

# Gender in the Mathematics Culture

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# Math Joke

A physicist, a biologist and a mathematician are sitting on a bench across from a house. They watch as two people go into the house, and then a little later, three people walk out. The physicist says,....

# Common Perceptions

- Mathematician as:
  - Male
  - White
  - Young (best math is done at a young age)
- Mathematics as a discipline:
  - Logical
  - Math for its own sake, activity of leisure/privilege
- Women as emotional beings, raising families
  - Women mathematicians would thus be seen as an anomaly
  - Raising families meant delayed contributions to research

# Consequences

- Universities like Oxford, Cambridge, Harvard did not admit women until 20<sup>th</sup> century.
- Only 9% women members in editorial boards of math journals
- No female full professor (ever) in pure math at Cambridge University (Philippa Fawcett topped their Math Tripos in 1890)
- Only 15% of full-time tenured positions in the doctoral math departments are held by women in the US.

# Women in Mathematics

- Theano (6<sup>th</sup> century BCE)
- Hypatia (4<sup>th</sup> century)
  
- Al-Ijliya (Mariam al-Arturlabi), 10<sup>th</sup> century
  
  
  
  
  
  
  
  
  
- Emilie du Châtelet, Maria Agnesi, Sophie Germain (18<sup>th</sup> century)
- ....
  
  
- Maryam Mirzakhani (first woman to win the Field's Medal)

# Stories of Perseverance

- Sophie Germain
  - Barred from studying math
  - Would sneak out at night to read math books
  - Published under a male pseudonym initially
- Mary Ellen Rudin
  - Raised four children while managing to do fantastic research
  - Taught as an adjunct by University of Wisconsin, Madison for years without an office or recognition by the department.
  - Treated as “wife of Walter Rudin”
  - Eventually made a full professor.

# Questions to Ponder

- Is mathematics a purely abstract exercise?
- Is the development of mathematics influenced by culture?
- Is the learning of mathematics affected by social biases?
  
- Culture of Mathematics vs The Mathematics Culture (L. Burton)

- Culture of Mathematics - discipline related aspects
  - Beauty of ideas
  - Elegance of proofs
  - Brevity of exposition
  - Rigor
- The Mathematics Culture – how mathematics is experienced
  - Within departments
  - At conferences
  - In classrooms
  - Male domain/cliques

This Mathematics culture influences attitudes and behavior, creates barriers for some and facilitates entry for others.

“It is the mathematical culture that exercises power over how the culture of mathematics is understood.”

# Some Food for Thought



Thank you