



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

Over this past year, I have had the joy of serving as President-Elect and collaborating with then-President Kathryn Leonard to learn the role of the President and become more familiar with AWM and its inner workings. At the 2023 Joint Mathematics Meetings (JMM), Leonard officially and literally passed the “bowl” of the presidency to me. Now, as President, I take great pride in the responsibility of being the Chief Executive Officer of AWM.

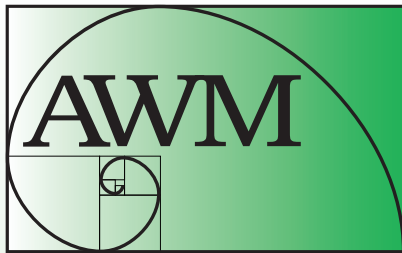
At JMM, we reconnected since the last meeting held face-to-face was in Denver in 2020. It was wonderful to see so many happy faces in 3-dimensions. As an official JMM Partner, Leonard and I participated in the opening ribbon-cutting ceremony where Bill Velez of the University of Arizona pushed us all to be more open and inclusive.

AWM's series of events at JMM created opportunities to connect and collaborate. Laura DeMarco of Harvard University and the Radcliffe Institute for Advanced Study shared her work on “Rigidity and uniformity in algebraic dynamics” as the Emmy Noether Lecturer. The workshop on commutative algebra featured speakers from Research Networks. The poster presentations bustled with energy as graduate students prominently displayed their mathematical research. The AWM panel featured “women in math leadership” where I gained various perspectives on leading forward. To my delight, the AWM Business Meeting gathered a sizable crowd committed to advancing AWM and thinking through ways to optimize our impact.

At the Joint Prize Session, Leonard adorned friends and colleagues with prizes that highlighted a plethora of contributions to the mathematical sciences. At the AWM Reception, we all took delight in intriguing mathematical conversations while enjoying the mega-sized cookies distributed across the tables. The AWM Fellows, AWM Service Award winners, and all other AWM prize winners were honored at the reception. Many honorees became overwhelmed by the recognition and enthusiastically conveyed gratitude.

Since its founding in 1971, AWM has stewarded efforts to advocate for women in mathematics and others of marginalized genders and gender identities. From our earliest moments, we have had numerous champions, one of whom was Chandler Davis, who died in September 2022. At the hybrid in-person/virtual Executive Committee meeting at the JMM, we passed a resolution in his honor: “Be it resolved that AWM registers its profound gratitude for the support and advice Chandler Davis offered to the organization and its members over the decades.” See pages 34–35 for a memorial article by Mary Gray, AWM's first president.

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ASSOCIATION FOR WOMEN IN MATHEMATICS

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.

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. Authors sign consent to publish forms.

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PRESIDENT'S REPORT *continued from page 1*

I would not be the mathematician I am today had it not been for the AWM community providing me and others with opportunities to engage and excel in mathematics. And together, with your help, we will continue AWM's journey forward so that all talent has a seat at the mathematical table. While AWM's road has been nonlinear, it is important that we do this work because no matter who you are, you too belong in mathematics.

Talitha Washington

February 1, 2023

Atlanta, GA



Talitha Washington

AWM at the Boston JMM

Ordinarily thousands gather each year for the Joint Mathematics Meetings, the largest gathering of mathematicians in the country. This year was the first time the JMM occurred in-person since the pandemic began, with the event being held in Boston, January 4–7, 2023. AWM uses this venue to recognize and showcase the work of exceptional women. These honors span the career spectrum—from the Schafer Prize for undergraduate research to the Noether Lecture for a career of distinguished research—as well as the ways in which we can support the mathematical sciences—research, teaching, mentorship, and volunteerism. We are pleased to announce this year's honorees. (Full citations may be found in the *AWM Newsletter*, Issues 3, 5, and 6, 2022 and Issue 1, 2023.)

AWM-AMS NOETHER LECTURE

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. This year's AWM-AMS Noether Lecturer was **Laura DeMarco** (Harvard University and Radcliffe Institute), who spoke on “Rigidity and uniformity in algebraic dynamics.”

DeMarco has made fundamental and influential contributions to complex dynamics, arithmetic dynamics, and arithmetic geometry. In complex dynamics, she introduced the bifurcation current to study the stable locus in moduli spaces of rational maps and constructed a dynamically natural compactification of these spaces. Both groundbreaking ideas opened new directions of research in complex dynamics. She is a leading architect of the field of arithmetic dynamics. In her joint work with Matthew Baker, a far-reaching dynamical analog of the André-Oort conjecture in arithmetic geometry was formulated. Cases of the

conjecture were proved using ingenious combinations of ideas from complex dynamics, logic, and number theory. In arithmetic geometry, her recent joint work with Holly Krieger and Hexi Ye addressed a conjecture of Bogomolov, Fu and Tschinkel on uniform bounds on the number of common torsion points on two elliptic curves, and they obtained the first uniform result for a complex family of curves in the Manin–Mumford Conjecture. This paper, published in *Annals of Mathematics* in 2020, won the 2020 Alexanderson Award of the American Institute of Mathematics.

Abstract of the lecture: The periodic orbits and their structure are fundamental features of a dynamical system. In an algebraic setting, where the system is defined by polynomials, we can use tools from algebraic or arithmetic geometry to study these orbits. Important examples come from the study of abelian varieties, but already the setting of polynomials of one variable is a challenge. In this talk, I will describe some open questions and recent progress on families of complex and arithmetic dynamical systems.

AWM FELLOWS

The Executive Committee of the AWM has established the AWM Fellows Program to recognize individuals 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.”

2023 Class of AWM Fellows

Jennifer Balakrishnan, Boston University

For her support of women in mathematics through mentoring and advising; for organizing and supporting programs for women and girls, especially Women in Sage and Women in Numbers; for her work in outreach and education, including GirlsGetMath; and for working to improve diversity, equity, and inclusion in research communities.

Emma K.T. Benn, Icahn School of Medicine at Mount Sinai

For her dedication to creating more inclusive spaces in mathematics and statistics; for serving as an effective role model and mentor for young women; and for opening pathways into the broader mathematical sciences for women who are minoritized along multiple axes.

Minerva Cordero, University of Texas at Arlington

For her longstanding and effective support of students from underrepresented groups, especially women; for her leadership roles in diversity programs at the University of Texas at Arlington, the National Science Foundation, and the Mathematical Association of America; and for being an exceptional mentor and role model.

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Membership Dues

Membership runs from Oct. 1 to Sept. 30

Individual: \$70 **Contributing:** \$160

Family, new member, and reciprocal

(first two years): \$35

Affiliate, retired, part-time: \$30

Student, 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 for details.

Executive Sponsorship Levels

\$5000+

\$2500–\$4999

\$1000–\$2499

See 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 ads 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.

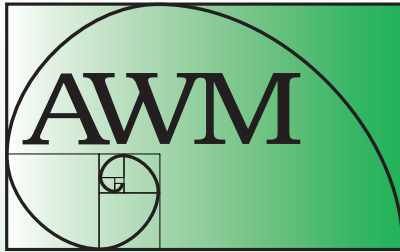
Newsletter Deadlines

Editorial: 24th 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.

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Send all queries and all *Newsletter* material except ads and queries/material for columns to Anne Leggett, amcdona@luc.edu. Send all book review queries/material to Marge Bayer, bayer@math.ku.edu. Send all education column queries/material to Jackie Dewar, jdewar@lmu.edu. Send all media column queries/material to Sarah Greenwald, appalachianawm@appstate.edu and Alice Silverberg, asilverb@math.uci.edu. Send all student chapter corner queries/material to Emek Köse, student-chapters@awm-math.org. Send everything else, including ads and address changes, to AWM, awm@awm-math.org.



ASSOCIATION FOR
WOMEN IN MATHEMATICS

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

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AWM DEADLINES

AWM Events for 2024 JMM:
March 31, 2023
AWM Research Symposium
Call for Proposals: April 15, 2023
AWM-Sadosky Research Prize: May 15, 2023
AWM Fellows: May 15, 2023
AWM Louise Hay Award: May 15, 2023
AWM M. Gwenyth Humphreys
Award: May 15, 2023
AWM Student Chapter Awards:
May 15, 2023
AWM Travel Grants: May 15 and
October 1, 2023
AWM Research Symposium
Poster Presentations: June 15, 2023
RCCW Proposals: July 1, 2023
AWM Workshop at JMM: August 15, 2023

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AWM AT THE BOSTON JMM *continued from page 3*

Lisa Fauci, Tulane University

For her vision of advancing women in the mathematical sciences; for executing that vision by encouraging women to pursue graduate studies and providing sustained mentorship throughout their careers; and for opening pathways for the broader inclusion of women through her leadership in international organizations such as SIAM.

Sue Geller, Texas A&M University

For her extensive and effective support of women in mathematics through research, publications, teaching, outreach and mentoring; for addressing microaggressions via both public awareness and private mentoring; and for her long record of leadership and service related to women in mathematics in professional societies.

Raegan Higgins, Texas Tech University

For her sustained contributions to the mathematics profession through leadership roles in research, mentoring, directing the EDGE Program, and co-founding Mathematically Gifted and Black; and for her service to professional organizations, always with a focused purpose to uplift and inspire women, girls, and those from historically underrepresented groups.

Bryna Kra, Northwestern University

For her vision and work creating programs to support women in mathematics, especially GROW (Graduate Research Opportunities for Women) and AWM student chapters; for her leadership in the mathematics community, including serving on the AWM Executive Committee and serving as president of AMS; and for making advocacy for women a priority throughout her career.

Omayra Ortega, Sonoma State University

For her dedication to providing opportunities for underrepresented groups, especially women and girls, to become involved in and advance in the mathematical sciences; for her outreach work at regional and national levels; for being an exceptional mentor and role model; and for her commitment to advancing the mission of AWM.

Rachel Pries, Colorado State University

For supporting the research careers of women through mentorship and advocacy; for her vision and hard work establishing the Women in Numbers workshops and research network; and for broadening the participation of women in mathematics through service and leadership both at her institution and in high-profile national and international programs.

Keri Sather-Wagstaff, Clemson University and the National Science Foundation

For her sustained advocacy, support and mentorship of women, girls, gender minorities, and other historically underrepresented groups in mathematics; and for spearheading local and national efforts targeting high-need areas to improve the working environment for all.

Kimberly Sellers, Georgetown University and the U.S. Census Bureau

For her work improving diversity and inclusion in the mathematical and statistical sciences through leadership positions in the American Statistical Association; for her leadership in the Joint Statistics Meetings, the Women in Statistics and Data Science

conferences, and the Infinite Possibilities Conferences; and for her mentorship of early career women.

Konstantina Trivisa, University of Maryland

For her tireless efforts and dedication to increase diversity in the mathematical sciences at all levels from high school to higher education; for organizing outreach events for secondary students; and for support of women at all career stages: recruiting and mentoring graduate students, hiring and retaining faculty, and highlighting speakers at international conferences.

