ASSOCIATION FOR WOMEN IN MATHEMATICS

Newsletter

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The purpose of the Association for Women in Mathematics is

- to encourage women and girls to study and to have active careers in the mathematical sciences, and
- to promote equal opportunity and the equal treatment of women and girls in the mathematical sciences.

IN THIS ISSUE

PRESIDENT'S REPORT

By the time you read this it will be 2021, some of you will be vaccinated against COVID-19 and we'll have or be about to have a new president (both the AWM and the US). The first ever virtual Joint Math Meetings is probably about to take place. I hope it will be informative and enjoyable for all. A list of AWM events appears later in this newsletter. It is also the last joint AMS-MAA meeting. Going forward the AWM will be playing a more major role in the Joint Meetings. As you may know, after 2021 the MAA is no longer an equal partner with AMS in hosting the JMM. Instead AMS is the main organization, but many other organizations have signed up for some level of commitment. The AWM has committed to be an "A" level organization, allowing us to provide more sessions with more visibility than we have previously.

The COVID-19 pandemic drags on, though now vaccines for all seem an almost certainty within the next few months. Alas, the economic and social toll of this period will linger longer. Women have experienced a disproportionate number of job losses since the start of the pandemic. The Bureau of Labor Statistics figures for September 2020 showed four times the number of women dropping out of the labor market than men. While that was perhaps the worst month, women have been harder hit overall. This is different than most previous economic downturns, where men lost more jobs than women. "The fact that this recession is impacting men and women differently from past recessions could also have broader consequences for families and the trajectory of the economic recovery," according to Econofact.[1] A report by the American Progress Institute entitled "How COVID-19 Sent Women's Workforce Progress Backward" states "The collapse of the child care sector and drastic reductions in school supervision hours as a result of COVID-19 could drive millions of mothers out of the paid workforce. Inaction could cost billions, undermine family economic security, and set gender equity back a generation."[2] Women in math and science have also been disproportionately affected. An article in *Nature* reports:[3] "female researchers, particularly those at early-career stages, are the hardest hit. Submissions to preprint servers, such as arXiv, rose more quickly for male authors than for female authors…." The *Nature* article continues with some initial suggestions for how to respond, including altering evaluation criteria and de-stigmatizing care-giving. The National Academies of Sciences, Engineering, and

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[1] https://econofact.org/impact-of-the-covid-19-crisis-on-womens-employment

[2] https://www.americanprogress.org/issues/women/reports/2020/10/30/492582/covid-19-sent-womens-workforce-progress-backward/

[3] The career cost of COVID-19 to female researchers, and how science should respond https://www.nature.com/articles/d41586-020-02183-x

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.

PRESIDENT'S REPORT *continued from page 1*

Medicine is undertaking a fast-track study focused on early indicators of the potential impact of the COVID-19 pandemic on the careers of women in academic science, engineering, and medicine. Some of their initial findings are already available through their website.[4] Our sister organization, European Women in Mathematics, has written an open letter about the challenges we face.[5] The US math community is thinking about this too, and I hope the AWM will be weighing in with suggestions for new policy.

Some of the same, but also additional, challenges face other underrepresented groups in STEM. The title of another article in *Nature* sums it up: " 'It's like we're going back 30 years': how the coronavirus is gutting diversity in science." An article in the *Chronicle of Higher Education*[6] predicts that "whatever form the university takes post-pandemic, it will be more white, more male, more straight, more monied, and less accessible to people with disabilities than it was before the pandemic." We have our work cut out for us. It's time to strategize for ways to counteract the negative forces of the last few years.

This year we are celebrating the 50th anniversary of the AWM. The biggest in-person celebrations have been postponed. There will be no cake at the Joint Mathematics Meetings, and the next Research Symposium has been postponed until summer 2022. But we hope there will still be local and national celebrations. The virtual JMM this month features a panel discussion AWM Through the Decades, with five past presidents. There are plans for a virtual AWM speaker series to feature notable women representing the wide range of professional women in mathematics. Watch your inbox for dates and access information. Many of you may already have purchased your deck of AWM Notable Women in Math Playing Cards. A deck of EvenQuads has 64 cards. Each card features a profile and portrait of a notable woman in math on one side, and the other side has a stylized logo of one of four different mathematical associations: AWM, Mathematical Association for America (MAA), National Association of Mathematicians (NAM), and Women and Mathematics Education (WME). The deck allows you to play five different games. For more about all the work that went into creating this project (thanks to the team!) and how you can purchase a deck, visit the website: https://awm-math.org/publications/playing-cards/

