

Film Screening Event of “Secrets of the Surface - The Mathematical Vision of Maryam Mirzakhani” for undergraduate students of the University of Tokyo

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abstract

On August 6th 2021 19:00-21:00, there was an online Film Screening Event of “Secret of the Surface”, with Japanese subtitles, at the University of Tokyo. It was organized by Go Global Gateway and Kavli IPMU. The audience were undergraduate students in several departments. Yukari Ito (Kavli IPMU) introduced the film and gave a lecture on the mathematics and her experience abroad too. It was a good occasion for the students to know about mathematicians, more specifically women in mathematics, and studying abroad.

August 6th 2021 was the last day of the Spring semester and some students might be tired after many examinations but about 60 undergraduate students attended to watch the movie “Secret of the Surface.”

The event was organized by Go Global Gateway (GGG) of the University of Tokyo and Kavli IPMU. Launched in April of 2018, GGG is an extracurricular activity for undergraduate students that encourage them to gain global competence and outlook by completing a certain number of activities and obtaining a certificate. Kavli IPMU is the Institute for Physics and Mathematics and added Japanese subtitles to this movie and I supervised the translation with my colleagues.

There had been already several chances to watch “Secrets of the Surface - The Mathematical Vision of Maryam Mirzakhani” for “May 12, celebrating women in mathematics” and some other activities for women mathematicians. This time the film had [Japanese subtitles](#) ! But the important thing to say for this event is that more than half of the participants were male students of the University Tokyo. In the University of Tokyo, 80% of students are male and most of them came from boy's high school. It was a nice occasion to show a good example of a female mathematician to them!

There are two impressive things for me in this movie. Mariam solved mathematical problems in several ways. It gives us how to enjoy mathematics. We can think freely to solve one mathematical problem. And Mariam went to the USA with her good female friend and she was not isolated and continued her study. In the Department of Mathematics of the University of Tokyo, female students are very rare and most of them are only one female student in a class. It is a very stressful circumstance and difficult to continue their study.

The participants are the students of GGG and they are interested in global activities, including study abroad but most of them are not in the Department of Mathematics. I mentioned that they don't have to understand everything in the movie because mathematical contents are very professional.

After the movie, I explained how to make a torus from a square and showed easy examples of moduli spaces. I also explained the International Mathematical Olympiad, Fields Prize and Abel Prize. Moreover, I introduced two female mathematicians; Karen Uhlenbeck as Abel medalist and Anna Kiesenhofer as a Gold Medalist at Tokyo Olympics 2020.

Then, I talked about my experiences abroad. My first visit was to a summer school in Trieste in Italy when I was a graduate student. I made many friends in Mathematics. The hotel for students was much more poor than a hotel for Professors and PhD carriers and I realized that a PhD was so important to be an independent mathematician.

Next year, I stayed at University of Warwick for four months. As it was the special year for algebraic geometry, I met many mathematicians from all over the world. At that time, almost every mathematician asked me the name of my University or my supervisor in Japan. But in Europe, I was only asked about my research interest. People wanted to know what I was but not where I belonged. I learned a different culture from Japan and I also asked many questions about Japanese traditional cultures. Thus I recommended the students in the event to visit other countries to feel the difference and to know Japan more.

When I was studying at University of Mannheim in Germany for one year, I met several international "Mother" researchers. One of them was staying with her little daughter and she told me that life in Germany is the same as in her country because there is a nursery school. Another woman was living alone and her child was with her parents in her country. I learned there were several ways to visit and stay abroad with children. After that I have tried several ways to attend conferences and stay abroad for a few months with my children. I wanted to say to the students that you can find your way wherever and whenever you want to go.

After my talk, many students asked me questions on mathematics and studying abroad. There was one serious question: "There are very few female students in the STEAM area in this University. Some people say "females are not good at mathematics". What do you think?" Then I asked the student "Who told you that phrase?" The person was a male high school teacher and he graduated from the department of mathematics of the University of Tokyo. OMG! But such unconscious gender bias still exists in Japan. Then I answered "the statement is not true but I have heard it many times in Japan. Anyone should be able to study what they want."

Now I am a member of the Science Counsel of Japan and belong to one committee on Gender Diversity in the STEAM area. We have just started to consider gender education problems in Japan. I have never thought to be a "female" mathematician and I have only been interested in mathematics. But now I think we need some action to remove obstruction for everyone to study. I really hope Japanese society will change in the near future!

Link to the film with Japanese subtitles here
http://www.zalafilms.com/secrets/index_jp.html