



ASSOCIATION FOR  
WOMEN IN MATHEMATICS

# Newsletter

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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.

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## PRESIDENT'S REPORT

As the spring brings fresh new perspectives, the AWM community continues to bloom with new mathematical research and connections. The Joint Mathematics Meetings (JMM) in San Francisco featured sessions ranging across a variety of topics, from mathematical biology to geometry and topology, harmonic analysis, lattice models, operator theory, and EvenQuads honorees and games. **Dr. Anne Schilling** of the University of California, Davis, graciously shared her research on crystal bases in the AWM-AMS Noether Lecture.

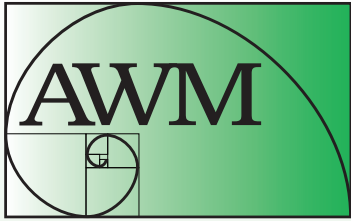
With great pleasure, at JMM, we celebrated the achievements of awardees, including **Yunqing Tang** of the University of California, Berkeley, **Robin Neumayer** of Carnegie Mellon University, **Trena Wilkerson** of Baylor University, and **Cristina Villalobos** of the University of Texas Rio Grande Valley. At the AWM Reception, we recognized the awardees and featured the new 2024 class of AWM Fellows. Consistent with the AWM mission, all the AWM Fellows have achieved much in mathematics, while demonstrating a commitment to the support and advancement of women in the mathematical sciences.

The Friday AWM poster session featured graduate students from across the country who eloquently shared their research projects. The Saturday mentoring luncheon provided opportunities to share how to advance in the mathematics profession. We are thankful for the support from our JMM sponsors: **Jane Street**, **IDA Center for Communications and Computing**, **Elsevier**, the **National Science Foundation**, and the **Mathematical Sciences Institutes Diversity Initiative**.

Over the past few years, I have had the great pleasure of learning from Past-President **Kathryn Leonard**. Her insights, clarity, and thoughtfulness have been a benefit to me. I have first-hand experience of how she has been a benefit to me and the AWM community. I am thankful for her example of leadership and look forward to passing on the knowledge and support that has been afforded to me. With excitement, we welcome President-Elect **Raegan Higgins** of Texas Tech University, who brings a deep enthusiasm for creating mathematical opportunities for others.

We welcome At-Large Members: **Monica Jackson**, **Gizem Karaali**, **Emille Lawrence**, and **Rosa Orellana**; Meetings Coordinator, **Lakeshia Leggette Jones**; Media Coordinator, **Kimberly Ayers**; Newsletter Editor, **Dandrielle Lewis**; Associate Newsletter Editors, **Shea Burns** and **Jenny Fuselier**. It is with sincere gratitude I thank the following, who are rotating off the AWM Executive Committee, for their service: At-Large Members: **Carla Cotwright-Williams**, **Donatella Danielli-Garofalo**, **Elena Fuchs**, and **Michelle Snider**; Meetings Coordinator, **Alina Bucur**; Media Coordinator, **Denise Rangel Tracy**; Newsletter Editor, **Anne Leggett**, and

*continued on page 2*



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AWM was founded in 1971 at the Joint Meetings in Atlantic City.

The *Newsletter* is published bi-monthly. Articles, letters to the editor, and announcements are welcome. Authors sign consent to publish forms. The electronic version is freely available at [awm-math.org](http://awm-math.org).

Opinions expressed in *AWM Newsletter* articles are those of the authors and do not necessarily reflect opinions of the editors or policies of the Association for Women in Mathematics.

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## PRESIDENT'S REPORT *continued from page 1*

Associate Newsletter Editor, **Sarah Greenwald. Johanna Franklin**, thank you for representing the Education and Outreach Portfolio.

While at the JMM, someone bewilderedly asked me why the AWM celebrates prize awardees twice (at the Awards Ceremony and AWM Reception). I calmly replied, "Celebrations of others' achievements should be an infinite, countable set." They smiled and walked away. Please be sure that when you pass by a colleague, take the extra effort to celebrate their achievements, and consider nominating someone for a prize. And please, do not forget to pause long enough to recognize and celebrate your own achievements, both big and small.

*Talitha Washington*

Talitha Washington  
January 25, 2024  
Atlanta, GA



Talitha Washington

## Connecting the Community at JMM 2024

*Darla Kremer, AWM Executive Director*

The 2024 Joint Mathematics Meetings took place in San Francisco from January 3 through January 6, 2024.

The *Awards Celebration* began at 4:45 on Wednesday and was preceded this year by a Prize Winner Meet & Greet and the Ribbon Cutting Ceremony. AWM honored prize winners **Yunqing Tang**, University of California, Berkeley (The AWM Microsoft Research Prize in Algebra and Number Theory); **Robin Neumayer**, Carnegie Mellon University (The AWM Sadosky Research Prize in Analysis); **Trena Wilkerson**, Baylor University (Louise Hay Award for Contributions to Mathematics Education); **Cristina Villalobos**, University of Texas Rio Grande Valley (M. Gweneth Humphreys Award for Mentorship of Undergraduate Women in Mathematics); **Abigail Hickok**, Columbia University, and **Parvathi M. Kooloth**, Pacific Northwest National Laboratory (AWM Dissertation Prize); and **Zoë Batterman**, Pomona College and **(Arianna) Meenakshi McNamara**, Purdue University (Alice T. Schafer Mathematics Prize for Excellence in Mathematics by an Undergraduate Woman winners); and **Mattie Ji**, Brown University, (Alice T. Schafer Mathematics Prize for Excellence in Mathematics by an Undergraduate Woman runner-up).

The prize session was followed by the Grand Opening Reception in the JMM Exhibit Hall. The reception featured live music, a dance stage, a magician, exhibitor demonstrations, and multiple food and beverage stations. The AWM was there demonstrating games to play with our notable women in math playing



Ribbon Cutting Ceremony

cards, selling T-shirts, giving out AWM Student Chapter buttons, and answering questions for our new members. The opening reception paid tribute to the 50th anniversary of the invention of the Rubik's Cube by mechanical-puzzle creator, Ernő Rubik.

The 2024 AWM-AMS Emmy Noether Lecture was delivered on Thursday, January 4, by Anne Schilling, Professor and Mathematics Department Chair at the University of California, Davis. Crystal bases are combinatorial skeletons of Lie algebra representations. Schilling's talk, *The Ubiquity of Crystal Bases*, described how crystal bases arise also in mathematical physics, probability theory, and number theory and demonstrated how crystal theory can be used to solve problems in representation theory, geometry and beyond. If you missed this talk, it will be posted on the JMM YouTube Channel <https://www.youtube.com/@joint-mathematicsmeetings8429/videos>.

The *AMS-AWM Special Session on Solvable Lattice Models and their Applications* was organized by **Amol Aggarwal**, Columbia University, **Benjamin Brubaker**, University of Minnesota, **Daniel Bump**, Stanford University, **Andrew Hardt**, University of Illinois Urbana-Champaign, **Slava Naprienko**, University of North Carolina at Chapel Hill, **Leonid Petrov**, University of Virginia, and **Anne Schilling**, University of California, Davis.

In addition to the AWM Workshop organized by the AWM JMM committee and described later in this issue, AWM endorsed the following as events that make a significant effort to promote women in mathematics or to encourage diverse participation:

*AWM Workshop: Mathematicians + Wikipedia—A Training Edit-a-thon*, organized by **Francesca Bernardi**, Worcester Polytechnic Institute, and **Xavier Ramos Olivé**, Smith College; *AWM Special Session on Recent Developments in Harmonic Analysis*, organized by **Betsy Stovall** and **Sarah Tammen** of University of Wisconsin-Madison; *AWM Special Session on EvenQuads Live and in person*:

*continued on page 4*

## Membership Dues

*Membership runs from Oct. 1 to Sept. 30*

**Individual:** \$70/\$100 **Family:** \$40

**Contributing:** \$160/\$190

**New member, affiliate and reciprocal members, retired, part-time:** \$30/\$35/\$40

**Student:** \$25 **Unemployed:** \$20

**Outreach:** \$10

*AWM is a 501(c)(3) organization.*

## Institutional Membership Levels

AWM offers a tiered pricing structure for institutional memberships in six categories. Higher levels are:

**Supporting Institutions:** \$750+ and

**Sponsoring Institutions:** \$3000+

See [awm-math.org](http://awm-math.org) for details.

## Executive Sponsorship Levels

\$5000+

\$2500–\$4999

\$1000–\$2499

See [awm-math.org](http://awm-math.org) for details.

