



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.

IN THIS ISSUE

- 2 AWM Essay Contest**
- 3 Nancy Kopell: The Story of Many Beginnings**
- 5 Book Review**
- 8 Education Column**
- 11 Media Column**
- 14 In Memory of Mary Ann Horn**
- 15 2025 AWM Prizes and Call for Nominations**
- 16 Student Chapters Column**
- 20 Chat with a Mathematician**
- 21 Announcements**
- 22 Thank You**

PRESIDENT'S REPORT

Gauss said that “Mathematics is the Queen of all Sciences.” While the prominence and beauty of mathematics remain steady, at the same time, we have academic programs being questioned. The question of relevance to other disciplines. The question of revenue generation via tuition or grant funding. The question of value to those inside and outside the ivory tower.

While we become unsettled as mathematics programs become canceled, we must take a step back and use our problem-solving strategies to bring new solutions and ideas on repositioning mathematics. Reposition? This does not imply that we flip the “Queen” entirely around. This just may be as simple as reaffirming our value to our students, to our colleagues, and to the broader communities.

As the Chips and Science Act descends from the Hill and key technology areas send a call to all the STEM communities, we too can answer that call. These key technology areas all have mathematical influences. The key areas include artificial intelligence, high performance computing, quantum technology, advanced manufacturing, disaster prevention, advanced communications, cybersecurity, biotech, advanced energy efficiency, and material science. From these areas, we can provide the value of developing fundamental mathematics research that blossoms into essential ingredients that moves technology forward.

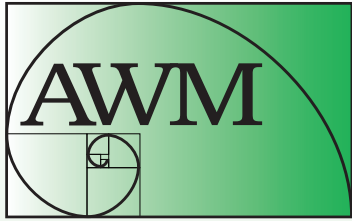
As more and more students graduate and enter industry, government, and nonprofit organizations, we have the opportunity to explore the interplay of mathematics in various sectors. While professors may feel disconnected from the path of students to outside of academia, we can help develop these paths and learn new ways that support student trajectories that contribute to mathematical knowledge both inside and outside of academia. We can start with making bridges with our alumni via LinkedIn and cultivating mathematical connections.

So, what can we do when programs are being questioned? Be proactive and interrogate the value of mathematics instead of assuming others know or understand. And, in our messaging to others, we may need to expand the way we convey our value in new, novel ways. So, while many institutions are facing real challenges, let's take steps together as a community because I believe we can find the answers. While these remarks are my own opinions, I also have a strong opinion about the beauty and importance of mathematics. Together, we can, and we will, continue to preserve the beauty of mathematics.

Talitha Washington
April 24, 2024
Atlanta, GA



Talitha Washington



ASSOCIATION FOR WOMEN IN MATHEMATICS

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

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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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AWM Essay Contest

Congratulations to all the winners of the 2024 AWM/MfA Essay Contest for biographies of contemporary women in mathematics! Many thanks to Johanna Franklin, Hofstra University, contest organizer, and to the other members of the committee, along with the many volunteer judges. We are also grateful to Math for America for their sponsorship of this contest. The essay contest is intended to increase awareness of women's ongoing contributions to the mathematical sciences by inviting sixth-graders through college seniors to write biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers.

The 2024 Grand Prize essay appears after the list of this year's winners. To see the other prize-winning essays, visit <https://awm-math.org/awards/student-essay-contest/2024-student-essay-contest-results/>.

Grades 6–8

First Place (and Grand Prize winner)

Contestant: Alma Miller (Pressman Academy)
Title: Nancy Kopell: The Story of Many Beginnings
Interviewee: Nancy Kopell (Boston University)

Honorable Mentions

Contestant: Anujin Batkhuu (Don Valley Middle School)
Title: Women in Math: Indefinite
Interviewee: Khulan Tumenbayar (National University of Mongolia)

Contestant: Alan Zhang (Frances C. Richmond Middle School)
Title: Passing the Torch of Mathematical Love
Interviewee: Olivia Chu (Dartmouth College)

Grades 9–12

First Place

Contestant: Verónica Contreras Sotelo (Catalina Foothills High School)
Title: Teachers Who Inspire: Vanessa Meneses's Work at the End of the American Continent
Interviewee: Vanessa Angelica Meneses Herrera (Colegio Marista Santiago)

Honorable Mentions

Contestant: Annie Katz (The Leffell School)
Title: Mathematics at Mach Speed: Tulin Kaman's Soaring Journey in Safeguarding Skies and Transforming Cancer Treatment
Interviewee: Tulin Kaman (University of Arkansas)

Contestant: Beaza Solomon (Ridge Point High School)
Title: Finding Strength in Numbers: The Journey of Dr. Deanna Haunsperger
Interviewee: Deanna Haunsperger (Carleton College)

Undergraduate

First Place

Contestant: Maria Grozeva (Dartmouth College)

Title: The Geography of a Mathematician

Interviewee: H el ene Seroussi (Dartmouth College)

Honorable Mentions

Contestant: Mithra Karamchedu (Harvey Mudd College)

Title: Dr. Maria Klawe: Pattern and Connection

Interviewee: Maria Klawe (Math for America)

Contestant: Charlotte Richards (Pitzer College)

Title: Random Walks for Representation

Interviewee: Sarah Cannon (Claremont McKenna College)

Nancy Kopell: The Story of Many Beginnings

Alma Miller, Pressman Academy

We often assume that to be successful, you must have your entire career planned out. You must know exactly what you want to do early on so you can get a head start and focus on it. Nancy Kopell has proven that this is not always true. A self-described “constant beginner,” she has married her training in mathematics with new interests. She has never been afraid to chase after new passions and chart her own path through life.

Nancy Kopell was born in the Bronx in 1942. When she was young, her family thought that she was developmentally delayed. All this changed when she received her first pair of glasses at age five. Nancy participated in a program that allowed her to skip a grade in middle school. She was accepted into a competitive high school but her parents didn’t allow her to attend because they thought it wasn’t the right environment for her. When Nancy Kopell graduated high school, her parents assumed she would attend a city university and live at home, as her sister had done. She eventually convinced them to let her go away for college and attend Cornell, majoring in mathematics.

Nancy had not entered college with the idea that she would go on to graduate school. Both her mother and her sister had received undergraduate degrees in mathematics but had never pursued any higher education or a career. This is why, when Nancy decided to get a Ph.D. at Berkeley, it came as a surprise to her family. Nancy Kopell’s time at Berkeley was her first real experience of sexism in the sciences. She said her male peers viewed her like a dancing bear. If she could do it, meaning mathematics, she would not do it well but the attempt would be amusing. When she was 24, she received her Ph.D. with a dissertation in dynamical systems. She expressed gratitude for her thesis year in which she got to study math with an unparalleled intensity. Yet, when she moved on to a prestigious position at MIT, she could not bring herself to continue working on the subject of her dissertation. The thought of pursuing the same topic made her feel what she

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: \$35

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

Outreach: \$10

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Supporting Institutions: \$750+ and

Sponsoring Institutions: \$3000+

See awm-math.org for details.

Executive Sponsorship Levels

\$5000+

\$2500–\$4999

\$1000–\$2499

See awm-math.org for details.

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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.

