Committee for Women in Mathematics

CWM funded activity reports 2016

Summary

The International Mathematical Union Committee for Women in Mathematics sponsored in 2015 and 2016 a number of events aimed at establishing or supporting networks for women in mathematics, preferably at the continental or regional level, and with priority given to networks and individuals in developing or emerging countries.

After a call launched by CWM at the end of 2015, where 48 proposals were submitted, 7 events were selected.

The 2016 events took place in Colombia (Latin America), Tunisia (North Africa), India (East Asia), Senegal (West Africa), Indonesia (Southeast Asia), Mexico (Latin America), Kazakhstan (Central Asia).

Two of them (in Colombia and Indonesia) were organized at the occasion of major regional conferences, several of them where independant events organized by local or regional Women in Mathematics association (Tunisia, India, Seneal, Kazakhstan) and one of them (Mexico) was a workshop in a conference center.

Similar activities were also funded in Kenya (Africa) and Brazil (Latin America) by CWM 2015 budget.

In total, there were about 500 participants to these events, among them about 430 women.

For more information http://www.mathunion.org/events/cwm-sponsored-events/

Marie-Fançoise Roy and Neela Nataraj

1. Tunisia: The First Meeting of the Tunision Women in Mathematics Association, 12 May 2016

The first Meeting of TWMA held in Tunis May 12, 2016 was a success. It brought together mathematicians from different mathematical specialities and different countries. Many of them are very active in the world of scientific associations. The contributions were rich and varied. The meeting was conducted in Dauphine-Tunis University, Tunisia, Tunis. The countries represented were Tunisia, France, Algeria, Burkina Faso, Canada and Egypt. There were 70 attendees of whom 55 were women. There were mathematics lectures together with presentations about the associations of women mathematicians in Europe and Africa. A tribute was paid to Mrs Fatma Moalla, first Tunisian woman to receive her doctorate in mathematics, in 1965. Mrs Fatma Moalla made a valuable testimony, uplifting and motivating. TWMA intends to hold its second

Meeting in 2017 by organizing a mathematical research school to reach a larger number of students and researchers in Tunisia, with the aim of mobilizing more women and men to mathematical research in Tunisia and forging productive links with the international community.

The meeting was supported by CWM, Dauphine-Tunis, Institut Français, STB, ATB, Esprit, ATPS, SMT.

The programme was as follows:

Tributes to Tunisian Women Mathematicians:

Speeches by Mrs Saïma Khenissy, President of TWM ; Mrs Amina Bouzguenda Zeghal, Chair of Dauphine-Tunis University ; and His Excellency the Minister of Professional Training and Employment.

Tribute and presentation of the Honorary Awards of TWMA to Fatma Moalla, Hajer Bahouri, Leila Lassoued and Amel Ben Abda.

Testimonies of Fatma Moalla and Amel Ben Abda, the first Tunisian women PhDs in Mathematics (1965) and Applied Mathematics (1993) respectively.

The Role of Women and Science Associations:

Marie-Françoise Roy: Presentation of CWM and EWM. Activities for the development of science in Africa.

Marie Françoise Ouedraogo: Presentation of AWMA the Association of Women Mathematicians in the African continent.

Nefertiti Megahed: Women in Mathematics Research in Egypt.

Monique Pontier: Presentation of the association "Femmes et Maths » (Women and Mathematics) (France).

Mathematics for other Sciences:

Nicole El Karoui: Mathematics and finance.

Assia Benabdallah: Biomathematics: PDE and cancer.

Schehrazad Selmane: Mathematics research structures in Algeria and position of the Algerian woman. Mathematics to counter infectious diseases.

Nadia Ghazzali: Women in Science and Engineering academia.

Mathematics, a profession of the future:

Yomna Rébaï: Tribute to Professor Abbas Bahri.

Saloua Aouadi: Applied Mathematics: On the 3D-1D coupling elasticity.

Kaouthar Boussema: Mathematics is a profession of the future: Big-Data.

Colette Guillopé: The role and actions of associations of women scientists in France.

Website of TWMA : https://tunwma.com/

2. India: Initiatives of Indian Women and Mathematics

Indian Women and Mathematics (IWM) is a collective of Indian mathematicians, supported by the National Board for Higher Mathematics (NBHM) set up with the objective to encourage more Indian women to pursue higher education in mathematics and to organize events and networking opportunities that will enable them to take up careers in mathematics. For more details see https://sites.google.com/site/iwmmath/ .

In 2016, CWM supported two IWM activities as follows:

(a) Distinguished Overseas Visitor Programme

The Overseas Visitor Programme of IWM envisages inviting an established overseas woman mathematician to give lectures at and interact with the mathematics faculty and students at different Indian Universities, preferably located in different cities/towns. It is hoped that the visits to the different institutions, besides giving the students and faculty an opportunity to exchange mathematical ideas with the visiting mathematician, shall also provide a role model – a woman with a successful career in mathematics.

