



## Editorial To The Fifth Issue

Dear Reader,

It is our great pleasure to welcome you to the fifth issue of the CWM newsletter.

As in the previous issues, we start the newsletter by an interview with a CWM member, Motoko Kotani. She tells us about her successful career with interdisciplinary aspects and her service to the mathematics community. We then continue with “News From CWM”. This includes the results of the funding call for 2021, announcement of the second World Meeting for Women in Mathematics and summary of the virtual CWM ambassadors meetings. The external article of this issue is a celebration of the ‘50th year of the Association for Women in Mathematics (AWM)’ and is written by three former presidents of AWM: Georgia Benkart, Kristin Lauter, and Sylvia Wiegand.

In addition to these, we have many other news and announcements. There have been many outstanding women mathematicians who have been awarded important prizes. Also, the AWM-AMS Noether Lecturer and AWM-SIAM Sonia Kovalevsky Lecturer have been announced. On February 11 2021, the International Day of Women and Girls in Science was celebrated by activities around the world. You can find a summary of all these great achievements and announcements in the “Other News” section. In the same section, you can also find information about two projects related to the Covid-19 Pandemic. The first one is a call by the Standing Committee for Gender Equality in Science and the second one is a film project “Words of Women in Mathematics in the Time of Corona”. We encourage all readers to disseminate the outcomes of these projects and if possible to participate in these projects.

We invite your feedback and suggestions about the Newsletter. Hope you enjoy reading it! Please distribute it in your country and your scientific network.

Ekin Ozman

## Interview with Motoko Kotani



We continue our interview series with Motoko Kotani, member of CWM. Prof. Kotani is working at Mathematical Institute of Tohoku University, Japan. In addition to these Prof. Kotani has many other professional duties as a director of Advanced Institute for Materials Research of Tohoku University, as an executive member of the Council for Science, Technology and Innovation of the Cabinet Office of Japan and as a trustee of Mathematical Society of Japan.

Prof. Kotani works in the broad area of geometric analysis. Her work has also interdisciplinary aspects with applications in material science. She has published numerous papers in international journals of high repute both in mathematics and

material science. Prof. Kotani won prestigious awards for her mathematical work and also her interdisciplinary contributions.

**Q:** Could you tell us how you got into math? What made you a mathematician? When did you decide to become a mathematician?

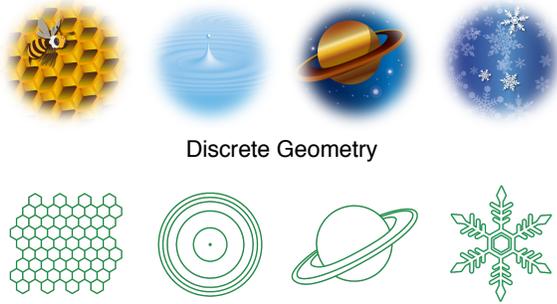
**MK:** Since I was a junior-high-school student, mathematics has been my most favorite subject. The math teachers back then encouraged me to study advanced mathematics. Gradually I came to believe mathematics is a key to access the universe. Mathematics is the law of the universe as was put by Galileo Galilei. It becomes my first priority to do my best to contribute to its development.

**Q:** Did you have any role models? (male or female?)

**MK:** Not a role model, but I like reading essays by Dr. Shinichiro Tomonaga, a Japanese theoretical physicist, who was awarded the Nobel Prize in Physics in 1965 together with Dr. Richard Feynman and Dr. Julian Schwinger. The diary he kept during his stay in Germany showed us his agony in his struggle to shape his famous theory. It shows how painful it is to give birth to a new notion which is just too attractive to give up.

**Q:** Can you tell us about your research? What attracted you to this area of mathematics?

**MK:** I am a geometer working in the area of geometric analysis. Since around 2000, I have been working to develop discrete geometric analysis, a discrete version of geometric analysis. I did not know anything but mathematics and was motivated only



Discrete Geometry

by pure mathematical interest before I encountered questions in materials science. In modern materials science, understanding the relation between microscopic structures and macroscopic properties of materials is of increasing importance due to advances in observation and control technology at small scales. I found mathematical theory useful to bridge between different scales, and I started a collaborative project with materials

scientists entitled « study of crystal lattices via discrete geometric analysis ». I was awarded the Saruhashi prize for this achievement.

In 2012, I was invited to become director of the Advanced Institute of Materials Research (AIMR) at Tohoku University, which had been established in 2007 under the government program « World Premier International Research Center Initiative ». The AIMR aims to develop a new materials science centre by promoting interdisciplinary collaboration between materials scientists. Initially it was difficult for these scientists from different disciplines to communicate. In 2011, the institute decided to invite mathematicians to assist communication, believing that mathematics is a common language for science. That's how I became the AIMR director. We were lucky. Soon after I started, we managed to solve a 50 year old problem, and publish the results in *Science* in 2013. This was the first fruits of our collaborative challenge. These days I write papers in both Mathematics and Materials Science (not listed in MathSciNet), and for me there is no distinction between pure and applied mathematics. I am happy to do math, of any kind, if I find it interesting.



