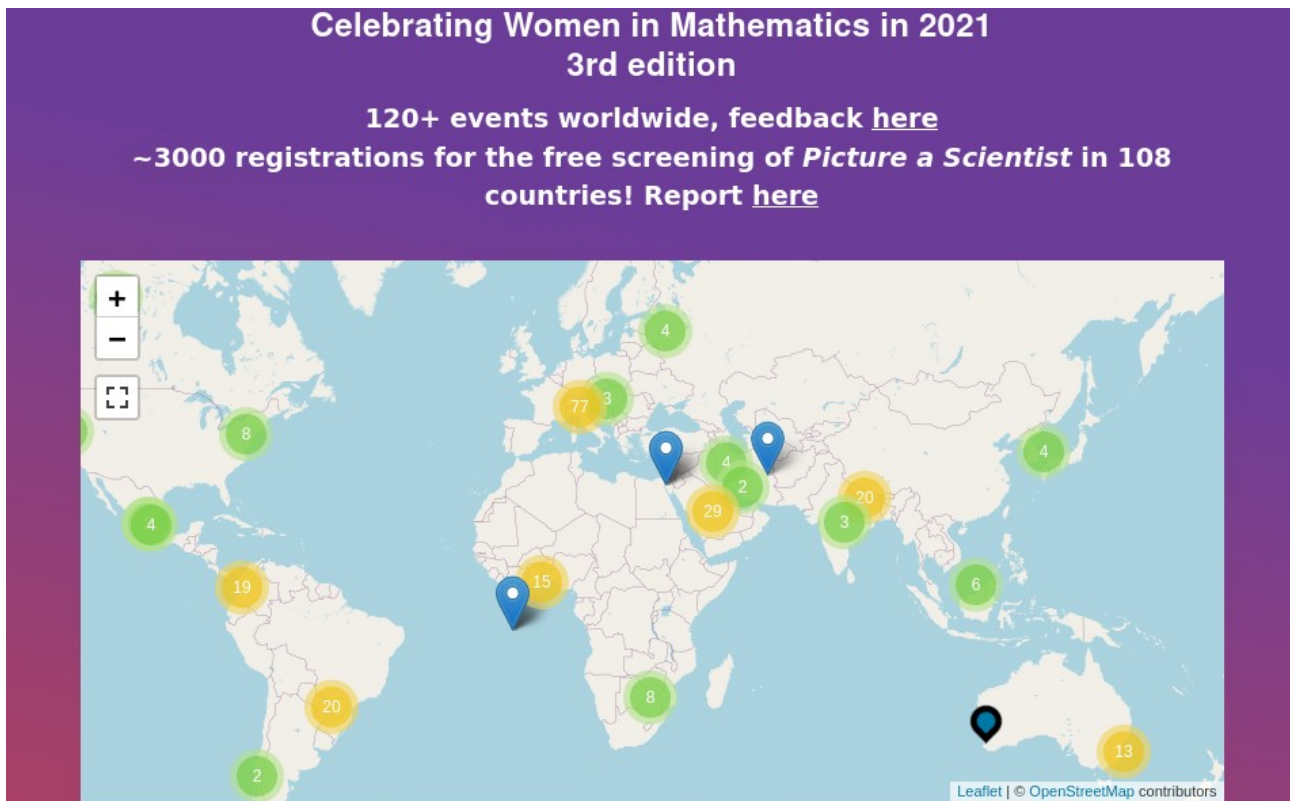


May 12, celebrating women in Mathematics in 2021

<https://may12.womeninmaths.org/>



The May 12 initiative, celebrating women in mathematics worldwide on the birthdate of Maryam Mirzakhani took place for the third time in 2021 (see¹ for information about 2019 and 2020 events).

The idea of celebrating women in mathematics on Maryam Mirzakhani's birthday, May 12, was proposed by the Women's Committee of the Iranian Mathematical Society at the World Meeting for Women in Mathematics in 2018 in Rio de Janeiro (Brasil). This initiative was approved by hundreds of attendees at the meeting. A few months later, six regional associations of women in mathematics around the world joined together to initiate the first celebration of May 12 internationally². It is important to remark that this is the first and unique initiative linking regional organizations for women in mathematics worldwide.

The 2021 edition was very successful, with specific forms given the Covid crisis and the impossibility to meet physically in most places of the world.