Shelby Wilson, Johns Hopkins University Applied Physics Laboratory

*For her unwavering dedication and work towards uplifting and inspiring women and Black mathematicians, including co-development of *Mathematically Gifted and Black*; for being an exceptional mentor and role model; and for her inspiring leadership initiating and amplifying conversations about how to help create a more inclusive mathematics community.*

AWM PRIZES

Louise Hay Award for Contributions to Mathematics Education

In 1990, the Executive Committee of the AWM established the Louise Hay Award for Contribution to Mathematics Education. The 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. AWM is pleased to give the 2023 Louise Hay Award to **Nicole Joseph**, associate professor of mathematics education at Vanderbilt University. Joseph is being honored for contributions to mathematics education that reflect the values of taking risks and nurturing students' academic talent that are central to Louise Hay's legacy.

Joseph's research is centered on the experiences and narratives of Black girls and women in STEM. Through an impressive record of publications, in journals such as *Teachers College Record*, *Journal for Research in Mathematics Education* and the *Review of Educational Research*, and a vast number of keynote addresses and invited talks, to national organizations and societies such as the Mathematical Sciences Research Institute (MSRI), and the Clemson University Women in Mathematics Lecture Series, she has elevated the importance of this topic and widened the field's understanding of the complex and intersectional nature of educational inequity, opportunity and access. As one of her recommenders stated, Joseph's research exhibits "scholarship in action." She is the founder of an interdisciplinary research collective at

Vanderbilt titled "Intersectional Study of Black Women and Girls in Society" and of the Joseph Mathematics Education Lab (JMEL). JMEL is an innovative initiative that resists against Black women's limited access to research leadership in mathematics and to their silenced voices in the academy.

Joseph pushes on boundaries, seeking to enlighten the field's understanding and responsiveness to an ever-pressing challenge of understanding and improving the opportunities for Black girls and women in mathematics. Joseph's work exemplifies the goals and priorities of the Hay Award.

Response from Nicole Joseph

I am deeply honored to join the list of distinguished awardees, including Dr. Virginia Warfield from the University of Washington, who was on my dissertation committee. Throughout my career I have aimed to carry out similar commitments as Louise Hay, specifically related to mentorship, advocacy, and leadership. I started this journey as a young Black girl who found herself in advanced mathematics courses in middle and high school alone ... no one else looked like me ... and that was a problem. I was young and did not have the words, but I knew as a young person that it was not right to not have other students in mathematics that looked like me.

I am a Black girl cartographer in the field of mathematics education; this means that I care about the well-being, outcomes, and learning experiences of Black girls and women. Through my scholarship, teaching, and service, my goal is to elevate Black women and girls and their stories of mathematics learning because they are worth telling. Few mathematics education researchers focus on the intersectional experiences of Black girls and women—their identities are multiplicative and complex—how they show up in mathematics contexts is different and unique from Black boys and White girls. It is important to me to close the gap between theory and practice ... I want to impact real students and their families. There is so much still to do to support Black girls and women in mathematics. We need more research—both critical quantitative and qualitative studies to better understand their experiences. I include more examples of what mathematics instructors can do to better support Black women and girls in mathematics in my new book, published by Harvard University Press, *Making Black Girls Count in Math: A Black Feminist Vision of Transformative Teaching* (<https://www.hepg.org/hep-home/books/making-black-girls-count-in-math-education>). It gives me hope that the AMW committee recognized my work in this important way. I am grateful to the selection committee and the AWM for this tremendous honor.

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M. Gweneth Humphreys Award for Mentorship of Undergraduate Women in Mathematics

The award is named for M. Gweneth Humphreys (1911–2006). Funded by contributions from her former students and colleagues at Randolph-Macon Woman's College, the award recognizes her commitment to and her profound influence on undergraduate students of mathematics. AWM presented the 2023 award to **Erika Tatiana Camacho**, Fulbright Research Scholar at the Institut de la Vision-Sorbonne Université and Professor of Mathematical & Statistical Sciences at Arizona State University, for impactful and multidimensional mentoring activities that have enabled the success of generations of talented scientists and mathematicians, regardless of race, ethnicity, socioeconomic class, family educational history, or gender.

Camacho's impact through mentoring is multidimensional. She has co-directed two undergraduate summer research programs: the Applied Mathematical Sciences Summer Institute (AMSSI), which she also co-founded, from 2005 to 2007, and the Mathematical and Theoretical Biology Institute (MTBI) from 2011 to 2013. Her efforts at AMSSI and MTBI over the years have contributed to over 80 alumni earning their doctorates, the majority being from underrepresented groups.

In addition to her one-on-one work with students, Camacho has facilitated changes to the mathematical profession to promote inclusion. As a member of the Society for

Industrial and Applied Mathematics (SIAM) Diversity Committee, she co-founded the Workshop Celebrating Diversity that has been held at the SIAM Annual Conference each year since 2008. She has also served as a member of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) Math Task Force and Board of Directors as well as the AMS Council and NIMBioS Advisory Board. Her efforts have led to significant grant support for students, women, early career faculty, and mentees to further their mathematical aspirations.

Response from Camacho

Thank you for this honor that validates the intentional and thoughtful mentoring in mathematics we have received and given over the years. I would like to thank the mentors who have influenced my career path and the hundreds of students and mentees that I have had over the years and who have allowed me to be part of their journey. It has been a true pleasure to get to know my mentees, affect their lives, and see them rise to become great scientists. In the process of mentoring I have transformed the lives of many of them but they all have also greatly transformed my life, as I have learned so much from them.

For me, mentoring is very personal. I have been a benefactor of it but I also did not have good mentoring at many steps along the way. During my career path, there have been so many times that I was ready to walk away and I would have done it if it wasn't for the very few mentors and friends that encouraged me to stay. I went through a prolonged period

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.**

where a supposed key mentor mentored me selfishly in ways that would promote him at the expense of my success and advancement. It was over these painful years that I realized the importance of selfless mentoring and that not all mentors do this. When I started to mentor, it was because I wanted to be the mentor at key places and critical stages of an individual's academic path, where I, myself, didn't have a good mentor and felt lost and powerless. Mentoring is an invisible work that often goes unnoticed. Building the scientific capacity to advance science requires developing the human capital and the workforce to carry the scientific enterprise as much as the intellectual aspect of it. Many times we forget that we need to develop the scientists to move forward theories and instead we focus only on the science innovation part and forget that we need a substantial number of scientists ready to undertake complex problems. Most importantly, we need to have all the different perspectives and experiences on the table to be able to tackle a complex problem from every angle and arrive at an optimal solution. I really thank the AWM for recognizing this important work of individuals that work tirelessly and selflessly to mentor. Only through efforts that recognize excellent mentoring are we going to make mentoring and the creation of scientists a key aspect of advancing science.

AWM Mary and Alfie Gray Award for Social Justice

The inaugural AWM Mary & Alfie Gray Award for Social Justice was presented to **Lily Khadjavi**, Professor of Mathematics at Loyola Marymount University. The Award recognizes Khadjavi as a mathematician whose career has been defined by the multifaceted, vigorous, and imaginative pursuit of social justice in her state, classrooms, profession, and beyond. Khadjavi's work has empowered and inspired, changing public policy around racism in policing, equipping students and educators to seek social justice in and beyond the classroom with mathematics, and leading efforts to make mathematics more inclusive and equitable.

Lily Khadjavi's vigorous and imaginative work for social justice as a mathematician, educator, and activist has made a concrete and significant difference for multiple communities and has played a major role in shaping how mathematicians approach social justice today. In 2006, long predating the recent surge in work on data and statistics for racial justice, Khadjavi's article, "Driving While Black in the City of Angels," showed the power of carefully and critically examining the right questions with the right data and right mathematical tools. Tellingly, the article starts with the lived experiences of minoritized people, commonly referred to

as "driving while black" to describe racially biased policing. The piece demonstrates how to combine mathematical methods of data analysis with rich and nuanced engagement with law, sociology, politics, and the varieties of human experience to give a compelling account of an injustice.

Khadjavi's innovative uses of public data related to social justice have been at the core of her long-running interventions in mathematics education. In her own teaching practice, in training educators through Project NExT, and in the rich collections of resources she has made available (including two co-edited books), Khadjavi has helped move project-based social justice mathematics toward the center of the curriculum in many more universities than her own. This has helped to make mathematics more inclusive and relevant, making lessons meaningful to students who might not have seen themselves in mathematics and making all mathematics students aware of how the skills they are learning matter for understanding and improving the world around them.

Response from Khadjavi

I am deeply honored to receive the inaugural Mary & Alfie Gray Award for Social Justice. The Grays' commitment to a just society has played an instrumental role both within the profession of mathematics and well beyond it. For me Mary Gray has been an animating force, through her intertwining of statistics and the law and indeed through her spirited determination.

I would like to take this opportunity to thank my department colleagues and institution, Loyola Marymount University, for critical support that allowed me to participate in law conferences and other venues which were not traditional for mathematicians. This broad view of scholarly activity has been tremendously enriching and necessary. I am indebted to legal scholar Kaaryn Gustafson for introducing me to LatCrit. For always stimulating connection, I have been extremely lucky to collaborate with David Greenberg and Gizem Karaali.

Finally, I would especially like to thank those working to broaden participation in the profession. These efforts are of fundamental importance. I am grateful to Tanya Moore and Kimberly Weems who introduced me to the Infinite Possibilities Conference. Collaborating with them continues to inspire me.

AWM Service Awards

In 2012, AWM established the AWM Service Award to recognize individuals for helping to promote and support women in mathematics through exceptional voluntary

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service to the Association for Women in Mathematics, a non-profit organization that depends largely on the work of its volunteer members.

Katherine Dowd, Administrative Director of the School of Mathematics and Assistant Director of the Institute of Mathematics and its Applications (IMA) at the University of Minnesota, was recognized for the extraordinary professionalism, wisdom, and care she bestowed upon the AWM as host of the 2022 AWM Research Symposium. In late 2020, the Symposium was postponed from 2021 to 2022 due to the ongoing Covid-19 pandemic. In the face of pandemic-related setbacks, last minute schedule changes, unusual requests from the AWM, and various technical and logistic difficulties, Dowd remained calm, flexible, organized, responsive, patient, thoughtful, and thorough. In addition, she was instrumental in providing support for other events held before, during, and after the Symposium.

Response from Dowd

It is truly an honor and privilege to be a recipient of the service award. Organizing the 2022 Research Symposium took nearly three years due to the pandemic. To bring it finally to fruition and see the joy on participants' faces at the opportunity to be together and talk about math, made it all worthwhile! This was a true team effort. I'm particularly grateful to my partners at AWM, Darla Kremer, Beth Donovan and Samantha Faria, and to Georgia Kroll at the IMA who provided me with outstanding support through thick and thin.