**Q:** Other than being a CWM member, you have many responsibilities in different organizations such as Advanced Institute for Materials Research, Tohoku University, Council for Science, Technology and Innovation and Mathematical Society of Japan. How do you balance all these duties?

**MK:** It is true that I have less time for research than I did when I was younger. I am taking care of several government-funded research projects, and at the same time I participate in science and technology policy-making in Japan (Council for Science, Technology and Innovation (CSTI) under the cabinet office), and in university management (Executive Vice President for Research of Tohoku University, a part-time member of the Board of Governor of the Okinawa Institute of Science and Technology (OIST), etc.) However I don't work alone. I enjoy very much discussions with young mathematicians and my students on research projects ; as well as working with team members from the government on policy-making, and with university colleagues on establishing a better research environment. I am encouraged and motivated by opportunities to contribute, even a small amount, to science and mathematics in a wide sense, and also I feel inspired when communicating with young people.

**Q:** Have you faced any challenges as a woman in mathematics? If yes, did you have other kinds of support through these challenges, if any? If you do not mind, can you tell us about your own family life ? Do you have a spouse or children? Was it difficult to combine this family life with your mathematical career?

**MK:** I do not have a family. When I was young I was not confident that I could handle a good balance between work and life, and I missed the chance to have a family.

“We are in the era of the digital transformation based on big data and the advances of ICT and AI. A new society is waiting to be shaped. We are at the tipping point.

Mathematics is expected to contribute with new ideas and new visions, and to give a good perspective for our future. ”

Therefore I cannot say I understood fully what difficulties working women researchers encounter. In 2006-2009, I lead the project « Mori-no-miyako projects for women researchers » to establish a life-work environment at Tohoku University which would support women researchers (not only in mathematics but in the all research areas including experimental science) . Through these projects, I had frequent opportunities to talk with young researchers and students, and I slowly realized how much worry and difficulty they faced in their work. Tohoku University initiated several actions in Japan : kindergartens on campus, flexible working hours, support for researchers with children. Tohoku University has sent female graduate students, in different research areas, to high

schools and junior-high schools as diverse role models to encourage girls to enter in science.

In 2017-2019, when I was Executive Director at RIKEN (a national research laboratory for natural science) for international relations and diversity, a successful initiative was introduced to promote outstanding women in research. It was named the Sechi Initiative after Sechi Kato, the first female principal investigator in RIKEN. Japan is still quite behind in gender issues. During the pandemic, women and young people suffer more. I wonder daily how I can reach out, and what I can do to improve the situation for them.

**Q:** Motoko, you were the first woman to become president of the Mathematical Society of Japan. Can you tell us how that came about, and tell us about the situation for Japanese women in mathematics in general.

**MK:** The Mathematical Society of Japan has a 140 year history and has more than 5000 regular members. It has excellent women members, although the proportion of

women is very low. I do not know if I was « qualified » but I feel honored to have served as its president. I happen to be the first woman president, but I am surely not the last.



**Q:** You are chairing the organization committee for the virtual meeting CWM ambassadors in Asia, while there is currently no regional network for women in mathematics in Asia, what do you expect from the meeting ?

**MK:** There are 25 countries and regions in Asia which have CWM ambassadors. Each country in Asia has its own culture and situation, but there are also common issues to discuss together. Because we women mathematicians do not have opportunities to meet across research areas, it would be beneficial to have a platform for us to gather

and share information, knowledge and experiences. We had a forum on gender issues at the 2016 Asian Mathematical Conference (AMC) in Indonesia. I enjoyed it very much.

The idea of having the first meeting of CWM ambassadors in Asia (June 25-26, 2021) was suggested by Dr. Kyewon Park from Korea. She played a central role in the establishment and organization of KWMS (Korean Women in Mathematical

Sciences), and she knows how important it is to have a network for women in mathematics from her own experience in Korea. I was fascinated by her passion.

We formed the organizing committee with Sanoli Gun(India), Le Thanh Nhan (Vietnam), Kyeown Koh Park(Korea), Polly Sy (Philippines), Dongmei Xiao(China) and myself, and we have had several on-line meetings to prepare for the first meeting of CWM ambassadors in Asia. Dr. Marie-Francoise Roy, the chair of the CWM, informed us about activities taken in CWM and in other regional organizations such as EMS and AWM. During the meeting, we expect to hear from the CWM ambassadors about the situation in their countries, and to exchange opinions on how we could establish a network among us in Asia. I am very much looking forward to it.

