Committee for Women in Mathematics

CWM funded activity report 2019

A Summary

The International Mathematical Union Committee for Women in Mathematics (IMU CWM) sponsored a number of events in 2019 that aimed at establishing or supporting networks for women in mathematics at both the continental or regional level and with priority given to networks, workshops and schools in developing and emerging countries. We received about 40 applications in 2019 that could be classified in the categories Networks, Projects, Schools, Individual support and Workshops. IMU CWM funded 7 activities in 2019 that includes- 6 Networks and 1 School. The *Network Activities* were in Indonesia, Argentina, South Africa, India, Cameroon , Dominican Repulbic and the *School* was in Tunisia. A total of aout 500 people attended these events, withat least 2/3 women.

The summary of these events are given in the table below and the detailed activity reports (extracted from the reports submitted by the organisers) is also presented in this report.

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

Marie-Fançoise Roy and Neela Nataraj

NETWORK ACTIVITIES

Country	Dates	Place	Nature
Indonesia	30.7.2019	Yogyakarta	The South East Asian Women Mathematics Event
Argentina	24.09.2019-27.09-2019	Mendoza	Sumando genero y diversidad, SUMA
South Africa	02.07.2019-05.07.2019	Stellenbosch	African Women in Mathematics Conference
India	10.06.2019-12.06.2019	Mumbai, Shillong	Events of Indian Women in Mathematics, for SAARC country participants
Dominican Republic	11.07.2019-12.07-2019	Santo Domingo	First international meeting of integration of Dominicians women in Mathematics
Cameroon	13.07.2019-14.07-2019	Limbe	Regional AWMAWorkshop in Centra Africa :Women in Mathematics for Information Security

SCHOOL

Country	Dates	Place	Nature
Tunisia	06.09.2019-10.09.2019	Monastir	International School on Dynamical System and applications

NETWORK REPORTS

A. INDONESIA

Event: The SouthEast Asian Women Mathematicians Meeting (SEAWM^2), Indonesia and Yogyakarta, July 30, 2019.

Contact Information: Prof. Dr. Budi Nurani Ruchjana, Department of Mathematics Universitas Padjadjaran-Jl Raya Bandung Sumedang km 21 Jatinangor, Sumedang 45363 West Java Indonesia, bnurani@gmail.com or budi.nurani@unpad.ac.id

Supported Activity Details: Number of attendees 109, Number of women attendees 99, List of Countries as follows:

LIST OF PARTICIPANTS	
Phillipines	10
Malaysia	1
Cambodia	9
Malaysia	1
Thailand	1
Singapore	2
Indonesia	77
Myanmar	1
Netherlands	2
Hongkong	1
Iran	2
China	1
United State of America	1
Total	**109**

A short report on activities about women in mathematics:

The SEAWM^2 2019 meeting has an objective in establishing a network of women mathematicians in SouthEast Asia. The program addresses issues regarding opportunities, challenges and involvement of women in mathematics. The forum also shares best practices as well as research experiences done by women mathematicians in South East Asia and also Asia in general both from developed countries and a developing countries. This program supported by all Mathematical Societies in South East Asia, especially of ten countries of ASEAN: Singapore, Brunei, Malaysia, Philippines, Thailand, Vietnam, Cambodia, Laos, Myanmar and Indonesia.

The South East Asian Women Mathematicians Meeting 2019 focused on the agenda of *Experience Women Mathematicians in Each ASEAN Countries* and *Experience of Women Mathematicians and a Career*. We invited the women mathematicians which they have experience to share their expert and their experience on mathematics development, not only in their field, but also in organizations, communication and supporting activities as a women mathematicians. The speakers in this meeting came from Philippines, Thailand, Malaysia, Cambodia, Indonesia and Turkey.

A short report of academic activities:

The S E A W M[2] was attended by 109 participants including the speaker both of women a n d m e n mathematicians. They came from developing and developed countries as an invited speakers (7 persons: *Kiki Ariyanti Sugeng*-Indonesia, *Maslina Darus*-Malaysia, *Wanida Hemakul*-Thaliand, *Marian Roque*-Phillipines, *Intan Muchtadi*-Indonesia and *Ayesha Asloob Qureshi*-Turkey to share their expert and their experience on mathematics development, not only in their field, but also in organizations, communication and supporting activities as a wom e n mathematicians, also *Ngeth Youdarith*-Cambodia as a men mathematicians.