Robin Marek, Chair of the AWM Fund Development Committee, was recognized for her exceptionally generous contribution of time and expertise in helping the AWM establish a more professional and trustworthy fund development program. After a career in fund development, she began volunteer service to the AWM in 2020. Among many other achievements, Marek was instrumental in securing two major gifts and generally offers advice and guidance in every aspect of fundraising and fund development. She pores over spreadsheets, identifies donor prospects, and helps the committee think about what the AWM needs in terms of a development program.

Response from Marek

The Association for Women in Mathematics is a remarkable organization, with deep and extensive roots that have nurtured countless women throughout its 51-year history. As such, I am truly honored to be named a recipient of the 2023 AWM Service Awards. Though I feel unworthy of this recognition, I humbly accept your kindness with heartfelt gratitude. Being part of a nationally based grassroots organization is eye-opening. I have grown in my understanding of what can be accomplished when a small staff works hand in hand with a large network of committed volunteers. AWM members pursue a vision and resolve to support the professional development and achievements of their peers. Successive generations of women and men have benefitted—and continue to benefit—from the strength of that conviction. I have witnessed firsthand the Fund Development Committee's steadfast dedication to fulfilling the AWM mission, and I wish to recognize and acknowledge them for their focused efforts.

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/advance-research-communities/>.

Thank you for this honor. It is a privilege and pleasure to be part of the AWM.

Tracy Weyand, Rose Hulman Institute of Technology, was recognized for building communities in which women in mathematics can thrive and feel welcome. She has been involved in the founding of two student chapters of the AWM, one in 2015 while a postdoc at Baylor University and another in 2018 as a faculty member at Rose-Hulman. Every year since 2018, Weyand has led the AWM Chapter as they organized, advertised, and willed into existence a Sonia Kovalevsky (SK) Day for high school girls. At an institution where 75% of the student body is male, Tracy Weyand's outreach activities have been a vital step towards building a more welcoming and inclusive community.

Response from Weyand

I am honored to receive the 2023 AWM Service Award. I was supported by the AWM throughout graduate school (and beyond), and I am so grateful that I am now able to provide support, encouragement, and a sense of community to the next generation of mathematicians. I would like to thank my AWM mentors, Sue Geller and Constanze Liaw, for their unwavering support when I needed it most. Without their encouragement and example, I wouldn't have had the confidence to take on all the initiatives that I have. I would also like to thank my former student, Lee Trent, for giving me the push that I needed to promptly start AWM activities at a new school. I appreciate all the assistance and support that my colleagues at the Rose-Hulman Institute of Technology Department of Mathematics have provided to our AWM Student Chapter activities.

AWM Joan and Joseph Birman Prize in Geometry and Topology

The 2023 Joan & Joseph Birman Research Prize in Topology and Geometry is awarded to **Kristen Hendricks** of Rutgers University for her highly influential work on equivariant aspects of Floer homology theories.

Hendricks' work in low-dimensional and symplectic topology has revolutionized the understanding of equivariant aspects of Floer theories, allowing powerful equivariant techniques to be used to solve classical, non-equivariant problems. Hendricks' pioneering work on involutive Heegaard Floer homology has had wide-ranging applications, particularly to questions that straddle the border between 3- and 4-dimensional topology. The impact of her contributions to the understanding of homology cobordism groups, and to the closely related subject of knot concordance, has been profound. Hendricks' work has also opened new doors in the realm

of symplectic topology, where her work with collaborators introduced one of the first general constructions of equivariant Floer homology.

Response from Kristen Hendricks

I am very honored to be selected for the Birman Prize. Joan Birman was a great inspiration to me while I was fortunate enough to interact with her as a graduate student at Columbia, and my appreciation and respect for her achievements has only increased as my perspective has matured. I'm also delighted to have my name on the same list as the previous prize winners, all of whom I hold in great esteem.

I am greatly indebted to many excellent mentors, most especially my first undergraduate professor Tom Coates, my primary graduate adviser Robert Lipshitz, and my postdoctoral supervisor Ciprian Manolescu. I am also grateful to both my former colleagues at Michigan State and my current colleagues at Rutgers for their unfailing supportiveness. I appreciate deeply the tremendous number of intellectually stimulating relationships I've been fortunate enough to have with my many excellent collaborators and other mathematical friends, far too many to name here; the topology and geometry community has been extremely good to me, and I hope to live up to its high standards of mathematical generosity and collegiality. The past years have been very exciting in our corner of mathematics and I'm enthusiastic to find out what comes next with all of you.

AWM Dissertation Prizes

In January 2016 the Executive Committee of the AWM 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 2023 prizes were awarded to **Jia Shi**, **María Soria-Carro**, and **Rajula Srivastava**.

Jia Shi received her PhD in 2022 at Princeton University under the direction of Charles Fefferman and Javier Gómez-Serrano. Her thesis is titled "Integrodifferential Equations for Fluids in Two Dimensions." She is currently a C.L.E. Moore instructor at the Massachusetts Institute of Technology.

Shi's interests include fluid mechanics and partial differential equations. Her beautiful thesis proves major results on two separate topics in fluid mechanics, a hard classical field. One part of the thesis concerns uniqueness and analyticity

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of solutions of the Muskat equations describing the interface between two incompressible fluids in a porous medium. She studied the case when the fluids have the same viscosity but different densities. The other part of the extensive thesis deals with the 2D Euler equation. The results in the thesis settle several open questions about spherically rotating solutions and vortex sheets. The committee was impressed with the new techniques Shi developed to obtain her results. As one of the letter writers said, her work “changed our view of solvability by introducing a new general strategy and applying that strategy with technical virtuosity.”

Response from Shi

I am very honored to receive the AWM Dissertation Prize. I would like to show my gratitude to those who nominated me and wrote letters for me. I also gratefully appreciate all the help from my advisors Charles Fefferman and Javier Gómez-Serrano during my graduate school years. I feel extremely fortunate as their student and incredibly thankful for their guidance and generosity. I also sincerely thank my wonderful collaborators Yao Yao and Jaemin Park.

María Soria-Carro received her PhD in 2022 from the University of Texas at Austin under the direction of Luis Caffarelli and co-direction of Pablo Raúl Stinga. Her thesis is titled “Regularity of elliptic transmission problems and a new family of integro-differential operators related to the Monge-Ampère equation.” She is currently a Hill Assistant Professor at Rutgers University working with Dennis Kriventsov and Yanyan Li.

Soria-Carro works in the field of elliptic and parabolic partial differential equations. Her dissertation covers two topics. In the first part, she studies the transmission problem for elliptic equations, for example, the Laplacian with interfaces that have minimal regularity. In this, she and collaborators proved optimal regularity of solutions up to the interface via a perturbation method. This is in contrast to the classical theory where the interface is smooth. In the second part of her thesis, she uses tools from convex analysis and symmetrization to study problems related to the nonlocal Monge-Ampère equations. In particular, she shows existence, uniqueness, and regularity of solutions to a particular Poisson problem. The committee was impressed with the enthusiasm of her nomination letter and letter writers, which described her ambition and the creativity of solutions in the thesis.

Response from Soria-Carro

I am very honored and thrilled to receive the AWM Dissertation Prize. I would like to thank the Association for Women in Mathematics for this prestigious award and The University of Texas at Austin, where I had the great opportunity to learn from leading experts in analysis and PDEs. I am deeply grateful for all the guidance and support I had during graduate school. I would like to especially thank my advisor, Luis Caffarelli, for being caring, encouraging, and teaching me the beauty of mathematics from a whole new perspective, and my co-advisor, Pablo Raúl Stinga, for all the help and advice, and for sharing with me all of his expertise. Thank you to Irene Gamba and Donatella Danielli for inspiring and supporting me and my work. Finally, I am very thankful to my family and friends for all the love and support.

Rajula Srivastava received her PhD from University of Wisconsin–Madison in 2022 under the supervision of Andreas Seeger. She is currently a Hirzebruch Research Instructor at the University of Bonn and the Max Planck Institute for Mathematics.

Srivastava’s research is in harmonic analysis. Her dissertation, “Three Topics in Harmonic Analysis: Maximal Functions on Heisenberg Groups, Cotlar-type Theorems and Wavelets on Sobolev Spaces,” as the title suggests, covers a broad range of topics. Two of the chapters address the problem of establishing optimal Lebesgue space estimates for local maximal averaging operators on Heisenberg groups. In another chapter, Srivastava determines the range of smoothness of Sobolev spaces for which there exists an unconditional basis of orthonormal spline wavelets of a given order. In yet another part of the dissertation she provides L^p bounds for a Cotlar-type maximal operator under minimal smoothness assumptions. The results have led to four publications in research journals, three of which are single-authored.

Response from Srivastava

I am elated to receive the award. I thank the mentors who wrote the letters of nomination and support, and the AWM and the selection committee for this honor. I remain indebted to my advisor, Andreas Seeger, for his unwavering patience and encouragement, and the opportunity to learn from his brilliant mathematical insight. He has been unbelievably generous with his time and resources throughout my PhD. I wish to thank Betsy Stovall for her deep influence; and Sundaram Thangavelu and Varadharajan Muruganandam for their continued investment in my progress. I am thankful to Joris Roos for a stimulating collaboration which forms

a part of the thesis, and to the Harmonic Analysis group at UW–Madison for a collegial learning environment. Finally, I wish to thank my family and friends for their support; in particular, I am grateful to Niclas Technau for his constant companionship.

Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman

In 1990, the Executive Committee of the AWM established the annual Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman. The prize is named for Alice T. Schafer (1915–2009), one of the founders of AWM and its second president. AWM awarded the 33rd Annual Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman to **Faye Jackson**, a senior mathematics major at the University of Michigan. **Anqi Li**, mathematics major at Massachusetts Institute of Technology was named Runner-up. **Ilani Axelrod-Freed** (Massachusetts Institute of Technology), **Joyce Chen** (Princeton University), and **Veronica Lang** (Smith College) each received an honorable mention.

Faye Jackson is a math major at the University of Michigan. She has made impressive contributions in research, course work and engagement with her community. In Summer 2021 she participated in the SMALL REU at Williams College and played a major role in four different research projects. This work led to one published paper, one accepted paper, three submitted preprints and two papers in preparation. Her mentor praises her creativity, generosity and the clarity of her exposition. In Summer 2022 she participated in the REU at the University of Virginia and co-authored two submitted papers. Her mentor praised the beauty of her work and her impressive contributions to the life of the community.

Jackson's instructors are similarly enthusiastic about her abilities and enthusiasm, and they describe her as a delight to have in class who helps spark important discussions. They are particularly excited about her contributions to outreach, and they describe her as a talented teacher for the Math Mondays in Ypsi, Super Saturday and Math Corps programs.

Response from Jackson

First of all, it is a great honor to have been selected for the Alice T. Schafer Prize and I would like to thank the Association for Women in Mathematics for sponsoring this award and for supporting women mathematicians.