**Q:** What advice would you give to a beginning male or female graduate student/early career researchers in mathematics?

**MK:** If you like mathematics, do not hesitate. You will like it more through your whole life. You will also contribute to society. Mathematics has a long history of providing a common language for science and technology. Through each paradigm shift, mathematics has played an essential role. At the same time mathematics has been inspired and transformed by its interaction with science and technology. Now we are in the era of the digital transformation based on big data and the advances of ICT and AI. A new society is waiting to be shaped. We are at the tipping point. Mathematics is expected to contribute with new ideas and new visions, and to give a good perspective for our future. Your original ideas will be part of this transformation.





## • **World Meeting for Women in Mathematics 2022**

(WM)<sup>2</sup>, the [World Meeting for Women in Mathematics](#), is organized every four years by IMU's CWM as a satellite event of ICM. The first meeting was in Seoul in 2018 and the second [World Meeting for Women in Mathematics - \(WM\)<sup>2</sup>](#) - will take place in Saint Petersburg, at the Expoforum convention and exhibition center, on July 5 2022, the day preceding ICM 2022.

Registration for (WM)<sup>2</sup>, is not open yet. However, you can already indicate your interest in attending (WM)<sup>2</sup> when you pre-register for the ICM, or apply for a Chebyshev or Kovalevskaya grant, in your personal ICM account. People who receive a Chebyshev grant and who are approved by (WM)<sup>2</sup> will be offered two items: registration fee to (WM)<sup>2</sup> and one night of accommodation added to what grant recipients already receive by attending the congress. The organizers have extended the deadline for applications for the Chebyshev Grants (targeted for developing countries) to **31 May 2021**, with applications received before this date being given priority. Note that you should register first for the ICM before applying for a Chebyshev grant. The Kovalevskaya Grants will cover the congress fee and local expenses for up to 1,000 early career mathematicians from developed countries, on the condition that their home country undertakes the selection of recipients and covers their travel. Specifically, the grants cover the registration fee, accommodation, and meals for the duration of the congress. Several mathematical societies have already confirmed their participation.

Please refer to the [website](#) where the latest information will appear regarding the procedure for all grants available for the ICM 2022.

## • **CWM supported activities in 2021**

In 2021, CWM call received 23 applications of which CWM decided to support 6 projects. CWM is supporting AWMA's proposal for a special day for women in mathematics at the Pan African Congress of Mathematicians PACOM 2021, a project of several regional women in mathematics associations organizing jointly the May 12 initiative to upgrade the reporting mechanism of the website, as well as the second phase of the exhibition project, "МАТЕМАТИКА, through a land of mathematics," to be premiered at (WM)<sup>2</sup> in Saint Petersburg and ICM 2022. The project proposed by

Indian Women in Mathematics and two thematical mathematical activities in Latin America and Pakistan were approved. Two other activities are also supported by CWM in 2021: the film project "Words of women in mathematics in the time of Corona" and CGD-Umalca activities.

### **CGD-Umalca**

In September 2020, UMALCA (Unión Matemática de América Latina y el Caribe) set up the Commission on Gender and Diversity (Comisión de Género y Diversidad de Umalca, CGD-Umalca). CWM support covers the professional training on how to deal with situations of harassment and gender violence for the Latin American meeting of CWM Ambassadors. More information can be found under the title of "Launching of CGD-Umalca" in "Other News" section of the newspaper.

### **Film "Words of Women in Mathematics in the Time of Corona "**

Follow up of the film "Faces of Women in Mathematics" supported by CWM in 2018.", with words of women in mathematics, sharing their experience during the pandemic. More information can be found under the title "Film project "Words of Women in Mathematics in the Time of Corona" in "Other News" section of the newspaper.

### **May 12 initiative**

May 12 is the birthdate of Maryam Mirzakhani. [May 12, Celebrating Women in Mathematics](#) is a joint initiative of European Women in Mathematics, the Association for Women in Mathematics, African Women in Mathematics Association, Indian Women and Mathematics, Colectivo de Mujeres Matemáticas de Chile and the Women's Committee of the Iranian Mathematical Society. CWM funding is intended to upgrade and make permanent the initiative's website. More information about 2021 events may be found under the title "May 12 initiative in 2021" in "Other News" section of the newspaper.

### **Congo (Worskhop for African Women in Mathematics at PACOM 2021)**

CWM supports the funding of a one day event organized jointly by the African Women in Mathematics Association (AWMA) and The Commission of African Women in Mathematics in Africa (AMUCWMA) in the occasion of the 10th Panafrican Congress of Mathematics in 2021 (PACOM 2021).