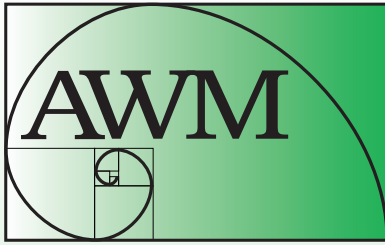
Newsletter Deadlines

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

Ads: Feb. 1 for March–April, April 1 for May–June, June 1 for July–August, August 1 for September–October, October 1 for November–December, December 1 for January–February

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Updates: webmaster@awm-math.org

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AWM DEADLINES

RCCW Proposals: July 1, 2024
AWM Student Chapter Awards: May 25, 2024
AWM Travel Grants: May 15, 2024
AWM-Birman Research Prize: May 15, 2024
AWM Fellows: May 15, 2024
AWM Louise Hay Award: May 15, 2024
AWM M. Gweneth Humphreys Award:
May 15, 2024
AWM-AMS Noether Lecture:
September 15, 2024
Mary & Alfie Gray Award for Social Justice:
May 15, 2024
AWM Alice T. Schafer Prize:
September 15, 2024
AWM Dissertation Prize: September 15, 2024
AWM-SIAM Kovalevsky Lecture:
September 15, 2024

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NANCY KOPELL: THE STORY OF MANY BEGINNINGS *continued from page 3*

described as “claustrophobic.” She noticed that many mathematicians would take their work deeper and deeper, getting more specialized. Nancy wanted to take her work wider and wider and cover new ground. That is when she decided that it was time to make a change.

Nancy Kopell switched from MIT to a tenure track position at Northeastern University. She developed an interest in catastrophe theory and became an expert in the subject. After an encounter with the famous chemical reaction known as the Belousov-Zhabotinsky reaction, a new fascination with self-organization emerged. What interested her was how, when the fluid was stirred, it would oscillate between red and blue but when it was left alone, it would create mesmerizing patterns. This was in a time when you could not simply Google a topic you wanted to learn more about. Nancy went in search of someone who had expertise in the field. She walked across the river to MIT to find a professor who was absent that day. Instead she found Lou Howard. Their shared interest turned into an eight-year collaboration. It was during this time that she redefined herself from a pure mathematician to an applied mathematician.

The journey that started in patterns of chemical reactions ended somewhere different, neuroscience. The rhythms in chemical reactions that she had studied were actually similar to those in neuroscience. Rhythmic functions, like walking and chewing, are controlled by a central pattern generator, networks of neurons in the brain. Nancy then became more interested in what rhythms have to do with things that are less obviously rhythmic, like thinking, attention, and memory.

In 1986, Nancy Kopell moved to Boston University’s mathematics department where she is still a professor today. She noted that the collaborative environment at Boston University allowed her to partner with people from different departments supporting her approach to mathematics. In 1990, she was awarded the MacArthur Fellowship, more commonly known as the MacArthur “Genius Award.” Every year, the MacArthur Fellowship is given to between twenty and thirty people from all fields who have shown “extraordinary originality and dedication in their creative pursuits and a marked capacity for self direction.” These words seem to apply perfectly to Nancy Kopell. Nancy’s interest in brain rhythms has led her to research brain diseases. Understanding brain rhythms gives you a handle on how you might go about intervening in diseases. Changing brain rhythms can impact disease progression. For example, deep brain stimulation treatment for Parkinson’s disease, in which an electrode is placed in the brain, can regulate brain rhythms and reduce symptoms. Currently, she is working on the role of brain rhythms in early development. It turns out that these brain rhythms are crucial for the kind of changes that occur when a baby grows. The ability to understand which brain rhythms are normal and which are abnormal allows for early detection and intervention for many conditions. Figuring out how to make the abnormal brain rhythms go back to normal could lead to life-changing treatments.

After a lifetime of following her passions, the advice Nancy Kopell would give young people is to always work hard and keep your eyes open for new opportunities. You don’t have to feel that, since you have dedicated time to one specific thing, you’re locked into that pursuit for life. What one studies is not who they are. As humans, we are always growing and evolving and so are our interests. Nancy Kopell never remained in one place, she was always reaching out for new possibilities.

BOOK REVIEW

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

Count Me In: Community and Belonging in Mathematics

Edited By Della Dumbaugh and Deanna Haunsperger
ISBN 9781470465667

Reviewer: Margaret Bayer

This book has 26 chapters, written by different practitioners who create community in mathematics. It is split into two parts: Part 1 has 13 articles about programs for high school and undergraduate students; Part 2 has 13 articles about programs for graduate students and professional mathematicians. I will highlight a few of the stories that stood out to me, but recommend that you look for more in the book. In this age of attack on diversity, equity, and inclusion (DEI), the book gives us arguments to fight back and confirms the importance and the efficacy of our efforts.

One thing that is clear from all the chapters is that, while the projects are designed to foster community among the student participants, they also foster community among the faculty and staff (and between faculty and students). In many cases, former student participants return as mentors and staff. All the authors wrote about how they grew in confidence and understanding through their work on the projects.

The work described in the book certainly refutes the quote from Oswald Veblen (1950), given in the Introduction (p. xi): “The more one is a mathematician the more one tends to be unfit or unwilling to play a part in normal social groups. In most cases that I have observed, this is a necessary, though definitely not a sufficient, condition for doing mathematics.” It seems that one goal of the programs described in the book is to eliminate any vestige of this sentiment.

Part I includes methods for improving student engagement in their own high school or college environment, as well as programs that bring students from different places together to engage in mathematics. Some of the programs specifically target women, some target underrepresented minorities, and some do not specify the audience. I was disappointed that there was not an article about Uri Treisman’s Emerging Scholars Program, which he initiated at University of California, Berkeley in the late 1970s. This program has had a great influence on programs since then. Ami Radunskaya describes this influence on her work, as she had participated in Treisman’s program as a peer mentor when she was an undergraduate at Berkeley. Another contributor, Erica Winterer, is a current graduate student of Treisman at University of Texas at Austin, and describes life in his calculus classes.

Although Part I describes itself as including both high school and college programs, only a couple of the projects are in the schools. It would have been nice to read about more math camps or see more about math circles for high

continued on page 6

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 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.**

BOOK REVIEW *continued from page 5*

school teachers and/or students. Both math circles and a math camp play an important role in the work in indigenous communities, reported by Belin Tsinnajinnie and Sam Kennedy, but I did not notice other examples. (Ami Radunskaya did mention that former participants in the EDGE program often run math circles.)

One program discussed in the book is Prepare2Nspire at University of Minnesota Twin Cities. This program pairs 11th graders with 8th graders as (older) peer mentors and tutors. Small groups of four 11th graders, four 8th graders and one college student work together. One nice touch is that each group is named for a STEM professional from an underrepresented group. Besides tutoring time, the group shares a meal. Meals are commonly used in the various programs to give participants the opportunity to share experiences and advice about navigating the academic and professional world. The school program for indigenous and Latinx communities, mentioned above (the Alliance of Indigenous Math Circles) involves elders and experts from indigenous communities along with mathematicians, recognizing indigenous contributions to, and connections with, mathematics.

A couple of the stories at the undergraduate level are histories of interventions begun decades ago at small colleges. At St. Olaf College, a dramatic change in attitude of the faculty about who should be a math major resulted in a dramatic increase in math majors, to large numbers that have been sustained for years. (St. Olaf graduates more math majors each year than my university, which has over six times the total number of undergraduates.) The historical

chapter on Bryn Mawr shows how mathematics leaders over 50 years stressed the importance of the physical environment and welcoming workspaces. (Somehow the chapter manages not to mention Emmy Noether...) Another local program, at Youngstown State University, pairs upper division math majors with first- and second-year students. This increases retention of math majors but also results in students getting involved earlier in research and other mathematics-related activities.