The mathematical community at the University of Michigan has influenced my understanding of mathematics as

well as what it means to be a mathematician more deeply than I can express with words. The vibrancy, inclusivity, and collaborative spirit which characterizes the community there has made my past four years incredible. This is in no small part due to a few key professors. I am quite blessed to know Professors Sarah Koch and Stephen DeBacker, who have molded that community by pouring their souls into it. Their passion for teaching and outreach is constantly inspiring. They have also been incredible mentors to me in both my finest and my worst moments. I would not be where I am without them. Sarah Koch's dynamism in particular sparks my excitement for mathematics whenever I am around her, and Stephen DeBacker provides me with the space and the resources to pursue whatever idea I have towards improving the department community. I would also like to thank Professor Jenny Wilson, who fostered my love of algebraic topology during an especially difficult academic year over Zoom. Her clear teaching style and love for the subject was not hampered in the slightest by these conditions.

I am deeply grateful for Professor Steven J. Miller, who has been a key mentor for me since I attended the SMALL REU in 2021. He is so deeply dedicated to his students that it astounds me, and he has pushed me to show the same dedication to my students and also to my work. As I constantly tell him, his advice is invaluable. Furthermore, the REU showed me how incredible mathematical research can be, and I would like to thank the entire cohort of the SMALL 2021 REU. I would also like to thank Professor Ken Ono for showing me the beauty of number theory. Through the University of Virginia REU I grew immensely as a researcher and developed an appreciation for a field of mathematics which had previously been foreign to me. I would like to thank my cohort at the Virginia REU as well. I would specifically like to thank my coauthor Misheel Otgonbayar, whose brilliance and kindness continually astounded me throughout the program, and who made me laugh more times than I could count. I would also like to thank my roommate Catherine Cossaboom, who provided me with invaluable support whenever I was at my wit's end with my research or when I was struggling personally.

Finally, I would like to thank my family for their love and support throughout my college career. Specifically, my mother's sense of service has extended to my passion for outreach, and I would not be who I am without her. Likewise, my father's dedication to his work and to other people always astounds me. I would also like to thank my partner, Cassandra Prokopowicz, for supporting me for the past four years. Whether I am on top of the mountain after conquering a problem or at the bottom of it after falling from the cliffs,

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she has always been there for me, and that has allowed me to achieve so much.

Anqi Li is a math major at Massachusetts Institute of Technology. She has participated in three summer research experiences. The first was the NYC Discrete Math REU at Baruch College, City University of New York. In that summer she wrote a paper that has been accepted by the *European Journal of Combinatorics*. In Summer 2021 she participated in the MIT Math Summer Program in Undergraduate Research and coauthored a paper her mentor describes as remarkable work. This paper was recognized as the top project from the summer program. In Summer 2022, Li participated in the REU at the University of Minnesota Duluth, leading to three more papers in preparation. In addition to these summer projects, Li has sought out research experiences during the academic year and has two current projects with faculty at MIT.

Li's mentors praise her for deeply understanding challenging material, for asking insightful questions and for a willingness to try anything. They describe working with her as like working with an advanced graduate student.

Response from Li

It is an honor to be recognized by the Association for Women in Mathematics for the Alice T. Schafer prize. I would like to thank the Association for their support of early career women researchers and their important work in promoting gender representation in mathematics.

I am deeply grateful for the guidance of my mentors, who have shaped me into the student and researcher I am today. I would like to start by thanking Professor Yufei Zhao for his unwavering guidance throughout my mathematics journey at MIT and his many insights into academia and beyond. I am also sincerely grateful for the opportunity to work under the patient mentorship of Professor Lisa Sauermann, who has been one of my biggest role models as a woman mathematician. I also draw deep inspiration from the fruitful conversations I have had with my research collaborators and professors, and in particular thank Professor Dor Minzer for our many intellectually stimulating discussions and his influence on my current research directions.

I also extend my gratitude to the numerous other faculty I have interacted with over the years, including Professors Henry Cohn and Davesh Maulik, as well as my postdoc and graduate student collaborators who constantly inspire me to reach greater heights. I am also thankful for

opportunities through the CUNY Baruch Combinatorics REU, MIT Summer Program in Undergraduate Research+ (SPUR+) and University of Minnesota Duluth REU, which were instrumental in shaping my research interests in combinatorics. I would especially like to acknowledge Professor Adam Sheffer for getting me started on my university research journey.

Last but not least, I would like to express my deepest appreciation to my loved ones, whose unconditional support motivates me every day.

Ilani Axelrod-Freed is a mathematics major at MIT. They have participated in three REUs in Duluth, Minnesota Twin Cities, and New York Discrete Math. The topics of their research projects span combinatorics and discrete geometry. They have an impressive single-author publication stemming from one of these REUs and published in *Enumerative Combinatorics and Applications*, and another joint paper with a mentor accepted in *Discrete & Computational Geometry*. In one of these REUs, Axelrod-Freed worked on three different research projects and impressed their mentors with their ability to balance their time between them.

Axelrod-Freed is also praised as a very active contributor to collaborative meetings, including online ones during the pandemic. Their mentors praised their oral and written mathematical communication skills as demonstrated by their presentations during the REUs as well as their strong coursework.

Response from Axelrod-Freed

I would like to thank the AWM for supporting underrepresented genders in mathematics. Thanks to Professor Alexander Postnikov for introducing me to mathematics research at MIT, Professor Joseph Gallian for making Duluth the amazing REU and community that it is, Professor Pablo Soberón for his supportive mentorship and collaboration, and thank you to all my incredible mentors at the Twin Cities REU who made me so excited to do math every day. I would like to thank HCSSiM for sustaining my love of math and introducing me to the mathematics community in high school. I would like to thank all my friends who have worked on math problem sets and research with me and who listen patiently to my excited rambles about my latest proofs. Finally, eternal gratitude to my parents for their endless support, particularly to my dad for giving me exciting math problems ever since I was young that always inspire me to keep learning more.

Joye Chen is a senior mathematics major at Princeton University. She participated in the SMALL REU

during the summer of 2022 where she worked on hyperbolic knot theory and coauthored three publications (two already on ArXiv and one in preparation). Chen contributed significantly in proving several key results on hyperbolic knotoids and generalized knotoids, in particular giving a complete classification of hyperbolic alternating links in thickened surfaces-with-boundary. Her instructors are impressed by her dedication to conveying these ideas through developing a deep understanding of the material.

As well as conducting research during her time at the SMALL REU, Chen has excelled in becoming familiar with modern topics in topology and has taken several graduate courses, including ones on algebraic topology and knot Floer and Khovanov homologies. In previous summers, she also worked on reading courses in representation theory, Lie algebras, and grid homology. She is consistently described as working at a graduate student level with impressive initiative to develop her own knowledge and understanding. In addition, Chen previously served as the advising co-chair of the Princeton Math Club and currently serves as a Peer Math Advisor.

Response from Chen

It's an honor to be selected as a Schafer Prize Honorable Mention. I am deeply indebted to the many, many people who inspired me and supported me along my mathematical development. In particular, I want to thank Professor Colin Adams for his mentorship and enthusiasm for hyperbolic 3-manifolds, as well as my collaborators at SMALL for many

insightful conversations. I'm also immensely grateful to Professors David Gabai, Ian Zemke, and Peter Ozsváth for their invaluable guidance and encouragement, and to my peers at Princeton for their constant support and presence in the Fine Common Room. Many thanks to the PROMYS program and to my UIL teachers, John Biros and Dawn Geshwender, for getting me started. And lastly, thank you to my family for their unconditional love.

Veronica Lang is a mathematics major at Smith College. She has participated in an REU program at the University of Minnesota Twin Cities and has engaged in research at Smith College as well. Lang is interested in a variety of mathematical research topics spanning algebra, combinatorics, and topology. Her research work led to two papers that are in preparation for submission, with potential follow-up results. Her work was described as independent by all of her mentors, and comparable to the level of graduate students and even postdocs.

Lang has also excelled in advanced courses in different topics and pursued graduate-level coursework through final projects and independent study. Her mentors praised her creativity in research as well as her oral and written mathematical communication skills. She is described as "more of a colleague than a student" by her mentors, and is particularly recognized for being able to work with people from diverse backgrounds and form effective teams.

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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.

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. The submission link will be available 45 days prior to the nomination deadline. Nominations must be received by **May 15, 2023**. If you have questions, phone 401-455-4042, email awm@awm-math.org, or visit <https://awm-math.org/awards/awm-student-chapter-awards/>.

Response from Lang

Thank you to the AWM for celebrating women in math and to the professors and students who make the Smith math and physics communities so supportive. I am particularly indebted to Professor Julianna Tymoczko for introducing me to math research, and to Professors Pau Atela, Patricia Cahn and Christophe Golé for their wonderful advice and teaching. I also want to thank the University of Minnesota Twin Cities REU for an amazing summer research experience. I am especially grateful to my mentors Sarah Brauner and Claire Frechette, TAs Patty Commins and Carolyn Stephen, and student collaborators Ilani Axelrod-Freed and Judy Chiang for being spectacular mathematicians and human beings to work with. Finally, I would like to thank my family and non-mathematician friends for their support and for acting impressed when I say the word “eigenvector.”

**CONNECTING THE COMMUNITY
AT JMM 2023**

Darla Kremer, AWM Executive Director

The 2023 Joint Mathematics Meetings took place in Boston from January 4 through January 7, 2023. AWM events began first thing on Wednesday morning with the AWM Special Session on Celebrating the Mathematical Contributions of the AWM organized by *La Matematica* Chief Editors, **Donatella Danielli**, Arizona State University, **Kathryn E. Leonard**, Occidental College, **Michelle Ann Manes**, University of Hawaii, and **Ami Radunskaya**, Pomona College.

The Joint Prize Session took place at 4:25 on Wednesday and this year honored AWM prize winners **Lily Khadjavi**, Loyola Marymount University (AWM Mary and Alfie Gray Award for Social Justice); **Kristen Hendricks**, Rutgers University (AWM Joan and Joseph Birman Research Prize in Topology and Geometry); **Nicole Joseph**, Vanderbilt University (Louise Hay Award for Contribution to Mathematics Education); **Erika Tatiana Camacho**, Institut de la Vision Sorbonne Université and Arizona State University (M. Gweneth Humphreys Award for Mentorship of Undergraduate Women in Mathematics); **Jia Shi**, MIT, **María Soria-Carro**, Rutgers University, and **Rajula Srivastava**, University of Bonn and Max Planck Institute for Mathematics (Dissertation Prizes); **Faye Jackson**, University of Michigan (Schafer Mathematics Prize Winner); **Anqi Li**, MIT (Schafer Mathematics Prize Runner-Up);

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and **Ilani Axelrod-Freed**, MIT, **Joye Chen**, Princeton University, and **Veronica Lang**, Smith College (Schafer Mathematics Prize Honorable Mentions).

The prize session was followed by the JMM Exhibit Hall Ribbon-cutting Ceremony and the very exciting Grand Opening Reception. With well over 2000 attendees, the opening 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 cards, selling T-shirts, giving out AWM Student Chapter buttons, and answering questions for our new members.