### **India (Support to IWM)**

CWM funding will be mainly used by Indian Women in Mathematics for their website, logo development and virtual conferences facilities.

### **Indonesia (Workshop for Women in Math of Indonesian Math Society)**

The workshop activities aim to build attendees' research competence, discuss best practices in writing papers and research proposals, and foster cooperative relationships between attendees. Following these activities, attendees will be able to share the work they have done in their respective fields.

### **Pakistan (for Post-graduate students in Lahore)**

A 5-day event in the fall of 2021 consisting of lectures, workshops and roundtables which would enable female postgraduate-level students of mathematics to converse with a number of well-established, successful female mathematicians.

### **Russia (Creation of an exhibition)**

МАТЕМАТИКА, through a land of mathematics, is approved as a (WM)<sup>2</sup> 2022 and ICM2022 Exhibition.

The goal of this three-year project is to discover and exhibit women mathematicians who work across Russia. Of particular interest will be their points of view on mathematics, what mathematics gives to them and to society, and how mathematics intertwines with their lives in the different cultural contexts of large Russian cities. The exhibit will furthermore explore how these women see mathematics and their role in mathematics research, communication and education.

The travel through Russia by train is planned for the fall 2021.

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## ● **CWM ambassadors virtual meetings**

CWM's dream to have a physical meeting of the 150 CWM ambassadors worldwide collapsed with the pandemic. But we did not give up the idea of creating an active network of CWM ambassadors and we are currently organizing virtual meetings per continent, to be followed at the end of 2021 by a global gathering with representatives from the continents. The scheme we proposed for the first phase is to have two half days of virtual meeting organized in common by CWM and by the continental organizations for women in mathematics. The proposed content was a presentation by several ambassadors of the situation of women in math in their country and their initiatives as well as a discussion on the gender gap in science.

We started with Europe and co-organized two meetings with EWM. EWM has coordinators per country, which are in some cases also CWM ambassadors, or work most of the time in coordination with them. The activities were prepared by an organizing committee composed of Colette Guillopé, Kaie Kubjas, Houry Melkonian, Elena Resmerita, Galina Rusu, Marie-Francoise Roy, Elisabetta Strickland, and Maria Vlasiou. The meetings took place on March 16 and March 23, 2021. The first meeting was open and the invitation was sent widely through the EWM mailing list; it featured presentations by Colette Guillopé, Rachel Ivie, Helena Mihaljević and Marie-Francoise

Roy of the results of the **Gender Gap in Science Project**<sup>1</sup>, followed by a discussion. More than 85 women were invited to join for the second meeting and about 40 attended. The meeting started with six short presentations of initiatives for reducing the gender gap in mathematics in six European countries and was followed by a general discussion. The presentations were from Norway, Romania, Greece, Turkey, Ireland and UK, the idea being to present a variety of situations in terms of geography and history of activities for women in mathematics, and was followed by a discussion.

We continued with meetings in Africa, co-organized by CWM and AWMA. Given the division of Africa into anglophone and francophone countries, we had a total of three meetings, two in parallel for francophone and anglophone countries, on March 30 and April 1, and a global one on April 6. The francophone organization committee was composed of Tony Ezome, Anne Hanwa, Selma Negzaoui, Marie Françoise Ouedraogo, and the anglophone organization committee was Betty Kivumbi Nannyonga, Olubunmi Abidemi Fadipe-Joseph, Josephine Kagunda, Milaine Sergine Seuneu Tchamga. Marie Françoise Ouedraogo (connection permitting) and Marie-Françoise Roy attended and provided organizational help. The first meetings were devoted to presentations per country, slides on the gender gap in science in Africa, and the COVID crisis in Africa. The global meeting, held in English, again involved a few country presentations for those who were not able to attend previous activities, and a synthetic presentation of the discussions on each topic. As a whole, there were presentations from Angola, Botswana, Burkina Faso, Cameroun, Congo, Egypt, Gabon, Ghana, Ivory Coast, Kenya, Malawi, Mali, Morocco, Nigeria, Senegal, South Africa, Sudan, Tunisia, and Ouganda.

Similar meetings are being planned for Asia, Latin America, and North America.

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## OTHER NEWS AND ANNOUNCEMENTS

- [May 12 initiative in 2021](#)

At the end of April there were already more than 65 collective events registered on the May 12 initiative website, taking place all over the world, to celebrate in various ways Women in Mathematics. It includes a variety of activities, exhibitions, panel

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<sup>1</sup> [The Gender Gap in Science Project](#) is a multidisciplinary project in which eleven organizations contributed to the analysis of the gender gap in science from three complementary perspectives: The Global Survey of Scientists addresses issues related to the absence of role models, feelings of exclusion, harassment, low participation, and retention rates. The Study of Publication Patterns provides insights on the proportion of women as research authors or the presence of women publishing in top scientific journals. The Database of Good Practices introduces a conceptual framework to analyze good practices, in order to provide evidence of effectiveness and impact.

discussions, on line lectures, and the invitation to contribute to the film "Words of Women in the Time of Corona"

One specific initiative in 2021 is to offer individual free screening of the film "Picture a Scientist" through an agreement of the May12 Initiative with Roco Films (and France TV Access for the subtitles in french).