Most of the chapters about undergraduate programs, however, deal with short or long-term programs that bring students from around the country, and sometimes from around the world, to conduct research together. These can be very short, such as the Nebraska Conference for Undergraduate Women in Mathematics, or as long as a year, such as the post-baccalaureate program at Smith College. I personally have benefited indirectly from the summer school ECCO, the Encuentro Colombiano de Combinatoria, a program described by founders Federico Ardila-Mantilla and Carolina Benedetti-Velasquez. This program has produced an enthusiastic pipeline of Latin American mathematicians in combinatorics. Research Experiences for Undergraduates (REUs) at the University of Iowa and the University of Minnesota Duluth are also described. Many other programs steer students to participate in REUs around the country.

Before turning to programs for graduate students and professional mathematicians, let me mention a chapter that is in Part I, but is really about transition. One of the better-known programs in the book is the EDGE program (Enhancing Diversity in Graduate Education), begun in 1998. The program has helped hundreds of women, primarily

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. 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/research-networks/>.

women of color, make the decision to enter graduate school in mathematics, make that transition and succeed. It has also built a vibrant community of former and current “EDGErs.”

Many of the programs highlighted for graduate students and beyond can be classified in a few types. There are research programs that focus on a particular mathematical discipline, programs that focus on a particular underrepresented group (women, Blacks, LGBTQ+, etc.), and programs that focus on a particular stage of career or career issue.

A chapter on Women in Numbers tells the story of one of many research networks that have emerged for women in individual disciplines, often with support from a National Science Foundation ADVANCE grant obtained by the AWM. (A list can be found on the AWM webpage, at <https://awm-math.org/programs/research-networks/>.) Mentioned in this chapter is anecdotal evidence that some men discount the work of such collaborations and question how much credit to give to coauthors. We must fight against this attitude when we see it.

The Infinite Possibilities Conference series brings together women mathematicians from underrepresented groups (Black, Latina and Native American). The conference has attracted an audience of 200 people, who gain much energy and confidence from being in a setting with so many mathematicians that look like them. In addition to mathematics talks, it includes sessions on race and gender, and the intersection of identities. While the conference lasts only a few days, the relationships created there continue.

Another conference series is CAARMS: Conference of African American Researchers in the Mathematical Sciences. Edray Herber Goins writes about this and about NAM (National Association of Mathematicians) in his chapter “From the Diary of a Black Mathematician.” He also tells of some history of exclusion of Blacks from events at the Institute for Advanced Study (1930s), the University of Michigan research seminars (1937), and the Southeastern Section of the Mathematical Association of America (1951). While such blatant exclusion is not practiced by many

today, the many chapters in this book point to the continued need to promote inclusion.

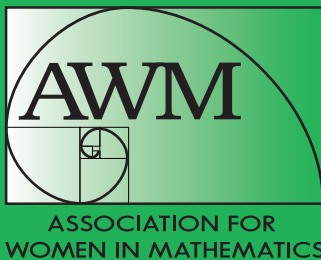
The United States has made great progress in acceptance of LGBTQ+ people in recent decades, and now we are dealing with a backlash. Spectra is an organization for LGBTQ+ mathematicians and their allies. Four mathematicians at different stages in their careers (Christopher Goff, George Bradley, Alexander Hoover and Aubrey Kemp) tell their stories. One of the points they make is that it is important for gay mathematicians to be “out” in order to help support trans and nonbinary colleagues and students.

With social media, we can find community in smaller ways, too. One example is “Math Mamas.” This is primarily a social media group of women mathematicians dealing with work-life balance, which can be an extreme issue when one is trying to develop a career while caring for small children. When I say this is in “smaller ways,” I mean that it requires less organizational work, not that it impacts fewer people. There are reportedly over 800 participants in the Facebook group. Informal gatherings have happened at national meetings, and the group inspired an issue of “Math and Motherhood” in the *Journal of Humanistic Mathematics*.

I apologize to those projects that I have not had the space to highlight in this review. (By the way, I was able to get a free pdf of the book as a member of the American Mathematical Society, so I encourage the reader to do so as well.)

Some of the programs that were originally restricted to certain populations, such as women or African Americans, have had to remove restrictions, or have found a tougher time getting funding. It seems that they have generally found ways to maintain their focus, and we can perhaps learn from them how to operate, partly with more careful language, in the current “anti-DEI” climate.

I see at least three important uses of this book. It can inform people about programs they might be eligible to participate in, it can give people ideas on how to set up or improve their own programs, and it can give hope to all of us that we can improve community, and thereby diversity, in mathematics.



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EDUCATION COLUMN

Education Column Editor: Jackie Dewar, Loyola Marymount University, jdewar@lmu.edu

The Role of Families in STEM Learning

Toya Jones Frank, Affiliate Faculty, Mathematics Education Leadership, George Mason University

I was a high school mathematics teacher for nearly a decade before returning to graduate school to become a mathematics educator and professor for another decade. In both secondary and post-secondary courses, one of the very first exercises I assign is authoring a mathematics biography. People who teach math and science, especially at the secondary level and post-secondary levels, tend to have strong command of the content knowledge. Being so adept at the subject matter sometimes leads to difficulty when working with struggling students. This has been called the “expert blind spot” in education research. I have found it key for my students and me to delve into our own mathematics autobiographies. We looked for salient points in identities as math learners, such as: issues of ability, points of privilege and oppression, and our relationship to the subject matter. We also highlighted influential people and moments that shaped who we are and how we approached mathematics teaching. Since I asked students to share their experiences, I found it only fair that I shared mine. Here is a brief excerpt of my autobiography that I used to share with my students:

My family has been incredibly influential in shaping my perceptions of myself as a learner of mathematics. My father, a self-taught computer programmer, always told people that I got my “math brain” from him. Growing up, I was never afraid of doing mathematics because my father always made it seem as if it were something that we were predestined to do and be successful at it thanks to our “math gene.” On the other hand, my mother always raved about how proud she was to have daughters (my sister also had lots of success in math classes) who were highly successful in a subject area that challenged her. To this day, she still talks about how she feels like our success in math is her victory.

Although the stories my students and I shared were vastly diverse and different from one another in a myriad of

ways, there were some common threads. One major trend, which is highlighted in my excerpt above, is the role of family support in mathematical success. Though I now know that we do not possess a “math gene” (and, honestly, we are all math people), it was my parents’ encouragement and belief that was a grounding force in my mathematical aspirations and ultimate success. My family offered identity affirming practices, which have been found to be key in mathematics identity formation in children, especially for children of color (Cunningham, 2021). Identity formation in mathematics is important, as it sets the tone for how students see themselves as participants in mathematics. Many times, I have heard, “She’s not a math person, and neither were we” from caregivers seeking a way forward with their student’s math grade during conferences. This often led to explaining how I determined grades and sharing identity affirming encouragement with both student and caregiver.

Now, years later as a mother and lover of mathematics, I am navigating the world of decimals and long division with my beautiful firecracker of a daughter who thinks her math teacher sets the sun in the sky. I’ve been met with “That’s not how Ms. Johnson¹ said we should do it” or “I’m not sure you know what you’re talking about, Mom.” While I get a little frustrated sharing the idea of multiple solution paths, I am also inspired by the amount of trust and admiration that my daughter has for her mathematics teacher. I am also impressed with her teacher’s ability to keep the lines of communication open with all her parents—those of us who are supporting the content at home, as well as those of us who need some tutoring ourselves.

Research on the Roles of Family and Community on Learners

As a parent who has lived on both sides of the mathematics teacher desk and as an education researcher, I am intrigued and invigorated by seminal and more contemporary research that really challenges the mathematics and STEM education communities about the role of families in school. We are in an age where the role of parents and caregivers in schools is scrutinized daily. Teachers are critiqued, and misplaced blame often rests at their feet. The research presented below demonstrates that there is much more power in families and teachers supporting each other so that students thrive.