The 2023 AWM-AMS Emmy Noether Lecture was delivered on Thursday, January 5 by **Laura DeMarco**, Professor of Mathematics at Harvard University and a Radcliffe Alumnae Professor at the Radcliffe Institute for Advanced Study. In this talk, “Rigidity and uniformity in algebraic dynamics,” DeMarco eloquently described open questions and recent progress in the study of the periodic orbits of complex and arithmetic dynamical systems. If you missed this talk, it is posted on the JMM YouTube Channel.

In conjunction with the Noether lecture, **DeMarco**, together with **Niki Myrto Mavraki**, Harvard University, and **Max Weinreich**, Brown University, organized the AMS-AWM Special Session on Complex and Arithmetic Dynamical Systems.





In addition to the AWM Workshop and Poster Session 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 Panel Discussion: Women in Math Leadership organized and moderated by **Donatella Danielli**, Arizona State University, featured panelists **Kathryn Leonard**, Occidental College and AWM President, **Dorina I. Mitrea**, Baylor University, and **Magdalena Daniela Toda**, Texas Tech University and the National Science Foundation; AWM Special Session on Women in Graph Theory organized by **Karen L. Collins**, Wesleyan University, **Sandra R. Kingan**, Brooklyn College and the Graduate Center, CUNY, **Brigitte Servatius**, Worcester Polytechnic Institute, and **Ann N. Trenk**, Wellesley College; AWM Special Session on Recent Developments in the Analysis of Local and Nonlocal PDEs organized by **Alaa Haj Ali**, Arizona State University, and **Donatella Danielli**, Arizona State University; AWM Special Session on Women, Art, and Mathematics: Mathematics in the Literary Arts and Pedagogy in Creative Settings organized by **Shanna Dobson**, University of California, Riverside, **Stephanie Lewkiewicz**, Temple University, and **Elizabeth Donovan**, Murray State University; and The Mathematicians + Wikipedia—A Training Edit-a-thon to Reduce the “Wikipedia Gender Gap” in the Mathematical Sciences (in cooperation with AWM) organized by **Francesca Bernardi**, Worcester Polytechnic Institute, and **Xavier Ramos Olivé**, Smith College.

The AWM Reception took place on Friday evening after the poster session. Poster Session winners **Elizabeth Jane Hale**, Kansas State University, **Kristine Hampton**, University of Washington, **Uyen Huyen Thao Le**, West Virginia University, and **Nitya Mani**, Stanford University, were honored as

well as the recipients of the AWM Service Awards **Katherine Dowd**, University of Minnesota, **Robin Marek**, unaffiliated, and **Tracy Weyand**, Rose-Hulman Institute of Technology.

The 2023 Class of AWM Fellows was introduced at this reception: **Jennifer Balakrishnan**, Boston University, **Emma K.T. Benn**, Icahn School of Medicine at Mount Sinai, **Minerva Cordero**, University of Texas at Arlington, **Lisa Fauci**, Tulane University, **Sue Geller**, Texas A&M University, **Raegan Higgins**, Texas Tech. University, **Bryna Kra**, Northwestern University, **Omayra Ortega**, Sonoma State University, **Rachel Pries**, Colorado State University, **Keri Sather-Wagstaff**, Clemson University and the National Science Foundation, **Kimberly F. Sellers**, Georgetown University and the U.S. Census Bureau, **Konstantina Trivisa**, University of Maryland, and **Shelby Wilson**, Johns Hopkins University Applied Physics Laboratory.

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

Amanda Folsom, *for handling the very first article submitted to La Matematica (and several more since then) and for dedication to our fast and equitable editorial process;*

Johnny Guzmán, *for his prompt and thorough dedication to thoughtful and constructive leadership in the reviewing process;*

Rodrigo Bañuelos, *for efficient and thoughtful handling of manuscripts in the editorial process; and*

Michael Barany, *for thoughtful and kind reports, especially rejections, and for his collaborative approach to editorial decision-making.*

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AWM WORKSHOP AND PANEL

Catherine Bénéteau (University of South Florida), Matthew Krauel (California State University at Sacramento), Alice Mark (Rutgers University), Kelly McKinnie (University of Montana), Claudia Miller (Syracuse University), Julie Rana (Lawrence University), Radmila Sazdanovic (North Carolina State University), Janet Striuli (Fairfield University), and Isabel Vogt (University of Washington).

The 2023 Joint Mathematics Meetings were held January 4–7, 2023 in Boston. 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 Commutative Algebra (WiCA) 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 6th. 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 year's special session was organized by **Claudia Miller**, (Syracuse University) and **Janet Striuli** (Fairfield University) building on the research activities at the Women in Commutative Algebra workshop, BIRS, Alberta, Canada, October 20–25, 2019, and sponsored by the AWM-NSF ADVANCE grant. The JMM AWM workshop provided opportunities for former participants in the WiCA workshop and other women mathematicians in commutative algebra to come together, exchange research ideas, and engage in mentoring activities. Several talks featured research begun in 2019, which by now has come to fruition. Speakers and participants engaged enthusiastically in the day's events, discussing new mathematics and forging new professional connections.

The workshop featured scientific presentations in a wide range of topics in commutative algebra. Curated talks were given by: **Jennifer Kenkel** (University of Michigan), **Janet Page** (North Dakota State University), **Adela N. Vraciu** (University of South Carolina), **Rachel N. Diethorn** (Yale University), **Ashley Wheeler** (Georgia Tech), **C-Y. Jean Chan** (Central Michigan University), **Laura Felicia Matusevich** (Texas A&M University), **Liana M. Sega** (University of Missouri Kansas City), **Rebecca R.G.** (George Mason University), and **Kuei-Nuan Lin** (Penn State University).

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 **Matthew Krauel** (California State University, Sacramento), **Claudia Miller** (Syracuse University), **Radmila Sazdanovic** (North Carolina State University), and **Janet Striuli** (Fairfield University).

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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: **Rebekah Aduddell, Anna Brosowsky, Monalisa Dutta, Elizabeth Jane Hale, Kristine Hampton, Alexis Gomez Hardesty, Uyen Huyen Thao Le, Chloe Marie Lewis, Jiamin Li, Marina Mancuso, Nitya Mani, Ritika Nair, Tracey G. Oellerich, Soohyun Park, Smitya Praharaj, Jennifer Rangel Ambriz, Alysha Toomey, Kristen A. Windoloski, Corrine Yap, and Jinjin Zhang.**

This year's top four posters presenters, in alphabetical order, were **Elizabeth Jane Hale, Kristine Hampton, Uyen Huyen Thao Le, and Nitya Mani.** The top four 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 James Baglama, Heather Blake, C-Y. Jean Chan, Rachel Diethorn, Christina Edholm, Federico Galetto, Janelle K. Hammond, Caitlin Hult, Selvi Kara, Jenny Kenkel, Hyun Kwon, Kuei-Nuan Lin, Sijing Liu, Aida Maraj, Gabriel Martins, Matthew Mastroeni, Ariane Masuda, Stacey Muir, Karin Reinhold, Keri Sather-Wagstaff, Jennifer Schultens, Gabriel Soto, Abu Thomas, 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 the poster presenters were seated with mentors in their research area. The large round tables were conducive to the lively discussions that ensued, with mentees





asking many questions and mentors giving advice from their experiences on building research connections and strong supportive alliances, navigating the job search, interviews, negotiating for things successfully, juggling caretaking responsibilities, and more. Hearty thanks to the mentors **Christina Edholm** (Scripps College), **Sandra Kingan** (Brooklyn College - City University of New York), **Kuei-Nuan Lin** (Penn State University), **Aida Maraj** (University of Michigan), **Denise Rangel Tracy** (Fairleigh Dickinson University), **Keri Sather-Wagstaff** (Clemson University), **Liana M. Segal** (University of Missouri - Kansas City), **Adela N. Vraciu** (University of South Carolina), and **Lihong Zhao** (University of California at Merced).

Non-Traditional Academic Careers in Math was the topic of this year's panel, organized by **Alice Mark** and **sarah-marie belcastro**. For the purposes of this panel, a "traditional academic career" meant a tenure-track career at a university, and our four panelists represented a wide range of careers that are not that. The panelists were **Sarah Sword** (Education Development Center), **sarah-marie belcastro** (Mathematical Staircase Inc.), **Alyson Deines** (Center for Communications Research), and **Lynne Yengulalp** (Wake Forest University). Topics discussed included the advantages and disadvantages of the panelists' careers, how they built or created their careers, and what people in more traditional careers can do to support people carving out a non-traditional career. These topics are clearly relevant since job opportunities for mathematicians are evolving together with the rapid technological and scientific progress and the changes it brings to our society.

The 2023 AWM workshop was made possible by funding from the National Science Foundation (NSF) through the Division of Mathematical Sciences grants "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 and Research Networks, poster sessions, judging, and mentoring. If you are interested in learning more about any of these, please email awm@awm-math.org.



AWM Workshop at the 2024 Joint Mathematics Meetings

Application deadline for graduate student poster session: August 15, 2023

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 San Francisco, CA, January 3-6, 2024.

FORMAT: The workshop will consist of a **Special Session** focused on **Women in Operator Theory** organized by Asuman Aksoy and Catherine Bénéteau, and a **Poster Session** for graduate students and recent PhDs. The Special Session will feature selected junior and senior mathematicians from the Research Network Women in Operator Theory (WinOT); it follows 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.

POSTER SESSION: The Poster Session is open to ALL areas of research; graduate students working in areas related to operator theory are especially encouraged to apply. Poster presenters will be selected through an application process to present posters at the Workshop Reception & Poster Session. With funding from NSF, AWM will offer partial support for travel and hotel accommodations for the selected graduate students. The workshop will include a reception, luncheon and a mentoring session where workshop participants will have the opportunity to meet with other women and non-binary mathematicians at all stages of their careers. In particular, graduate students in operator theory will have the opportunity to connect with the WinOT Research Network.

ELIGIBILITY: To be eligible for selection 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, 2023**. See <https://awm-math.org/meetings/awm-jmm/> for details.

MENTORS: We also 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, 2023**.

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.

Annalisa Buffa Named 2023 Kovalevsky Lecturer

The AWM and SIAM are pleased to announce that **Annalisa Buffa** has been selected to deliver the 2023 Sonia Kovalevsky Lecture at the 10th International Congress on Industrial and Applied Mathematics (ICIAM 2023) taking place in Tokyo, Japan, August 20–25, 2023.

Buffa is among the most influential applied mathematicians of her generation; she has made pioneering contributions to modeling electromagnetism in non-smooth domains and the corresponding numerical methods. Moreover, she has contributed substantially to optimizing the interplay of geometry and analysis in the simulation of solids and structures. These results are of seminal importance as they not only impact engineering applications and industrial mathematics but also offer deep contributions to the development and analysis of numerical methods in their own right. Buffa is a highly cited researcher.