The documentary brings three women scientists who lead viewers on a journey deep into their own experiences in the sciences, facing harassment, institutional discrimination, and years of subtle slights. A moving and and thought-provoking film. More details at [pictureascientist.com](http://pictureascientist.com).

The screening is offered with subtitles in several languages (English, French, Spanish, Portuguese). Each registered person receives an individual link to watch the film free of charge once between May 12 and 14, 2021.

At the end of April several days before the end of the registration period, there were more than 2250 people registered (Female 72,57 %, Male 24,28 % Non-binary 1,05 %, Prefers not to say 2,10 %). Continent-wise, the proportion is as follows: Americas 41,08 %, Europe 32,37 %, Asia 19,73 %, Africa 5,07 %, Oceania 1,75 %. There are registered people from 105 different countries.

- **Launching of CGD-Umalca**

In September 2020, UMALCA (Unión Matemática de América Latina y el Caribe) set up the Commission on Gender and Diversity (Comisión de Género y Diversidad de Umalca, CGD-Umalca). The goal of CGD-Umalca is to promote equity, diversity and respect in activities and events organized by Umalca.

In 2017, Umalca created the "Protocol for the attention of situations of violence and gender discrimination or by sexual orientation, identity and gender expression to be applied in all Umalca events". One of the missions of CGD-Umalca is to seek the appropriate mechanisms for the resolution of complaints in accordance with the



guidelines of the protocol. The members of the commission are committed to these objectives, understanding that their main action must be preventive and educational.

CGD-Umalca has recently launched its [facebook page](#) and is preparing its first public activity in the scope of the May 12 Celebration of Women in Mathematics. The virtual event will take place on

May 17 and will be broadcasted live on the commission's facebook page. CGD-Umalca invites the entire mathematical community of Latin America and the Caribbean to join the conversation:

Conversatorio: ¿Para qué una Comisión de Género y Diversidad en Umalca?

Special guest: Natalia Magnone, Bs. in Social Work and Ms. in Sociology.

Members of CGD-Umalca: Carolina Araujo, IMPA, Brasil, Gabriela Araujo, UNAM, México, Eugenia Ellis, UdeLAR, Uruguay, Gabriela Ovando, Universidad Nacional de Rosario, Argentina, Eddy Pariguan, Pontificia Universidad Javeriana, Colombia, Andrea Vera-Gajardo, Universidad de Valparaíso, Chile

Webpage of CGD-Umalca: <https://www.umalca.org/acerca/cgd/>

Email of CGD-Umalca: [cgd.umalca@gmail.com](mailto:cgd.umalca@gmail.com)

- **Standing for Gender Equality in Science in times of Covid-19**

Scientists around the world have been affected by the Covid-19 pandemic. Women are hit particularly hard, especially those at an early stage of their careers.

[The Standing Committee for Gender Equality in Science](#) calls for all individuals and institutions engaged in science to join forces in supporting women colleagues whose research careers are jeopardized by the pandemic. See [here](#).

- **Film project "Words of Women in Mathematics in the Time of Corona"**

This is a follow-up project of the video project "[Faces of Women in Mathematics](#)"

The "Faces of Women in Mathematics" film collected 146 clips of 243 women mathematicians from 36 different countries speaking 31 different languages. This very successful project has contributed to making women working in mathematics more visible and has received very positive resonance from the general public. Three years later and with a year of pandemic behind us, we are launching a follow-up of the project, with the above working title "Words of Women in Mathematics in the Time of Corona". The pandemic has made women and in particular women in mathematics more invisible than ever, and this project aims to let them be heard and seen. The new film, will be launched on May 12th, Maryam Mirzakhani's birthday that has become a day to celebrate Women in Maths.

The contributions were made by answering the following question: "How has the pandemic affected your personal or professional life as a mathematician?" in the form of a video clip or a portrait photograph + audio file. So far, there were 86 contributors from 40 different countries in 23 different languages. We are definitely looking forward to seeing this film.

- **International Day of Women and Girls in Science on 11 February 2021: Activities around the world reported by the CWM Ambassadors**

**Cameroon**

"Women Scientists at the forefront of the fight against COVID-19" - celebration of the International Day of Women and Girls in Science in Maroua on February, 10.

We have celebrated it in person while respecting the barrier measures against COVID 19. The number of participants was limited.