¹ For the 2019 events see <https://may12.womeninmaths.org/2019> as well as

May 12: Celebrating Women in Mathematics From One Idea to One Hundred Events Nikita Agarwal, Carolina Araujo, Petra Bonfert-Taylor, Mojgan Mahmoudi, Marie Françoise Ouedraogo, Olga Paris-Romaskevich, Marie-Françoise Roy, Elisabetta Strickland, and Andrea Vera Gajardo, Notices of the AMS, Volume 66, Number 11, pages 1879-1886.

For the 2020 events see <https://may12.womeninmaths.org/2020> where the report Report-May122020.pdf can be downloaded

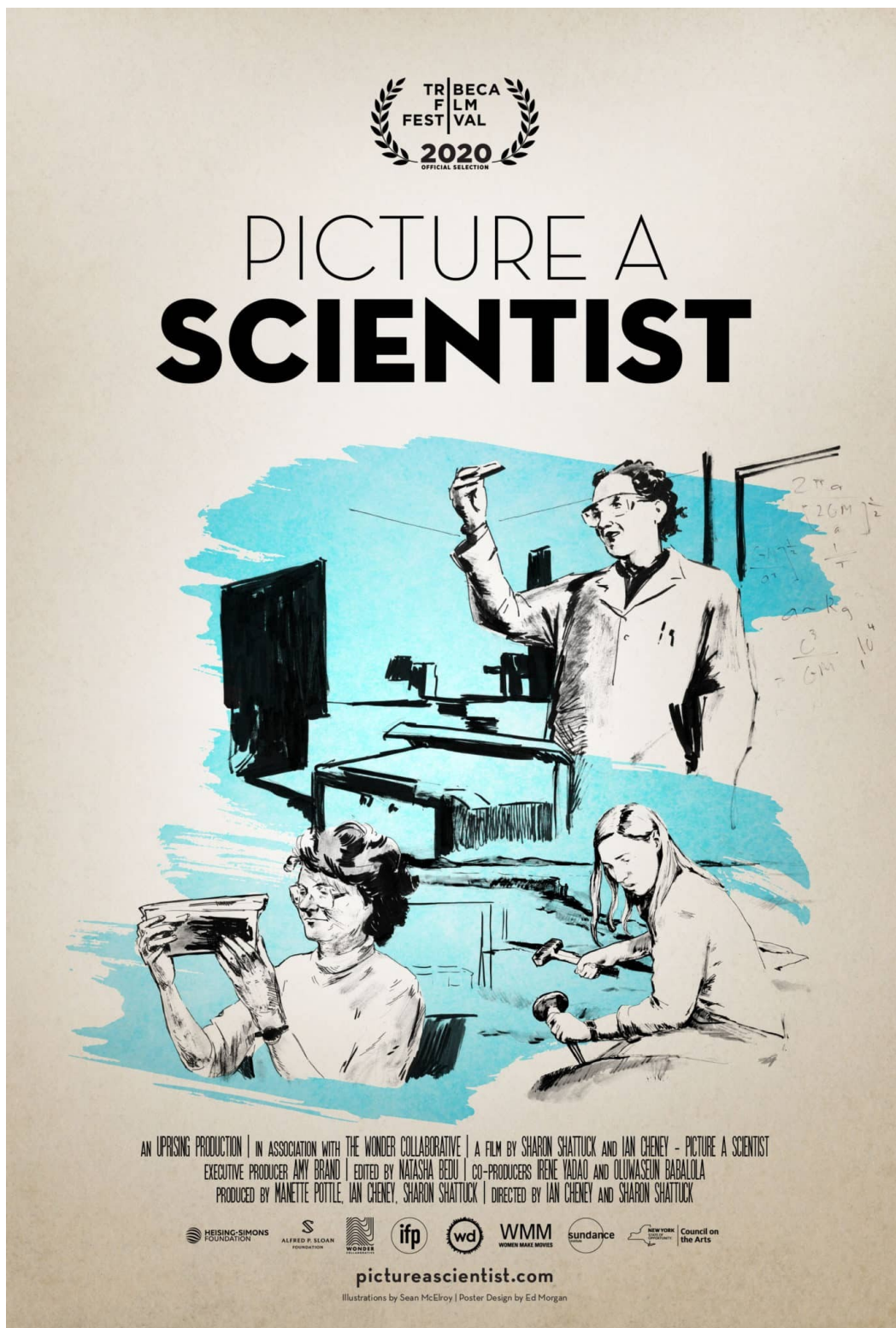
² The coordination group of the May12 initiative includes representatives from the European Women in Mathematics, the Association for Women in Mathematics, the African Women in Mathematics Association, Indian Women and Mathematics, Colectivo de Mujeres Matemáticas de Chile and the Women's Committee of the Iranian Mathematical Society.