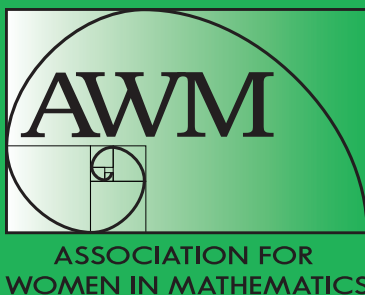
Buffa has been a professor of mathematics at École Polytechnique Fédérale de Lausanne (EPFL) since 2016 and, prior to this, she was research director and director at the Instituto di Matematica Applicata e Tecnologie Informatiche of the Italian National Research Council. A corresponding member of the Accademia dei Lincei, foreign member of the Académie des Sciences, and member of Academia Europaea, Annalisa Buffa is a leading expert in the numerical analysis of partial differential equations. Her interests span from geometric design, computational mechanics, and computational electromagnetics to approximation theory and functional analysis for PDEs. She received an ERC Starting grant in 2008, an ERC Advanced grant in 2016, and the Collatz prize from ICIAM 2015. She has been a plenary speaker at several venues, including the ECCOMAS conference in 2022, AIMS Conference on Dynamical Systems, Differential Equations and Applications in 2018, the International



Annalisa Buffa

Congress of Mathematicians (section 15, 2014), ICIAM 2015, and the GAMM and FoCM conferences in 2014.

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.



You can renew your
membership at
awm-math.org.

Lauren M. Childs Wins Ruth I. Michler Memorial Prize

The AWM and Cornell University are pleased to announce that **Lauren M. Childs** (Virginia Tech) has been awarded the 2023–2024 Ruth I. Michler Memorial Prize.

Childs was selected to receive the Michler Prize to pursue a research project advancing mathematical theory and methods for trait-based models of infectious disease, including integral projection models. Such models will also be used to study the spread of infectious disease, in particular malaria, and associated population dynamics.

The Mathematics Department at Cornell has faculty with a wide range of expertise related to this work, in areas such as dynamical systems, differential equations, and stochastic dynamics. While visiting Cornell, Childs plans to interact with Steven Strogatz, Tim Healey, Alex Townsend, and Alexander Vladimirovsky in that department, as well as Stephen Ellner and Megan Greischar from the Department of Ecology and Evolutionary Biology.

Childs was awarded a PhD from Cornell University in 2010. She went on to do postdoctoral work at the Georgia Institute of Technology and at the Harvard T.H. Chan School of Public Health, and she spent a semester at Williams College. Since 2016, she has been on the faculty at Virginia Tech, where she was promoted to associate professor in 2022. Childs has more than 40 publications, including articles in *Nature*, *Nature Communications*, *Proceedings of the National Academy of Sciences* and the *Journal of Theoretical Biology*, and she has an impressive record of high profile invited talks. Her achievements have been recognized by awards from Virginia Tech, NIH, NSF, and the Simons Foundation. In 2022, she was awarded an NSF Career Award.

In addition to her research achievements, Professor Childs also has a strong track record of mentoring and outreach at all levels. She has supervised a number of research projects ranging over the undergraduate, master's, and doctoral levels and has co-organized an AMS Mathematics Research Community program. She has also guest lectured at the Stanford Mathematics Camp, presented in Math Circles, and mentored a high school science fair project.



Lauren M. Childs

Response from Childs: I am honored to receive the 2023–2024 Michler Memorial Prize and am greatly looking forward to returning to my alma mater Cornell to spend a semester focused on research. Many thanks to the Michler family, the AWM, and the Cornell Mathematics Department for the opportunity to interact with the outstanding mathematicians within the department, such as Dr. Strogatz, as well as with those involved with quantitative applications to infectious disease across the university such as Drs. Greischar and Ellner.

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.

See awm-math.org for the latest news!

2024 AWM Prizes and Awards Call for Nominations

AWM will accept nominations for the following AWM prizes and awards between **April 1** and **May 15, 2023** on mathprograms.org. They will be presented during the Joint Prize Session at the Joint Mathematics Meetings in San Francisco in 2024.

2024 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/>.

2024 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/>.

2024 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/>.

2024 Microsoft Research Prize in Algebra and Number Theory

The AWM Microsoft Research Prize in Algebra and Number Theory highlights outstanding research by a woman early in her career in algebra or number theory. Made possible by a generous contribution from Microsoft Research, this prize has been awarded every other year since 2014. For more information visit <https://awm-math.org/awards/awm-microsoft-research-prize/>.

2024 Sadosky Research Prize in Analysis

The AWM Sadosky Research Prize in Analysis recognizes exceptional research in analysis by a woman early in her career. The prize, awarded in even years since 2014, is named for Cora Sadosky, a former president of AWM and made possible by generous contributions from Cora’s husband Daniel J. Goldstein, daughter Cora Sol Goldstein, and friends Judy and Paul S. Green and Concepción Ballester. For more information visit <https://awm-math.org/awards/awm-sadosky-research-prize/>.

Tatiana Toro Named 2023 Falconer Lecturer

In recognition of her distinguished contributions to mathematics and mathematics education as well as her skill in delivering expository lectures, the AWM and the MAA are pleased to announce that the 2023 Etta Zuber Falconer Lecturer will be **Tatiana Toro**, Director of the Simons Laufer Mathematical Sciences Institute (MSRI/SLMath) and Professor of Mathematics at the University of Washington. The Falconer Lecture will be delivered at the MAA MathFest, to be held in Tampa, Florida, August 2–5, 2023.

Toro earned a BSc in mathematics from the Universidad Nacional de Colombia, Bogotá, and an MSc and PhD in mathematics from Stanford. After a year at the Institute for Advanced Study and faculty positions early in her career at UC Berkeley and the University of Chicago, Toro has spent her career at the University of Washington. She will continue her tenure there during her five-year term as Director of MSRI/SLMath. She has also been a Fellow at the Radcliffe Institute for Advanced Study and a visiting professor at Harvard and at University College, London. Widely recognized for her contributions and service to mathematics, Toro is a member of the American Academy of Arts and Sciences and a Fellow of the American Mathematical Society.

Toro is a high-caliber researcher. As noted in her online biography at the AWM Mathematicians of EvenQuads Deck 1, “Toro’s research bridges geometric analysis and the calculus of variations on one side and harmonic analysis and the geometry of measures on the other. In particular, she is a leading expert in using ideas rooted in the calculus of variations to study the regularity of problems which do not have an underlying energy/variational structure (e.g. free boundary problems for harmonic measure).” It is also noteworthy that she has had 24 coauthors and 44 peer-reviewed publications, and her research has been continuously supported by the National Science Foundation since 1994.

Known as a clear and entertaining communicator, Toro has presented numerous invited lectures, conference presentations, and seminar talks. She was an invited speaker at the 2010 International Congress of Mathematicians in India, gave the inaugural AMS Mirzakhani Lecture at the 2020 JMM, presented the 2020 Blackwell-Tapia prize lecture at the 2021 conference, and also gave the NAM Claytor-Woodard Lecture at the 2016 JMM.

Toro has mentored many mathematicians, including eight PhD students and six postdocs. Recently awarded the University of Washington Marsha L. Landolt Distinguished



Tatiana Toro

Graduate Mentor Award for excellence in mentorship, Toro’s mentees speak highly of her support and of her care in crafting mentor-mentee relationships built on a “balance of challenge and trust.” Toro is an active member of the professional mathematics community; she has served on numerous boards and committees for the AMS, AWM, BIRS, IPAM, and PIMS. She is committed to expanding access to mathematics for underrepresented groups through her service on national committees for increasing racial/ethnic and gender diversity in mathematics and her leadership of the Latinx in the Mathematical Sciences conferences. Toro has demonstrated, and continues to demonstrate, excellence in mathematics research, teaching, and outreach, and we are pleased to name her the 2023 Etta Zuber 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.

The 2023 AWM Research Symposium Call for Poster Presentations

The Association for Women in Mathematics (AWM) invites graduate students and recent PhD recipients to present their research in a poster session at the 2023 AWM Research Symposium at Clark Atlanta University, September 30 – October 2, 2023. This meeting will also feature plenary talks, special sessions, panels, and roundtable discussions on a wide range of topics in the mathematical sciences, a banquet, and many opportunities for discussion and networking.

Open to: Graduate students and recent PhD recipients in the mathematical sciences.

Application deadline:
June 15, 2023

Applications should be submitted at MathPrograms.org after April 1:
<https://www.mathprograms.org/db/programs/1442>

Funding: Thanks to the National Science Foundation (NSF-DMS grant #2113506), the AWM is able to offer partial reimbursement for travel expenses to poster presenters who are not otherwise funded. If your poster application is approved, you will receive an offer of travel support.

Eligibility: Applications are welcome from women and nonbinary mathematicians who have received their PhDs within the last three years or who are graduate students who have made substantial progress on their doctoral thesis.

All applications should include:

- Cover letter
- Curriculum vitae
- Title and abstract (no more than 1 or 2 paragraphs)
- A *brief* letter of recommendation from a faculty member or research mathematician who knows the applicant's research. In particular, a graduate student should have a letter of recommendation from their thesis advisor, primarily to confirm that there is work completed on the proposed project.

Late applications cannot be accepted. Decisions on applications are expected to be made before July 15, 2023.

BOOK REVIEW

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

Fifty Years of Women in Mathematics: Reminiscences, History and Visions for the Future of the AWM, edited by Janet L. Beery, Sarah J. Greenwald, and Cathy Kessel, Association for Women in Mathematics Series, Springer, 2022. ISBN 978-3030826574.

Reviewer: Karen L. Collins, Van Vleck Professor of Mathematics, Wesleyan University

This book, published in 2022 as Volume 28 in Springer's AWM Series, is a comprehensive tome in terms of the number of people and wide range of issues covered, but it is not a coherent discourse on the AWM. Rather, it is a compilation of articles that discuss topics related to the first fifty years of the AWM, from 1971 through 2020. The topics include historical information about the society, its activities and how it has been run, personal stories from women mathematicians, information about the gender politics in mathematics during different decades, and more. Each article has been refereed. Kristin Lauter is the editor of the Springer series and the editors of the volume are Janet L. Beery, Sarah J. Greenwald, and Cathy Kessel. At over a thousand pages, this book is not designed to be read in one sitting. There are seventeen chapters, called "parts," each with a descriptive title and a list of articles in the chapter. The book closes with an index of the names of people mentioned in the text.

Given the size of the book, the casual reader may experience some difficulty in finding a particular topic of interest. A brief overview of each part is included in the Preface. Anyone who is looking for information about a specific person can consult the Index, and it is possible to use key word search in the pdf format of the text. However, the organization of information by topic is limited. This would have been improved by including a detailed introduction at the beginning of each part that describes its theme, topics and articles, what they represent, as well as how they were chosen. An index of topics would also be a welcome addition.