Conclusions and recommendations:

The result of the discussion of the SEAWM[2] showed that there is **no gender issue for women and men mathematicians in ASEAN countries**. It have seen an increase in the number of women doing active research in mathematics despite some challenges. Although there is no apparent prejudice against women in ASEAN country and opportunities for growth are equally available to both men and women in mathematics, women still face gender-based obstacles which could restrict their growth as mathematicians. It should be more supported by the government and also from society for women mathematicians to increase the role of mathematicians at ASEAN countries.

The participants of the SEAWM[2] 2019 also have a discussion that the women mathematicians meeting should be done further in ASEAN countries inline with the activity of mathematicians both of women and men in international conference at a certain country each 3-4 years.

B. ARGENTINA

Event : "Sumando género y diversidad" is the name of all activities in the meeting of women working in Math, coming from Argentina and Chile. **From 24th to 27th September 2019** took place in **Mendoza, Argentina**, the Meeting (called SUMA) between the Math. Associations from Argentina (UMA) and Chile (SOMACHI). Women of both countries were invited to participate to several activities organized by the Committee of Gender of the UMA. Notice that in Spanish SUMA is the addition, and the the Gender activities were unified under the name "Adding gender and diversity". The host institution was the National University of Cuyo. Some activities were given during the Math. Meeting and also in parallel schedule.

Contact Information: Gabriela Paola Ovando, Universidad Nacional de Rosario y Conicet. Address: Dept. de Matemática, ECEN – FCEIA. Pellegrini 250. CP 2000 Rosario. Santa Fe. Argentina.

Email: gabriela@fceia.unr.edu.ar

Supported Activity Details

In the morning of Tuesday 24th September were organized a meeting for Women and dissidence, which was attended by around 70 persons. The inaugural act of the Math Meeting SUMA was at 2:30 PM. So that the rest of Gender activities took place during the meeting and all mathematicians had the opportunity to participate, men, women and dissidence, also researchers (in Math and Math Education) and teachers from primary and secondary schools. Participants were from both countries, Argentina and Chile.

The **Gender Committe of the UMA** (coordinated by Gabriela P. Ovando) and the **Colectivo de Mujeres Matemáticas de Chile** invited to all organized gender activities. From Chile was Andrea Vera and Maria Isabel Cortez, who also organized the Dynamical System Session in SUMA.

From 24th September to 27th September all participants of "Sumando Género y diversidad" were free of attending several math sessions, lectures, round-tables. Also in Math education. The program of SUMA 2019 can be read at

http://www.union-matematica.org.ar/suma2019/suma2019.html

Local organizers for Gender activities were Yanina Gonzalez and Celeste Calderon. More than 100 women participated in Gender activities organized during SUMA 2019. See details.

A short report on activities about women in mathematics.

Tuesday 24th September, from 9 -12:30 AM: **Meeting for Women and Dissidence.**

The Colectivo de Mujeres Matemáticas de Chile and the Gender Committee of the UMA prepared presentations of their history, activities and organizations. The structure and questions in which they are working in were explained to the participants (more than 70).

Also a Workshop organized by the Free Women (Mujeres Libres) Program of the National University of Cuyo took place at this day. The participants were able to talk about experiences and difficulties related to gender and sexual choice in jobs and work relationships.

There was a participant from Uruguay, who brings into consideration actions and organization in her country.

Wednesday 25th September: **About the gender perspective in Mathematics**

This was a workshop carried out by Beatriz Argiroffo, Beatriz Introcaso and Maria Eugenia García. It was organized in two blocks of 80 minutes each of them. In the first part it was given an introduction of the notions of gender and legislation in Argentina concerning no discrimination of women and dissidence and to introduce gender perspective in schools and other institutions. There were around 70 participants (and not all the same as in the previous day).