## Print Subscriptions and Back Orders—

Regular and contributing members living in the US may elect to receive a print version of the *Newsletter*. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for \$75/year. Back orders are \$20/issue plus shipping/handling (\$5 minimum).

**Payment**—Payment is by check (drawn on a bank with a US branch), US money order, or international postal order. Visa and MasterCard are also accepted.

**Newsletter Ads**—AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Managing Director, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the Newsletter must be Affirmative Action/Equal Opportunity designated.* Institutional members receive discounts on ads; see the AWM website for details. For non-members, the rate is \$130 for a basic four-line ad. Additional lines are \$16 each. See the AWM website for *Newsletter* display ad rates.

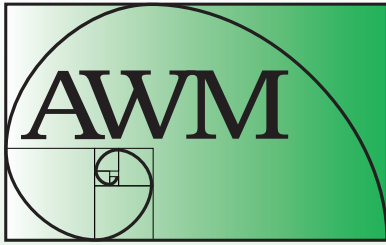
## Newsletter Deadlines

**Editorial:** 17th of January, March, May, July, September, November

**Ads:** Feb. 1 for March–April, April 1 for May–June, June 1 for July–Aug., Aug. 1 for Sept.–Oct., Oct. 1 for Nov.–Dec., Dec. 1 for Jan.–Feb.

## Addresses

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## AWM ONLINE

The *AWM Newsletter* is freely available online.

**Online Ads Info:** Classified and job link ads may be placed at the AWM website.

**Website:** <https://awm-math.org>  
Updates: [webmaster@awm-math.org](mailto:webmaster@awm-math.org)

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## AWM DEADLINES

AWM Events for 2025 JMM: March 31, 2024

AWM Fellows: May 15, 2024

AWM Birman Research Prize: May 15, 2024

AWM Louise Hay Award: May 15, 2024

AWM M. Gweneth Humphreys Award:

May 15, 2024

AWM Mary & Alfie Gray Award

for Social Justice: May 15, 2024

AWM Student Chapter Awards: May 15, 2024

AWM Travel Grants: May 15

and October 1, 2024

RCCW Proposals: July 1, 2024

AWM Workshop at 2025 JMM:

August 15, 2024

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## CONNECTING THE COMMUNITY AT JMM 2024 *continued from page 3*

*The honorees and the games*, organized by **sarah-marie belcastro**, Mathematical Staircase, Inc., **Sherli Koshy-Chenthittayil**, Touro University Nevada, **Oscar Vega**, California State University, Fresno, **Monica D. Morales-Hernandez**, Adelphi University, **Linda McGuire**, Muhlenberg College, and **Denise A. Rangel Tracy**, Farleigh Dickinson University; *AWM Special Session on Women in Mathematical Biology*, organized by **Christina Edholm**, Scripps College, **Lihong Zhao**, Virginia Tech, **Lale Asik**, University of the Incarnate Word; *AWM Special Session on Mathematics in the Literary Arts and Pedagogy in Creative Settings*, organized by **Shanna Dobson**, University of California, Riverside, and **Claudia Maria Schmidt**, California State University.

The AWM Reception and Awards Presentation, sponsored by Jane Street Capital and IDA/Center for Communications and Computing, took place on Friday evening after the poster session. The top three poster presenters, **Han Le**, University of Michigan, **Jessie Loucks-Tavitas**, University of Washington, and **Nitya Mani**, Massachusetts Institute of Technology, were honored as well as the recipients of the AWM Service Awards **Johanna Franklin**, Hofstra University, and **Karoline Pershell**, Service Robotics & Technologies, Inc. The



Abigail Hickok



Treena Wilkerson



Talitha fails to draw a winner in the Awards Ceremony Raffle  
(along with everyone else who tried)

*La Matematica* Chief Editors recognized three editors for their exemplary work on the Editorial board:

**Mark Ward**, for guest editing an extremely successful topical collection with care and attention to constructive reviews and with kindness to all who corresponded with him; **Alicia Prieto Langarica** for cheerfully sticking with it through our initial wrinkles and for wisely shepherding manuscripts through the editorial process; and **Michael Hill** for handling papers in all areas of topology, promoting the mission of *La Matematica*, and crafting conscientious communication when challenges arose in the process.

Finally, the 2024 Class of AWM Fellows was also introduced at this reception: **Erika Tatiana Camacho**, University of Texas at San Antonio, **Ellen Eischen**, University of Oregon, **Kathryn Hess Bellwald**, École polytechnique

fédérale de Lausanne, **Michael Hill**, University of California, Los Angeles, **Christine Kelley**, University of Nebraska-Lincoln, **Matilde Lalin**, Université de Montréal, **Emille Davie Lawrence**, Black Achievement Success & Engagement, University of San Francisco, **Katharine A. Ott**, Bates College, **Margaret Maher Robinson**, Mount Holyoke College, **Karen Saxe**, Macalester College, American Mathematical Society, **Christina Sormani**, Lehman College and CUNY Graduate Center, and **Suzanne L. Weekes**, Society for Industrial and Applied Mathematics (SIAM), Worcester Polytechnic Institute.

A big thank you to all who volunteered at or visited the AWM booth and to all who organized or participated in an AWM session as a speaker or attendee. It's the community that makes it all worthwhile.



Cristina Villalobos



Yunqing Tang



Robin Neumayer



Schafer Prize winners: Zoë Batterman and (Arianna) Meenakshi McNamara



Johanna Franklin

*continued on page 6*



*Michelle Snider accepting the Service Award on behalf of Karoline Pershell*



*Ulrica Wilson*



*Han Le*



*Jesse Loucks-Tavitas*



*Nitya Mani*



*AWM Presidents*



*AWM Fellows*



*Terrence Tao leads a procession from the awards ceremony to the Exhibit Hall*

# AWM Workshop at the 2025 Joint Mathematics Meetings

**Application deadline for graduate student poster session: August 15, 2024**

For many years, the Association for Women in Mathematics has held a series of workshops in conjunction with major mathematics meetings. The AWM Workshops serve as follow-up workshops to Research Collaboration Conferences for Women (RCCW), featuring both junior and senior speakers from one of the AWM Research Networks. An AWM Workshop will be held in conjunction with the Joint Mathematics Meetings in Seattle, WA, January 8–11, 2025.

**FORMAT:** The JMM workshop will include **Special Sessions** showcasing recent work by two of the AWM Research Networks. A **Women in Operator Algebras** session will be organized by Maria Grazia and Sarah Reznikov, and a **Women in Groups, Geometry, and Dynamics** session will be organized by Carolyn Abbott and Rachel Skipper. A juried **Poster Session** for graduate students, a **Professional Development Panel**, and a **Mentoring Luncheon** are all being organized by the AWM JMM organizing committee.

**POSTER SESSION:** The Poster Session is open to all areas of research; graduate students working in areas related to operator algebras or in areas related to groups, geometry, and dynamics are especially encouraged to apply. Poster presenters will be selected through an application process.

AWM will provide partial travel support to selected graduate students for their participation in the AWM Workshop, thanks to the National Science Foundation. Furthermore, the Diversity Committee of the Mathematical Sciences Institutes sponsors all poster presenters to attend a week-long workshop at one of the participating Mathematical Sciences Institutes.

**ELIGIBILITY:** To be eligible for participation and funding, a graduate student must have made substantial progress towards their thesis. Women and non-binary mathematicians with grants or other sources of support are welcome to apply.

All applications should be submitted on [mathprograms.org](https://mathprograms.org) and include:

- a title of the proposed poster
- an abstract in the form required for AMS Special Session submissions for the Joint Mathematics Meetings
- a curriculum vitae
- one letter of recommendation from the applicant's thesis advisor.

Applications must be completed electronically by **August 15, 2024**. See <https://awm-math.org/meetings/awmjmm/> for details.

**MENTORS:** We seek volunteers to act as mentors for graduate students as part of the workshop. If you are interested in volunteering, please contact the AWM office at [awm@awm-math.org](mailto:awm@awm-math.org) by **September 15, 2024**.

**JUDGES:** We also seek volunteers to act as judges for the Poster Session. If you are interested in volunteering, please contact the AWM office at [awm@awm-math.org](mailto:awm@awm-math.org) by **September 15, 2024**.

Mathematicians of all genders are invited to attend the talks and poster presentations. Departments are urged to help graduate students and junior faculty who are not selected for the workshop to obtain institutional support to attend the presentations.