The organization of the book is more or less chronological. The first item in the table of contents is a chronology of the AWM, with a varied number of notes for each year obtained from the official records. The backbone of the chronology is the collection of personal reports from most of the AWM presidents and the executive directors, divided by decade. The 1970s reports are in Parts I and III; the 1980s, '90s, '00s and

'10s are in Parts X, XI, XII and XIII, respectively. The reports from Kathryn Leonard, president-elect in 2020, and 2019–2020 president Ruth Haas are in the last chapter, Part XVII. Each leader brings her own individuality to the position, and the reports reflect these differences. Some individual authors include some biographical and activity-related information in time periods outside of their terms.

The earliest portions of the book describe how the AWM was founded and provide testimonials about the association's immediate impact in providing support and encouragement to women mathematicians. These are Part I, "How the AWM Began"; Part II, "How It Was, How Should It Be? Inclusion, Diversity, Equal Opportunity"; and Part III, "How AWM Grew: Membership, Meetings, and the Newsletter." I recommend reading these three parts together with Part XV, "AWM Student Chapters," and Part XVI, "National and International Groups That Support Women in Mathematics," as a unit. Part XV describes the formation of AWM graduate student chapters at seven big schools and concludes with a personal story. Part XVI includes articles by women mathematicians about the process of organizing in Europe, Korea, India, Australia, Africa, Nepal and Chile, as well as information about the Committee on Women in Mathematics of the International Mathematics Union. The energy, excitement, courage and compassion of all of these women who chose to build a community is inspiring!

The next portion of the book focuses on personal stories. In Part IV, "Organizing AWM Workshops, Panels, Regional Meetings, Research Networks, and Research Symposia," several women of different generations talk about their own journeys in their professional careers and how the AWM intersected them. The section concludes with a discussion of recent strengthening of ties with the Mathematical Association of America. In Part V, "Telling Our AWM Stories," the stories continue, starting with the history of the Essay Contest for Biographies of Contemporary Women in Mathematics, and continuing with contributions from eight prominent women mathematicians.

The next several parts investigate the themes of women and society. Part VI, "Individuals, Institutions, Recognition, Collaboration: Longitudinal Perspectives on Mathematics and Women in Mathematics," provides a historical perspective of women in mathematics and discusses the Alice T. Schafer prize winners. Part VII, "Reflecting on Fifty Years of Women in Mathematics," describes changes to the number of women pursuing mathematics careers over time, both with data and with personal perspectives. Part VIII, "Outreach, Inreach, and Mentoring: Grade School to Grad School," describes several outreach activities of the AWM,

including the history of the Sonia Kovalevsky days and the AWM Mentor Network, along with other kinds of mentoring activities from across the country. The section ends with a report from an excellent advisor of PhD candidates in mathematics. Part IX, “Education and AWM,” provides a detailed history of the Education Column in the AWM newsletter and the AWM Education Committee.

Part XIV, “Advocacy, Policy, and Recognition: In Government and in the Mathematical Community,” deals with some very tough issues, including how to advocate for women and for mathematics and science in Congress, how to formulate a sexual harassment policy for the AWM and how to best arrange for women to be recognized for their

professional work. If you are not already aware of the AWM’s efforts on the issues, I strongly recommend reading the article “The Crucial Work of the AWM Policy and Advocacy Committee” by Gail Letzter and Marie A. Vitulli that appears in this section. It describes the challenges well.

Instead of reading this book cover to cover, I recommend looking through the table of contents for interesting titles, using key word search and perusing the index for mathematicians that you would like to know more about. The best parts of this book are the personal stories. For anyone who is interested in the history and activities of, and most especially the people who comprise, the AWM, this book is an irreplaceable resource.

The 2023 AWM Research Symposium Call for Special Sessions, Panels, Roundtables, and Other Events

The Association for Women in Mathematics will hold its 2023 AWM Research Symposium at Clark Atlanta University, September 30 – October 2, 2023. This meeting will feature plenary talks, special sessions on a wide range of topics in the mathematical sciences, poster sessions, panels, roundtable discussions, a banquet, and many opportunities for discussion and networking.

Proposals for panels, special sessions, roundtables, and other events at the Research Symposium are now being accepted through this online form: <https://awm-math.org/meetings/awm-research-symposium/session-submission-form/>.

Special Sessions: A proposal should consist of: a title, summary of the session, and four proposed speakers (the organizer may be one of the speakers). A statement about how your session supports AWM’s commitment to diversity and inclusion is required. We welcome proposals from any member of the mathematical sciences community on topics in mathematical science research, education, culture, or professional development. These sessions are scheduled to allow for four 20-minute talks. You may request additional sessions (up to three) on the submission form.

Panels: A panel proposal should consist of a title, summary of the session, a moderator, and three panelists. A statement about how your session supports AWM’s commitment to diversity and inclusion is required. We welcome proposals from any member of the mathematical sciences community on topics of interest to a wide audience. These sessions are 40 minutes long, with at least 10 minutes devoted to questions from the audience.

Roundtable Discussions: Submissions for a roundtable include a title, summary of the session, a moderator and two or three discussion leaders. A statement about how your session supports AWM’s commitment to diversity and inclusion is required. Roundtable sessions are generally less formal than panels or special sessions. Thus, no audio/visual equipment for these sessions is provided. These sessions are 40 minutes long and are intended to be small group discussions on current topics, including mathematical science research, education, culture, or professional development.

Other Events: Do you have an idea for an event that does not fit into one of these categories? Submit your proposal for the committee’s consideration. A proposal should consist of: a title, summary of the session, necessary technological support and room arrangement, and other relevant information. A statement about how your session supports AWM’s commitment to diversity and inclusion is required.

Submission deadline: **April 15, 2023**

EDUCATION COLUMN

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

Isn't Math Everywhere?

Betty Barbari, barbarib@oldwestbury.edu, SUNY Old Westbury, Assistant Dean, School of Arts & Sciences, and AWM Student Chapter Leader

Erica Walker's article "Mathematics Everywhere, for Everyone" in the November–December 2022 *AWM Newsletter* inspired me to reach out to the Education Column editor to share the Math in Life program here at SUNY Old Westbury. I was pleased to be offered the opportunity to write about our successful programs with a similar focus for this issue of the newsletter.

When I was a child, I would watch my grandmother intently crochet for hours. An immigrant from the Greek island of Imvros, she barely finished high school—and yet, she was measuring and counting and carefully placing circles together to create her masterpieces. I didn't realize it at the time, but she was using math within her intricate crocheting (see Figure 1). Later, when I mentioned this to her, she nodded as if it was a part of her. With her heavy Greek accent, she said, "Isn't math everywhere?"



Figure 1. My daughter pictured with my grandmother's crocheting in the background



Figure 2. Our most recent Women in STEM panel

As a math major in college, her statement kept ringing in my ears. From photography to bridges, baking to outer space, in nature or man-made structures, there isn't a place where math cannot be found. As a graduate student in mathematics education, I introduced this game to my students: Name a subject and let's find some math in it. I found that presenting math with a fun edge helped take math anxiety out of a topic that often presents itself with some.

Fast forward to teaching at SUNY Old Westbury where we offer a liberal education math course called Quantitative Decision Making designed for non-STEM students with a focus on financial literacy. What would happen if we incorporated math-related projects in the course? The result was: students who were artists, musicians, tailors, ballet dancers, pottery makers, and beyond combined their natural talents with math and the course became very popular. I still remember vividly a recording of two of my students rapping the quadratic equation from their dorm room.

Subsequently, Pi Day became a celebrated event on campus and our semi-annual "Experiences of Women in STEM" panel (see Figure 2) was born to help students make additional connections to mathematics. The panel 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. For example, Emmy Noether had to give her lectures and courses at the University of Göttingen under a male colleague's name and yet Albert Einstein called her the mathematical genius of his time.

The SUNY Old Westbury 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. 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 or father. To date, there has not been a dry eye in the house.

We were asked 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, about 30 miles away. At our most recent panel held in October 2022, we were honored to have New York State Senator Anna Kaplan join us. Our event recently became a collaborative event with other organizations on campus such as the Collegiate Science and Technology Program and WISE (Women in Science and Engineering).

Next came our Math in Life series as an outgrowth of the Women in STEM panel. A colleague of mine shared her amazing talents in baking and I thought, why not create a series to showcase the many hidden talents around campus. There was no stopping us! Math in Baking was born (Figure 3), and it is extremely popular. In fact, it is 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 with an audience of students, staff, and faculty. Some of our events are more interactive, for example, Math in Crocheting involved the audience in crocheting cup holders. Participants always get their own supplies. Since the start of 2020, over 600 SUNY Old Westbury members of the community have attended a Math in Life series events. Series topics have included Math in Magic, in Vaping, in Meditation, in Yoga, in Music, in



Figure 3. The Math in Baking

Space, in the University Police, and in the Food Pantry. Most recently, Math in Robots was hosted by female roboteer Leanne Cushing, from Discovery Channel's *BattleBots*.

During the pandemic, we continued our series via Zoom. When one of our staff members began making custom masks, we held Math in Mask Making.

I'm pleased to report that both the Women in STEM panel and the Math in Life series are hosted by SUNY Old Westbury's AWM Student Chapter. For more information on our chapter's events, please see our chapter website (<https://www.oldwestbury.edu/departments/association-women-math-student-chapter-suny-old-westbury>). If you are interested in starting your own series, please do not hesitate to contact me for more information.

Building a sense of community is priceless; however, building a sense of community while you are doing math—even more so.

Why Are University Faculties So White?

Jackie Dewar, jdewar@lmu.edu, Professor Emerita, Loyola Marymount University

Readers of this column will be interested in a new—and disturbing—report from The Education Trust¹ showing Black and Latino faculty are severely underrepresented at most public four-year colleges and universities across every state in the US. The report, titled *Faculty Diversity and Student Success Go Hand in Hand, So Why Are University Faculties So White?*,² uses four factors: faculty diversity relative to student diversity, hiring equity, tenure equity, and changes in faculty representation over time for Black and Latino faculty to rate institutions. The ratings on the first three factors are given as letter grades, A through F (See Appendix A of the report).

One result: In the state of California, where I reside, *all 33 public institutions* comprising the University of California (UC) and California State University (CSU) systems received a grade of F on faculty diversity relative to student diversity for Latinos.³ By comparison, the scores for Black

continued on page 32

¹ <https://edtrust.org/>

² Available at <https://edtrust.org/resource/faculty-diversity-and-student-success-go-hand-in-hand-so-why-are-university-faculties-so-white/>

³ See Table A, Metric 1 in the Appendix of the report.

faculty diversity relative to student diversity were significantly better (3 Fs, 1 D, 4 Cs, 3 Bs and the remainder As). However, before “celebrating” this result for Blacks, we must realize how many more Latino students, compared to Black students, are enrolled in California institutions of higher ed. According to CSU 2021 enrollment statistics,⁴ percentagewise, there are 11 times more Latino students than Black students in the CSU system. Specifically, the CSU undergraduate population is 45% Latino and only 4% Black. Thus, the bar for having faculty diversity match student diversity in the CSUs is far lower for Blacks than for Latinos.