Beatriz Argiroffo is Bachelor of History of the National University of Rosario (UNR). Argentina. She is activist for comprehensive sexual education at schools.

Beatriz Introcaso is PhD in Engineering of the UNR, Argentina. She works in Math Education and she integrates several Women nets.

Maria Eugenia García is PhD in Mathematics of the National University of La Plata (UNLP), Argentina and she leads the Office of Gender and Sexual Diversity of the Exact Science Faculty of the UNLP.

Thursday26th September: **Round-table: Gender and Mathematics.**

With Alejandra Ciriza, Anabella Benedetti and Florencia Rovetto, from 2:30PM to 4:20 PM.

Alejandra Ciriza is PhD in Philosophy, specialist in Feminist studies. She has several works in Latin America Perspectives about feminist genealogies.

Anabella Benedetti is part of the team for the UNESCO Chair Woman, Science and Technology in Latin America in FLACSO.

Florencia L. Rovetto, leads the Gender and Sexuality Area of the National University of Rosario, Argentina. She is PhD in Journalism and Communication Sciences, Master's Degree in Research Initiation Journalism and Communication Sciences and Master's Degree in Communication and Education.

Around 50 participants. All activities were open without previous registration (except the meeting on Tuesday). Any participant of SUMA was able to come to these activities.

Math. Academic activities: were organized by the UMA and SOMACHI, see the link:

http://www.union-matematica.org.ar/suma2019/suma2019.html

no extra academic activities were organized only for women and dissidence.

On Tuesday 24th was held the annual assembly of the UMA. A main topic was the reform of the UMA statute. *We got a new article on Gender with aim of promoting better conditions for women, equity and elimination of violence and sex-gender discrimination.*

Conclusions and recommendations:
  Participants expressed
- **importance of all activities**: comments about the organized activities (workshops, round-table) were positive and promote the continuity.
- **necessity of more time**: several topics were out of program and schedule. However the program was narrowed according to some priorities.
- **necessity of these activities in regional meetings of Math. :** both the Colectivo de Mujeres matemáticas de Chile and the Gender Committee of the UMA will promote activities on Gender topics for Math. meetings, possibly at UMALCA. This will reinforce the existing networks among women mathematicians in Latin America and will promote better conditions for women in general, to improve their careers, workplaces, and lives.

C. SOUTH AFRICA

Title, location and dates:
African Women in Mathematics Conference, South Africa, Stellenbosch, 2010-07-02 to 2019-07-05

Contact Information: Karin-Therese Howell, Mathematics Division, Stellenbosch University, South Africa, kthowell@sun.ac.za.

Supported Activity Details: 36 women attendees, with some day visitors.
Countries represented: Madagascar, Ghana, South Africa, Kenya, Nigeria, Benin, Cameroon

A short report on activities about women in mathematics:

Professor Ingrid Rewitzky (Stellenbosch University, South Africa) gave a plenary talk about her journey as a women mathematician.

Professor Nouzha El Jacoubi, the first female president of the African Mathematical Union, spoke about the African Mathematical Union and women in mathematics in Africa.

Mathematics and Development: African Challenges and prospect, the expected input of African Mathematical Union

Africa has vast natural and human resources that remain largely underdeveloped and untapped due to a number of issues and challenges. The socio-economic growth of the continent could not be reached without focusing on Sciences, Technology and Innovations (STI), and Mathematics are at the heart of STI. According to some studies, almost 50 % of the identified key technologies, are strongly dependent by advances in mathematics, and many industries, such as energy, health and telecommunications, require increased mobilization of some major mathematical specialties. The African Mathematical Union (AMU), in its capacity as a continental mathematical association, created in 1976, should have a new vision of strengthening mathematics in Africa, to let Mathematics and its applications play a major role in meeting the industrial and societal challenges of this millennium.

There were three panel discussions:

1. Discussion with the equality unit

During the first panel, we sat with a member of the equality unit of Stellenbosch University. The aim was to understand the challenges of maintaining equity in a department. We invited members of the conference to participate and also present where possible, the measures taken in their respective universities (successful and unsuccessful) and learn from them.