I'd like to highlight some of the recent accomplishments of the Awards Portfolio. They have been hard at work examining all aspects of our awards with an eye towards increasing inclusion. Among recent changes are the following. All members of awards selection committees now must participate in anti-bias training. Awards selection committees pass their recommendations to the Awards Committee, which together with the AWM President make final selection of all awards to insure representation across categories. New processes for collecting demographic information on nominees and award winners are in place. It will be useful for understanding and then improving our nomination and selection processes so that we do a better job recognizing women from underrepresented groups with our accolades. The Awards Committee has also created (and the

[4] https://www.nationalacademies.org/our-work/investigating-the-potential-impact-of-covid-19-on-the-careers-of-women-in-academic-science-engineering-and-medicine
[5] https://www.europeanwomeninmaths.org/ewm-open-letter-on-the-covid-19-pandemic/
[6] https://www.chronicle.com/article/the-university-were-losing

Executive Committee approved) an awards revocation policy. While we hope never to have to use it, this is something one wants to have in advance of it being warranted.

The Executive Committee welcomes Donatella Danielli as a new at-large member replacing Suzanne Weeks who has just become Executive Director of SIAM. Thanks and good luck to Suzanne, and welcome Donatella! In this challenging time, the EC, AWM leadership, and all the committees continue to strive to make AWM a supportive and inclusive organization that endeavors to make the entire mathematics community an exciting and welcoming environment for all. We recognize and accept that includes a responsibility to criticize harmful actions, but hope we always do so while respecting individuals. As Ruth Bader Ginsberg said, "Fight for things you care about, but do it in a way that will lead others to join you." Please join us!

Ruth Haas

As always, I look forward to hearing your thoughts and working with our community.

Ruth Haas
November 26, 2020
Mānoa, HI

LETTER TO THE EDITOR

Response to a letter from the AWM student chapters

Dear Editor,

In the September–October 2020 *Newsletter* of the Association for Women in Mathematics you published a petition initiated by E. Collins-Wildman, A. Huszar, S. Percival, and F. Yhee. This letter calls out a distinguished faculty member in my department at UCLA, Professor Andrea Bertozzi. It contains several false and misleading statements. I am writing to set the record straight as far as it is about Professor Bertozzi:

Statement: *"… Andrea Bertozzi's ongoing work in predictive policing and her profiteering from predictive policing are indefensible."*

Facts: While in the past a small part of Professor Bertozzi's research activities were related to predictive policing, she has currently no ongoing work in this area and did not work on predictive policing on the date of submission of the letter. She does not "profiteer" from predictive policing. She does have a small stake in the company PredPol. This is currently valued under $10,000.

Statement: *"When statistician Kristian Lum and political scientist William Isaac applied Bertozzi and Brantingham's algorithm to publicly available drug use data …"*

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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
Category 1: $325
Category 2: $325
Category 3: $200

See awm-math.org for details on free ads, free student memberships, and ad discounts.

Executive Sponsorship Levels
$5000+
$2500–$4999
$1000–$2499

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 Administrative Specialist, 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.

Addresses
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 Kose, student-chapters@awm-math.org. Send everything else, including ads and address changes, to AWM, awm@awm-math.org.

Facts: Lum and Isaac cite a paper jointly written by Bertozzi, Brantingham, and others, but to refer to this as "Bertozzi and Brantingham's algorithm" is misleading. The system that uses the model discussed by Lum and Isaac was patented under US patent #8,949,164 B1 in 2015. This system was neither invented nor commercialized by Professor Bertozzi. She is not an author of any of the publications cited by this patent.

Statement: *"AS AWM CHAPTER LEADERS, WE URGE AND DEMAND THAT THE AWM LEADERSHIP DO THE FOLLOWING:*

…

2) Explicitly state that all aspects of the Emmy Noether award, including the $500 prize, honorary plaque, and featured article in the AWM Newsletter will not be given to Andrea Bertozzi.

…

4) Actively practice Bystander Intervention at the institutional level in collaboration with organizations such as NAM and the Algorithmic Justice League. In particular, call out ICERM for holding a predictive policing workshop led by Andrea Bertozzi in collaboration with Providence Police!"