# AWM Workshop at the 2024 Joint Mathematics Meetings

*Asuman G. Aksoy (Claremont McKenna College), Catherine Beneteau (University of South Florida), Matthew Krauel (California State University at Sacramento), Kelly McKinnie (University of Montana), Kate Petersen (University of Minnesota Duluth), Radmila Sazdanovic (North Carolina State University)*

The 2024 Joint Mathematics Meetings were held January 3–6, 2024 in San Francisco. AWM holds a series of events in conjunction with JMM including the Workshop, Special Sessions, panels, AWM-AMS Noether Lecture, Reception and Awards Presentation, and more.

The AWM Workshop included an *AWM Special Session on Women in Operator Theory (WinOT)* and mentoring luncheon which took place on Saturday. A panel and the Graduate Student Poster Session followed by the *AWM Reception and Awards Presentation* took place on Friday, January 5. On Friday an AWM panel on *Celebrating Academic Pivots in Mathematics* was also held. AWM Workshops are structured to build on previous AWM research programs, thereby reuniting researchers working in a common field so as to continue to strengthen the collaboration network.

This session focused on recent advances and applications in operator theory. Topics included the study of curves in the numerical range and operator numerical ranges determined by finite matrices, weighted composition operators, compressions of the shift operator in one and several variables, infinite-dimensional inverse eigenvalue problems and the study of surjective isometries of  $C^*$ -algebras, complex symmetric operators, and geometric properties of noncommutative symmetric spaces of measurable operators.

This year's special session was organized by **Asuman G. Aksoy** (Claremont McKenna College) and **Catherine Beneteau** (University of South Florida), and followed the Lorentz Center workshop, Working Groups for Women in Operator Theory, that was held virtually in July of 2021 as well as the WinOT workshop that was held at the University of Memphis in October 2022.

Nine women mathematicians presented their results. Namely: **Pamela Gorkin** and **Kelly Bickel** (Bucknell University), **Brittney R. Miller** (Coe College), **Linda Patton** (Cal Poly San Louis Obispo), **Anna Kamińska** and **Sana Kazemi** (University of Memphis), **M. Eugenia Celorrio Ramirez** (Lancaster University), **Flavia Colonna** (George Mason University) and **Hyun-Kyoung Kwon** (University at Albany).

The AWM Graduate Poster Session is a judged session, and this year all participating graduate students were offered an opportunity to further anchor themselves in their research fields with a prize like no other: an invitation to participate in a week-long workshop at one of the research institutes. These prizes are made possible in coordination with the NSF Mathematical Sciences Institutes Diversity Committee, co-chaired by **Leslie Hogben** and **Ulrica Wilson**.

The graduate student poster portion of the AWM Workshop remains open to all areas of mathematics, but often includes a number of participants from the special session theme. This more focused and integrated approach fosters networking among participants in the selected topical theme and allows for further mentoring from women leaders in the field. The Friday night Graduate Poster Session was organized by **Asuman G. Askoy** (Claremont McKenna College), **Catherine Beneteau** (University of South Florida), **Matthew Krauel** (California State University, Sacramento), **Radmila Sazdanovic** (North Carolina State University), and **Maria Grazia Viola** (Lakehead University).



*AWM Workshop panel*



## AWM Graduate Poster Session



Presenting this year was quite an accomplishment as there were many submissions to participate and only 20 submissions were ultimately selected. The poster session was open to the public and attracted a large, and entertained, crowd. Judges were able to view the posters, speak with presenters, provide feedback, and decide on the top posters.

At this edition of the JMM the poster presenters were: **Rachael Alfant, Wedad Alharbi, Tahmineh Azizi, Rachel Bailey, Elsie Cortes, Sarah Days-Merrill, Melissa De Jesus, Abigayle Dirdak, Janani Lakshmanan, Han Le, Jessie Loucks-Tavitas, Nitya Mani, Praveeni Mathanga-deera, Grace McCourt, Sarah Poiani, Shraddha Rajpal, Brooke Randell, and Awa Traore.**

This year's top three posters, in alphabetical order, were **Han Le, Jessie Loucks-Tavitas, and Nitya Mani.** The top three received a certificate for this accomplishment.

Overall, participation in the poster session was an excellent opportunity for the graduate students to showcase their work, practice presentation skills in a virtual format, and to be welcomed into the research community.

A special thanks to the volunteer judges **Lale Asik, Kimberly Ayers, Olivia Beckwith, Lea Beneish, Kelly**

**Bickel, Sara Clifton, Pamela Gorkin, Megan Kerr, Jina Kim, Hyun-Kyoung Kwon, Gabe Martins, Denise A. Rangel Tracy, Jennifer Schultens, Chrysoula Tsogka, Anna Weigandt, Morgan Weiler, and Lihong Zhao,** who invested their expertise and time to review the poster presentations and offer pointed and helpful feedback to the students.

This was followed the next day by a mentoring luncheon in which poster presenters met with mentors and discussed a variety of topics. This year, to help isolate discussion themes, presenters posed questions to an online survey in advance. This allowed mentors to respond and for overarching interests to be identified and targeted at the luncheon. Discussions were plentiful and far-ranging and included topics such as working at non-research focused institutions, work-life balance, mentoring students, and more. The current AWM president, together with many previous presidents were also in attendance and helped highlight opportunities for presenters. Additionally, some poster judges and workshop participants also partook and helped create a lively environment. A deep thanks to the mentors **Pamela Gorkin** (Bucknell University), **Anna Kamińska** (University of Memphis),  
*continued on page 10*

**Gizem Karaali** (Pomona College), and **Linda Patton** (Cal Poly, San Luis Obispo). AWM is grateful to Elsevier for their sponsorship of the luncheon.

Celebrating Academic Pivots in Mathematics was the topic of Friday's panel, organized by **Kelly McKinnie** (University of Montana) and **Kate Petersen** (University of Minnesota, Duluth). **Ranthonny A. Clark** (The Ohio State University), **Laura Monroe** (Los Alamos National Laboratory), **Ami Radunskaya** (Pomona College), and **Talitha Washington** (Clark Atlanta University, Morehouse College, Spelman College) served as panelists. In today's changing world, understanding how to navigate changes in one's career and focus is especially important. Panelists discussed career pivots very broadly as pivots away from expectations and towards different opportunities. Some specific topics discussed included shifting research focus within mathematics and to broader areas such as social justice, changing jobs in academia and expanding outside of academia, finding one's path despite expectations or pressure in a different direction, and support opportunities through pivots.

The 2024 AWM workshop was made possible by funding from the National Science Foundation (NSF) through the Division of Mathematical Sciences grant "Mathematical Connectivity through Research and Equity for Women" (NSF-DMS 2113506).

In this article, we highlighted several ways to get involved with AWM: Research Collaborative Conference Workshops, Research Networks, poster sessions, judging, and mentoring. If you are interested in learning more about any of these, please email [awm@awm-math.org](mailto:awm@awm-math.org).

### Workshop Morning Presenter



### Mentoring Luncheon



In 2025, the JMM workshop will include Special Sessions showcasing recent work by AWM Research Networks: Women in Operator Algebras and Women in Groups, Geometry, and Dynamics. A juried poster session for graduate students, a professional development panel, and a mentoring luncheon are all being organized by the AWM JMM organizing committee. Poster applications are due August 15!

### Workshop Afternoon Presenter



# Thanks to Our Sponsors

In addition to the many committee volunteers that make AWM events great, the AWM Workshop is organized by the Research Network WiOT and supported by the NSF-DMS Grant #2113506. Poster presenters are sponsored to attend a workshop at one of the Mathematical Sciences Institutes. This prize is made possible by the Mathematical Sciences Institutes Diversity Committee. Thanks to Jane Street Capital and the IDA | Center for Communications and Computing for sponsoring the AWM Reception and to Elsevier for sponsoring the mentoring luncheon.



Jane Street



Mathematical Sciences Institutes  
**DIVERSITY INITIATIVE**



Center for Communications and Computing  
Bowie, MD • La Jolla, CA • Princeton, NJ

## NSF-AWM Travel Grants for Women

**Mathematics Travel Grants.** The objective of the NSF-AWM Travel Grants is to enable women mathematicians to attend conferences in their fields, which provides them a valuable opportunity to advance their research activities and their visibility in the research community. Having more women attend such meetings also increases the size of the pool from which speakers at subsequent meetings may be drawn and thus addresses the persistent problem of the absence of women speakers at some research conferences. The Mathematics Travel Grants provide full or partial support for travel and subsistence for a meeting or conference in the applicant's field of specialization.

**Selection Procedure.** All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians appointed by the AWM. A maximum of \$2300 for domestic travel and of \$3500 for foreign travel will be funded. For foreign travel, US air carriers must be used (exceptions only per federal grants regulations; prior AWM approval required).