I was first introduced to the role of family and communities in mathematics teaching and learning through the groundbreaking work on Funds of Knowledge.² Researchers

¹ Pseudonym used.

² <https://fundsofknowledge.org/the-funds-of-knowledge-approach/>

such as Norma Gonzalez, Marta Civil, and Luis Moll put forth this framework for understanding how communities and families possess resources that are used everyday and hold promise for pedagogical practices (Gonzalez et al, 2006). Numerous examples by Civil and colleagues (e.g., Civil & Planas, 2009; Civil, 2007; 2018) offered a unique lens to investigate the lived experiences of Latinx families and how their everyday practices are tools for future formal learning in mathematics. This work has launched others to develop a much-needed line of mathematics education research that examines how honoring the lived experiences of families can build bridges to mathematics teaching and learning. In a related vein, Yosso's (2005) community cultural wealth offered the field an important framework for examining how students possess important forms of capital/wealth that helps them navigate schooling and, specifically, mathematics and other STEM subjects (e.g., Rincon et al., 2020). These forms of capital include navigational capital (i.e., students' ability to navigate unsupportive environments) and resistance capital (i.e., students' rejection of negative stereotypes and grounding of themselves in pride of their cultural legacy) and have proven to be instrumental in STEM student success.

Another line of inquiry related to families and mathematics education is research that pushes the field to examine the role of families in schools. Researchers like Calabrese-Barton and Tan (2019) present the notion of *right-*

ful presence for students, meaning "legitimate membership in a classroom community because of who one is (not who one should be), in which the practices of that community work toward and support restructuring power dynamics toward more just ends through making injustice and social change visible" (p. 618). This work has recently expanded to think through what *rightful familial presence* means for schooling, STEM achievement, and working toward social justice in STEM education. They critically examine what it means for families and caregivers to have legitimate participation as full contributors to their students' learning.

In closing, parents are deemed as children's first teachers, and literally usurped the role of teachers as we all were bound to our homes during COVID-19. Harper et al. (2021) remind us that parents were busy drawing on funds of knowledge as well as the formalized mathematics resources provided by schools. Matthews et al. (2021) remind us of Black parents' agency to advocate for their children's mathematics learning during the pandemic. Their work sheds light on how important it is for those of us in education to not fall victim to deficit-focused views of families of color. I am thankful to these researchers who recognized this critical moment to highlight the roles of families and caregivers. They push us to look forward and center familial voices as a way to proceed. So much mathematics (and other STEM

continued on page 10

CALL FOR NOMINATIONS

The Association for Women in Mathematics Dissertation Prize

In January 2016 the Executive Committee of the Association for Women in Mathematics established the AWM Dissertation Prize, an annual award for up to three outstanding PhD dissertations presented by female mathematical scientists and defended during the 24 months preceding the deliberations for the award. The Prizes will be given for those dissertations deemed most outstanding by the award committee. The award is intended to be based entirely on the dissertation itself, not on other work of the individual.

To be eligible for the award graduate students must have defended their dissertation within the last two years (September 15, 2022 to September 14, 2024). They must either be a US citizen or have graduated from a university in the US. The Prizes will be presented at the Joint Mathematics Meetings in San Francisco, CA.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted. Nominations of members of underrepresented minorities are especially encouraged. The nomination should include: 1) a one to three page letter of nomination highlighting the exceptional mathematical research presented in the dissertation, 2) a copy of the dissertation and/or a URL address where it can be accessed, 3) two letters supporting the nomination, and 4) a curriculum vitae of the candidate not to exceed three pages. Nomination materials should be submitted online at [MathPrograms.org](https://www.mathprograms.org). The submission link will be available 45 days prior to the nomination deadline. Nominations must be received by **September 15, 2024**. If you have questions, phone 401-455-4042, email awm@awm-math.org, or visit awm-math.org/awards/awm-dissertation-prize/ for more information.

subjects) takes place outside of school. Perhaps those of us who influence school-focused mathematics should take a seat, listen, and learn.

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CALL FOR NOMINATIONS

The 2025 Etta Zuber Falconer Lecture

The Association for Women in Mathematics and the Mathematical Association of America (MAA) annually present the Etta Zuber Falconer Lecture to honor women who have made distinguished contributions to the mathematical sciences or mathematics education. These one-hour expository lectures are presented at the MAA MathFest each summer. While the lectures began with MathFest 1996, the title "Etta Zuber Falconer Lecture" was established in 2004 in memory of Falconer's profound vision and accomplishments in enhancing the movement of minorities and women into scientific careers.

The mathematicians who have given the Falconer lectures in the past are: Karen E. Smith, Suzanne M. Lenhart, Margaret H. Wright, Chuu-Lian Terng, Audrey Terras, Pat Shure, Annie Selden, Katharine P. Layton, Bozenna Pasik-Duncan, Fern Hunt, Trachette Jackson, Katherine St. John, Rebecca Goldin, Kate Okikiolu, Ami Radunskaya, Dawn Lott, Karen King, Pat Kenshaft, Marie Vitulli, Erica Walker, Izabella Laba, Talithia Williams, Pamela Gorkin, Tara Holm, Bonita Saunders, Suzanne Weekes, Tatiana Toro, and Deanna Needell.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted, in which case there must be at least one additional letter of support. Nominations for members of underrepresented minorities are especially encouraged. The letter of nomination should include an outline of the nominee's distinguished contributions to the mathematical sciences or mathematics education and address the nominee's capability of delivering an expository lecture. A curriculum vitae of the candidates not to exceed three pages is also required. Nominations are to be submitted as ONE PDF file via MathPrograms.org. The submission link will be available 45 days prior to the deadline. Nominations must be submitted by **September 15, 2024** and will be held active for a total of two years (one year beyond the initial nominations). If you have questions, phone 401-455-4042, email awm@awm-math.org or visit <https://awm-math.org/awards/falconer-lectures/> to learn more.

MEDIA COLUMN

Media Column Editors: Sarah J. Greenwald, Appalachian State University, appalachianawm@appstate.edu and Alice Silverberg, University of California, Irvine, asilverb@math.uci.edu

Mean Girls, 2024

*Cindy Lawrence, Executive Director and CEO,
National Museum of Mathematics*

A number of years ago, I had the opportunity to see *Mean Girls* on Broadway, a musical adaptation of the 2004 film. Now, this cult-favorite story has come full circle in a new mashup that brings some of the music from the show back to the silver screen. Having written a review [1] of the Broadway show after watching it with a mathematician friend, I decided that this time, I'd watch the movie with non-mathematicians. In particular, I asked a veteran middle and high school teacher as well as two young women, ages nine and fourteen, to accompany me. I didn't just want to see and enjoy the movie; I wanted to see it with and through the eyes of others.

The movie was an overall hit. Once again, the storyline, with its good-triumphs-over-evil message, left everyone in an upbeat mood. But there were some subtle and not-so-subtle differences this time around.

Perhaps one of the biggest differences is the insertion of social media as a means for students to communicate with—and belittle—each other. It is a sad but true fact that bullying no longer occurs only face-to-face, nor is it always a slowly developing situation. The movie clearly demonstrates the speed with which reputations can be burnished—or tarnished—over social media, with texts flying across the screen almost too quickly to read. Perhaps this resonated strongly with the audience not just as a window into current teen experiences, but due to the parallel that exists in the modern day adult world, where social media amplifies the ability to spread “fake news” and exacerbates the “cancel culture” that impacts—often unfairly—so many people.