There were two visitors under this programme in 2016 as follows:

Prof. Isabelle Chalendar, Institut Camille Jordan, University of Lyon, France (new address: Université Paris Est Marne-la-Vallée, France) toured India in March 2016 under the Visitor's programme. She visited the University of Delhi, Delhi, Banasthali University, Banasthali and the University of Rajasthan, Jaipur.

Prof. Nalini Joshi, University of Sydney, Sydney visited India in June 2016. She gave a talk at the Indian Institute of Science Education and Research (IISER), Tirupati before attending the three day IWM Annual conference in Hyderabad. At the conference she delivered a plenary lecture and was an expert panelist at the Panel discussion "Women in Mathematics: Initiatives from India and around the World.

Each of these events was jointly sponsored by the National Board for Higher Mathematics, CWM and the host institution.

(b) IWM Annual conference, University of Hyderabad, Hyderabad 29th June- 1st July 2016.

The conference was aimed at exchange of mathematical ideas, views and experiences between women students, college and university teachers and early-career researchers with mathematicians, especially women mathematicians, working in the frontiers of Mathematics. A major goal was to enable junior women mathematicians to interact with their senior colleagues, both individually and in small groups, as well as to present their work. There were 76 attendees of whom 65 were women.

There were 4 plenary talks, each of 55 minutes followed by 5 minutes of discussion. In addition, two categories of invited talks were organised: Four talks, each of 40 minutes followed by 5 minutes of discussion and three talks, designated as "Talks by Young Mathematicians", each of 25 minutes followed by 5 minutes of discussion as part of a special effort to reach out to early-career mathematicians. A mini-course entitled "An Introduction to the Analysis of PDEs" was conducted by Prof. Sandeep K. of the Tata Institute of Fundamental Research Centre for Applicable Mathematics, Bangalore, in two one-and-a-half hours sessions. In addition there were 15 contributed talks and a poster session. An exhibition of mathematics books was held alongside the conference.

The conference concluded with two panel discussions which saw spirited exchanges of views. There was a panel discussion on Mathematics Education moderated by S. Kumaresan, University of Hyderabad, with I.K. Rana, IIT Bombay and Christina Carter, SUNY Buffalo, USA as panellists and another panel discussion entitled Women in Mathematics: Initiatives from India and around the World moderated by Geetha Venkataraman, Ambedkar University Delhi. The panel comprised of Nalini Joshi, University of Sydney, Australia; Riddhi Shah, JNU, New Delhi and Amber Habib, Shiv Nadar University, NOIDA.

The IWM Annual Conference 2016 has provided valuable networking opportunities to women students, teachers, and researchers of mathematics. It is expected that the conference has made many delegates drawn from different regions of India aware of the existence of IWM. The delegates will hopefully generate positive word-of-mouth for the more region-focused activities planned by IWM in their region. It is also hoped that the specifically described initiatives presented in the panel discussion Women in Mathematics: Initiatives from India and around the World will sensitize participants, especially those in search committees and the like, to help increase representation of women beyond the early-career stages of the discipline.

In addition to the annual IWM conferences in 2017 (Indian Institute of Science, Bangalore) and 2018 (Shiv Nadar University, Greater Noida) two regional mini conferences per year have been planned as part of IWM activities. It is also expected that at least four more distinguished women mathematicians shall visit under the visitors programme in the next two years.

IWM website: https://sites.google.com/site/iwmmath/

3. Senegal : The Forum of the West African Chapter of the Association for Women in Mathematics in Africa 8-9 July 2016

The forum gathered women coming from various countries of West Africa which included Burkina Faso, Gambia, Ghana, Ivory Coast, Niger, Nigeria, Mali, Senegal and South Africa. It was attended by 29 people of whom 27 were women.

The meeting was sponsored by AIMS-Senegal, CWM, UEMOA, Senegalese Ministry of Higher Education, LMS/AMMSI.

The meeting centered around the three topics:

(1) Presentation of SWMA (Senegalese Women in Mathematics Association) and AWMA (African Women in Mathematics Association)

(2) Panel discussions on *Opportunities and Challenges for women in science* and *Empowering women in science and technology: Inspiring young girls*;

(3) Presentation of scientific research of some participants. Activities about women in mathematics include a session focused on *Video Presentation of Women in Mathematics* and a presentation of *Association des jeunes Femmes en Mathématiques (AJFM)*. This association gathers Ph.D. and Master students in Mathematics from Ivory Coast. They have several actions aimed at girls in secondary schools to encourage them to do Mathematics at university. The session ended with a panel on the subject *Empowering women in science and technology: Inspiring young girls*.