**Eligibility and Applications.** Please see the website (<https://awm-math.org/awards/awm-grants/travel-grants/>) for details on eligibility and do not hesitate to contact [awm@awm-math.org](mailto:awm@awm-math.org) or 401-455-4042 for guidance. Applications from members of underrepresented minorities are especially welcome.

**Deadlines.** There are three award periods per year. Applications are due **February 15, May 15, and October 1.**

# Neena Gupta Named 2025 AWM-AMS Emmy Noether Lecturer

The Association for Women in Mathematics (AWM) and the American Mathematical Society (AMS) announce that Neena Gupta has been selected to deliver the 44th Emmy Noether Lecture at the Joint Mathematics Meetings to be held in Seattle, WA on January 8–11, 2025.

**Citation.** Professor **Neena Gupta**, Professor at Theoretical Statistics and Mathematics Unit (TSMU-Kolkata), Indian Statistical Institute, is recognized for outstanding contributions to affine algebraic geometry, for creating deep theories and research expository that have attracted many mathematicians to the field, and for being a brilliant problem solver who successfully solved one of the most challenging and longstanding open questions of nearly seven decades, the “Zariski Cancellation Problem.”

The discovery of this bridge is itself a landmark with enormous potential. More broadly, Neena has been making masterly contributions in the area of affine fibrations, including a structure theorem for locally Laurent polynomial algebras, a beautiful analogue of the theorem for locally polynomial algebras due to Bass-Connell-Wright and Suslin. In another landmark paper in *Transactions of the AMS* (with Bhatwadekar-Lokhande), Neena presents an infinite family of counterexamples to a conjecture of M. Miyanishi on the invariant subring of a polynomial ring under the additive group  $G_a$ , a topic closely related to Hilbert’s Fourteenth Problem. Further contributions include cancellation property of the affine plane over any field, the discovery of a new class of non-cancellative surfaces (named double Danielewski) and their properties, and the triviality of separable affine three-forms under certain hypotheses. Neena’s work includes results and examples on a question arising out of Zariski’s Theorem on Hilbert’s Fourteenth Problem about finite generation of Noetherian algebras over a two-dimensional regular local ring which are subrings of polynomial rings, results relating “retract of polynomial ring,” “affine fibration,” and “kernel of locally nilpotent derivation,” new algebraic characterizations of the affine plane and the affine three-space.

Gupta has been recognized with a number of high honors, including being invited as an ICM 2022 Sectional Speaker in two sections: Algebra as well as Algebraic and Complex Geometry. In 2019 Neena earned the distinction of being the youngest ever mathematician to be awarded



Professor Neena Gupta

India’s highest scientific honour, the Shanti Swarup Bhatnagar Prize. She received the ICTP Ramanujan Prize in 2021 for “her outstanding work in affine algebraic geometry and commutative algebra, in particular for her solution to the Zariski cancellation problem for affine spaces.”

Neena’s breakthroughs and extraordinarily prolific contributions have been inspiring young researchers in India. Her biography is being published in a book, *Vigyan Vidushi (75 women trailblazers in Indian Science)* on the occasion of 75 years of Indian independence. The Honourable President of India conferred the 2021 Nari Shakti Puraskar (award for woman empowerment) to Neena on International Women’s Day March 8, 2022. Coincidentally, Gupta has also authored a popular article on Emmy Noether: the Mother of Modern Algebra.

*AWM established the Emmy Noether Lectures in 1980 to honor women who have made fundamental and sustained contributions to the mathematical sciences. The lecture honors Emmy Noether (1882–1935), one of the great mathematicians of her time. She worked and struggled for what she loved and believed in. Her life and work remain a tremendous inspiration.*

# Alexandra Seceleanu Wins Ruth I. Michler Memorial Prize

The Association for Women in Mathematics and Cornell University are pleased to announce that **Alexandra Seceleanu** of University of Nebraska has been awarded the 2024–2025 Ruth I. Michler Memorial Prize.

**Citation:** Dr. Seceleanu works widely in commutative algebra with interests in both theoretical and computational aspects. Among her many interests are free resolutions of modules over Noetherian commutative rings and ordinary and symbolic powers of ideals, especially those ideals of interest in algebraic geometry. In addition to more conventional research contributions, she has also made significant contributions to the computer algebra system Macaulay2, providing a further boost to this area. With this fellowship at Cornell University, Seceleanu plans to collaborate with Irena Peeva. Her work also has significant overlap with that of Mike Stillman.

Seceleanu received her PhD from the University of Illinois at Urbana-Champaign in 2011. She was then a postdoc and Edith T. Hitz Research Assistant Professor at the University of Nebraska–Lincoln. She participated in the special semester at MSRI in 2012 as a Postdoctoral Research Member. In 2015 she joined the faculty of University of Nebraska as an Assistant Professor, and she was promoted to Associate Professor in 2021. Her work has been recognized with NSF grants.

In addition to her very impressive research contributions, Seceleanu has significant undergraduate research mentoring experience. Since 2020 she has served as a mentor for the Polymath REU supervising large groups of 20–23 undergraduates each summer on collaborative research.

**Response from Seceleanu.** I am deeply honored to be the recipient of the Ruth I. Michler Memorial Award. This recognition is not only a testament to my individual



Professor Alexandra Seceleanu

contributions, but also a reflection of the support and encouragement I have received from mentors, colleagues, and the mathematical community at large. I am excited about the opportunities this award presents for future collaborations with colleagues at Cornell University and look forward to the contributions this will bring to my research field, commutative algebra. I extend my sincere appreciation to the selection committee for their acknowledgment. I am also grateful to the Michler family, the AWM, and the Cornell Mathematics Department for providing this opportunity.

*The Ruth I. Michler Memorial Prize was established through a generous donation from Ruth's parents Gerhard and Waltraud Michler of Essen, Germany. The award grants a mid-career mathematician a residential fellowship in the Cornell University Mathematics Department without teaching obligations. The Michlers established the memorial prize with the Association for Women in Mathematics to honor Ruth's commitment to the AWM mission of supporting women mathematicians. Cornell University was chosen as the host institution because of its distinctive research atmosphere and because Ithaca was Ruth's birthplace.*



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# Sunčica Čanić Named AWM-SIAM Sonia Kovalevsky Lecturer

The Association for Women in Mathematics (AWM) and the Society for Industrial and Applied Mathematics (SIAM) announce that **Sunčica Čanić** has been selected as the 2024 Sonia Kovalevsky Lecturer. Her lecture will be delivered at the 2024 SIAM Annual Meeting taking place in Spokane, WA, July 8–12, 2024.

**Citation.** Professor Sunčica Čanić is a highly influential applied mathematician working in modeling, analysis, and computations of partial differential equations. She has made profound contributions across a wide spectrum of mathematics, ranging from mathematical analysis of complex physical phenomena, designing new numerical methods, proving their convergence, testing them in rigorous environments, and then applying these workhorse tools to highly practical problems of breakthrough practical importance.

**Biographical Sketch.** Sunčica Čanić (Sunny) earned her PhD in 1992 in the area of nonlinear hyperbolic conservation laws from the Department of Applied Mathematics and Statistics at SUNY Stony Brook. Upon her move to the University of Houston in 1999, she began collaborating with several medical specialists at the Texas Medical Center in Houston on problems related to cardiovascular treatment and diagnosis. She was honored for her research by the National Science Foundation as Distinguished Mathematics and Physical Sciences Lecturer in 2007. Čanić received the US Congressional Recognition for Top Women in Technology in 2006, and she later received the most prestigious award at the University of Houston, the Esther Farfel Award in 2018. She was the only woman to hold a prestigious Cullen Distinguished Professorship position at the University of Houston.

Her research received local and national media attention and was featured in several publications by NSF, NIH, and AMS. Čanić was also invited to present a Congressional Briefing on Applied Mathematics on Capitol Hill on December 6, 2011. She served on the Board of Governors of the Institute for Mathematics and its Applications in Minneapolis, and she was the Program Director of the SIAM Activity Group on Partial Differential Equations. In 2014 she was elected Fellow of the Society for Industrial and Applied Mathematics. Čanić moved to UC Berkeley's Mathematics Department in the Fall of 2018, and is currently serving as Full Professor there. In 2020 she was elected Miller



Professor Sunčica Čanić. Photo by Mia Mirkovic

Research Fellow by the Miller Research Institute at Berkeley, and a Fellow of the American Mathematical Society. Her research on deterministic and stochastic partial differential equations/fluid-structure interaction and numerical methods development influenced the design of a stent for a bioartificial aortic valve placement, produced by a private consortium in Houston, as well as the design of a bioartificial pancreas investigated at the University of California, San Francisco's Biodesign Laboratory.