Facts: Professor Bertozzi herself suggested to cancel the lecture. She is not interested in giving the lecture, receiving the $500 prize, or writing the feature article in the *AWM Newsletter*. Professor Bertozzi did not attend the 2016 ICERM workshop on predictive policing. She has never collaborated with the Providence Police.

On behalf of the Department of Mathematics at UCLA, I request that the AWM and its student chapters cease vilifying Professor Bertozzi based on false information. I hope that in the future AWM will refrain from publishing letters that incite hatred and single out individuals for scapegoating.

Best regards,

Mario Bonk
Professor & Chair
Department of Mathematics, UCLA
E-mail: mbonk@math.ucla.edu

CALL FOR SUGGESTIONS

In December 2021 the AWM will be electing the following officers: President-Elect, Clerk and four At-Large Members. Suggestions for candidates may be made to Ruth Haas or Kathryn Leonard by **February 15, 2021**; they will pass them along to the Nominating Committee. Your input will be appreciated!

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

Media Coordinator
Denise Rangel Tracy,
Denise.Rangel.Tracy@gmail.com

AWM DEADLINES

AWM Essay Contest: February 1, 2021
AWM Mentoring Travel Grants:
February 1, 2021
AWM-Microsoft Research Prize:
February 1, 2021
AWM-Sadosky Research Prize:
February 1, 2021
AWM Travel Grants:
February 1 and May 15, 2021
RCCW Proposals: February 1, 2021
AWM Fellows: May 15, 2020
AWM Louise Hay Award: May 15, 2020
AWM M. Gwenyth Humphreys Award:
May 15, 2020
AWM Student Chapter Awards:
May 15, 2020

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AWM Fellows 2021

I am very happy to announce the 2021 list of new AWM Fellows. We recognize these individuals for their exceptional dedication to increasing the success and visibility of women in mathematics. Please join me in honoring the 2021 AWM Fellows at the AWM Business Meeting and Awards Presentation on Friday, January 8, 2021, from 5:00–7:00 p.m. MST.

—Ruth Haas, AWM President

2021 Class of AWM Fellows

Alina Bucur, University of California San Diego
For supporting the research careers of women in mathematics at crucial career stages: locally, at her institution and region; nationally, through leadership in AWM and Women in Numbers; and internationally, through her impactful work in organizing conferences and workshops.

Sigal Gottlieb, University of Massachusetts Dartmouth
For exemplary and lasting work in forging an active and positive research environment, proactive outreach, effective mentoring, and promoting the success of women in mathematical and computational sciences.

Eugénie Hunsicker, Loughborough University
For leadership of the United Kingdom community of women in mathematics; tireless advocacy for women in mathematics everywhere through talks, writing, and the film "Faces of Women in Mathematics"; and application of mathematical and statistical expertise to research into equity and diversity issues facing the mathematical community.

Patricia Clark Kenschaft, Montclair State University
For almost 50 years of sustained and lasting commitment to the advancement of underrepresented groups in the mathematical sciences, especially girls, women, and African Americans. Her extensive service, publications, and outreach bring to light racism, sexism, and inequities, always delivered with the message that positive change is possible.

Gail Letzter, National Security Agency
For work in government and in AWM on behalf of women in mathematics, leading the AWM Policy and Advocacy Committee to formally establish the Hill visits program to advocate for women and girls with members of Congress, and co-organizing the 2015 AWM symposium and editing its proceedings.

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CALL FOR PAPERS

AWM Anti-Racism Initiative

As a way of upholding the values outlined in AWM's Statement of Solidarity with NAM following George Floyd's death, we are reserving space in our bimonthly newsletter for articles that share experiences and best practices around dismantling racism in the mathematics community, and articles that support and promote BIPOC women mathematicians and their work. We welcome submissions in these two areas, including:

- Profiles of BIPOC women mathematicians and their scientific and programmatic accomplishments
- Book reviews for books about antiracism, or books written by BIPOC women mathematicians
- Descriptions of effective processes or actions you or your institution have taken toward antiracism in the mathematical community
- Successes or charges to action directly related to reimagining AWM as an anti-racist organization

Submissions from AWM committees, student chapters, past speakers, and prize winners are encouraged.

Please follow the submission guidelines available by going to https://awm-math.org/publications/newsletter/, scrolling down the page and clicking on the plus sign. For items that would be appropriate for one of our columns, sending a query or abstract to the column editor would be appreciated. Although the editorial deadlines are the 24th of odd-numbered months, more lead time to allow for consultation between editors and authors can be very helpful.