2. Discussion about work/life balance

During the second panel, we spoke about balancing life as a researcher and/or academic. Being an academic is quite challenging, the hours are so flexible that it is easy to work all the time, or never. It could be quite difficult to find a healthy balance between life and work. We are also often hesitant to admit burnout, breakdown in the fear of how others might label and perceive us. We sat with two psychologists and fellow colleagues. Together with the delegates, we discussed healthy coping mechanisms and strategies to avoid depression and breakdowns.

3. Discussion around experiencing and dealing with inequities

During the third panel discussion, we shared our personal experience as women mathematicians, trying to remember those small, or big inequities we suffered. We shared the solutions we have identified to improve the equity between men and women in our workplace, with a focus on sharing advice with the younger generation present in the audience.

A short report of academic activities: Professor Nancy Neudauer (Pacific State University, USA) presented a plenary talk on graph theory. 19 mathematical talks were given, covering topics like algebra, discrete and applied mathematics. In addition, there were 4 academic posters displayed in the tea room for discussion.

A three day Matroid seminar was offered by Prof Nancy Neudauder.

Conclusions and recommendations:

We are planning to have another conference in the near future and hope to secure sponsorship to allow more postgraduate students to attend. Our aim is to offer more seminars and use the feedback from delegates to improve and grow the conference.

D. INDIA

Title, location and dates:

Indian Women and Mathematics (IWM) Annual Conference 2019, Department of Mathematics, Indian Institute of Technology (IIT) Bombay, India, 2019-06-10 to 2019-06-12
A website was created for publishing the conference details online. The website link is https://sites.google.com/view/iwm2019/

Contact Information:

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Supported Activity Details:

There were 234 applications for participation in the conference, of which 51 candidates (45 female and 6 male) were selected. In addition to these, there were 13 invited speakers at the conference. So there were 64 registered attendees (who were given a registration kit) in the conference.
Among the 51 selected attendees, 36 gave paper presentations, 4 gave poster presentations and 11 participated.
Overall, there were 3 international attendees (2 from Nepal and 1 from Bangladesh) who were sponsored by IMU CWM, and 61 Indian attendees.
In addition, there were also 16 local attendees from Mumbai and IIT Bombay who had not registered but attended several sessions.
So there were a total of 80 attendees in the conference, registered and unregistered combined.
Participation certificates were provided to the attendees of the conference.
The money was used to support 3 participants from SAARC countries (2 from Nepal and 1 from Bangladesh) - the left over money will be used to do similar supports in the regional workshops.

A short report on activities about women in mathematics

The second day of the conference had two parallel interactive sessions. The participants and resource persons were divided into subject groups based on their research areas: (a) analysis, differential equations, optimization, and (b) algebra, number theory, geometry and graph theory. These groups discussed mathematics problems and other issues related to women in mathematics.

A short report of academic activities:

The conference mainly comprised of 3 plenary talks, 4 invited talks, 5 talks by young mathematicians, 1 mini course comprising of 3 lectures, 36 paper presentations and 4 poster presentations. The plenary talks, invited talks, talks by young mathematicians and the mini course were organized for all to attend, and the paper presentation talks were organized via three parallel sessions on all three days of the conference. The poster presentations followed the parallel sessions on the first two days.

Conclusions and recommendations:

The feedback from the attendees was overwhelmingly positive on the aspects of organization of the conference, mathematical content discussed and the utility of the conference to the attendees. The attendees unanimously expressed interest in being a part of more conferences of this kind.