**Response from Čanić.** It is a great honor to be named the 2024 Kovalevsky Lecturer. I am grateful to AWM and SIAM for keeping increased awareness of contributions by women to mathematics, and for honoring Sonia Kovalevsky's short but impactful mathematics career and her pioneering work on advancing higher education for women in the 19th century.

*The Kovalevsky Lecture honors Sonia Kovalevsky (1850–1891), the most widely known Russian mathematician of the late 19th century. In 1874, Kovalevsky received her Doctor of Philosophy degree from the University of Göttingen and was appointed lecturer at the University of Stockholm in 1883. Kovalevsky did her most important work in the theory of differential equations.*

# Deanna Needell Named 2024 AWM-MAA Etta Zuber Falconer Lecturer

In recognition of her distinguished contributions to mathematics and mathematics education as well as her skill in delivering expository lectures, the Association for Women in Mathematics and the Mathematical Association of America are pleased to announce that the 2024 Etta Zuber Falconer Lecturer will be Dr. Deanna Needell, Professor and Dunn Family Endowed Chair in Data Theory, University of California, Los Angeles. The Falconer Lecture will be delivered at the MAA MathFest, to be held in Indianapolis, Indiana, from August 7–10, 2024.

**Citation.** Needell earned a BS in mathematics from the University of Nevada, Reno, and a MA and PhD in mathematics from University of California, Davis. After serving as a Postdoctoral Fellow at Stanford University and in a faculty position at Claremont McKenna College, Needell is currently at the University of California, Los Angeles, where she serves as Professor of Mathematics (since 2017), Dunn Family Endowed Chair in Data Theory (since 2020), and Executive Director of the Institute for Digital Research and Education (as of 2021). Widely recognized for her contributions and service to mathematics, Needell has earned many awards including the Alfred P. Sloan fellowship, an NSF CAREER award, the 2016 IMA Prize in Mathematics and its Applications, and she was elected an American Mathematical Society Fellow in 2022. As of Fall 2023, she is the Eisenbud Professor at SLMath (formerly MSRI), where she will be participating in the Semester Program on Algorithms, Fairness, and Equity.

Needell is an exceptional researcher. She is a leading expert making fundamental research contributions both to theoretical problems in data science and to their applications, including to important societal issues. In particular, she has been recognized for contributions to sparse approximation, signal processing, and stochastic optimization. It is also noteworthy that she has more than 80 publications in research journals, more than 70 publications in conference proceedings, and more than 20 papers currently under review. She has presented numerous invited lectures, conference presentations, and seminar talks. She was keynote speaker at several prominent conferences, including speaking at the Fields Institute and the SIAM Conference on Applied Linear Algebra.



Dr. Deanna Needell  
Photo by Sierra Sutherland, SLMath

Needell has mentored and advised many mathematicians, including 10 PhD students and 11 postdocs. Since 2017, Needell's AWM involvement includes being a Women in Math and Data Science (WISDM) organizer and leader. Her efforts in the community include involvement with the IChicas program for Latina youth, San Diego Refugee Tutoring (for refugee K–12 students), and many others. She is an active member of the professional mathematics community, serving on numerous boards and committees for the AMS, SIAM, IPAM, and IEEE. Through her active involvement in national committees, work on societal issues and mentoring of students of various backgrounds, Professor Needell is dedicated to broadening access to mathematics. Her ongoing excellence in mathematics research, teaching, and outreach underscores her selection as the distinguished 2024 Etta Z. Falconer Lecturer.

*The Falconer lectures were established in memory of Etta Zuber Falconer (1933–2002). Her many years of service in promoting mathematics at Spelman College and efforts to enhance the movement of minorities and women into scientific careers through many forums in the mathematics and science communities were extraordinary. Falconer lecturers are women who have made distinguished contributions to the mathematical sciences or mathematics education.*

## BOOK REVIEW

*Book Review Editor: Margaret Bayer, University of Kansas, Lawrence, KS 66045-7523, bayer@ku.edu*

**A Review of A History of Women in Mathematics** (ISBN #978 1 39905 651 9) by Dale DeBakcsy, published by Pen and Sword History in 2023. This book is the first in the author's Exploring the Trailblazers of STEM series.

*Reviewer: Becky Hall, Professor of Mathematics at Western Connecticut State University, hallb@wcsu.edu*

Full of interesting stories and witty chapter titles, like “Sofia Kovalevskaya: Love Makes all the Partial Difference” and “Impossible Creatures and How to Make Them: The Topological Legacy of Mary Ellen Rudin,” the book *A History of Women in Mathematics* is an amusing collection of stories that made it hard to put down. The book contains 30 chapters, each focusing on either one woman mathematician, or in some cases, what the author calls “Brief Portraits” of several women. Most chapters are less than ten pages, making the book easy to read during intermittent, short periods of free time (which I found useful as a mathematician mother). The book includes pictures (or drawings/paintings) of sixteen of these women. In selecting which women were included in Brief Portraits versus full chapters, the author writes “A Note on Inclusion,” where he invites feedback from readers about his choices. Even though I am a woman in mathematics, I will admit that I had not heard of many of the women included in this book. This saddens me, but also leads me to feel hopeful for upcoming generations of women who will have access to books like *A History of Women in Mathematics*.

Before reading this book, there were aspects of the history of mathematics that I thought I knew well, like the Newton/Leibniz feud over the invention of calculus. But, in this book I learned about interesting contributions of women within this time period that I did not know about. For example, Émilie du Châtelet translated Newton's *Principia* into French but also [added] extensive commentary that included all of the data gathered in the intervening half century that supported Newton's theories.” Châtelet's translation and commentaries “remains the standard in France to this day.” Also, while England was “dutifully spinning its wheels, completely out of sync with the dizzying speed of mathematical developments in France,” Mary Somerville helped pull England out of its longest period of scientific stagnation. Her first scientific, *Mechanism of the Heavens*, was a translation of Laplace's *Mécanique Céleste*,

which she also expanded and clarified, “filling in the sections where Laplace had somewhat condescendingly placed ‘it obviously follows that...’ when it was not obvious to anyone besides Laplace.”

Of course, contributions from women didn't just come in the form of translating and clarifying the work of men. Even though women often had to overcome many frustrating obstacles, they did make significant contributions, though sometimes they did not receive credit for them. (As a woman mathematician, it didn't come as a surprise to me to read that women faced obstacles, but reading about the extent of the roadblocks was sometimes sobering.) Emmy Noether had to “plead her case for being allowed to sit in the same classroom as men, promising not to be a distraction and silently swallowing their regular advice to turn to more womanly subjects.” Later, despite Noether's published groundbreaking theorem in physics and its corresponding work, it took “pressure from Einstein, Hilbert and Klein” to get the university to allow Noether to lecture. Until this point, Noether had to lecture under Hilbert's name. Even after being allowed to lecture, she was not compensated or recognized until 1922 when she was given a small stipend and an “unofficial associate professor” status. Noether was, of course, not the only woman fighting against societal obstacles. Charlotte Angas Scott (1858-1931) was one of only eleven students in the entering class at Girton College near Cambridge. Students from Girton could seek permission to take courses at Cambridge, but “woman attendees would secrete themselves behind a screen as to not be a distraction to the male students' delicate sensibilities.” Despite this situation, Scott scored among the top ten males on a “fifty-hour, nine-day examination,” which would have meant she earned the title of “Eighth Wrangler,” but the university prohibited her from receiving the title or even attending the award ceremony.

Interestingly, women hadn't always been subjected to such roadblocks. “Sutayta Al-Mahamali (d. 987), as renowned for her legal mind as for her mathematical mastery [was] a woman of genius widely celebrated as such by her culture.” While her life in Baghdad included praise and she was widely consulted for her insights, she has been “sadly reduced to the status of a historical footnote.” Of course, the further back in history, the fewer details are often available about the lives of women mathematicians. In these cases, the author describes the information that is available, including the different versions of the story, and offers insight as to which version is most likely. I appreciated that the author gave historical context for each woman, not assuming the reader is an expert in history. For those



readers interested in a particular woman's story, the author lists "Further Reading" recommendations at the end of each chapter.