AWM FELLOWS 2021 *continued from page 5*

Dawn Alisha Lott, Delaware State University
For her deep commitment to the advancement of women as reflected through her many roles in AWM, the National Association of Mathematicians, and other associations as a committee member, leader, mentor, and speaker, and in supervision of several women obtaining the PhD or MS degree.

Gretchen L. Matthews, Virginia Tech
For contributions to and leadership of activities to encourage girls and women to study and enjoy mathematics; for service to the profession in fostering collaborative research groups with junior faculty and postdocs; and for excellence in mentoring.

Susan Morey, Texas State University
For inspiring and mentoring several generations of women mathematicians, whom she has helped and encouraged to reach their full potential; and for support of graduate students through the Stokes Alliance for Minority Participation.

Bozenna Pasik-Duncan, University of Kansas
For her decades of contributions: as a founder and sustainer of the Women in Control Committee of the IEEE Control Systems Society; as the chair of the IFAC (International Federation of Automatic Control) Task Force on Diversity and Inclusion; and via other programs and activities to support and encourage women and girls in mathematics and engineering.

Ami Radunskaya, Pomona College
For her career-long efforts to invite women into our profession by learning about people's individual journeys and driving the community to be more welcoming of diverse pathways into mathematics via her work during her AWM presidency and as co-director of the Enhancing Diversity in Graduate Education summer program.

Catherine A. Roberts, American Mathematical Society (AMS)
For leadership in the AWM and the American Mathematical Society; and for promoting women in mathematics at every career stage, both by mentoring individuals to become strong and confident mathematicians and by working for systemic change.

Katherine E. Stange, University of Colorado Boulder
For leadership in the Women in Numbers Network by creating its website (the first of its kind), mentoring early-career researchers, organizing conferences, editing its proceedings volumes, and chairing its steering committee; and for service on AWM committees, including support of other research networks.

Talitha M. Washington, Clark Atlanta University and Atlanta University Center
For her dedication to raise awareness of African American women in STEM; for her lifelong promotion of Historically Black Colleges and Universities; and for her unwavering dedication to the National Association of Mathematicians.

Carol S. Woodward, Lawrence Livermore National Laboratory
For her sustained commitment to supporting and promoting women in the mathematical sciences through the AWM, including her leadership of the AWM Awards Committee, and through her work with the Society for Industrial and Applied Mathematics, and the Joint Committee on Women in the Mathematical Sciences.

The Mary and Alfie Gray Award for Social Justice

The Executive Committee of the Association for Women in Mathematics has approved the Mary and Alfie Gray Award for Social Justice to reward the vigorous and imaginative application of the mathematical sciences to advancing the cause of social justice, defined as promoting a just society by challenging injustice and valuing diversity. Social justice exists when all people share a common humanity and therefore have a right to equitable treatment, support for their human rights, and a fair allocation of community resources.

The award is named after Mary Gray, Founder and Past President of AWM, who has lived her life fighting for social justice and human rights, and for Alfred Gray, who was devoted to working with mathematicians from around the world, and with students from underrepresented groups within the United States. The Grays have always been concerned about securing human rights and equitable treatment in the profession and by governments. The award will be made every other year (subject to availability of funds) at the AWM reception at the Joint Mathematics Meetings and comes with a cash prize of $1000. Please help the AWM make this award possible by donating to the Prize Fund through the AWM secure portal: https://ebus.awm-math.org/ebus/Default.aspx?TabID=1523

Column Editors: Janet Beery, University of Redlands; Francesca Bernardi, Worcester Polytechnic Institute; Kayla M. Bicol, Sysco; Eva Brayfindley, Pacific Northwest National Laboratory; Cathy Kessel, consultant

This is the thirteenth in a series of "Presidents' Reflections" articles by past presidents of the AWM that are intended to help us take stock of where we are and where we should be going, and to consider what we want the organization to be at its 50th anniversary. As always, the *AWM Newsletter* welcomes your suggestions and comments.

Suzanne Lenhart was the fifteenth president of AWM (2001–2003). For more about Lenhart, see her Wikipedia entry and web page: http://www.math.utk.edu/people/bio/Suzanne/Lenhart/.

