

IWOTA 2016: Women in Mathematics Panel Discussion Report

The 2016 International Workshop on Operator Theory and Applications (IWOTA 2016) featured a panel discussion “Women in Mathematics” about the international state of women in math. The goal of the panel was educational, namely to raise awareness of current situations experienced by women, the degree of the gender gap, and possible causes/solutions in different countries. The speakers addressed these topics and then answered follow-up questions from the audience.

The panel discussion took place during the 12:30-2:30 pm lunch break on Tuesday July 19, 2016 and approximately fifty people attended. The participants included about twenty women and thirty men. In terms of career stage, participants ranged from graduate students to full professors.

The panel was composed of five leading women in mathematics, whose presentations are summarized below:

- **Isabelle Chalendar, Institut Camille Jordan**

Dr. Chalendar discussed the situation for female mathematicians in France. She pointed out that mathematics is actually the least “feminized” academic field in France; only 18% of assistant professors and 6% of full professors are women, and these numbers are worse than those from twenty years ago. Dr. Chalendar proposed several reasons for the disparity, such as gender quotas that force the relatively small number of female academics to take on more service work and mobility requirements for promotion, and suggested several additional solutions such as semester-long paid maternity leave.

- **Eva Gallardo-Gutiérrez, Universidad Complutense de Madrid**

Dr. Gallardo-Gutiérrez talked about women in math in Spain. She noted that women hold about 32% of math university positions, but they are more concentrated in non-tenured positions and fewer women than men are promoted to associate and full professor ranks before age forty-five. Dr. Gallardo-Gutiérrez also gave an interesting gender breakdown by research area; for example, math education, statistics, and operations research have the highest percentage of female researchers. Dr. Gallardo-Gutiérrez closed by discussing the Real Sociedad Matemática Española, which has programs raising the visibility of female mathematicians in Spain.

- **Maria Infusino, University of Konstanz**

Dr. Infusino discussed the situation of female mathematicians in Germany, highlighting an increase of almost 7% in the number of women employed as academic staff in mathematics at German universities from 2005 to 2014. She noted that about 25% of math PhDs are awarded to women, but only 15% of math professors are women. She also showed the gender breakdown by career stage in 2014, indicating that several women hold postdoctoral

research positions but have difficulty obtaining permanent professorships for a variety of reasons, which were briefly outlined. Dr. Infusino concluded by presenting a number of associations, such as European Women in Mathematics, that run initiatives supporting female mathematicians with a particular focus on the programs organized in Germany. For more details, see the report [here](#).

- **Wing Suet Li, Georgia Institute of Technology**

Dr. Li discussed women and underrepresented minorities in the United States in math and related fields and gave data showing that while these groups' participation has increased in recent years, there is still a large disparity. For example, the percentage of female full professors in science, engineering, and health fields rose from around 10% to 25% between 1993 and 2013. Nevertheless, math is still a low participation field for women, who earn about 30% of PhDs. Dr. Li also talked about the problem of work-life balance, particularly for academics with children, and discussed various choices she made while raising her children and maintaining a strong research program.

- **Malabika Pramanik, University of British Columbia**

Dr. Pramanik first touched on several famous women in math from Hypatia to Maryam Mirzakhani and discussed *why* today there are still so many fewer women than men in math. She talked about reasons why women self-select out of math academia, both before and after graduate school. She then discussed the problem of unconscious bias towards women in math as well as four detailed challenges that working women, and particularly women in math, face. Dr. Pramanik ended with an emphasis on the value of actively mentoring and supporting women in math as a solution to helping overcome unconscious biases and other issues they face.

Audience Questions: Following the presentations, there was time for several questions from the audience. These questions touched on the differences between the number of women in pure and applied mathematics, the rules or barriers in countries that lead women to be promoted at a lower rates than men, and ways to successfully mentor undergraduate women who are considering graduate school in mathematics.

Presentation Slides: The presentation slides can be accessed at the IWOTA 2016 website: <http://openscholarship.wustl.edu/iwota2016/Panel/>. To access the slides, first click on the presenter whose slides you want to access and then, click on the title of the talk to access the presentation.

Sponsors: IWOTA 2016 was supported in part by the National Science Foundation, Washington University in St. Louis, Birkhäuser, and the International Linear Algebra Society. The Women in Mathematics panel discussion was also supported by Georgia Tech ADVANCE, as the lunch was provided through Dr. Wing Suet Li's Georgia Tech ADVANCE Professorship.