

of the new prizes being another facet).¹⁰ Inevitably, the immanent question about preserving the organisation's independence surfaced,¹¹ but charitable activities like the successful DonAuction event at the congress (which raised \$9895 for the support of young mathematicians by auctioning mathematical objects) can certainly not be tainted by such questions. Moreover, the IMU aimed to pursue open discussions by the now well-established panels. Four years ago, for example, the misuse of bibliometric measures in science evaluation was a large issue,¹² while this time the focus was on mathematics education, popularisation and dissemination.¹³

In addition, there were a number of social events, including a number of activities related to Korean culture, the extensive mathematics popularisation programme already mentioned, a special event related to Baduk (Korean for the board game known in the West as Go) including lectures and simultaneous games, and several receptions.

A highly welcome idea was the introduction of a child-care service, which aimed at creating a family-friendly congress. Though it was still quite limited this time (the reservation became available at the website only shortly before the congress, when it became clear that the serv-

¹¹ The well-deserved gratitude towards James Simons, whose foundation had supported several ICM-related activities, most notably the \$ 250,000 charitable donation connected to the Chern medal which was given this time to the African Mathematics Millennium Science Initiative to strengthen the developing countries' activities, and who consequently was given a prominent role at the congress, contrasted to the condemnation of him by an U.S. senate committee for implementing a 6 billion tax avoiding scheme for his Renaissance Technologies hedge fund just three weeks before the ICM. The possibility of resulting reputation loss illustrates just one of the many difficult aspects of sponsor acquisition.

¹² In contrast, this year's Gauss Prize Lecture put heavy emphasis on citation counts, H-indexes etc. to justify the significance of the awardee's work.

¹³ See also Thierry Bouche's report on the progress of WDML/GDML in this Newsletter's issue, p. 41.



Maryam Mirzakhani with her family, still at limelight at the Abel prize reception.

ice was only offered for 4–8 year olds), this has been a starting point which will hopefully be extended in the future. One should also add that this congress was extremely well-documented and communicated, not only by the videos of the main lectures but also by social media, including an extensive Facebook site, which offered multifaceted impressions of the congress. However, the virtual media side also serves to justify the importance of the “real world meeting”. Judging from the access figures, more visitors enjoyed the congress in person than in virtual form, which underlines again the importance of live encounters in our science. Thus there are enough reasons to look forward to the next congress, which will be held in Rio de Janeiro in 2018!

Olaf Teschke is member of the Electronic Publishing Committee and the Executive Board of EuDML initiative. In the Editorial Board of the EMS Newsletter, he is responsible for the zbmATH Column.

The ICM 2014 in Seoul: At Last a Fields Medal for a Woman

Elisabetta Strickland (University of Rome “Tor Vergata”, Italy), EMS-WIM Committee

The 27th International Congress of Mathematicians took place in Seoul (South Korea), 13–21 August 2014. The media coverage of this event all over the world has been such that certainly no one can have missed at least the main fact, namely that for the first time a woman has been honoured with one of the four Fields Medals, the most coveted award in the world of mathematics. The recipient was the 37-year-old Iranian Maryam Mirzakhani, full professor at Stanford University in the United States.

Her research topics include hyperbolic geometry, ergodic theory and symplectic geometry.

However, even if the general focus was mainly on her, the other three winners Artur Avila (Brazilian mathematician and expert in dynamical systems and spectral theory), Manjul Bhargava (American number theorist, born in Canada and currently on the staff at Princeton) and Martin Hairer (Austrian mathematician now living in Great Britain and expert in stochastic partial differential

equations) also received due attention. It was impossible not to give credit to them, brilliant, young and interesting as they were and proud to step on the podium before the fateful 40 years, the age-limit that cannot be exceeded for the award of the super-medal.

As far as the other awards are concerned:

- The Nevanlinna Prize, named in honour of Rolf Nevanlinna (the Finnish mathematician) and awarded every four years since 1982 for substantial contributions in mathematical aspects of information sciences, went to Subhash Khot, an Indian scientist from the Courant Institute of New York.
- The Carl Friedrich Gauss Prize, granted since 2006 jointly by the International Mathematical Union (IMU) and the German Mathematical Society for outstanding mathematical contributions that have found significant applications outside mathematics, went to Stanley Osher, an American mathematician.
- Finally, the Chern Medal, international award recognising outstanding lifelong achievement of the highest level in the field of mathematics, went to Philipp Griffiths, Professor Emeritus at the Institute for Advanced Study, known for his work on complex varieties in algebraic geometry. The winner announced that he had decided to hand over the \$250,000 cash prize associated with the medal to mathematics in African countries: one has to remember that Phil Griffiths carried out, for many years, wide-ranging work with the IMU on the Committee for Developing Countries.