The following activities were also held:

a) **Regional Mini-Workshop** at National Institute of Technology (NIT) Meghalaya, India, during October 19-20, 2019. The format for such a mini-workshop involves lectures — usually 5 to 6 in number — delivered by well-known mathematicians from different parts of the country. The programme also includes a panel discussion where women mathematicians share their views and experiences. Young researchers will be encouraged to interact with senior mathematicians and will be given an opportunity to present their mathematical work during a poster session. The details about the workshop are available at http://nitmeghalaya.in/IWM/index.html.

b) **6-day Mathematical Workshop** at Indian Institute of Science Education and Research (IISER) Thiruvananthapuram, India during December 16-21, 2019. The workshop is meant for second year undergraduates from across the country, and envisages lectures and tutorials/problem-solving sessions on 1 or 2 selected themes in mathematics. These will be themes in higher mathematics that rely on what the participants know in mathematics at their level of studies and complement what they study as undergraduates. The goal of these workshops is to deepen and widen the participants' insights into mathematics. This goal is based on the feedback received from younger participants at the IWM

annual conferences of the last three years, and on deliberations of the IWM National Executive Committee, that the deepening and widening of mathematical insights that such workshops can offer is effective in persuading young women to pursue higher studies and careers in mathematics. The format of this workshop involves two 1.5-hour lectures and two 1-hour tutorials/problem-solving sessions. Established Indian mathematicians will serve as resource-persons for these workshops. The details of this workshop are available at http://workshop.iisertvm.ac.in/womeninmath.2019/

c) **Visitors Programme**: It is envisaged that an internationally established woman mathematician (from India as well as abroad) will be invited to deliver lectures in an institution in one metro city and two other institutions in the same region in non-metro locations to promote and popularise mathematics research amongst women students.

E. DOMINICAN REPUBLIC

Title, Location and Dates:

- **Name:** First International Meeting of Integration of Dominicans Women in Mathematics
- **Country and city:** Dominican Republic, Santo Domingo
- **Date:** From 2019-07-11 to 2019-07-12

Contact Information:

- **Name:** Dra. Elizabeth Rincón
- **Address:** Calle Rosa Duarte #12, Gazcue, Santo Domingo, Dominican Republic
- **E-mail:** te10elirisa@gmail.com

Supported Activity Details:

- **Number of attendees:** 105 persons.
- **Number of women attendees:** 71 women.
- **Countries represented:** Dominican Republic, Cuba, Mexico, El Salvador and Uruguay.

Report on Activities About Women in Mathematics

Dra. Lillian Alvarez made a presentation of the CWM Women's Mathematics Committee, where the main objectives of the organization and a bit of its history were presented.

Two conferences were given: ''Women in Science and Mathematics'' by Dra. Gabriela Araujo and ''Do women serve for the sciences, what does history say? The particular case of Cuban women scientists, yesterday and today'' by Dra. Lillian Alvarez.

Dr. Zelmira May presented to the attendees the purposes of UNESCO regarding the need to encourage girls in the incursion into science and the main challenges to achieve it.

Dra. Gabriela Araujo presented the video summary of the ''Women in Mathematics in Latin America: Barriers, Advancements and New Perspectives'' meeting held in Oaxaca, Mexico.

The First Network of Mathematical Women of the Dominican Republic was formed.

Report of Academic Activities

The keynote conference "Theory of numbers and development of mathematical thinking in students" was delivered by Dr. Geremias Polanco.

Four simultaneous workshops were developed on: ''Connections: Limit-Continuity-Differentiability-Integrability'', ''The L'Hopital rule'', ''Strategy for the identification and application of Gamma and Beta functions'', and ''Integration by parts''.

The work and objectives of the International Council for Science were announced as well as the importance of mathematics for the organization as one of its main axes of development in the region.

To end the activity, an open forum was held chaired by the lecturers who talked about the challenges that must be assumed to continue inserting women in this area, the importance of this event and the challenges to achieve it.

Conclusions and Recommendations

The main conclusions

- The event has become a space for socialization and awareness of the importance of women incursions in scientific fields, knowing that they have the same abilities as men to develop efficiently in these tasks and that there are no limitations just because they are women.

- Attendees feel deeply grateful to be able to participate in this event and commit themselves to the dissemination of these women-science ideas in their respective work spaces.

- Formation of the First Network of Mathematical Women of the Dominican Republic.

- It is considered very important the need to involve women in mathematics and their integration into networks, circles and associations that work for the integration of women in mathematics.