Reflections of Suzanne Lenhart, AWM President 2001–2003

Suzanne Lenhart, Chancellor's Professor, University of Tennessee, Mathematics

The Association for Women in Mathematics has always been important in my career. When I traveled in 1990 as a member of the first "Women in Mathematics" delegation to China invited to visit seven cities and many universities, I met Alice Schafer, Pao-sheng Hsu, Anne Leggett McDonald, Jackie Dewar, Fran Rosamond, Erica Voolich, and others. These new friends helped me to become more connected to AWM, and over the years we have collaborated on many projects.

When I was invited to become AWM president in 2000, I had been involved with co-organizing the AWM workshops at the SIAM annual meetings, starting with the first one in 1993. I enjoyed co-organizing these workshops (16 times!) and got to know many young applied mathematicians. At that time, I had a young son, Phillip Andreae, who is now an assistant professor in mathematics at Meredith College. The support of my husband, Peter Andreae, was essential during this time. I became president in 2001 in the year of AWM's 30th anniversary.

During my presidency, some key people for me were Anne Leggett, Bettye Anne Case, Dawn Wheeler, Mary Ann Horn, Renee Fister, Tamara (Tammy) Kolda, Ginger Warfield, Amy Cohen, and Muriel Daley. Anne and Bettye Anne contributed much of the foundation of AWM by respectively

Suzanne Lenhart and Melissa Wilson at the Forbidden City, Beijing

editing the *AWM Newsletter* and planning AWM activities at mathematics conferences. I loved Ginger's education columns in the *Newsletter* for many years. Being able to count on the consistent work of our clerk, Renee, and our treasurers, Amy and Mary Ann, was invaluable. Tammy started our website and was our amazing web editor for several years. As Director of Membership, Meetings and Marketing, Dawn gave her excellent service and her bright sunshine to me and to many AWM members. Muriel did essential accounting work, efficiently and pleasantly.

During my presidency, I was delighted to have AWM student chapters started in 2003 (a prime year). And now we have a chapter at the University of Tennessee. These chapters continue to be formed and to build networks among students and mathematicians. The Sonia Kovalevsky High School Mathematics Days were happening regularly, funded by the National Security Agency and with the help of Genevieve Knight and Renee Fister. We also were a sponsor of the International Mathematical Olympiad that was held in Washington, DC, in 2001. I would also like to acknowledge the energetic work of Rachel Kuske with our Mentor Network and Victoria Howle with our Essay Contest for Biographies of Contemporary Women in Mathematics.

Continuing to find funding for the graduate student and postdoc participants at the SIAM Annual Meeting and the Joint Math Meetings was a bit of a struggle during my presidency. These workshops have been adapted to include focused research sessions connected with AWM's NSF ADVANCE grant. We appreciate the current and past funding for these activities from NSF, NSA, AFOSR, ONR, Exxon Mobil, and DOE. The NSF-AWM Travel Grant

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Program for Women started in 1988 and continues to facilitate research collaborations. Recently the NSF ADVANCE grant has funded amazing research collaboration conferences.

The Education Committee continues to be active. Pao-sheng Hsu and Jackie Dewar have given so much in this area over the years. Pao, Erica Voolich, and I began the Teacher Partnership program in 2006 in which teachers and mathematicians with common interests were matched. We had several successful partnerships in which the partners became friends and collaborators. One spectacular partnership involved Padhu Seshaiyer (see his article in the July–August 2008 *Newsletter*), and I got to know him and to collaborate with him in other ways.

I enjoyed sharing the writing of the *AWM Newsletter* education columns for 10 years with Betsy Yanik, which gave me a chance to reconnect with her after having been in graduate school together.

Getting the AWM-SIAM Sonia Kovalevsky Award and Lecture established as a regular event of the SIAM Annual Meeting was important and I appreciated the help of Barbara Keyfitz and Marty Golubitsky for this.

AWM has embraced gender diversity more broadly in recent years. Some of the recent AWM panels at the Joint Math Meetings have addressed issues of intersectionality, related to the overlap of many social and gender categorizations and the resulting effects on how persons are perceived and treated.

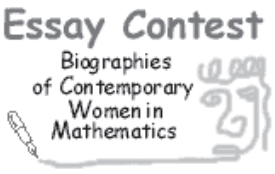
AWM should continue our cooperation with several mathematical organizations and consider more cooperation with the National Association of Mathematicians.