Nevertheless, in all the many articles which have been written in newspapers and magazines all over the world, in print and online, not very much has been reported about how this congress looked from the inside, to those who had the opportunity to see *in loco*, with their own eyes, the great show that the Korean people were able to stage, under the guidance of Hyungju Park, the local organiser and now a new member of the Executive Committee of the International Mathematical Union (IMU).

The proposal to organise the ICM in Seoul was presented and approved by the IMU General Assembly of Bangalore in India, shortly before the ICM in Hyderabad in 2010. The IMU General Assembly is a kind of parliament of mathematics, which gathers together the delegations of all the countries which adhere to the IMU through their national organisations before each International Congress.

Four years ago, as soon as the venue for the next ICM was official, the organising machine went into action and, while the members of the panels nominated by the IMU to choose the invited and plenary speakers started their work, the members of the organising committee launched themselves into a marathon whose goal was to find the funds and the right people to carry out the organisational program, study the location and space available, etc.

The venue chosen for Seoul was the COEX (a gigantic complex built exclusively to host meetings), which has the peculiarity of having the biggest shopping mall in Asia in its underground. Situated in the area of Gangnam, cen-

tral and elegant, populated by skyscrapers flashily illuminated at night, the COEX was the perfect location for the purpose. Taking into account that over 5000 attended this ICM and that the registration fee included invitations to the welcome dinner and the opening ceremony, the huge halls of the COEX proved themselves perfect for all these people. The scheme of the programme was similar to that of previous congresses: the plenary lectures took place in the largest halls while the invited section lectures were in a series of rooms, scattered around but easy to find, thanks to the help of a legion of Korean students hired for the purpose, who were so zealous that instead of merely showing the location of the room on the map of the COEX, they took the trouble to guide visitors personally to the right place.

The architects who planned the COEX didn't have budget problems, as was evident by the first class quality of the building materials, the intelligent design and the spacious common space. In effect, the latter offered a remarkable counter-example to whosoever may worry about the usefulness of big congresses, considering them too dispersive. No, they are not, judging from the lovely sight of all those young people from 120 countries, sitting on the benches overlooking the large glass windows of the COEX during the intervals, commenting on the talks and chatting to each other, their laptops on their knees. This was truly scientific exchange – exactly what everyone was looking for.

So one can appreciate that the ICM was organised in the right place. My memory of the congress focuses on some specific issues, starting with the opening ceremony. The first memory is that on the official IMU website, contrary to tradition, the names of the Fields Medal winners appeared officially some hours in advance; not everyone had seen the announcement and someone said it was a bug. In any case, the delegates to the General Assembly, which took place three days before in Gyeongju, were informed, even if we were sceptical.

So, when Maryam Mirzakhani arrived in the main hall, we already knew that she had been awarded the Fields Medal.

For this reason, while we were all waiting for the start of the opening ceremony, I really couldn't resist reaching over to her, as she was sitting not far from me, in the front section reserved for the General Assembly delegates, the Imu Executive Committee members and the plenary speakers. I just wanted to say to this petite woman with two wonderful eyes and an expressive face how immense was the happiness of all the women in the hall for this wonderful piece of news. She saw I was moved while I was speaking to her, so she took the hand I was holding out to her, gracefully, simply, gently. There was not a bit of haughtiness in her expression, only the awareness of something enormously meaningful for someone who has devoted her entire life to coping successfully with mathematics, with all the pros and cons this involves.

When I went back to my seat, I felt overwhelmed with emotion and I thought that everything else to follow would fade in comparison. But this was unfair, as more surprises were still to come. For example, there was an im-

portant novelty in that Jim Simons, the American mathematician, hedge fund manager and philanthropist, who through his Foundation supports projects in mathematics and in research in general, produced four short movies on the Fields Medallists that were really outstanding. In the films, Artur Avila appeared while doing research in his office at IMPA, Rio de Janeiro, Martin Hairer while he was strolling on the campus of the University of Warwick, Manjul Barghava with the buildings of Princeton in the background and Maryam Mirzakhani kneeling with a felt-tip pen in her hand on a large white sheet of drawing paper unrolled on the floor, full of Riemann surfaces and formulas spread all around, while her little son was playing close to her. Thanks to these short movies, we could see them in their daily lives, within the walls where their beautiful ideas came into their minds.