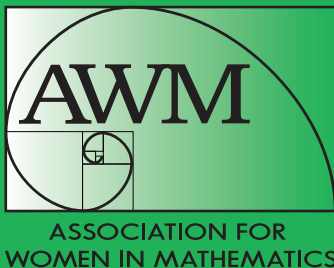
In addition to providing historical background for each woman, the author puts his "maths teacher hat" on as needed throughout the book to help the reader understand the basic ideas (and sometimes includes many details) connected to each woman. He even includes a glossary of mathematical terms at the end of the book, which he humorously titles "So, What Precisely Does ... Mean? A Glossary of Mathematical Terms." This allows the non-mathematician reader the ability to understand the general mathematical ideas used throughout the book.

As I read *A History of Women in Mathematics*, I saw that despite the variety of upbringings and cultures, the women highlighted in this book often had many similarities. Many of them were self-taught, and many of them mastered several languages. Another comparison made by the author in Chapter 28 is that a common thread among many women in mathematics is that she is brilliant on her own and works hard to contribute, only to end up getting married, moving to where her husband works, and this ultimately leads to "doing part-time work on the fringes of her discipline." Of course, there were women mathematicians who had supportive husbands and continued success after marriage, but that was more of the exception. Many other comparisons can be made among women in this book.

Let's compare Maria Gaetana Agnesi, of Milan in the eighteenth century, who was paraded around as a child prodigy (despite her shy nature), to Sofia Kovalevskaya, a Russian nineteenth-century mathematician whose parents were "content to leave be." Both women, from different countries and different centuries who were raised in contrary ways, contributed to their fields while suffering in similar ways as children. Sofia "was an anxious child, given to

terrifying night visions and fits of panic" while Maria "hated every minute" of the academic performances forced upon her by her father. These "performances plunged her into a serious illness at the age of 11." Another comparison that is interesting to make is with Katherine Coleman Goble Johnson (1918-2020) and Evelyn Boyd Granville (1924-2023), who were both African-American women and had connections with NASA. At the time, calculations for NASA were done by hand by a small group of women mathematicians, including a racially segregated group that included Katherine Johnson. Despite the conditions, Johnson contributed significantly to the Mercury and Apollo missions and was considered "a maestro of trajectories, NASA's go-to mathematician for developing the equations of the country's first ventures into space." Born just six years after Johnson, Evelyn Granville was "the second Black American to earn a PhD in mathematics, she harnessed her knowledge of numerical analysis ... to garner for herself ... positions at IBM, NASA and the NAA, working on the era's biggest computational puzzles." Both African-American women broke barriers in the fields of mathematics and significantly contributed to NASA's space program.

The last chapter of *A History of Women in Mathematics* contains a Brief Portrait of over 60 women. The last half of this chapter includes many women who are still alive today, actively contributing to the field of mathematics. Overall, I found this book easy to read and filled with humor and wit. It is filled with relatable and inspiring stories of women who overcame barriers to make significant contributions to their respective fields of mathematics. The author demonstrated vast knowledge of the many fields discussed in this book. He brought insight to the women in this book, their fields of mathematics, and their time in history. The reader does not need to be an expert in either history or mathematics to enjoy this book.



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## EDUCATION COLUMN

Education Column Editor: Jackie Dewar, Loyola Marymount University, [jdewar@lmu.edu](mailto:jdewar@lmu.edu)

# Learning is Humbling... and Necessary for Educators

Jo Hardin, Professor of Mathematics and Statistics,  
Pomona College

Let's start with what we all know: learning is hard. It takes effort, practice, and focus. As educators, we want our students to work harder and to work smarter. We have a laundry list of ways in which they can be more effective in their learning: put in the hours, go through more questions, come to office hours, talk in community about the problem set, ... But when was the last time you learned something new? I mean *really* new? When was the last time you attempted to learn something unfamiliar? In such a way that you didn't even know the tools that would help you put in the effort, the practice, and the focus? When was the last time you were a student?

Lately, I've taken up a few new challenges that have given me an enhanced perspective on learning. The adventures have humbled me greatly, but even more importantly, they've given me a window into the strange and daunting student experience.

### Tap dancing

While maybe not fair to consider it as a "new experience" (I've danced on and off since I was young), the first novel adventure I'd like to discuss is a tap class (that's right, tap dancing). Bluntly, the class is out of my league. Everyone else in the class either studies or teaches dance professionally (I'm a statistician). It is the "advanced" class, and it moves quickly both in terms of the steps as well as the music. Most weeks, I leave class close to tears. You might be wondering: why do you go? Because I love tap dancing, and I love the challenge. You might be wondering: why are you close to tears? Let me tell you about the Shim Sham.<sup>1</sup>

The Shim Sham is **not** a difficult tap dance. In fact, it is considered tap dancing's national anthem. All different levels of tap dancers know and perform the dance regularly at competitions, performances, and generally anywhere tap

dancers gather. But I don't know the Shim Sham. I've never learned the Shim Sham. In my class, each week we dance the Shim Sham exactly once as part of the warm-up. I've caught on to about 2/3 of it, for some of it I can fumble through, and for some of it I just stand and watch my peers dance. One day in class, my teacher expressed that our class would be dancing (with other classes) the Shim Sham at the upcoming recital. No way am I going to dance the Shim Sham in front of other people. **I don't know the Shim Sham!**

When we dance the Shim Sham in class, I get incredibly frustrated. Quite a few thoughts contribute to that sentiment. I think a lot about how I should know the Shim Sham because it is a reasonably easy dance. I think about how I'm in an advanced class, where everyone already (expectedly) knows the Shim Sham. I also wonder *whose responsibility it is for me to learn the Shim Sham?* If the class is advanced, does that mean I'm supposed to learn the Shim Sham on my own? Or is it the teacher's responsibility to teach me



**Figure 1:** Screen shots from a video of a recent tap performance I did with a friend. Top panel, me (on the left) totally lost, having forgotten the steps, looking to my friend to figure it out. Bottom panel, my friend and I, in sync and dancing confidently.

<sup>1</sup> [https://en.wikipedia.org/wiki/Shim\\_Sham](https://en.wikipedia.org/wiki/Shim_Sham)

the Shim Sham because she is the **TEACHER**? Doesn't she notice that I always stop halfway through and look around because I don't know the steps? If it is my responsibility to learn the Shim Sham on my own, how do I learn it? An internet search shows many different variations on the Shim Sham, different enough to make it difficult to learn the version we dance in class. And the videos I can watch online don't really *teach* the Shim Sham, they just show people dancing.

All of this gets my brain really focused, again, on how I don't know the Shim Sham. And I'm frustrated with the teacher, I'm disappointed at the lack of resources for learning the Shim Sham, and most of all, I feel terrible about myself because I don't know the Shim Sham. And guess what? At this point in class, ten minutes later, we've moved on to something else with the majority of my brain space being taken up by my feelings of inadequacy. When I refocus, I have no idea what the teacher is explaining. I find myself completely lost, and now there are new tap steps being covered that I don't know. The learning has continued without me. Sigh. Figure 1 shows two versions of me as a tap dancer: one lost and one confident.

Fortunately for me, the class is only an hour per week and nothing about my livelihood depends on my learning the Shim Sham. I don't actually have to take the final exam (that is, dance in the recital), and I get to choose how much I want out of the experience. Still, my discomfort leaves me thinking a lot about my students and how they experience learning when they feel similarly inexperienced, unqualified, and/or distracted by the plethora of other things occupying their own brain space, sometimes rendering them unable to fully engage with the class. Unfortunately, for them, usually, learning in my classroom *matters*.

## SQL

The second adventure I've embarked on recently is learning SQL (a programming language primarily used to access and wrangle data from large databases). I offered to teach a two-week intensive short course on SQL, partly to force myself to engage with it. Before embarking on learning SQL, I had used SQL a few times, and it also has similarities to a programming language with which I am very familiar (wrangling data using the tidyverse in R). So, I thought that learning SQL couldn't be that hard. But learning a new tool to use and learning a new tool to teach are two completely different tasks.

In R, a data frame is a compilation of individual observations we can investigate as a complete object (for example, we can easily determine how many rows and columns it has). In SQL, the datasets can be large enough that they

**You**  
using mysql i want to rename two of my variables in the select command. then i want to subtract those two new variables.

**ChatGPT**  
Certainly! In MySQL, you can use aliases to rename variables in the SELECT command. Here's an example of how you can rename two variables and then subtract them:

```
sql Copy code
SELECT
  column1 AS new_name1,
  column2 AS new_name2,
  (new_name1 - new_name2) AS result
FROM
  your_table;
```

Replace `column1` and `column2` with the actual column names you want to rename, and `your_table` with the name of your table.

This query uses the `AS` keyword to assign aliases to `column1` and `column2` as `new_name1` and `new_name2`, respectively. Then, it calculates the difference between the two newly named columns and aliases the result as `result`.