### **Germany**

A journey through the natural and mathematical sciences with female PhD students, University of Potsdam, Germany.

### **Indonesia**

The Indonesian Mathematical Society (IndoMS) together with Universitas Padjadjaran and Universitas Sriwijaya in Indonesia organized a Webinar on Service Community with the theme of Ethno-mathematics and Ethno-informatics as an online meeting on Saturday, 20 February 2021, at 09.00-12.00 at Western Indonesia time in the Indonesian language.

### **Italy**

**In Cagliari:** we organized an online event for Mathematics at the University of Cagliari in Italy on February 11th dedicated to the students of secondary schools all over the region of Sardinia. Basically, we proposed a competition between groups of 5 students (60% female). Each group, led by a girl, challenges the others with a presentation on a female mathematician or a mathematical topic of their choice.

**In Turin:** for the International Day of Women and Girls in Science, on 11 February 2021 at the Politecnico of Turin, Italy. Female PhD students and postdoc researchers introduced their research work in the fields of Pure and Applied Mathematics and Data Sciences.

### **Nepal**

WoNIMS organized a mini webinar on this day especially for undergrad girls, to encourage them in mathematics studies through participation and communication.

### **Norway**

To show our appreciation to our female colleagues, on the occasion of 11 February, the International Day of Women and Girls in Science students and collaborators, the IDUN project prepared a [short video](#). The IDUN project at the Norwegian University of Science and Technology is named after the mathematician Idun Reiten, the first woman professor at the Faculty.

### **Panama**

On Wednesday, February 11th, 2021 at 2 pm EST, the Panamanian Association for the Advancement of Science (APANAC), the Panamanian Foundation for the Promotion of Mathematics (FUNDAPROMAT) and the Panama Pod of 500 Women Scientists organized a special event, free and open to the general public, to commemorate this special day. Our invited speakers were three female scientists Eugenia Rodriguez, Marleny Vargas and Argentina Ying.

### **Romania**

We celebrated the IDWGS by organizing a seminar concerning the best ways of teaching and communicating Mathematics. This first meeting was kept inside our small Google Group of Romanian Women in Mathematics (RWM) which has 27 members. We decided to have a meeting on 11 February which had two parts. The first part contained two talks given by two of our members + free discussions on the online teaching of Mathematics. The second part was devoted to making decisions concerning the organization of this seminar on a regular basis.

### **South Africa**

To celebrate the IDWGS day, AIMS House of Science hosted a webinar - Après-Lunch with the Mathematical Scientist - on the 11th February 2021, at 2:45pm SAST. The webinar aimed to provide a platform for graduate students to engage with esteemed mathematical scientists/role models in academia/industry and other sectors.

### **United Kingdom**

Women in Mathematics Webinar: An opportunity to discuss and promote the work of women and non-binary people in maths, University of Leeds, England was held on Thursday 11TH(PM) & Friday 12TH(AM) February 2021.

- [Panel discussion on gender balance in mathematics](#)

EWM and MATH+ organized a panel discussion on gender balance in mathematics in connection with the movie "Picture a Scientist". The panel discussion took place on March 11 from 19:30-21:00 CET. The panel started by a 30-min talk by K. Clancy on sexual harassment (and more generally gender gap). The talk was followed by a panel discussion involving her as well as Ingrid Daubechies, Carola-Bibiane Schönlieb, Bernd Sturmfels, and Andrea Walther.

- [Cheryl Praeger awarded Companion of the Order of Australia in the General Division on Australia Day 2021 Honours List](#)

Cheryl Praeger who is a member of CWM had been appointed as a Member of the Order of Australia in 1999. She is promoted to Companion in 2021 "for eminent service to mathematics, and to tertiary education, as a leading academic and researcher, to international organizations, and as a champion of women in STEM careers." See [here](#).

- [Three women mathematicians elected fellows of the Indian Academy of Science](#)

Three women in mathematics, Sanoli Gun, Neena Gupta and Neela Nataraj were elected fellows of the Indian Academy of Sciences. [See here](#). Prof. Neela Nataraj is also a member of CWM.

- [Shabnam Akhtari receives the 2021–2022 Ruth I. Michler Memorial Prize](#)

The Association for Women in Mathematics (AWM) and Cornell University are pleased to announce that Shabnam Akhtari (University of Oregon) has been awarded the 2021–2022 Ruth I. Michler Memorial Prize. See [here](#) for details.

- [Marianna Csörnyei Named AWM-AMS 2022 Noether Lecturer](#)

The Association for Women in Mathematics and the American Mathematical Society are pleased to announce that Marianna Csörnyei, Professor of Mathematics at the University of Chicago, will deliver the Noether Lecture at the 2022 Joint Mathematics Meetings to take place January 5 - 8 in Seattle, Washington. The lectures honor Emmy Noether (1882 - 1935), one of the great mathematicians of her time. AWM established the Emmy Noether Lectures in 1980 to honor women who have made fundamental and sustained contributions to the mathematical sciences.