In this report, we discuss the preparation phase, the individual screenings of *Picture a Scientist*, made possible through a collaboration of the May 12 initiative with Rocco Films as well as the collective events, mostly virtual, that took place in 2021.

Preparation phase

The reporting mechanism on May 12 website was improved, in order to make the result of the activities more visible, thanks to a funding coming from IMU CWM. It was ready at the beginning of 2021 .

Individual screenings of *Picture a scientist*, a collaboration of the May 12 initiative with Rocco Films



The documentary film *Picture a scientist* is a one hour and a half essay about hardships and combats of women in academia. It has been released in 2020. Following a big success of *Secrets of the surface* (film about life and work of Maryam Mirzakhani) screening for May12 in 2020, the initiative group for May12 in 2021 launched a collaboration with Rocco Films for the screening of their film *Picture a scientist*.

Individual screenings were offered on the May 12 website. Applicants received a link to screen the film for 3 days around 12 May 2021, and were asked not to disseminate it. Versions with subtitles in English, French, Spanish and Portuguese were provided. More than 2 800 requests were received and the corresponding links were sent, in 108 different countries all over the world.

We conducted a survey after the screenings, and 189 people (6,72% of those who received the link of the film) responded to it. We are thankful for this feedback, and analyzed it with great interest, even though we do not consider them as representative of the whole group. In particular, the distribution by gender was different : 79% female to 19 % male for those who responded to the survey, with 72 % to 25 % for those who preferred not to respond. The distribution by geographical zone was also different. For those who responded to the survey : Europe 51,91 %, America 33,88 %, Asia 10,93 %, Africa 2,19 %, Oceania 1,09 % whilst among registered : America 37,76 %, Europe 33,60 %, Asia 22,57 % Africa 4,46 % and Oceania 1,61 %.

Not all of those who made the request to watch the movie were able to see it : some (4%) answered that they had not received the link and some (15 %) had not been able to view the film due to technical problems or for lack of time before the deadline.

An overwhelming proportion (above 85 %) of the people answered positively to the questions « Was *Picture a Scientist* worth watching ? », « Will you recommend *Picture a Scientist* to your friends and colleagues? ». While there are no women mathematicians in the panel of scientists appearing in *Picture a scientist*, more than 85 % of surveyed answered yes to « Do you believe that similar cases of abuse against women also exist in other scientific fields, such as mathematics or computer science? »

59 % of the respondents are connected to mathematics, from students (secondary school to PhD studies) to professors at various levels. 70 % of the respondents had not participated in the free screening of *Secrets of the Surface* organized by May 12 last year. Finally, 59 % of the respondents wished to receive news from the May 12 initiative in the future.

There was a free contribution section at the end of the form and 78 out of 189 people contributed. Most of the answers were very enthusiastic about the quality of the film, its importance for the academia and STEM community, as well as on the scale of the whole society. The overwhelming part of surveyed found the film interesting, eye-opening and educational.

A very interesting observation is that emotional reactions (of those who responded to the survey) to the film were very varied and living on two opposite sides of the spectrum: some felt inspired by heroine's courage and collective spirit, and some found the film extremely depressing and disturbing. What can provoke so different reactions to the same material ? This is not an easy question to answer... Abuse and oppression were noted by many to exist in other professional environments : professional services/industry, and in the society as a whole. Most of the people who found the film disturbing, found it also worth watching and important.

Below we cite some of the comments in the free contribution section that we find thought provoking. We are very thankful to all who took the time to share their feelings and thoughts.