On the first day, there were two scientific talks on *Statistics and social, environmental and economic issues* and *Bounds for the maximal number of vector fields on the incomplete real flag manifolds*. The first session of the second day consisted of two scientific talks on *Poverty and Application of Measure Theory in Financial Mathematics* and *Constrained minimization of convex functions by accelerated descent method: Application to finding optimal controls in dynamic systems*.

The meeting showed once again the interest women have in meeting for research networking opportunities in mathematics. Participants discussed the need to organize other scientific meetings in the future.

SWMA website: https://sites.google.com/a/aims-senegal.org/rencontre-regionale-awma/

4. Colombia: Round table about the work of Women Mathematicians in Latin America, 13 July 2016

As part of the more than 200 activities that took place during the five days of the V Latin American Congress of Mathematics, the forum *Women mathematicians in Latin America* took place on Wednesday, 13th July 17. About 111 women attended the round-table, while the total number of participants in the Congress was 440.

The panelists were : Christina Brech, organizer of the Encontro Paulista de Mulheres na Matemática held at São Paulo, Brazil in March 2016; María Isabel Cortéz from Colectivo de Mujeres Matemáticas in Chile; Natalia García-Colín, coordinator of the Comisión de Equidad y Género in México, and coorganizer of the event Women in Mathematics in Latin America: Barriers, Advancements and New Perspectives, held in Oaxaca, México in August 2016; Susana Fiorentino, vicepresident of the network of scientific women in Colombia. The chair was Alicia Dickenstein from Argentina.

This round table was an opportunity to talk about the gender problems in Mathematics in Latin America, to offer solutions to face them and to discuss the possibility of creating a network of Latin American women in mathematics. A video of the event can be found at: https://www.youtube.com/watch?v=B7pLwvbDpjk

Since the round table was held as part of the fifth congress of Latin American mathematicians, there were talks, courses, thematic sessions and poster sessions in the Congress from Monday 11th –Friday 15th July 2016.

5. Indonesia : Asian Women Mathematicians Forum 2016, 28 July 2016

This event was held in Nusa Dua- Bali, Indonesia as part of the Asian Mathematical Conference (AMC) 2016. AMC is a major SEAMS conference, held every 4-5 years since 1990, and hosted by different countries in Asia. The 2016 conference was attended by around 800 delegates from various countries, see www.amc2016.org. It is very important to Asia since it was attended by prominent Asian and international mathematicians in Asia. It is supported by all Mathematical Societies in Asia: Chinese Math Soc., Indian Math Soc., Math. Soc. of Japan, Korean Math. Soc., and all societies in SouthEast Asia.

AWMF 2016 was one of two forums held during AMC 2016. There were 111 women participants from Indonesia, Philippines, Malaysia, Thailand, Portugal, Austria, Japan, Korea, Myanmar, Poland , Singapore and Slovakia. It was an opportunity for discussion about the participation of women mathematicians in developing mathematics and its applications in various fields, as well as the role of mathematics in human development in Asia. The forum aimed at establishing a network of women mathematicians in Asia. It addressed issues regarding opportunities, challenges and involvement of women in mathematics and also shared best practices and research experiences of women mathematicians.

The event was sponsored by CWM, the Indonesian Mathematical Society (IndoMS), the SouthEast Asian Mathematical Society (SEAMS) and 5 Indonesian insititutions: (Universitas Padjadjaran, Institut Teknologi Bandung, Universitas Gadjah Mada, Universitas Indonesia and Universitas Udayana).

The invited speakers of AWMF 2016 were also invited speakers at AMC 2016, : Karin Baur (Austria), Maslina Darus (Malaysia), Ana Bela Cruzeiro (Portugal), Hilda Assyiyatun (Indonesia) and Diah Chaerani (Indonesia). Partcipants of AWMF also included people who presented a paper in a parallel session at AMC

2016. We also invited Motoko Kotani (Japan), Sunsook Noh (Korea), Polly Sy (Phillipines), and Wanida Hemakul (Thailand) to share their expertize and their experience on mathematics development, not only in their field, but also in organizations, communication and supporting activities as women mathematicians.

The forum included two discussion periods :

- Discussions about Woman Mathematicians' Activities : Motoko Kotani (Japan), Sunsook Noh (Korea)), Karin Baur (Austria), Ana Bela Cruzeiro (Portugal). Chair Intan Muchtadi.

- Discussions about Woman Mathematicians Problem in South East Asian Countries: Polly Sy (Phillipines), Wanida Hemakul (Thailand), Maslina Darus (Malaysia), Diah Chaerani (Indonesia). Chair Hilda Assiyatun. with a conclusion by Budi Nurani.

There was discussion about activities of women mathematicians in developed and developing countries. There are differences and also similar phenomena. The differences are in facilities to support women for research -- in developed countries there is more chance of getting support from industry or government, while in developing countries it is usually more difficult. The similarity is more about women mathematicians in their activities as a a mother in a household and as a woman in society. Both in developed and developing countries there is a gender difference in achieving a good position or carreer. We still have fewer female professors of mathematics than male.