Other differences in the new movie compared to the old revolve around cultural changes: this time around, there's a focus on strong women: Cady is being raised by a single mother with no mention of her father; Regina's mother is highlighted while her father makes only a brief appearance; and the male principal can't handle publicly addressing a group of young women, passing off instead to the female calculus teacher. There's also more gender diversity, with Cady's friends Damian and Janis both being openly

queer, and an attempt to insert more ethnic diversity, with Gretchen, Janis, and Karen being of Latina, Hawaiian, and Indian heritage, respectively. It seems that screenwriter Tina Fey was actively trying to indicate how times have changed, with nontraditional families and diversity in gender and ethnicity being more accepted now than was the case twenty years ago.

How does math play into all this? Sadly, the way math is represented in the 2024 movie is not very different from how it was represented in the original 2004 movie or in the Broadway show from 2018. The math team members are still portrayed as socially awkward, and Cady still seems to feel that hiding her skill in math is a way to build a relationship with a boy she likes. It's probably an unintended ding on math teachers when Cady's calculus teacher gives her a failing grade, noting that all of her work is correct while all of her answers are incorrect. I wish I could believe this was solely exaggeration for comedic effect, but unfortunately, it's a story many of us have seen before...

And what of my movie compatriots? The teacher indicated that he's certainly observed students acting unkindly to amuse or gain acceptance from their peers, and that he's also seen young women who excel in math, science, and engineering try to hide their talents from others. So perhaps the fact that there's little change in the updated movie's depiction of teenage behavior, or in the hesitation of some young women to demonstrate their intellectual acuity in areas that have been historically male-dominated, is just a reflection of a society that hasn't changed as much as we'd like in the last twenty years.

The reactions of the two young women who accompanied me were also interesting, not so much in their opinions about the movie—they both loved it—but in the discussion that followed about how math was represented in the movie and about their own experiences with math in school.

When I asked if being good at various endeavors, such as sports or art—or math—would make one more popular in school, the fourteen-year-old quickly answered that it would depend on what school you attend. Certainly this is likely true in NYC, where there are schools specifically for students who excel in STEM, in the arts, etc. In contrast, the nine-year-old had a more simplistic view—she felt being good at sports would always make you more popular, whereas being good at math *might* make you more popular, but it would definitely make you a “nerd.”

The fourteen-year-old also immediately informed me, without being asked, that she was “bad at math.” I was struck—but not surprised—by the fact that she shared this

continued on page 12

information so readily, since I've seen the same with many adults. It later came up in conversation, however, that she does very well in her physics class. When I pointed out that she probably couldn't be good in physics without having some ability in math as well, she shook her head assuredly and stated again, "I'm just bad in math." It saddened me that her identity as someone who is bad in math was so firmly rooted in her mind.

On the other hand, the nine-year-old informed me chirpily that she was good in math, that she liked being good in math, and that she would never hide that fact—she was proud of it! She also noted that the movie would make other people realize that math is "cooler than what it looks like." It was clear that she enjoyed being good in math, even though she recognized that made her a "nerd."

While such a small sample size can't be used to draw conclusions, the reactions of these two young women

aligned with my past observations and experiences, both as a parent of three children (two of them daughters) and as the Executive Director of the National Museum of Mathematics. I've noticed that in elementary school, even if being good in math makes one a nerd, it's often something to be proud of. As students move into middle school and high school, the situation becomes more nuanced, and the school one attends and the peers one is surrounded by are more likely to impact one's feelings about and self-identification with mathematics.

I'll never forget the year one of my children, then in fourth grade, came home worried that she might not make the math team, since only five children from her elementary school were being selected. That same night, my oldest, then in 9th grade, came home equally worried about not being able to participate on the math team. But his reason was quite different: it seemed the teacher could not find five interested students—the minimum required to participate in the tournament—in the entire high school population. It certainly made me

CALL FOR NOMINATIONS

The 2025 Kovalevsky Lecture

AWM and SIAM established the annual Sonia Kovalevsky Lecture to highlight significant contributions of women to applied or computational mathematics. This lecture is given annually at the SIAM Annual Meeting. Sonia Kovalevsky, whose too-brief life spanned the second half of the nineteenth century, did path-breaking work in the then-emerging field of partial differential equations. She struggled against barriers to higher education for women, both in Russia and in Western Europe. In her lifetime, she won the Prix Bordin for her solution of a problem in mechanics, and her name is memorialized in the Cauchy-Kovalevsky theorem, which establishes existence in the analytic category for general nonlinear partial differential equations and develops the fundamental concept of characteristic surfaces.

The mathematicians who have given the prize lecture in the past are: Linda R. Petzold, Joyce R. McLaughlin, Ingrid Daubechies, Irene Fonseca, Lai-Sang Young, Dianne P. O'Leary, Andrea Bertozzi, Suzanne Lenhart, Susanne Brenner, Barbara Keyfitz, Margaret Cheney, Irene M. Gamba, Linda J.S. Allen, Liliana Borcea, Éva Tardos, Catherine Sulem, Lisa Fauci, Vivette Girault, Anne Greenbaum, Annalisa Buffa, and Sunčica Čanić.

The lectureship may be awarded to anyone in the scientific or engineering community whose work highlights the achievements of women in applied or computational mathematics. Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted, in which case there must be an additional letter of support. Nominations of members of underrepresented minorities are especially encouraged. The letter of nomination should outline the nominee's contributions to applied or computational mathematics and provide a list of some of their most important research papers. This letter must be accompanied by a citation of about 100 words that may be read when introducing the speaker and a curriculum vitae of the candidate not to exceed three pages. Nominations are to be submitted as ONE PDF file via [MathPrograms.org](https://www.mathprograms.org). The submission link will be available 45 days prior to the deadline. Nominations must be received by **September 15, 2024** and will be kept active for a total of two years (one year beyond the initial nominations).

The awardee will be chosen by a selection committee consisting of two members of AWM and two members of SIAM. Please consult the award web pages www.siam.org/prizes/sponsored/kovalevsky.php and [awm-math.org/awards/kovalevsky-lectures/](https://www.awm-math.org/awards/kovalevsky-lectures/) for more details.

wonder what happens between elementary school and middle/high school that dampens an early enthusiasm for math—and this concern was one of the driving forces behind my involvement with MoMath.

The movie *Mean Girls* remains an enjoyable romp through the social jungle of high school, replete with villains, heroes, and redemptions, and newly accented by music and a more modern cultural landscape. And it accurately depicts the strong impact social norms have on the behavior of young people, serving as a reminder that there is

still much to do to make math appealing to students of all ages. While it doesn't overly improve on stereotypes surrounding mathematics, at least one nine-year-old thinks that the new *Mean Girls*, like the movie and show that came before it, still sends the message that math is cool.

[1] *Mean Girls on Broadway*, Cindy Lawrence, *AWM Newsletter*, March–April 2020, pp. 28–30, <https://www.drivehq.com/folder/p8755087/17863218325.aspx>

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 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 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 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.

In Memory of Mary Ann Horn

Suzanne Lenhart, Chancellor's Professor, Department of Mathematics, University of Tennessee, Knoxville, and Irena Lasiecka, Distinguished University Mathematical Sciences Professor, The University of Memphis and Commonwealth Professor of Mathematics-Emeritus, University of Virginia, Charlottesville

We mourn the loss of Mary Ann Horn, who passed away on February 7, 2024, at the age of 58 years old. She graduated from Penn State University with a Bachelor of Science in Mathematics in 1987. She was awarded a very competitive NSF Graduate Student Research Fellowship for her graduate studies at the University of Virginia. She received her master's degree and next her PhD in Applied Mathematics from the University of Virginia in Charlottesville in 1992. Her graduate advisor was Irena Lasiecka, with whom she co-authored numerous research papers in control theory for partial differential equations. She was a postdoc at the University of Minnesota from 1992-1995 with funding from an NSF Postdoc Fellowship and an Institute for Mathematics and its Applications postdoc. Her mentor was Walter Littman, and their collaboration resulted in several research papers. In 1992, research involving control theory was special, which fit well in her research area of control of partial differential equations (PDEs). She was an organizer of several mathematical conferences at Vanderbilt and Minnesota.