- I absolutely loved it and it definitely made me really grateful for the progress that has been made in academic spaces but also motivated to be a part of true change in the future. (United Kingdom, Female, Undergraduate Student of Mathematics)

- I didn't show this film to my students because it don't promote the mathematical careers of women. The image is too negative. (France, Female, Teaching mathematics in a secondary school)

- I had to watch this film in several "sessions" - to see all that abuse and what these women went through was too hard to see all at once. It made me angry and frustrated by how my male partner reacted to the film. He could not believe that abuse like shown in the film is still happening. But it is! Sometimes it is very subtle, sometimes it happens by women as well. We cannot be too careful with that topic! (Germany, Female, Administration within mathematical institute)

- It opened my eyes. The list of things below the tip of iceberg was very relatable. I can recall them happening around me many times. It instilled in me very affirmatively that the problem is real and action, and nothing less than action, is necessary. (India, Male, Master degree in mathematics)

- One thing I liked about the movie is that it showed how much influence a supervisor has on the life of a graduate student, even many years later. While the movie focused on the case of a graduate student who was a woman, this is unfortunately the situation for some graduate students under the supervision of professors with abusing/bullying/denigratory personalities. Another thing that I liked was that it showed the little things that are part of the discrimination against women and that many of us do not even realize. I think at this point most people know that women are paid less, but social conducts in a conference meeting, in emails, I think are overlooked. Overall, I think this movie is a great way of showcasing these abuses. I hope similar initiatives are taken to show similar situations which happen to other minorities as well. (Mexico, Male, Teaching mathematics at the university)

- Sadly reminded me of personal experiences... and therefore a very useful film. Some people think that university is harassment-free because it is peopled with relatively educated persons. But that's wrong! (France, Female, Holding a PhD in mathematics)

- It was sad to see how hurdles were created for a confident scientist to excel in her career. The film illustrated the case of female scientists in developed countries. Another side of abusive behaviour for women in science is that men as parents in developing countries never give equal opportunities to their female children. Girls get the message that science learning is not for them. (Zambia, Female, Teaching mathematics at the university)

- This film made me realise that as a white male I am very privileged in my working field while there are people around me, possibly even my partners, that are struggling to achieve their goals. And it shouldn't be like that. We are different, but diversity is welcome and we shouldn't be treated different. I really enjoyed *Picture a Scientist* and I think it's very important to continue with this campaigns, so that every one of us is aware of women and minorities situation in science. (Colombia, Male, PhD student in mathematics)

- I am very impressed by this film. The goal is to provide us new perspectives on how to make science itself more diverse and equitable. This is extremely important for the development of science. (France, Female, Teaching computer science at the university)

Short report on collective events

A total of 123 events registered on May 12 website, on top of the 2800 people from 108 countries for which we received individual screening requests for Picture a Scientist. See <https://may12.womeninmaths.org/2021-list>

Thirty five of the events provided a report about their activity, that we include here.

EVENT	LOCATION	Nature of the event	Number of participants	% of women
<u>Trois professeures mathématiciennes pionnières à Rennes (France)</u>	Hybrid mode	historical presentation of women mathematicians	between 21 and 50	50
<u>Celebrating Women in Mathematics in Bangladesh</u>	Online	Presentation about Maryam Mirzakhani's life, Presentation about Maryam Mirzakhani's mathematics, Presentation about history of women in mathematics	between 51 and 100	95
<u>Association for Turkish Women in Maths May 12, Women in math Event:</u>	Online	Presentation about Maryam Mirzakhani's life	between 51 and 100	95
<u>Les mathématiques se conjuguent (aussi) au féminin ! (Nancy, France)</u>	Online	Creative contest	under 20	80
<u>Projection of the Film Secrets of the Surface (Lille, France)</u>	Online	Screening of a film	between 51 and 100	50
<u>12 de mayo en México: celebrando a las mujeres en matemáticas</u>	Online	Mathematical presentations, Interview with female mathematicians and a visual artist with background in math	between 51 and 100	60
<u>11 Sesión del Webinar del grupo FIME (Brasile)</u>	Online	Monthly Conference	between 21 and 50	45
<u>Celebrating Women in Mathematics in Indonesia: Webinar</u>	Online	Mathematical presentations	more than 100	70
<u>Ethnomathematics in Daily Life</u>	Online	Presentation/discussion about the Gender gap in science project, Presentation about history of women in mathematics, Round table	under 20	75
<u>Entrevistando a mi profesora de matemáticas (Chile)</u>	Online	Screening Picture a scientist-Mathematical Presentations-Cards Game(about history of women in math)	between 21 and 50	85
<u>Celebrando a las mujeres matemáticas (Chile)</u>	Online	Screening Picture a scientist, Presentation about history of women in mathematics	more than 100	65
<u>De La Salle University (DLSU) celebrates Women</u>	Online	Screening of Picture a scientist, Presentation about history of women in mathematics	more than 100	65