In conclusion, this was a good forum for discussion and should be continued to get more activities for women mathematicians not only in Asia, but also in the whole world.

Conference website: http://www.amc2016.org/home/asian-women-mathematicians-forum-2016/

6. México : Women in Mathematics in Latin America: Barriers, Advancements and New Perspectives Oaxaca, 21-26 August 2016.

This meeting was hosted by the Casa Matemática Oaxaca in collaboration with the Banff International Research Station for Mathematical Innovation and Discovery. There were 55 attendees from Argentina, Brazil, Chile, Colombia, Cuba, Dominican Republic, EEUU, Mexico, Panama, Paraguay, Peru, Slovakia. The event was supported by BIRS-Oaxaca, CONACYT (the Mexican equivalent of NSF), the Mexican Mathematical Society (MMS), the Kovalevskaia Fund, CWM, and several other organizations.

The mornings were dedicated to mathematical and technical talks. On two afternoons, Drs. Marta Ferreyra and Sara Montiel from "Programa Universitario de Estudios de Género" (University Program of Gender Studies) of the National University of Mexico (UNAM) gave workshops on various aspects of gender as a part of culture. Since many of the participants had never participated in discussions on gender before, these sessions began with very basic notions of the relationship of gender stereotypes to culture in general. The women professors and students at the workshop take great pleasure in mathematics, and were extremely happy to meet others who share the same passion for their field. One of the pleasant surprises of this meeting was learning how much outreach is being done to attract young women into math. Speakers from Argentina, Brazil, Chile, Colombia, Mexico and the U.S. described some amazing outreach programs, and interested participants shared videos, tutorials, and lesson plans.

There was also a round table to discuss proposals for future activities and actions. Other than the formation of a collaborative network, other suggestions included:

• forming permanent women in math commissions in those countries that do not yet have one;

• ensuring that there is at least one session on women/gender at all national and international math meetings;

• maintaining a Facebook page;

• collecting statistics;

• having a second meeting, possibly in Chile;

• supporting the development of mathematics in the Dominican Republic;

• writing a manifesto condemning sexual harassment (especially by professors) and sexual violence between students, both of which are widespread problems in our institutions.

The organizers were extremely satisfied with the workshop. The language of the workshop was Spanish, this was crucial for creating the proper atmosphere to discuss issues of gender and mathematics. Second, the discussions concerned social issues related to equity in the mathematical community. Even those presenters who gave largely technical talks often mentioned their outreach activities; and many of the participants belong to institutional, regional, national, or international organizations that promote women's participation in the mathematical sciences and work to improve the gender, racial, ethnic, and economic diversity of their professional communities. In the third place, participants were almost all women.

For a detailed report, see   http://www.birs.ca/events/2016/5-day-workshops/16w5003/

7. Kazakhstan : International Conference of Central Asian Woman in Mathematics Association - 2016, 22-23 September 2016

This was the first International Conference ICCAWMA 2016 in Kazakhstan! There were 36 participants from 19 universities from 5 countries of Central Asia: Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan and Tajikistan. There were 19 women participants, from France, Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan and Turkmenistan. The conference languages were Russian and English.

There was a Round table *Women in Mathematics in Central Asia: current situation and initiatives.* Panel members were: Marie-Francoise Roy, Université de Rennes 1, France ; Bakhyt Alipova, International IT University, Kazakhstan; Umida Baltayeva, National University of Uzbekistan named after Mirzo Ulugbek, Uzbekistan; Zhyldyz Assanova, Kyrgyz State Pedagogical University named after Arabayev, Kyrgyzstan; Lutfiya Radzhabova, Tajik Technical University named after Osimi, Tajikistan; and Zamza Kadar, Director of Scientific Institute of social and gender research of Kazakh State Women Institute Kazakhstan.

There was an invited lecture by Prof Ludmila Alexeyeva, Institute of Mathematics and Mathematical Modeling of Kazakhstan (Kazakhstan) and short 20 minutes presentations by the participants on their mathematical research.

The following aims of Central Asian Women Association in Mathematics (CAWMA) were discussed :

- to encourage women to study mathematics,

- to organize scientific communication between woman mathematicians,

- to offer scientific and social support for Women Mathematicians in Central Asian countries (Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan, Tajikistan) in their careers,

- to cooperate with groups and organizations with similar goals,

- to organize scientific activity as Workshops, Conferences, Symposia and Summer Schools,

- to create opportunities for Woman Mathematicians to facilitate the improvement of their careers by cooperating with similar associations in USA and Europe,

- to spread their vision of Mathematics.

- meeting once in 2 years (next probably in Uzbekistan in 2018) and

- search of opportunities for financing in each country of Central Asia.