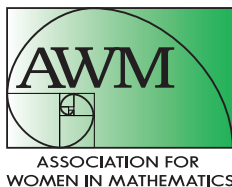
Dr. Horn became a faculty member in the Department of Mathematics at Vanderbilt University in 1994. She continued her high-quality research work in control of PDEs and began to work in mathematical biology. She was a program director in applied mathematics and mathematical biology at the National Science Foundation from 2004–2020. Through her NSF work, Dr. Horn made strong contributions to the Mathematical Biosciences Institute at The Ohio State University and at the National Institute for Mathematical and Biological Synthesis at the University of Tennessee. She has been recognized for spearheading joint projects funded by NSF and NIH in mathematical biology. She was awarded a Humboldt Fellowship to carry out research with the team led by Professor Leugering at the University of Erlangen in Germany. She became professor and chair at Case Western Reserve University in Cleveland, OH in 2020. Her research interests include control of distributed parameter systems, optimal control, nonlinear analysis, partial differential equations, and applications in the biological sciences and medicine.



Mary Ann Horn

Dr. Horn was generous with her time in mentoring many student and faculty members. She was active in the mathematical community; among her many contributions, she served as the treasurer of the Association for Women in Mathematics and on the Board of Trustees of the Society for Industrial and Applied Mathematics. Her outgoing, supportive, yet professional, attitude was much appreciated by her colleagues, co-workers, and students. She had a wonderful capacity for remembering people, their names, and faces, as well as their research fields and a host of details. She helped bring people together who could connect in mutually beneficial ways. She will be missed in our mathematical community.

Mary Ann learned to fly, and in the '80s her uncle helped build a two-seater experimental RV aircraft for her. She loved animals and always shared her life with one or two of her favorite cats.



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 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/>.

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/>.

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/>.

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/>.

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/>.

STUDENT CHAPTERS COLUMN

*Student Chapters Chair: Monica Morales-Hernandez,
student-chapters@awm-math.org*

AWM Western Student Chapter Community Impact

Erina Mitha, President of the AWM Western Student Chapter

This year, the AWM student chapter of Western has set a goal of raising \$500 for the Malala Fund. We chose this because it felt fitting to raise money for a charity that helps girls go to school to reach their full academic potential, given how impactful AWM has been for getting women and girls into mathematics. We hosted a cookie decorating spring social, and the executive team designed stickers to help raise money. The event was a success and allowed us to get halfway to our fundraising goal!

The AWM student chapter of Western also has dramatically increased its size through other new initiatives, such as the introduction of Math Duels!

Tartaglia, Cardano, and Galois, look out! Western University's AWM chapter hosted our inaugural Math Duel earlier this semester, bringing together undergraduates from mathematics, science, education, and more to duke it out in a team-based math puzzle-solving competition. Inspired by the mathematical duels of sixteenth century Italy, the eager AWM members were presented with a variety of math problems to solve. With all of the groups working in parallel, they were tasked to find a solution and present it on their designated chalkboard, emphasizing collaboration and outside-the-box thinking. Points were awarded not only for speed, but for unique reasoning and interesting solutions. Following this, AWM members shared their learning by explaining their brilliant proofs to their fellow duelers. The ideas that our members presented made everyone think, and they found so many solutions we didn't expect!

The winners enjoyed the title of Math Royalty, alongside a bounty of well-earned sweet treats. As our most popular event of the year (touting equal representation from both men and women in mathematics), Western's AWM chapter is proud to have been able to grow our organization and spark a common interest in mathematics within our university community. In support of our Malala Campaign, our oft-requested Math Duel 2 is planned for later this semester, and we are thrilled to welcome more members from all walks of campus to Western's AWM chapter!



SUNY Old Westbury

*Chapter Leader: Betty Berbari, Assistant Dean,
School of Arts & Sciences*

Isn't Math everywhere?

That was the premise when launching our Math in Motion series at SUNY Old Westbury. In addition to celebrating math holidays and Women's History Month, we encourage students to embrace math within their everyday lives. Subsequently, Pi Day became a celebrated event on campus and our semi-annual "Experiences of Women in STEM" panel was born to help students make additional connections to mathematics.

Experiences of Women in STEM places a large focus on women in math from history—Sophie Germain, Emmy Noether, and Katherine Johnson (to name a few)—who have paved the way for many of us to study STEM fields today. The event opens with a discussion of the barriers

encountered by various prominent women in STEM. The panelists are chosen from our very own talented faculty, staff, alumni, and students. Each semester the panelists share their personal experiences as women in STEM including both their struggles and achievements. Recently, a fellow colleague shared that she was not permitted to study math in her home country, while another colleague shared that she was permitted to attend a university, but the decision on her field of study was made by her husband. We were honored to present our Women in STEM panel at the Long Island Mathematics Conference and at the Association of Teachers of Mathematics of New York City at Hunter College. In March 2022, we were also honored to have New York State Senator Anna Kaplan join us. Our event recently became a collaborative effort with other organizations on campus.

Our Math in Motion series was an outgrowth of the Women in STEM panel. A fellow colleague shared her talents in baking and Math in Baking was born. In fact, it is

continued on page 18

CALL FOR NOMINATIONS

Alice T. Schafer Mathematics Prizes

The Executive Committee of the Association for Women in Mathematics calls for nominations for the Alice T. Schafer Mathematics Prize to be awarded to undergraduate women for excellence in mathematics. All members of the mathematical community are invited to submit nominations for the Prize. The nominees may be at any level in their undergraduate careers, but must be undergraduates as of September 15, 2024. They must either be a US citizen or have a school address in the US. Two Schafer Prizes and one runner-up will be awarded at the Joint Mathematics Meetings in Seattle Washington.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted, in which case there must be at least one additional letter of support. Nominations of members of underrepresented minorities and of students attending institutions with limited resources are especially encouraged. One letter of nomination (at most three pages) highlighting the exceptional qualities of the candidate to be recognized. The letter of nomination may include (but is not limited to) an evaluation of the nominee on the following criteria: quality of performance in advanced mathematics courses, special programs, or mathematical competitions; mathematical growth of the nominee; nominee's ability to overcome barriers in their mathematical journey; nominee's ability to seek out and make the most of resources both at and outside of their institution; ability for independent work in mathematics or ability to work equitably in a team in mathematics.

With the letter of nomination, please include a copy of transcripts that indicate expected graduation date. Any additional supporting materials (e.g., reports from summer work using math, copies of talks given, recommendation letters from professors, colleagues, etc.) should be included with the nomination. All nomination material is to be submitted as ONE PDF file via MathPrograms.org. The submission link will be available 45 days prior to the deadline. Nominations must be received by **September 15, 2024**. If you have questions, phone 401-455-4042, email awm@awm-math.org, or visit <https://awm-math.org/awards/schafer-prize-for-undergraduates/>.

so popular that a colleague donated an oven to our school's lounge. Every semester, when I approach colleagues with the idea of sharing their talents through a mathematical lens, I receive nothing but enthusiasm. A typical event consists of one person sharing their passion to an audience of students, staff, and faculty. Some of our events are more interactive, for example, Math in Crocheting involved the

audience creating cup holders. Since the start of 2020, over 800 SUNY Old Westbury members of the community have attended Math in Motion series events. Series topics have included Math in Magic, in Vaping, in Meditation, in Yoga, in Music, and in Space. Most recently, Math in Robots was hosted by female roboteer, Leanne Cushing, from Discovery Channel's *BattleBots*. Building a sense of community is priceless, however, building a sense of community while you are doing math, even more so.