in Mathematics (Philippines)		men in mathematics, Mathematical presentations, Interviews of women in mathematics		
Jornada Florence Nightingale FME (Barcelona, Spain)	Online	Mathematical presentations	between 51 and 100	70
Screening of Picture a Scientist in Norway	Online	Mathematical presentation and screening of Picture a Scientist film with discussion	under 20	90
International Women in Mathematics Day 2021 in Abu Dhabi (United Arab Emirates)	Online	Mathematical presentations	between 51 and 100	80
Celebrating Women in Mathematics in Münster (Germany)	Online	Screening of Picture a scientist, Screening of another film, Mathematical presentations, Social media campaign, Workshop on female leadership (in science)	between 51 and 100	50
May 12 in Rome: Celebrating Women in Mathematics (Italy)	Online	Presentation about Maryam Mirzakhani's life, Presentation about history of women in mathematics, Mathematical presentations	between 51 and 100	50
Australian Women of Mathematics exhibit	Math department or institute	Opening of an exhibit featuring portraits of women mathematicians	between 51 and 100	50
Virtual event on "Women in Mathematics" (Mahendergarh, Haryana India)	Online	Presentation about Maryam Mirzakhani's mathematics	between 51 and 100	75
1º Encontro de Mulheres Matemática do IMPA (Brasil)	Online	Presentation/discussion about the Gender gap in science project	between 51 and 100	50
Encuentro de Mujeres Matemáticas (Pamplona, Colombia)	Online	Mathematical presentations	between 51 and 100	65
Women in Maths Day in Melbourne (Australia)	Deakin Downtown (Corporate Centre)	Presentations(Industry/Academic/Student) and Picture a scientist film viewing	under 20	100
Celebrating Women in Mathematics in Rio (Brazil)	Online	Screening of Picture a scientist, Presentation/discussion about Picture a scientist, Mathematical presentations, Round table, Workshop on math and art	more than 100	80
Celebrating the Third ``Women's in Mathematics" Day in Iran	Online	Presentations/Discussions Maryam Mirzakhani's mathematics life and mathematical presentations	more than 100	75
The Beautiful Mind (Iran)	Online	Screening of Picture a scientist, Presentation/discussion about Pic-	between 21 and 50	95

ture a scientist, Screening of another film, Presentation/discussion about the Gender gap in science project, Presentation about Maryam Mirzakhani's life

International day for women in mathematics - Generalized Functions Online Workshop (Austria)	Online	Mathematical presentations, Panel discussion "How to be a good ally to women in mathematics"	between 21 and 50	80
Women in Mathematics at the Sobolev Institute of Mathematics (Russia)	Math department or institute	Presentation about Maryam Mirzakhani's mathematics, Mathematical presentations	between 51 and 100	55
Women in Mathematics celebrating May 12 in Tunisia	Online	Conference webinar about women in mathematics: Experience of women in mathematics; gender gap etc.	between 21 and 50	80
Celebración del Día Internacional por las Mujeres en Matemáticas 2021 in Panama	Online	Math Outreach Event	more than 100	50
May12: My mathematical heroine (Germany)	Online	presentation about 4 female mathematicians (one's personal "mathematical heroine")	between 51 and 100	50
Special Speaker Dominic Buset in the "Mirka Miller's Combinatorics Webinar Series" (Italy)	Online	Mathematical presentations	between 21 and 50	50
Alicia en el país de las matemáticas argentinas (Argentina)	Online	Presentation/discussion about the Gender gap in science project	more than 100	50
Festa delle Donne Matematiche 2021, Italy	Online	Introduction by EO Ministry, TED videos, piano concert, interview with CWM ambassador	more than 100	55
Jornada SCM: Matemàtiques Catalanes, Barcelona, Spain	Online	Screening of a interview documental	between 51 and 100	65
Celebration of Women in Mathematics in Japan	Online	Screening of another film, Mathematical presentations, Round table	more than 100	40
Mujeres matemáticas en educación (Mexico)	Online	Round table	more than 100	70

More information for each of these events is available on <https://may12.womeninmaths.org/feedbacks-2021>

May 12 initiative group