Regarding recommendations

- Increase the number of mathematical women in the Network formed.
- Attendees should serve as multiplier channels for the ideas discussed in this first meeting of Dominican women in mathematics.
- Hold meetings periodically to exchange ideas and discuss the importance of women's participation in mathematics and other sciences.
- Participate in international events where ideas can be deepened and do activities that contribute to women in their scientific participation.
- Strengthen ties with international women's associations in mathematics.

F. CAMEROON

Title, location and dates: Regional workshop: *Women in Mathematics for Information Security in Africa*, Cameroon, Limbé, from 2019-07-13 to 2019-07-14

Contact Information: Aminatou Pecha, University of Maroua, President of CAWOMA, aminap2001@yahoo.fr.

Supported Activity Details:
- Number of attendees: 37,
- Number of women attendees: 27,
- List of Countries (or States) represented: 14.

A short report on activities about women in mathematics:
There was a presentation of on the Film: *Journeys of Women in Mathematics*. The film presents the daily life of three women mathematicians coming from Africa, Asia and South America and also testimonials of various women mathematicians from various parts of the globe. This was followed by presentation of executive office of CAWOMA by Mrs. Anne Hanwa. In the same occasion she presented also a successful balance-sheet of activities of the past two years in high schools and universities in the northern part of the country. In addition, she lifted out the difficulties encountered throughout the mandate. There was also a roundtable with a discussion about CAWOMA and women mathematicians in central Africa. During this debate, the problems encountered by girls and women in mathematics were raised, namely:
- the stigmatization of the scientific girl and women in our African societies;
- the presentation of the problem of low attendance rate of girls in high schools and universities;
- the gender gap between boys and girls in our education system;
- the remediation methods of the low presence of girls in scientific fields;
- the lack of financing support higher education.

Some solutions sketches were thus proposed in assembly:

- the presentation of mathematics applications to high school students as a source of motivation;

- the importance of mathematics in society, its impact on the management of resources;

- discussion of the epistemology of some female mathematician as a source of motivation;

- integration of the international dimension into the quality of mathematics education;

- presentation and debate on promising professions for profiles of mathematicians in Africa and Cameroon;

- set up projects to reduce the abstraction of mathematics;

- creation of language programs and clubs for mathematics.

A short report of academic activities: There were some invited lectures:

Dr. Emmanuel Fouotsa from University of Bamenda - Cameroon, on "*Efficient Computation of the Final Exponentiation in Paring-Based Cryptography*". For him, the deployment of pairing-based protocols on real world applications requires a very efficient computation of such maps (pairings). Their computation is based on the execution of the Miller algorithm whose several improvements have been done. The output of the Miller algorithm is raised to a certain power which can be divided in two parts: the result of the output is called the final exponentiation. Some algorithms, proposed to faster squaring in some cyclotomic subgroup, can be adapted to accelerate the final exponentiation step of pairing computations.

Prof. Fatma Zohra Nouri from University Badji Mokhtar - Algeria, on: "*Stabilized Numerical Methods for a Pollution Problem*". She presented a system of partial differential equations that models the organic pollution in lakes or estuaries and a a stable scheme based on finite element discretization to demonstrate optimal a priori and a posteriori error estimates.

Prof. Tony Ezome, from Université de Libreville- Gabon on the theme "*Some Algorithms for Prime detection and Primality Proving*". He was concerned with algorithms to determine if a given integer is prime or composite. For that, he described the Miller-Rabin test and the Pocklington-Lehmer algorithm and used Galois ring extensions of the ring of integers and how to use them for prime detection and primality proving.

Prof. Josephine Guidy-Wandja from Université d'Abidjan – Côte d'Ivoire on the theme "*fractal discovery*". She noticed that the Euclidean geometry mainly studies smooth and regular shapes such as straight lines, circles, rectangles, cubes, cones, etc. But the objects or phenomena of nature are not all smooth and the real world is also filled innumerable iterations and objects that are sometimes serrated, pointed, curved, rough, and almost at all scales. This led to the definition and studies of fractals, fin a first time by the mathematician Benoît Mandelbrot, who was interested in the objects of nature that Euclidean geometry could not describe.