- [Vivette Girault Named 2021 AWM-SIAM Sonia Kovalevsky Lecturer](#)

Vivette Girault, Professor Emeritus at Sorbonne Université, CNRS, Laboratoire Jacques-Louis Lions, Paris, France, has been named the 2021 Sonia Kovalevsky Lecturer. Professor Girault will be honored for the award at the SIAM Annual Meeting in Spokane, WA, to be held in hybrid or virtual format, July 19 - 23, 2021, where she will deliver the lecture “From linear poroelasticity to nonlinear implicit elastic and related models.” AWM and SIAM established the annual Sonia Kovalevsky Lecture to highlight significant contributions of women to applied or computational mathematics.

- [Aline Bonami awarded 2020 Bergman prize](#)

Aline Bonami receives the Bergman Prize for her highly influential contributions to several complex variables and analytic spaces. She is being especially recognized for her fundamental work on the Bergman and Szegő projections and their corresponding spaces of holomorphic functions. See [here](#) for details.

- [Alicia Dickenstein and Shafi Goldwasser receive the L'Oréal-Unesco International Awards For Women in Science](#)

Every year, the Fondation L'Oréal and UNESCO celebrate the scientific excellence of five eminent women scientists, each from a major region of the world. In 2021, the L'Oréal-UNESCO For Women in Science International Awards honors Laureates in the field of Physical Sciences, Mathematics and Computer Science.

**LAUREATE FOR LATIN AMERICA AND THE CARIBBEANS**

Professor Alicia DICKENSTEIN – Mathematics Professor of Mathematics at the University of Buenos Aires, Argentina.

Awarded for her outstanding contributions at the forefront of mathematical innovation by leveraging algebraic geometry in the field of molecular biology. Her research enables scientists to understand the precise structures and behavior of cells and molecules, even at a microscopic scale. Operating at the frontier between pure and applied mathematics, she has forged important links to physics and chemistry, and enabled biologists to gain an in-depth structural understanding of biochemical reactions and enzymatic networks. Alicia has been vice-president of IMU in 2015-2018 and remains a CWM ambassador.

**LAUREATE FOR NORTH AMERICA**

Professor Shafi GOLDWASSER – Computer Science. Director of the Simons Institute for the Theory of Computing, professor in electrical engineering and computer sciences at University of California Berkeley, RSA professor of electrical engineering and computer science at MIT, United States of America and professor of computer science and applied mathematics at Weizmann Institute, Israel.

Awarded for her pioneering and fundamental work in computer science and cryptography, essential for secure communication over the internet as well as for shared computation on private data. Her research has a significant impact on our understanding of large classes of problems for which computers cannot efficiently find approximate solutions. Shafi has been invited speaker at ICM Kyoto 1990 in the section Mathematical aspects of computer science and plenary speaker at ICM Beijing 2002.

**OTHER AWARDEES ARE:**

Françoise COMBES, Astrophysics, France  
Catherine NGILA, Chemistry, South Africa  
Kyoko NOZAKI, Chemistry, Japan.

- [Ulrike Tillmann has been named as the next Director of Isaac Newton Institute](#)

Professor Ulrike Tillmann has been named as the next Director of INI, a position she took up from 1 October 2021. A Professor of Mathematics at Oxford University and Fellow of the Royal Society with multiple awards to her name, Professor Ulrike Tillmann boasts established connections across the international mathematical sciences community from the London Mathematical Society to the Fields Institute. Her five-year appointment means that she will follow in the footsteps of Sir Michael Atiyah, Keith Moffatt, Sir John Kingman, Sir David Wallace, John Toland and current Director David Abrahams to become the seventh holder of the role since Isaac Newton Institute's opening in 1992.

# AWM at 50 and Beyond<sup>1</sup>

Article written by Georgia Benkart,  
Kristin Lauter, and Sylvia Wiegand

1. This is an abbreviated version of an article in the AMS Notices, March 2021.

The 50th birthday celebration of the Association for Women in Mathematics (AWM) is happening now! Founded in January 1971, AWM is almost entirely powered by volunteers. Its mission is “to encourage women and girls to study and to have active careers in the mathematical sciences, and to promote equal opportunity and the equal treatment of women and girls in the mathematical sciences.” Here, we describe some recent activities, programs, initiatives, and achievements of the AWM.

AWM has long advocated to address three major problems: the underrepresentation of women and minorities in research mathematics; the lack of equity in resources and awards; and the barriers to career advancement for women and underrepresented minorities in the mathematical profession. Documenting and calling attention to inequities remain necessary.