At JMM 2002: Suzanne Lenhart, Lenore Blum, Jean Taylor, and Cathleen Morawetz

Update to Jean Taylor's Reflections

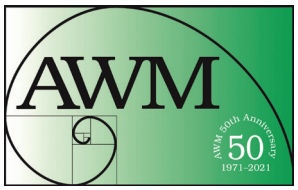
Jean Taylor

As I mentioned in this column for the previous issue, the Gender Gap in Science project has conducted a worldwide survey answered by 32,000 scientists, 50% women and 50% men. Although some analysis of the survey responses has been reported in *A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It*, there is still much more that could be distilled from the results of the survey. I am pleased to report that ICIAM has agreed to cooperate with IMU in sharing the expense of a six-month student internship for analysis of data from the survey to better understand the gender gap in mathematics and applied mathematics worldwide.



To increase awareness of women's ongoing contributions to the mathematical sciences, the Association for Women in Mathematics holds an annual essay contest for biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers. AWM is pleased to announce that the 2021 contest is sponsored by Math for America, www.mathforamerica.org.

Essays will be based primarily on an interview with a woman currently working in a mathematical career. The AWM Essay Contest is open to students in the following categories: **grades 6–8**, **grades 9–12**, and **undergraduate**. At least one winning entry will be chosen from each category. Winners will receive a prize, and their essays will be published online at the AWM website. Additionally, the essay winning the grand prize will be published in the *AWM Newsletter*. For more information, visit https://awm-math.org/awards/student-essay-contest/. The deadline for electronic receipt of entries is **February 1, 2021**. To volunteer to be interviewed, please visit the website https://awm-math.org/awards/student-essay-contest/ and sign up using the link at the bottom of the page.



STUDENT CHAPTER CORNER

Coordinator: Emek Kose,
student-chapters@awm-math.org

AWM Student Chapter Awards

AWM sponsored its annual Student Chapter Awards competition, with awards given in four categories: scientific excellence, professional development, fundraising/sustainability and community outreach. We thank all who participated this year for their attention to their proposals and congratulate them on the strength of the activities they are pursuing to create productive environments for women in mathematics. MathFest was cancelled this year, so the chapter winners were recognized at the annual Student Chapters Virtual Meeting on November 6, 2020.

Texas A&M University, Winner of the Community Outreach Category

The AWM Student Chapter at Texas A&M University is receiving this award in recognition of its outstanding work in reaching out to both the external and internal mathematical communities. Their members make substantial efforts to encourage girls towards careers in the mathematical sciences by volunteering at events such as the Annual Mathematics & Statistics Fair, STEMFest for elementary and middle school Girl Scouts, weekly Math Circle activities, high school math contests, and Summer Mathematics Research Training (SMaRT) High School Camp. The Mathematics Fair is attended by nearly 200 people, from pre-kindergarteners through adults, with chapter members leading an arts and crafts section, hosting puzzle and game tables, and coordinating the Julia Robinson Math Festival. Chapter members also act as graders and proctors for a local high school mathematics contest and work as instructors in their Summer Educational Enrichment in Math (SEE-Math) camp for middle-schoolers. In addition, for two weeks during the summer, members serve as counselors for SMaRT camp, where high school students are introduced to new mathematics and mathematical research. A special highlight this past year was the chapter's hosting of the Texas Women in Mathematics Symposium, which brought together 112 mathematicians from all over the state of Texas to attend research presentations by female mathematicians, to hear advice from a panel of chapter alumna on professional paths in mathematics, and to join discussions on how to foster a welcoming environment for mathematicians of all genders and backgrounds. Within the Department of Mathematics itself, the chapter organizes a Peer Mentoring Program, matching first- and second-year graduate students with more advanced male and female students, and sponsors a monthly Women in Math Mentoring Lunch for all women in the department. Each lunch discussion focuses on a topic pertaining to professional development and encourages dialogue between female students and female faculty. We applaud the Texas A&M's chapter for its outstanding work in bringing girls and women from the larger community into meaningful contact with mathematics, in highlighting the work of female mathematicians in Texas, and, finally, in strengthening the community of women within its own department.

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CALL FOR PROPOSALS

Research Collaboration Conferences for Women

Supported by a National Science Foundation ADVANCE grant, the AWM began working to establish and support research networks for women in all areas of mathematics research. Although that grant has ended, the AWM will continue to provide mentorship and support to new networks wishing to organize a research collaboration conference for women (RCCW), including: help finding a conference venue, help developing and submitting a conference proposal, and help soliciting travel funding for participants.

