



TITLE:

# The Gender Gap in Mathematics : Overview, Problems and AWM's Approach (Women in Mathematics)

AUTHOR(S):

Leonard, Kathryn

---

CITATION:

Leonard, Kathryn. The Gender Gap in Mathematics : Overview, Problems and AWM's Approach (Women in Mathematics). 数理解析研究所講究録 2023, 2248: 176-182

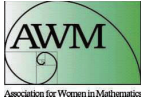
ISSUE DATE:

2023-04

URL:

<http://hdl.handle.net/2433/285424>

RIGHT:



# The Gender Gap in Mathematics: Overview, Problems and AWM's Approach

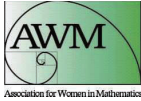
Kathryn Leonard  
President of AWM

*adapted from slides by Karoline Pershell*



## Mission of AWM

The purpose of the Association for Women in Mathematics is to create a community in which women and girls can thrive in their mathematical endeavors, and to promote equitable opportunity and treatment of women and others of marginalized genders and gender identities across the mathematical sciences.



# Overview

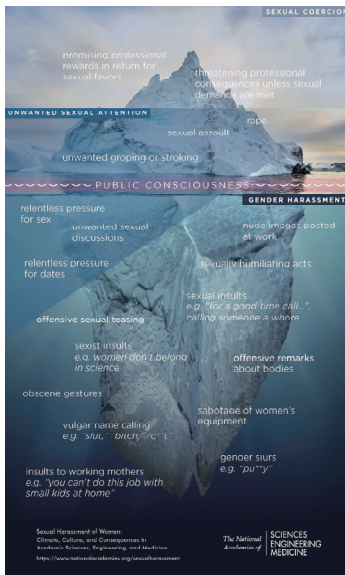
Efforts to close the gender gap in mathematics

- Targeted recruiting
- Women-only programs
- Other mechanisms

Underlying structures undermine progress

- Gender imbalance
- Harassment
- Institutionalized practices
- Unintentional outcomes

3



## Harassment problem

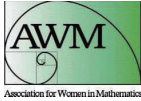
Many women are pushed out of the profession

Those who remain are impeded by

- Harassment
- Hostile work environment
- Not being taken seriously

While men are certainly not immune to harassment and bullying, women are overwhelmingly targets.

4



## “Individual” Solution

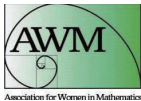
Empowering women in mathematics

- Building cohorts
- Mentorship from those “who have been through it”
- Response tactics
- Training on “how to navigate the system”

This alone is not sufficient!

- Programming should also focus on changing institutionalized behaviors

5



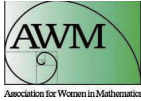
## Institutional opportunities

Institutional change:

- Identify and change behaviors and understandings
- Identify and change policies that contribute to negative climates
- Recognize that mathematical progress cannot be decoupled from the cultural context that produces it

**When members of the community are ostracized, harassed, or made to feel unwelcome, then the success of mathematics as a whole is put into jeopardy.**

6



## Training

Aligning Action and the Crossroads (AAC) workshop:

- Active bystander training
- Role-playing with improv actors
- Data sharing
- Intersectionality

Topical workshops at math meetings

- AWM 101
- How to apply for an NSF grant
- Starting a research collaboration

7

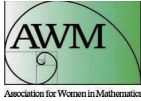


## Student Chapters

- Free AWM membership
- Annual awards in sustainability, professional development, scientific excellence
- Annual meeting to share best practices



8



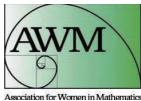
## Research Networks

- Research collaboration workshop
- Follow-on event at a conference
- AWM-Springer Proceedings volume
- Website with women in the field listed
- Steering committee