**You**  
that query tells me that i can't use new\_name1 because it is an unknown column

**Figure 2:** I ask ChatGPT how to do a reasonably straightforward query. I inform ChatGPT that its suggested code is wrong (does not work).

**ChatGPT**  
I apologize for the confusion. In SQL, you can't refer to column aliases in the same `SELECT` clause. To achieve the desired result, you can use a subquery or a common table expression (CTE). Here's an example using a subquery:

```
sql Copy code
SELECT
  new_name1,
  new_name2,
  (new_name1 - new_name2) AS result
FROM (
  SELECT
    column1 AS new_name1,
    column2 AS new_name2
  FROM
    your_table
) AS subquery_alias;
```

In this query, I've wrapped the original query inside a subquery (the derived table) and then referred to the column aliases in the outer query. The outer query can now use the column aliases `new_name1` and `new_name2` along with the calculation of the difference.

Replace `column1` and `column2` with your actual column names and `your_table` with the name of your table.

**Figure 3:** After learning that the code didn't work, ChatGPT apologizes and provides a correct solution.

*continued on page 20*

aren't easy to treat as an object to examine. While it may seem like a minor distinction, many of the data wrangling skills I have previously developed fall short when working with SQL tables. Consequently, I'm led to question my background preparation for learning SQL. That is, I thought SQL would build from my R skills, but instead, I find myself needing different skills. As a mere beginner, I am challenged with the daunting task of understanding the larger structure in which SQL and R are different and similar.

Like the Shim Sham, I am also lost when it comes to using resources to determine what I need to know to successfully prepare my curricular materials. Recently I spent a few hours doing internet searches to figure out a reasonably basic SQL task. I wanted to rename a variable in the SELECT command and then take the difference between the two variables. After multiple dead-end searches, I asked ChatGPT, which happily and confidently provided me with the wrong answer. However, because I had been reading help forums for hours, I immediately knew that ChatGPT was wrong and what the SQL error would be. I explained the problem to ChatGPT which apologized and proceeded to give me exactly the answer I was looking for. It took ChatGPT and me, working together, about 20 seconds to get to the correct answer. It probably would have taken much longer if I hadn't already spent the hours reading many posts on how to solve SQL problems. Figures 2 and 3 show my "conversation" with ChatGPT.

Learning SQL has helped me reflect on how hard it is to *learn how to learn* a new idea. I ask myself whether I am efficiently using tools at my disposal. For example, what is the best way for me to understand the role of variables in a SQL table? Are the internet searches only surface level learning, or am I getting a deeper understanding by beating my head against the wall for hours? How do I learn how to learn smarter? How do I teach how to learn smarter?

Does ChatGPT help me understand SQL or does it just help me solve the specific problem I need to know? To be honest, in my very specific example, I think that ChatGPT *did* help me understand SQL more deeply than I had before. After seeing the correct answer, I finally understood the difference between a variable in the original dataset and a variable in the results set. Our students use ChatGPT in all the aforementioned ways. As educators, we need to embrace its use and recognize that it can sometimes help the learning process. Yes, yes, of course, it can also hinder the learning process. But before casting judgment about ChatGPT, perhaps you might try learning something completely new

where it might be useful. Work on the new idea for hours or days or weeks. And then switch to using generative AI. Reflect on how your learning changes and whether your learning is more superficial, deeper, correct, or incorrect. All of the above? Know that your students are learning in the same way you are learning, and your job remains the same, even in a new world of generative AI: to teach.

## Lessons

I thought I was embarking on two quests: to learn some tap dancing and some SQL. Enough, at least, to dance in the recital and to teach others SQL with some semblance of confidence. Along the way, I learned a lot about being a student (again). It is extremely refreshing *and frustrating* to be on the other side, with very little knowledge of the content or the system.

We as educators should continue to learn. There are new ways to learn that students are utilizing (i.e., ChatGPT). We should not shy away from them. Instead, I encourage interacting with and understanding such new tools so they can be at our disposal, too.

As I gear up to teach again in a few weeks, I'll try to implement some of the lessons that I've learned as a renewed student and longtime educator. In particular, I plan to:

- 1. pay attention.** What are the signs that a student is struggling or not following the material?
- 2. talk to the students.** Ask them how I can best support their learning. Ask them where they get stuck. Ask them what their in-class experience is like. Ask them what they'd like to get out of the class.
- 3. be flexible.** Recognize that I'm teaching a range of students with a range of different backgrounds and experiences who are all trying to accommodate my teaching style. I'll try to meet them half-way, how can I achieve the same rigor of instruction while allowing them leniency?
- 4. be approachable.** Look for ways to make students feel empowered in their resources, advocacy, and access to help.
- 5. discover what success means to my students.** For some, success will mean complete mastery of the nuanced details. For others, it will mean passing the class. Or it might be for them to figure out how to apply the ideas to the outside world. Understanding what a student wants to get out of the class will allow me to be a better teacher to their desired learning outcomes.

Learning is humbling, because it is frustrating, hard, and consistently reminds us what we do not know. But

learning is also rewarding and provides us the ability to continuously expand our knowledge. Students grapple with such conflicting sentiments every day in our classrooms. Once in a while, it's useful for us educators to remind ourselves of them, too. Sometimes, the best way to help our students is to once again, be a student.

My journey isn't done. Part of the joy of being an academic is that I can be a life-long learner. At this moment, I don't have to know everything or to be the perfect teacher. But, I do need to think about ways I can continue to improve and grow, and facilitate the same for my students. In that light, I remind myself of the things I'm still learning, including:

1. how different students engage differently with the material, the classroom, and college in general;
2. how to use generative AI to enhance student learning; and
3. of course, how to dance the Shim Sham.

**Acknowledgement:** The author would like to thank Lauren Quesada for edits on the first draft and for being a student who makes her a better teacher.

---

## Re-introducing EvenQuads!

The EvenQuads project commemorates the 50th anniversary of the AWM and includes both an online treasure trove of information about amazing women mathematicians and physical decks of cards, posters, and stickers. For the decks, one side of each card features logos inspired by four mathematical associations (AWM, MAA, NAM, WME) used to play the mathematical EvenQuads games, and the other side features a short biography and hand-drawn portrait of an inspirational woman mathematician. Longer, detailed biographies of each mathematician and individual downloadable posters are available at <https://awm-math.org/publications/playing-cards/> (QR code above).



Decks 1 and 2 together honor 128 mathematicians whose stories deserve their place in history. Both sides of the deck can be used to play at least 10 mathematical games.

Deck 2 is now available at the AWM e-store (<https://store.awm-math.org/collections/evenquads/products/evenquads-deck-2-notable-women-in-math-playing-cards>). There are also Deck 1 sticker sets and full-size posters showing all 64 women on Deck 1 available for purchase.

The EvenQuads project welcomes more nominations of women for consideration! (Use the form provided on the first webpage, or the QR code above).

### CALL FOR PROPOSALS

## Research Collaboration Conferences for Women

The AWM works to establish and support research networks for women in all areas of mathematics research. In particular, the AWM RCCW Committee provides mentorship and support to new networks wishing to organize a Research Collaboration Conference for Women (RCCW). The Committee offers help finding a conference venue, developing and submitting a conference proposal, and soliciting travel funding for participants. Thanks to a National Science Foundation grant, some funding may be available through the AWM to support new RCCWs, especially interdisciplinary proposals and proposals that bring together researchers from traditionally underrepresented populations.

Mathematicians interested in organizing the first conference of a new RCCW are invited to submit a proposal to the AWM describing the conference topic, potential co-organizers and project leaders, and potential participants. Proposals should be no more than one page (PDF files only, please) and should be sent to [awm.rccw@gmail.com](mailto:awm.rccw@gmail.com). Deadlines for submission: **February 1** and **July 1**.

More information about Research Collaboration Conferences for Women, existing RCCW networks, and related initiatives can be found at <http://awm-math.org/programs/advance-research-communities/>.

# The Alphabet Soup of IRAs

By Kathleen McKinstra, [kathleen@awm-math.org](mailto:kathleen@awm-math.org)

As family and friends approach their early 70s, conversation can often include the topic of investment decisions and retirement planning, including the requirement to take mandatory distributions from IRA accounts.

Once an individual turns age 72 (age 73 if reached age 72 after December 31, 2022) they are required to take a minimum distribution from their IRA account based on IRS actuarial tables. (This rule does not currently apply to ROTH IRAs). This distribution is often called the *Required Minimum Distribution* or RMD. Some people select to take these distributions on a quarterly basis, others as an annual lump sum, some take their distributions monthly. Irrespective of when the distributions are taken, required minimum distributions from an IRA are considered taxable income.