A similar discrepancy exists in the UC system. *Inside Higher Ed* reported the following 2021 freshmen enrollment statistics: 37% Latino and only 5% Black. So, percentage-wise, seven times more Latino students than Black students entered the UC system in 2021. The state of California population is 40.2% Latino and 6.5% Black.⁵

⁴ See <https://www.calstate.edu/csu-system/about-the-csu/facts-about-the-csu/enrollment/Pages/student-enrollment-demographics.aspx>

⁵ See <https://www.census.gov/quickfacts/CA>

The Education Trust report explains why diversity matters for student success and details ways that higher education leaders and advocates can boost faculty diversity and use it to improve college completion. I highly recommend readers look at this report.

Education Column Editor’s Note

For the past three years, the March–April Education Column has been the domain of Minerva Cordero. During that time, as Professor of Mathematics and Associate Dean for Academic Affairs of the College of Science at the University of Texas at Arlington, she has shared her perspectives on service learning and making mathematics teaching inclusive and her year-long experience as an AAAS IF/THEN Ambassador.¹ Because of her new responsibilities as Interim Vice Provost for Faculty Affairs, effective January 1, 2023, she is leaving the rotation of column writers. I am sure readers of this Column will join me in thanking Minerva for her contributions and wishing her well in her new position.

An announcement of new additions to the column’s group of contributing authors will appear in the next issue.

¹ See <https://www.ifthenshecan.org/ambassadors/>

Propose an AWM Event for JMM 2024!

Deadline: **March 31, 2023**

Because AWM is a partner of the Joint Mathematics Meeting, certain special sessions, panels, and other events at the JMM can be designated as AWM events. The AWM welcomes proposals from any member of the mathematical sciences community on topics in mathematical science research, education, culture, or professional development. To propose an event you must:

1. Submit a proposal to AWM about your event.

Submissions to AWM can be made at: <https://awm-math.org/meetings/awm-jmm/awm-event-proposal-for-jmm>.

2. Submit a proposal to AMS about your event.

Both submissions will require:

- Title
- Submitter’s full name and email address
- Additional organizer information
- Session format
- Brief description of the event
- Proposed list of speakers/panelists

Additionally, your submission to AWM must include a statement about how your session supports AWM’s Commitment to Diversity (see <https://awm-math.org/policy-advocacy/welcoming-environment/>)

Learn more about AWM Events at JMM here: <https://awm-math.org/meetings/awm-jmm/>

MEDIA COLUMN

In addition to longer reviews for the Media Column, we invite you to watch for and submit short snippets of instances of women in mathematics in the media (WIMM Watch). Please submit to the Media Column Editors: Sarah J. Greenwald, Appalachian State University, appalachianawm@appstate.edu and Alice Silverberg, University of California, Irvine, asilverb@math.uci.edu.

“Her Future is STEM-sational”

Sarah J. Greenwald, Appalachian State University

For the last three years, the skin care brand Olay has been presenting a float in the Macy’s Thanksgiving Day Parade called “Her Future is STEM-sational.” The parade is available to watch on TV or stream and reaches millions of people. The announcer said that the purpose of Olay’s float is “to symbolize the brand’s mission to help double the number of women in STEM and triple the number of multicultural women in the fields.” The timeframe is from 2020 to 2030. The announcer specifically mentioned math too. A fictional representation of a Black NASA astronaut in her spacesuit with her helmet nearby features prominently on the float. The role of the M in STEM is minor: mathematical symbols that I could see included π , ϕ , χ and Δ . Code, a double helix and a robotic arm are also visible. Olay has committed millions of dollars through multiple initiatives as a part of their hashtag FaceTheSTEMGap in order “to provide young



Photo Attribution: CC-BY-SA JamarcusMudkip, <https://macysthanksgiving.fandom.com/wiki/Olay>

girls with mentorship and role models so they can overcome limitations” as in the press release at <https://us.pg.com/blogs/olay-second-million-dollar-stem-commitment/>.

For me, the float is effective in humanizing women in STEM visually. However, each year a popular singer unrelated to STEM has performed on the float, but at times the lyrics are not even age appropriate for the young girls listed as the target audience in Olay’s press release. The release mentions Kizzmekia Corbett, Mary Golda Ross, Rolanda Wilkerson, and Vanessa Aponte Williams, so I’d have liked it better if real-life STEM women were on the float or the performance aspect were better connected in some other way. Maybe next year?

AWM Statement on Protests in Iran

The AWM Policy and Advocacy Committee posted a statement on January 2, 2023, written by the Georgetown University AWM Chapter. The AWM stands in solidarity with the people in Iran as the violent attacks on Iranian students, children, and peaceful protestors continue. We encourage universities to support the brave women and men fighting for women’s rights. The full statement appears at <https://awm-math.org/policy-advocacy/endorsements/#7afd956b2314f6405>. From that statement:

As academics, we lend our strongest support to students and professors at Iranian universities and academic institutions who have been attacked, trapped, fired at, and arrested for protesting the arrest of other students. We stand with our colleagues at academic hospitals who have seen the sanctity of their workplace violated by the regime: patients arrested while seeking help, ambulances commandeered to arrest protesters, and doctors threatened to care for the wounded. We condemn the massacre of worshipers and bystanders after Friday prayers in Southern Iran and the incarceration and torture of peaceful protesters across the country.

Remembering Chandler Davis

Mary Gray, *American University*

Chandler Davis, eminent mathematician, committed political activist, endless seeker of knowledge and understanding, one of the first members of AWM, died this past autumn. Distinguished by his lifelong devotion to making the world a better place and his ability to engage others to support his goals, he leaves an enormous legacy of principled commitment to justice, freedom and equity. His great vitality and charm, his insight and erudition, even his occasional contrariness, combined with his sense of the ridiculous to make him an inspiration and a guide. He will be greatly missed.

With a mathematics PhD from Harvard in hand, Chandler was an assistant professor at the University of Michigan when, in the Red Scare of the 1950s and 1960s that led to the destruction of the lives of many noted artists, scientists, and mathematicians, he was summoned to testify before the U.S. Congressional House Un-American Activities Committee. Unlike many who refused to testify on Fifth Amendment non-self-incrimination grounds, Chandler at great risk chose to call upon the First Amendment's guarantee of free speech to challenge the right of the committee to inquire as to political affiliation. The courts, including the U.S. Supreme Court, and his colleagues at Michigan did not support his position and ultimately he served six months in prison for contempt of Congress. Noteworthy is a mathematics publication which, he noted, was supported in part by funding of the federal prison system although the Bureau of Prisons was not responsible for the views expressed.

Following his release Chandler continued to do mathematics, to compose and to write poetry and science fiction, as he had always done. His interests in mathematics were broad, encompassing linear algebra, operator theory, logic, geometry and numerical analysis. But he was not able to secure a permanent position at a US institution. In 1962 he accepted a position at the University of Toronto where he remained until his mandatory retirement at age 65. However, he continued pretty much the same for 31 more years, writing, speaking, teaching, engaging in advocacy, influencing new generations of progressive activists. Shortly before his death he participated in the support of imprisoned Russian mathematician Azat Miftakhov and for many years joined the regular demonstrations at the consulate of Israel in Toronto opposing the treatment of Palestinians in the

Occupied Territories. Among multiple influential roles was his service as editor of *Mathematical Intelligencer*, a publication whose broad scope reflected his own interests.

Advice sometimes given to neophyte mathematicians is that their most important choice for a rich and productive life is the partner they choose (or the choice not to have one). In the Davis's case, both Natalie Zemon and Chandler Davis were fortunate in their choices, sharing in their way of life, the care of three children and the household chores even as the blacklisting of Chandler complicated the two-body problem many face. Natalie Zemon, distinguished feminist historian—some may know *The Return of Martin Guerre*, her book that was made into a popular film—was at UC Berkeley or Princeton while Chandler was mainly in Toronto because of the blacklist. That Chandler was a feminist is clear from what he did and what he wrote in *It Walks in Beauty*, a selection of his prose. For Natalie Zemon Davis, son Aaron Davis, and daughters Hannah Davis Taïeb and Simone Davis, Chandler leaves a remarkable heritage.

Chandler seemed never to be defeated by the obstacles he faced. In support of his principles he often remarked that the fact that many others did not agree did not mean that they were right; he was persistent in seeking to inspire others to work for the progressive policies he supported. AWM can be counted among the many beneficiaries of his support. Back in the days when the absence of queues in the rest rooms demonstrated the scant attendance of women at math meetings, support from the anointed leaders of the profession was thin. As we gathered for mutual support, Chandler was often there to join in the sidelining of inevitable early hecklers. His commitment to include the often overlooked was demonstrated by actions, not just rhetoric. At one occasion at which the scarcity of women at major institutions was being criticized by incipient AWM members, a distinguished mathematician who had certainly known Emmy Noether and was undoubtedly familiar with the canard that there had been only two women mathematicians, one of whom was not a mathematician and the other of whom was not a woman, asserted that because his institution had once hired a woman who did not last long because her research was “not great,” they were not inclined to hire another woman. Chandler asked “And do you feel not inclined to hire any more men since surely you have hired some—perhaps some still with you—whose mathematics was “not great?” Unlike many, Chandler supported the introduction of blind refereeing, for he did not subscribe to the refereeing principle of the AMS hierarchy: “How can you tell a paper is any good if you do not know who wrote it?”

Such early support had a great rallying effect on many, bolstering their desire to emulate Chandler and fight on to overcome obstacles.

On the international front, while some of us were merely demonstrating to oppose the Vietnam war, Chandler went to North Vietnam and later helped to extend recognition to the work of Hoàng Xuân Sinh, a woman mathematician who had met Grothendieck while teaching to masses under deplorable jungle conditions, obtaining an important result on a problem he had given her.

In an interview some years ago for the *Mathematical Intelligencer*, Chandler said “Taking responsibility for your work needs to be learned and passed on to students. In life it

is not okay to give up on a problem or a cause just because the struggle is difficult.” But in one of the most important lessons one can learn from Chandler, he elaborated: “It wasn’t enough for the legendary Cassandra to see what was going on. Don’t remain a solitary Cassandra, unable to affect it.”

To organize and work together in his spirit is how AWM was founded and continues to thrive. Not all of Chandler’s causes were popular in the mathematical community or elsewhere but his advice was: “If you find yourself in the right but standing alone, give the other guys all chances to join you. Some times you just have to stand up for the truth even if you’re alone. Don’t flinch.”

And that is what Chandler is best remembered for.

AWM Conflict of Interest Policy

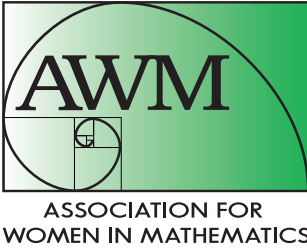
A conflict of interest may exist when the interest (financial or other) or concerns of any member of AWM, or the member’s immediate family, or any group or organization to which the member has an allegiance or duty, may be seen as competing or conflicting with the interests or concerns of AWM.

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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