ASSOCIATION FOR
WOMEN IN MATHEMATICS

For the latest news, visit
awm-math.org

CALL FOR NOMINATIONS

The 2026 Noether Lecture

AWM established the Emmy Noether Lectures in 1980 to honor women who have made fundamental and sustained contributions to the mathematical sciences. In April 2013 the lecture was renamed the AWM-AMS Noether Lecture and since 2015 has been jointly sponsored by AWM and AMS. This one-hour expository lecture is presented at the Joint Mathematics Meetings each January. Emmy Noether was one of the great mathematicians of her time, someone who worked and struggled for what she loved and believed in. Her life and work remain a tremendous inspiration.

The mathematicians who have given the Noether lectures in the past are: Jessie MacWilliams, Olga Taussky Todd, Julia Robinson, Cathleen Morawetz, Mary Ellen Rudin, Jane Cronin Scanlon, Yvonne Choquet-Bruhat, Joan Birman, Karen Uhlenbeck, Mary Wheeler, Bhama Srinivasan, Alexandra Bellow, Nancy Kopell, Linda Keen, Lesley Sibner, Olga Ladyzhenskaya, Judith Sally, Olga Oleinik, Linda Rothschild, Dusa McDuff, Krystyna Kuperberg, Margaret Wright, Sun-Yung Alice Chang, Lenore Blum, Jean Taylor, Svetlana Katok, Lai-Sang Young, Ingrid Daubechies, Karen Vogtmann, Audrey Terras, Fan Chung Graham, Carolyn Gordon, Susan Montgomery, Barbara Keyfitz, Raman Parimala, Georgia Benkart, Wen-Ching Winnie Li, Karen E. Smith, Lisa Jeffrey, Jill Pipher, Bryna Kra, Birgit Speh, Marianna Csörnyei, Laura DeMarco, and Anne Schilling. The 2025 lecturer will be Neena Gupta.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted, in which case there must be an additional letter of support. Nominations of members of underrepresented minorities are especially encouraged. The letter of nomination should include a one-page outline of the nominee's contribution to mathematics, giving four of her/their most important papers and other relevant information. A curriculum vitae of the candidates not to exceed three pages is also required. Nominations are to be submitted as ONE PDF file via Math-Programs.org. The submission link will be available 45 days prior to the deadline. Nominations must be submitted by **September 15, 2025** and will be held active for a total of three years (two years beyond the initial nominations). If you have questions, phone 401-455-4042, email awm@awm-math.org or see the website <https://awm-math.org/awards/noether-lectures/>.

Empowering Women in Mathematics: Highlights from the University of Alabama AWM Student Chapter

Meghan Boyer, President of the AWM Student Chapter at the University of Alabama

In the spirit of academic excellence and community, the University of Alabama AWM Student Chapter remains steadfast in its commitment to nurturing an inclusive environment for women in the mathematical sciences. Central to our annual agenda is the Yellowhammer Workshop, which serves as a beacon, bringing together a diverse cohort of students, academics, and professionals who share the ambition of forging a robust network of women mathematicians in Alabama.

This past year, under the skillful guidance of Dr. Martha Makowski, our esteemed advisor, the workshop continued its legacy of celebrating the strides made by women who break barriers in mathematics. It provided an invaluable platform for women to engage in dialogue centered on professional development and mentorship.

The activities of the Yellowhammer Workshop spanned a full day, commencing at 8:30 am and wrapping up at 4:30 pm on February 10, 2024. A highlight of the day was the inspiring Keynote Address delivered by Dr. Alison Marr, a trailblazer who serves as both a professor of mathematics at Southwestern University and current EDGE Co-Director. Her words not only enlightened but also emboldened our members to aim for greater heights in their academic and professional pursuits.

Beyond the workshop, our chapter has been active in hosting "Lunch and Learn" sessions. These events provide a unique opportunity for members to learn firsthand from speakers about the myriad of career paths available in mathematics. Conversations range from navigating the job market to sharing experiences of triumph and challenge in the workplace, with the overarching goal of helping members chart a course through the varied landscape of careers in mathematics.

Our chapter has also embraced the lighter side of community building through activities like game nights, offering a space for members to bond over shared interests. This year, our Galentine's Day Origami event folded in a touch of creativity and camaraderie, celebrating the friendships that form the bedrock of our supportive network.



The spirit of scholarly pursuit was on full display as our members actively participated in the 2023 AWM Research Symposium in Atlanta. There, they showcased their research prowess through poster presentations and engaging talks, earning recognition for their innovative contributions to the mathematical sciences.

An information meeting also played a critical role in our annual agenda, serving as a hub for current and prospective members to learn about our chapter's mission, upcoming events, and the benefits of joining our vibrant community.

As we reflect on the past year, it is with immense pride that we acknowledge the dynamic women and allies who make up our chapter. Through their participation and enthusiasm, they have not only enriched the fabric of the University of Alabama's AWM Student Chapter but have also reinforced the network of women mathematicians within our state and beyond.

In closing, we invite all members of the community to join us in our ongoing journey to celebrate and elevate the role of women in the mathematical sciences. Here is to another year of making an impact!

Chat with a Mathematician

Suzanne Lenhart, Chancellor's Professor, Department of Mathematics, University of Tennessee, Knoxville, and Betsy Yanik, Professor, Department of Mathematics, Emporia State University

There is a new opportunity for connecting mathematics education K–12 classrooms and their teachers with university mathematics faculty and students. The program, Chat with a Mathematician, is an initiative of a committee within the Association for Women in Mathematics that seeks to provide a variety of ways in which members of the mathematical community might “chat” with K–12 students. This chat may take the form of an informal ‘group’ discussion with a mathematician, mathematics graduate student, or undergraduate mathematics major. Possible topics might include descriptions of what mathematicians do, personal stories about how to foster interest in mathematics, and examples of mathematical careers. Another form of interaction would be presenting a classroom activity (primarily virtual, but in-person visits might be possible if

the geography of the classroom and the mentor permit). Sample suggestions for activities include modules on biodiversity, fair voting, gerrymandering, binary numbers, exponential growth, probability, and a prejudiced polygon game. Short descriptions of these activities may be found at <https://awm-math.org/programs/chat-with-a-mathematician/>.

We are not facilitating one-on-one chats. We are providing talks and activities to groups of students and teachers and at workshops. Most of the “chats” are done online, but could be in person, depending on the location.

Assistance is needed in several areas. There is a call for additional engaging classroom activities. Do you have any activities, about 40–50 minutes in length, that have been particularly successful? Would you be willing to volunteer to lead this activity in a K–12 setting, and/or share this activity with other mathematics mentors? We also seek assistance in communicating with potential audiences: classroom teachers, after school programs, math clubs, et cetera to provide information in these areas. Please contact Suzanne Lenhart, slenhart@utk.edu, or Cymra Haskell, chaskell@usc.edu, for additional information and to provide assistance.

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

It's easy to nominate your chapter for an award! Simply complete the AWM Student Chapter End of the Year Survey (located here: <https://awm-math.org/awards/awm-student-chapter-awards/>). In Section 2 (Student Chapter Activities), make sure to give detailed descriptions of your chapter's activities. Then, answer Yes to the question “Do you wish to nominate your chapter for a Student Chapter Award?”