There was also contributed talks:

- Dr. Entissar Arasheed Sidahmed from University of Bahri - Sudan on "*Applications of number theory in Cryptography*"

- Dr Nfor Vivian from University of Bamenda - Cameroon on "*Approximate Solution for solving Fredholm Integral Eq. of 1ˢᵗ Kind with Oscillatory Kernels*".

- Prof. Samuel Lelièvre from Université de Paris-Sud - France on the software "Sage", the community of users of "sage", women in sage and sage in Africa.

- Dr. Faguèye Ndiaye from Université Cheikh Anta Diop - Senegal, on "Conformal Transformation Method for irrigation Dirichlet Problem"

- Mrs. Joseline Youego from Université de Ngaoundéré on "Supersingular Elliptic Curves in Cryptography".

Conclusions and recommendations:

CAWOMA is planning to extend activities like conferences in high schools, mentoring, and grants to some girls coming from poor families.., already implemented in the northern part of Cameroon, to the whole country.

SCHOOL

G. TUNISIA

Title, location and dates:

International School on Dynamical Systems and Applications

Country and city of activity : Tunisia, Monastir

Dates of activity : from (2019-09-06) to (2019-09-10)

Contact Information:
Name : Selma Negzaoui,
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Supported Activity Details:

Number of attendees: 31

Number of women attendees : 26,

List of Countries (or States) represented : Tunisia, Algeria, Morocco, Benin, Portugal.

A short report on activities about women in mathematics:
The opening event of the School was dedicated to Women in mathematics. About an hour of talks given by the direction committee of TWMA started by welcoming words and a presentation by the president of TWMA Selma Negzaoui.
The talk started by a question : is it interesting to create an association for women in mathematics? The goal of such associations? How can the association play a role to promote mathematics for younger and especially for women? Some statistics in Tunisian institutes were shown in addition to the most relevant activities of TWMA association. Especially, the TWMA Awards wich are :
Local awards : Best PhD thesis for tunisian women in pure and applied mathematics.
The laureates of these Awards for the third edition 2018 was announced :
Dr. Asma Rouatbi (University of Sfax) is the laureate in Applied mathematics and Dr. Meriam Bousoffara (University of Sfax) is the laureate in Pure mathematics.
Dr. Khadija Mbarki gives an overview about the international Fatma Moalla AWARD on popularization of mathematics, initiated by our association in 2017 by Dr Saïma Khenissy.
Dr. Loubna Ghammam witnessed her experience in private international institution with majority male environment and she showed how mathematics is useful for economic development.
Further more, in the second day of the school the 7th of September 2019 at 19h00, TWMA organized its general Assembly : questions about managing the TWMA association were discussed. The financial and activity reports of the last year were approved.

A short report of academic activities:

The main goal of the International school on Dynamical systems and Applications is to promote, encourage, cooperate, and bring together researchers in the fields of dynamical systems. Different areas of dynamical systems were presented with special emphasis in applications. It was mathematically enriching and socially exciting event.

The five-day scientific program ran from September 6 till September 10, 2019. It consisted of three mini-courses in dynamical systems presented in the mornings by
1. Sandra Pinelas (Portugal) "MATHEMATICS IN BIOLOGICAL SCIENCES".

2.Shehrazad Selmane (Algeria) "MATHEMATICAL MODELLING OF INFECTIOUS DISEASES »
3. Nahla Abdellatif (Tunisia), "MODELES DE COMPETITION ENTRE ESPECE MICROBIENNES DANS UN CHEMOSTAT ».

In the afternoon, we welcomed five invited lectures given by : Hasna Riahi, Hiba Hammedi, Nadia Chouaib, Ahleme Bouakkaz and Zeineb Ghardallou.

Also twenty contributed talks where given.
More details about the scientific program can be found in www.tunwma.tn

Conclusions and recommendations:
The school was a successful event.
Indeed, the courses were complementary and well ordered. The attendees expressed their satisfaction.
The schedule of the scientific program is well respected.
Our association collected new memberships.

Due to lack of resources, we weren't able to pay travel expenses for a number of African students who applied for grant.
Number of participants in the school is less then expected, so, in the forthcoming events, we recommend online payment of inscription fees.