Many people who are required to take a RMD may not be aware that they can avoid including all or part of their RMD distribution as taxable income. If the RMD is directed to a legally recognized nonprofit organization, such as the Association for Women in Mathematics (AWM), the distribution is considered a *Qualified Charitable Distribution (QCD)*.

When done correctly this approach can yield tangible tax benefits as the distribution will avoid being included

as taxable income. The key is that the distribution must be paid directly from their IRA account to the legally recognized nonprofit organization, like the AWM. Additionally, it should be noted that the distribution is limited to no more than \$100,000 annually per IRA account holder.

If the funds are made payable to the account holder, they must be included as taxable income. Of course, the account holder can then make a charitable gift of the funds to a desired nonprofit and claim a charitable deduction but using this approach, the donor is required to include these funds as part of her taxable income.

*When required to take a distribution from an IRA account, using one's RMD to make a QCD can be an effective way to begin or continue a pattern of philanthropic giving while at the same time generating favorable tax treatment regarding the distribution. Again, it is important to note that there is no charitable deduction for the amount of the distribution since the amount was not included as taxable income.*

If you are required to take a minimum distribution from your IRA you can take advantage of this technique and direct all or part of your distribution to benefit the AWM. Arranging for this begins with contacting your IRA administrator to learn what information they require. If you would like to learn more about this or other tax savvy ways to support the AWM, contact Development Director, Kathleen McKinstra at [kathleen@awm-math.org](mailto:kathleen@awm-math.org).

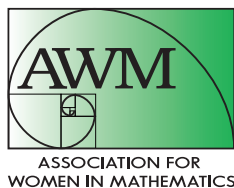
## CALL FOR NOMINATIONS

### The Association for Women in Mathematics Student Chapter Awards

In September 2016, the Executive Committee of the Association for Women in Mathematics established the Student Chapter Awards, to be awarded annually at the MAA MathFest. The purpose of these awards is to recognize outstanding achievements in chapter activities among the AWM student chapters.

Awards will be given out in up to four categories: (1) scientific excellence, (2) outreach, (3) professional development, and (4) funding/sustainability. More details about each category can be found on the AWM website [awm-math.org](http://awm-math.org).

Any chapter may nominate itself for awards in one or two categories. The nomination should include: 1) A cover letter: The cover letter should summarize the chapter's qualifications for the award category to which it is nominating itself. If the chapter is applying in two categories, it should ensure that both categories are clearly included in one cover letter. 2) An activities report: The activities report, 500–1000 words in length, should give a detailed description of the particular work for which it is seeking an award. If the chapter is applying in two categories, a separate activities report is required for each. Nomination materials should be submitted online at [MathPrograms.org](https://mathprograms.org). The submission link will be available 45 days prior to the nomination deadline. Nominations must be received by **May 15, 2024**. If you have questions, phone 401-455-4042, email [awm@awm-math.org](mailto:awm@awm-math.org), or visit <https://awm-math.org/awards/awm-student-chapter-awards/>.



## 2025 AWM Prizes and Awards Call for Nominations

Nominations for the following AWM prizes and awards will be accepted between April 1 and May 15, 2024 on [mathprograms.org](https://mathprograms.org) and will be presented during the Joint Prize Session at the Joint Mathematics Meetings in Seattle in 2025.

### 2025 Class of AWM Fellows

The Association of Women in Mathematics Fellows Program recognizes members of any gender who have demonstrated a sustained commitment to the support and advancement of women in the mathematical sciences, consistent with the AWM mission: “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.” For more information visit <https://awm-math.org/awards/awm-fellows/>.

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### 2025 Louise Hay Award

The Louise Hay Award for Contributions to Mathematics Education recognizes outstanding achievements in any area of mathematics education, to be interpreted in the broadest possible sense. The annual presentation of this award is intended to highlight the importance of mathematics education and to evoke the memory of all that Hay exemplified as a teacher, scholar, administrator, and human being. For more information visit <https://awm-math.org/awards/hay-award/>.

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### 2025 M. Gweneth Humphreys Award

The M. Gweneth Humphreys Award recognizes outstanding mentorship activities. This prize is awarded to a mathematics teacher who has encouraged women undergraduate students to pursue mathematical careers and/or the study of mathematics at the graduate level. M. Gweneth Humphreys (1911–2006) taught mathematics to women for her entire career, first at Mount St. Scholastica College, then for several years at Sophie Newcomb College, and finally for over thirty years at Randolph-Macon Woman’s College. This award, funded by contributions from her former students and colleagues at Randolph-Macon, recognizes her commitment to and her profound influence on undergraduate students of mathematics. For more information visit <https://awm-math.org/awards/humphreys-award/>.

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### 2025 Joan & Joseph Birman Research Prize in Topology and Geometry

The AWM Joan & Joseph Birman Research Prize in Topology and Geometry highlights outstanding research by a woman in topology and geometry. Made possible by a generous contribution from Joan Birman who works in low dimensional topology and her husband Joseph Birman who was a theoretical physicist, this prize has been awarded every other year since 2015. For more information visit <https://awm-math.org/awards/awm-birman-research-prize/>.

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### 2025 Mary & Alfie Gray Award for Social Justice

The AWM Sadosky Research Prize in Analysis recognizes the vigorous and imaginative application of the mathematical sciences to advancing the cause of social justice, defined as promoting a just society by challenging injustice and valuing diversity. The prize, awarded for the first time in 2023, is named for Mary Gray, Founder and Past President of AWM, who has lived her life fighting for social justice and human rights, and Alfred Gray who was devoted to working with mathematicians from around the world, and with students from underrepresented groups within the United States. For more information visit <https://awm-math.org/awards/gray-award/>.

# AWM Thank-Yous

AWM is grateful to those whose donations support its mission of creating a community in which women and girls can thrive in their mathematical endeavors. We extend a special thank you to AWM contributing members and donors. We also thank those who prefer to remain anonymous. (This list reflects activity from July 1, 2022–June 30, 2023).

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*One anonymous gift was made in honor of Bete Pereira*

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*One anonymous gift was made in memory of Robert Linden Joy*

\*Contributing Member



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AWM relies on its institutional members and sponsors for sustaining AWM programs that support women in the mathematical sciences during the AWM membership year October 1, 2022 through September 30, 2023.

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A conflict of interest may exist when the interest (financial or other) or concerns of any member of AWM, or the member's immediate family, or any group or organization to which the member has an allegiance or duty, may be seen as competing or conflicting with the interests or concerns of AWM.

When any such potential conflict of interest is relevant to a matter requiring participation by the member in any action by AWM or any of its committees to which the member belongs, the interested party shall call it to the attention of AWM or the committee and such person shall not vote on the matter. Moreover, the person having a conflict shall retire from the room in which the organization or its committee is meeting (or from a conference call) and shall not participate in the final deliberation or decision regarding the matter under consideration.

The foregoing requirements shall not be construed as preventing the member from briefly stating her position in the matter, nor from answering pertinent questions of other members, as her knowledge may be of great assistance.

The minutes of the meeting of the organization or committee shall reflect when the conflict of interest was disclosed and when the interested person did not vote. When there is a doubt as to whether a conflict of interest exists, and/or whether a member should refrain from voting, the matter shall be resolved by a vote of the organization (or its committee), excluding the person concerning whose situation the doubt has arisen.

A copy of this conflict of interest statement passed by the AWM Executive Committee, Vancouver, 8/16/1993, shall be published once a year in the *AWM Newsletter*, and any member serving as an officer or on a committee shall be advised of the policy upon undertaking her duties.



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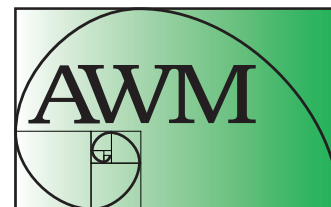


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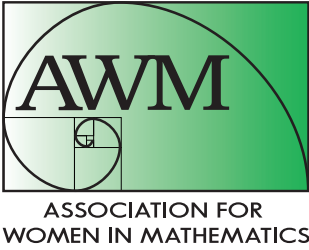
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## ASSOCIATION FOR WOMEN IN MATHEMATICS

Volume 54, Number 2, March–April 2024

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Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Country (if not U.S.) \_\_\_\_\_ E-mail Address \_\_\_\_\_

Position \_\_\_\_\_ Institution/Org. \_\_\_\_\_

Telephone: Home \_\_\_\_\_ Work \_\_\_\_\_

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