makers, and people interested in mathematics education.

The Encyclopedia is aimed at graduate students, researchers, curriculum developers, policy makers, and people interested in mathematics education. Editor-in- Chief: Steve Lerman, Editorial Board: Michele Artigue, Ruhama Even, Melony Graven, Eva Jablonka, Robyn Jorgensen, Yoshinori Shimizu, Bharath Sriraman.

For more details, see http://link.springer.com/referencework/10.1007%2F978-94-007-4978-8

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