Moreover, one cannot discount the speech of the President of the Republic of South Korea, Park Geun-nye (a woman), given without notes or slides. This was a Korean tribute to mathematics and mathematicians, which was indeed rather realistic, judging from the enormous technological progress of the country, which has arisen from the ashes of the Korean War as a fully-developed society in which research and education are on the frontline.

Besides the vast choice of plenary and section lectures in all the main research areas of mathematics, the special lectures were also very interesting, for example the Emmy Noether Lecture, which is given by a female speaker, this time the American Georgia Benkart, who illustrated the connections between Schur–Weyl duality and McKay correspondence. There was also a range of public lectures, such as the one given by Jim Simons, which the majority of participants didn't miss, if for no other reason than to see in person the man who has made a fortune with his hedge funds and has then assigned a considerable part of it to financing structures and initiatives for mathematics. He should be made a saint!

As an aside, it's useless to hope that the next ICM will take place in a town closer to Europe, as the General Assembly in Korea has approved Rio de Janeiro as the location for 2018. Nevertheless, let's cheer up because for us Europeans the ICM will be easier to reach in 2022, as the General Assembly in Rio will hopefully approve the proposal made for an ICM in Paris.

These are not minor details. If for once in a while we could save ourselves many long hours of flight, for us Europeans it would be great. It took a degree of heroic spirit to reach South Korea from Rome, which is not around the corner and which has few direct flights to Seoul. But, strictly for the record, when the Italian delegates arrived in Gyeongju for the General Assembly, after 12 hours of flight plus three of bullet train and one of bus, we felt ashamed because we met Alice Dickenstein, the new Vice-president of the IMU, who had arrived from Argentina via Dallas, after travelling for 25 hours, but seemed in perfect shape, unlike us who were sleepy with jet-lag and starving.

The presentation of the Brazilian bid for ICM 2018 has been approved with obvious enthusiasm, not least because it will be the first time that the ICM will take

place in the southern hemisphere. We couldn't prevent ourselves from smiling when, during the slide show about the architectural structures proposed for the event, we saw a picture of the Maracanino, a stadium slightly smaller than the legendary Maracana but not far from it.

Even if I risk being boring by underlining the female presence, one should say that at this ICM, as far as women speakers are concerned, the United States featured 11 women speakers (two among the 21 glorious plenary speakers: Maryam Mirzakhani and Vera Serganova), France seven and Italy three, while Canada, Germany, UK, Israel, the Netherlands and New Zealand had one each. This means that among the sectional speakers (of which there were 218) women represented around 11% of the list. This is still a small percentage but we believe that things will now improve. This ICM represented a turning point, as the award to Maryam Mirzakhani will set an impetus for change.

And perhaps it would be nice to add that one day before the Opening Ceremony of the ICM, on 12 August, the International Congress of Women Mathematicians (ICWM 2014) took place at the Ewha Womans University in Seoul and the invited speakers included Donna Testerman, Hee Oh, Gabriella Tarantello (from my own university, "Tor Vergata" in Rome – a little bit of local pride is never inappropriate!), Laura Demarco, Motoko Kotani, Jaya Iyer, Isabel Dotti and, last but not least, Ingrid Daubechies, IMU President until the end of this year, when the newly elected President Shigefumi Mori will start his term.

So think what you like. In Seoul, women mathematicians experienced great satisfaction, thanks to the masterpiece of Maryam, the marvellous heroine of this unforgettable 2014 ICM!



Elisabetta Strickland is a full professor of algebra at the University of Rome "Tor Vergata" and is Deputy President of INdAM, the Italian National Institute for Advanced Mathematics. Since 2008, she has been a delegate for individual members on the EMS Council and, since January 2014, she has been a member of the Women in Mathematics Committee of the EMS. In 2009, she co-founded the first Gender Inter-university Observatory based in Rome, Italy. She was in South Korea as Head of the Italian Delegation at the IMU General Assembly.