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/.

University of Maryland, Winner of the Fundraising/Sustainability Category

The AWM Student Chapter at the University of Maryland is receiving this award in recognition of its winning an MAA Tensor Women and Mathematics grant, allowing them to fully fund their Summer 2019 Girls Talk Math (GTM) two-week day camp for local high school students. The idea for Girls Talk Math originated with Francesca Bernardi and Katrina Morgan at the University of North Carolina, but the University of Maryland chapter modified the initial version to take advantage of the particular advantages offered by its campus's proximity to Washington, DC. Their own proposal was rewarded with the substantial MAA Tensor Grant. (The grant, incidentally, was renewed for this past summer, but because of COVID-19, the funds were redirected toward the 2021 event.) The 2019 camp accepted 41 participants who identified as women or gender expansive, all working with graduate and undergraduate volunteers on various topics in mathematics. The goal of the camp is two-fold: "to provide an opportunity for young women to realize their potential for a career in math and to foster a sustainable community of female mathematicians in the Washington DC metropolitan area." The University of Maryland campus has highly accessible public transportation and sits in Prince George County with a 62.9% African/Black American population that is reflected in the percentage of campers identifying with that demographic. Their campus location is also well-suited for recruiting volunteers, speakers, and panelists from other universities as well as from industry and government. The chapter's organizers contact local middle and high school superintendents to promote GTM within local schools and raise interest among the local high school students. Through their enthusiasm and hard work, the chapter has helped to foster connections that, so far, outlast the two weeks the campers spend with them. We congratulate the University of Maryland chapter for its imagination in adapting the GTM model to best utilize their own assets in serving the local population of high school students and in organizing that vision into a winning grant proposal.

Call for Nominations for the 2022 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 encourage women and girls to study and to have active careers in the mathematical sciences, and to promote equal opportunity and the equal treatment of women and girls in the mathematical sciences."

The following criteria are required for nominees to be considered for Fellowship.

- Nominees must have demonstrated an outstanding, sustained commitment to the support and advancement of girls and women in the mathematical sciences.
- Nominees should be a member of AWM at the time of their nomination.

In the majority of cases a nominee should be at least fifteen years into her/his/their career; graduate study counts as part of the career. Nominations will open April 1 and close **May 15, 2021**, so please participate in this year's selection process by nominating someone who you think deserves this recognition. Self-nominations are permitted. Nominations for members of underrepresented minorities are especially encouraged. The primary nominator need not be a current member of AWM but if not should have been one at some point in the past. Anyone can write a supporting letter, whether or not they are AWM members. Nomination packages consist of:

- a nomination letter from the primary nominator of at most two pages
- two supporting letters of at most two pages each, of which at least one is from another AWM member
- a CV of 3 pages or less
- a suggested citation (for use when the award is announced) of 50 words or less.

Further information will be posted at the AWM Fellows page. At the request of the primary nominator, nominations can remain active for one additional year, and the nominator can update the application materials. Questions? Phone 401-455-4042, email awm@awm-math.org or visit awm-math.org/awards/awm-fellows/.

Cornell University, Winner of the Professional Development Category

The AWM Student Chapter at Cornell University is receiving this award in recognition of the breadth and success of its program to develop students' professional involvement in mathematics. The chapter does this through a mentoring program, afternoon teas with focused discussions on topics of mathematical interest, and teas and colloquia with invited faculty and/or visitors sharing their research and their experiences in the mathematics profession. In addition, the chapter has instituted a competitive travel grant and holds LaTeX workshops aimed principally at undergraduates. Their "Women Mentoring Women in Math" program matches freshman and sophomore undergraduate math majors with upperclass and graduate students. Mentors and mentees meet several times during the semester and also attend a monthly workshop for everyone, where the topic can range from CV and resume writing, to goal setting, to how to find REUs and internship opportunities, to discussing the imposter syndrome. Building on their chapter's history of afternoon tea, they have held regular tea-time conversations on a variety of timely themes of interest to AWM members and of importance to the profession generally. The first such event was devoted to the controversy sparked by the use of diversity statements in faculty hiring, while the most recent centered on the disparity in how different groups of mathematicians are affected by the pandemic. The chapter has also instituted informal gatherings, inviting women on the Cornell faculty, as well as visitors, to provide insights into different career paths, and into ways of dealing with obstacles at both the personal and professional level. The chapter is also able to choose one department colloquium speaker a year, allowing it to increase the diversity of visiting speakers while having role models and potential mentors visit and meet with chapter members and other students. Several years ago the chapter instituted a travel grant program, given out twice a year, that funds up to $500 towards graduate student participation in a conference or other professional activity. Finally, they have established a LaTeX workshop, as well as a speaker series intended to introduce math research to undergraduates. The former is an opportunity to learn a skill that is useful but rarely formally taught, while the latter provides Cornell graduate students practice in communicating mathematics to a non-expert audience. We congratulate the Cornell chapter for the extensive list of professional development opportunities it provides both to its own members and to the entire department.