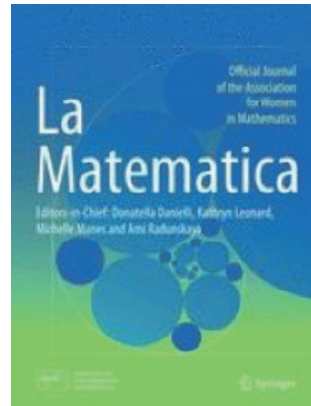
*Women in Numbers, BIRS*

9

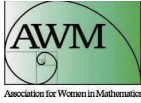


- Shorter time to review
- Constructive reviews
- Diverse editorial board
- Broad range of mathematical topics

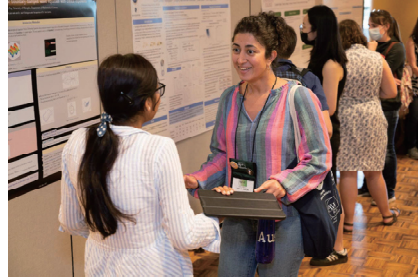
## La Matematica



10



## Research Symposium



*2022 Research Symposium, Univ. of Minnesota*

11



## Awards and Fellows

Research prizes:

- Undergraduate
- Dissertation
- Topology/algebra/analysis
- Sabbatical fellowship

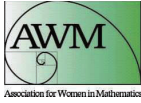
Other prizes:

- Mentorship
- Social justice
- Education
- Service

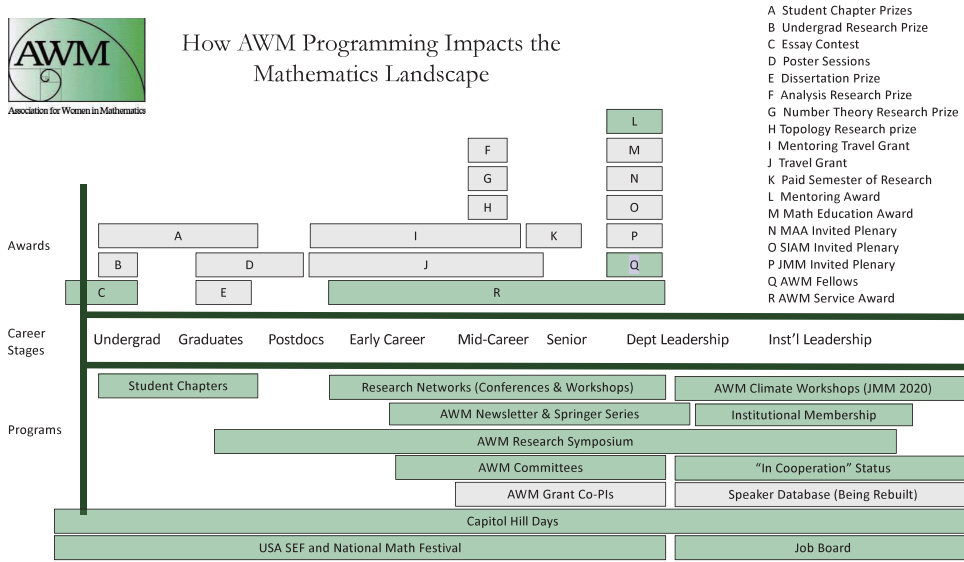


*Suzanne Weekes, 2022 Falconer Lecturer*

12



### How AWM Programming Impacts the Mathematics Landscape



- A Student Chapter Prizes
- B Undergrad Research Prize
- C Essay Contest
- D Poster Sessions
- E Dissertation Prize
- F Analysis Research Prize
- G Number Theory Research Prize
- H Topology Research Prize
- I Mentoring Travel Grant
- J Travel Grant
- K Paid Semester of Research
- L Mentoring Award
- M Math Education Award
- N MAA Invited Plenary
- O SIAM Invited Plenary
- P JMM Invited Plenary
- Q AWM Fellows
- R AWM Service Award



## Call to Action

Advocate for a welcoming environment and then lead on what that should look like

- Commit to nominating people for awards
- Commit to bringing in a diverse lineup of speakers
- Make department service transparent and fair
- Open discussions around nixing student evaluations
- Have your friends donate money to orgs supporting women
- Highlight women doing excellent work
- Talk about the challenges facing women and others