The survey must be received by **May 15, 2024**. If you have questions, phone 401-455-4042, email awm@awm-math.org, or visit <https://awm-math.org/awards/awm-student-chapter-awards/>.

ANNOUNCEMENTS

Sonia Kovalevskaya Day Mentor Matching Program



The AWM has launched a mentor matching program for those who wish to host a Sonia Kovalevskaya Day.

SK Day programs consist of talks, panels, and hands-on problem-solving sessions whose purpose is to encourage young women to continue their study of mathematics. Are you interested in hosting one at your college or univer-

sity and looking for advice? Please join the SK Day Mentorship Program. You will be paired with someone who has experience hosting such events and is eager to answer your questions. Visit <https://awm-math.org/programs/sk-days/> for more information about the Mentoring Program and SK Days in general.

Daubechies Announced as a 2024–2025 Phi Beta Kappa Visiting Scholar

Ingrid Daubechies, PhD was announced as a 2024–2025 Phi Beta Kappa (PBK) Visiting Scholar. She is James B. Duke Professor Emerita of Mathematics and Electrical and Computer Engineering at Duke University. As a PBK Visiting Scholar, Daubechies will travel to colleges and universities to participate in the academic life of the institution, meet informally with faculty and students, participate in classroom discussions and seminars, and give a public lecture open to the academic community and the general public.



For additional information, please visit <https://www.pbk.org/visiting scholars/2024-2025/ingrid-daubechies>.

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Newly elected members of the National Academy of Sciences

Fan Chung, University of California, San Diego

Marie-France Vignéras, Université Paris Cité

Newly elected members of the American Academy of Arts and Sciences

Lenore Blum, Carnegie Mellon University, Peking University

Hee Oh, Yale University

Melanie Matchett Wood, Harvard University

Newly elected members of the American Association for the Advancement of Sciences

Mathematics

Natalia Komarova, University of California, San Diego

Mariel Vázquez, University of California, Davis

Statistics

Rebecca A. Betensky, New York University

Tian Zheng, Columbia University

Source: <https://www.ams.org/news>

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. 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.

Erratum: The University of Maryland should have been listed as an Institutional Member (Large Institutions offering a PhD in Mathematics) in the March–April 2024 *AWM Newsletter*. The AWM sincerely apologizes for this error.

Donors for the AWM fiscal year July 1, 2022 – June 30, 2023

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One anonymous gift was made in honor of Bete Pereira

One anonymous gift was made in honor of Benjamin Franklin

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*Contributing Member

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July 23- July 30, 2026
Pennsylvania Convention Center
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Calls for ICM 2026 Satellite Events Proposals

On behalf of the International Mathematical Union, we invite and encourage proposals for “Satellite Conferences” and other possible events to be associated with the upcoming International Congress of Mathematicians (ICM). We hope to encourage a blossoming of activity across the continent to amplify the impact of the ICM.

Such conferences and events should take place within a couple of months of the ICM itself and be held in North America. Please see our webpage at <https://www.icm2026.org> for submission procedures and criteria for selection. Proposed conferences should involve an international perspective on some aspect of the mathematical sciences. Diversity of participants is strongly encouraged. Organizers should seek sponsorship/funding for their events, as we cannot provide financial support for satellite activities.

ICM 2026 Committee on Satellite Events



ASSOCIATION FOR
WOMEN IN MATHEMATICS

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For further information, see awm-math.org.

Clark Atlanta University Professor is Determined to Make Science More Equitable

Growing up in a tight-knit African-American community in Evansville, Indiana, Clark Atlanta University professor Dr. Talitha Washington quickly understood the role that her race and racism would play in her life—always choosing to rise above it all. Among her Black cohort at Spelman College, Dr. Washington felt she was finally able to learn freely, and without the pressure of being the only Black student in the class. The mathematics scholar is now the Director of the Atlanta University Center (AUC) Data Science Initiative where she works with HBCUs to increase the number of minorities earning data science credentials and further develop science that advances social justice. Through her career as a PhD mathematician, she is actively challenging the assumptions of who can succeed in mathematics. By example, her perseverance in the field is shaping who can and should be contributing to science.

Source: *The Phi Beta Kappa Society Monthly Newsletter May 2024*



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Application period: July 15–September 30, 2024

Joan and Joseph Birman Fellowship for Women Scholars

A midcareer research fellowship specially designed to fit the unique needs of women. The most likely awardee is a midcareer woman, based at a US academic institution, with a well-established research record in a core area of mathematics.

For more information see:

www.ams.org/birman-fellow

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To further excellence in mathematics research and generate wider and sustained participation by Black mathematicians. The most likely awardee is a midcareer Black mathematician based at a US institution whose achievements demonstrate significant potential for further contributions to mathematics.

For more information see:

www.ams.org/claytor-gilmer

AMS Centennial Fellowship

Awarded annually to an outstanding mathematician to help further their career in research.

Eligible mathematicians have held a doctoral degree for 3–12 years, and currently hold a tenured, tenure track, postdoctoral, or comparable position at a US institution.

For more information see:

www.ams.org/centfellow

AMS Stefan Bergman Fellowship

Supports the advancement of the research portfolio of a mathematician who specializes in the areas of real analysis, complex analysis, or partial differential equations.

Eligible mathematicians are at US institutions, have not received tenure or comparable, and have not held significant fellowship support.

For more information see:

www.ams.org/bergman-fellow

Learn more and apply:
<https://www.ams.org/ams-fellowships>



NSF-AWM Mentoring Travel Grants for Women *(New deadline added!)*

Mathematics Mentoring Grants. The objective of the NSF-AWM Mathematics Mentoring Travel Grants is to help junior women to develop long-term working and mentoring relationships with senior mathematicians. This relationship should help the junior mathematicians to establish their research programs and eventually receive tenure. Each grant funds travel, accommodations, and other required expenses for an untenured woman mathematician to travel to an institute or a department to do research with a specified individual for one month. The applicant's and mentor's research must be in a field which is supported by the Division of Mathematical Sciences of the National Science Foundation.

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 \$5000 per award will be funded.

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 us at awm@awm-math.org or 401-455-4042 for guidance. Applications from members of underrepresented minorities are especially welcome.

Deadline. There are now two award periods per year. Applications are **February 15 and August 15.**

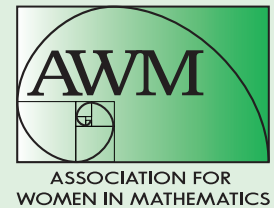
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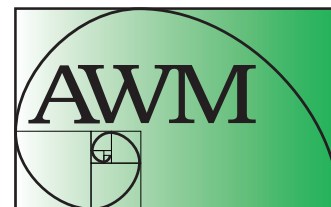


2024–2025 Individual Membership Form

JOIN ONLINE at awm-math.org!

Please fill in this information and return it along with your dues to:

AWM Membership, PO Box 40876, Providence, RI 02940



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AWM's membership year is from October 1 to September 30. Please fill in this information and return it along with your dues to: AWM Membership, PO Box 40876, Providence, RI 02940

The AWM Newsletter is published six times a year. If you have questions, contact AWM at awm@awm-math.org, 401.455.4042, or visit our website at: <https://awm-math.org>.

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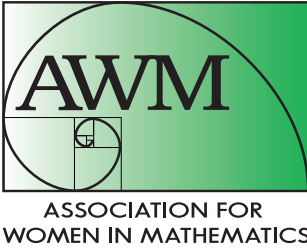
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