In 2015, AWM won a five-year, \$750,000 **ADVANCE grant** that directly increased the opportunities, success, and visibility of women in mathematics. The grant supported:

- 23 Research Networks for Women (RNWs) in all areas of mathematics, sustained through conferences, websites, email listservs, and publication volumes, involving more than 2,000 women researchers worldwide,
- 5 to 10 Research Collaboration Conferences for Women (RCCWs) per year organized by these networks,



On Capitol Hill: Villanova AWM Student Chapter with AWM leadership, December 2016.

- 22 volumes of research articles in the AWM Springer Series,
- AWM workshops at major annual meetings, and
- 4 biennial AWM Research Symposia (each with over 20 special sessions and roughly 350 participants).

**RCCWs** are weeklong conferences where junior and senior women work



AWM Research Symposium 2015, University of Maryland.

together on predefined projects. At the first, the 2008 Women in Numbers conference in Banff, Canada, senior women led groups of 5- 6 researchers, including graduate students and postdocs, to attack together research problems in their area for 5 intensive days. Typically, the groups continue their work after the conferences to publish a paper and form lasting bonds and collaborations. Follow-up events and infrastructure enhance the resulting

Research Networks and mentoring relationships. The RNWs have created cohorts of women in many areas of mathematics who are empowered to work on behalf of themselves and other women.

In 2011 to celebrate its fortieth anniversary, AWM started biennial **Research Symposia**: 2-day weekend meetings, with high-profile plenary speakers and special sessions. These Symposia bring women mathematicians together, recognize their research achievements, build community, advance careers, and improve working conditions. The postponed 2021 Symposium will be held June 16-19, 2022, at the Institute for Mathematics and its Applications and the University of Minnesota. **AWM's Springer Series** publishes proceedings of the Research Symposia, RCCWs, AWM Workshops, and other AWM events and panels.

AWM meets with US legislators at Hill Visits twice a year to garner support for AWM's comprehensive policy agenda and legislative priorities:

1. Expand STEM (Science, Technology, Engineering, Mathematics) educational opportunities.
2. Support research funding.

3. Improve work/life balance, child-care, and family leave options.
4. Eliminate self-perpetuating mechanisms that limit public recognition of women's achievements.
5. Create a welcoming environment in science and education (this includes addressing sexual harassment and violence on university campuses).

Over 100 active **AWM Student Chapters** at colleges and universities create community, support education, develop students' careers, and advocate for women in mathematics. AWM's Facebook page and two Twitter feeds, @AWMmath and @AWMadvance, provide stimulating topics for discussion and updates on AWM activities.

To increase the visibility and advancement of women in mathematics, AWM strives to ensure that outstanding

work by women in mathematics is recognized by awards and honors---both by conferring AWM awards and by nominating women for other societies' prizes, fellow designations, and named lectures. AWM gives Dissertation Awards and early-career research prizes, and it has its own Fellows Program.

AWM has enjoyed working with the IMU CWM and other international groups and welcomes participation from all over the world. Every member of the mathematical community is encouraged to become involved and help to advance women and girls in mathematics. Anyone can start or join an AWM Student Chapter

or a Research Network for Women, become a mentor, get a mentor, publish in the AWM Springer Series, or attend an AWM workshop! Please join us at the AWM Research Symposium in 2022. Happy Fiftieth Anniversary to AWM!



AWM Past-Presidents Kristin Lauter, Ruth Charney, Sylvia Wiegand and Georgia Benkart at the 2014 ICWM.

### About the Authors:

**Georgia Benkart** is known for her work in the structure and representation theory of Lie algebras and related algebraic structures. Upon completing her Ph.D. in the Yale University in 1974, she worked at the University of Wisconsin–Madison until her retirement in 2006. Benkart received numerous awards and honors including Fellow of the AMS and AWM. She was named Polya Lecturer by MAA and Emmy Noether Lecturer at ICM.

**Kristin Lauter** is known for her work in application of number theory and algebraic geometry in cryptography. She received her Ph.D. from the Uni. of Chicago in 1996 and held positions at MPIM, at the Uni. of Michigan and at Institut de Mathématiques Luminy. She was a researcher at Microsoft Research, from 1999–2021. Recently Lauter joined Facebook AI Research. In addition to many other recognitions she was a fellow of AMS, AWM and SIAM.

**Sylvia Wiegand** works in the area of commutative algebra. She received her PhD from Uni. of Wisconsin-Madison in 1971. In 1987 she was named full professor at the Uni. of Nebraska. Wiegand has been an editor for Communications in Algebra and the Rocky Mountain Journal of Mathematics. She was on the board of directors of the Canadian Mathematical Society from 1997 to 2000 and was a fellow of AMS and AWM.