Columbia University/Barnard College, Winner of the Scientific Excellence Category

The Columbia/Barnard Student Chapter has grown impressively over its short time and is working on a number of ways to build a successful mathematical community. As part of its scientific program, it had organized a conference for over 50 women and other gender-minorities in mathematics in the New York area; unfortunately, it had to be postponed because of the pandemic. However, even after students were required to leave campus, the chapter was able to organize

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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/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 1**, **May 15**, and **October 1**.

reading groups that provided students an opportunity to learn some new mathematics with a group of peers and in a more structured setting. Each group met once a week to study a chosen topic in probability, machine learning, number theory and cryptography, representation theory of finite groups, or Lie theory and its associated representation theory. These groups were led by a range of upperclassmen and a graduate student, and the participants ranged from first-years to graduate students at Columbia and even some students from other colleges in New York.

The University of Utah, Winner of the Scientific Excellence Category

The AWM Student Chapter at the University of Utah organizes an annual speaker series as well as a conference for advanced undergraduate and early career graduate students every two years. As part of their speaker series, they invite four mathematicians from traditionally underrepresented backgrounds to come to campus for two or three days. During these visits, the invited speaker gives one or two research talks, a talk about their paths through mathematics, and meets informally with students during coffee hours and meals. Two speakers are supported by the department's RTG grant, but two are supported by a combination of departmental funds and additional fundraising work by the chapter. Their second major scientific activity this past year consisted of the organization of BRIDGES 2020, a conference for advanced undergraduate and early career graduate students, again from traditionally underrepresented backgrounds. As was the case for other institutions, the conference was postponed until 2021 because of COVID-19. Once it takes place, the chapter will host 46 or more students, 65% of whom identified as female, nonbinary, or another gender minority and 39% of whom identified as an underrepresented minority. Most notably, despite the delay, the chapter is currently working to sustain enthusiasm and interest, as well as to build community among participants by organizing a calendar of virtual events throughout the 2020–2021 academic year leading up to the actual scheduled event.

The AWM Student Chapters at Columbia University/Barnard College and at the University of Utah are both receiving this award for their very different but equally impressive scientific programs. The selection committee felt that both deserved the special recognition of the award for Scientific Excellence. We extend our congratulations to both of these chapters for their dedication to providing outstanding scientific programs to their undergraduate and graduate students in spite of the difficulties that the pandemic has placed before them.

Student Chapter Awards 2021: What projects, events, or programs could your student chapter undertake in this new school year? We love hearing about and featuring these programs, so be sure to nominate your institution for the 2021 Student Chapter Awards.

NSF-AWM Mentoring Travel Grants for Women

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

Selection Procedure. All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians appointed by the AWM. A maximum of $5000 per award will be funded.

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

Deadline. There is one award period per year. Applications are due **February 1**.

Lynda R. Wiest Wins the Hay Award

Lynda R. Wiest; photo credit: William A. McDonald

Citation

In recognition of her outstanding contributions to math education, AWM presents the 2021 Louise Hay Award to Dr. Lynda Wiest from the University of Nevada, Reno. Wiest has contributed impactfully to advancing mathematics education in K–12 across a variety of school settings. She has created innovative courses and summer programs, addressing gender equity and diversity issues.

Wiest is the founder and the director of the highly influential Northern Nevada Girls Math and Technology Program (NNGMTP) since 1998. Every summer for more than two decades, the program hosts girls entering the seventh and eighth grades from Nevada's rural and urban areas at the University of Nevada, Reno. The summer camp boosts the girls' interest in mathematics, advances their mathematics education and problem-solving skills, and it presents participants with university campus experience. As one nominator wrote, "Wiest's mentorship and guidance reached all levels of this program. This was clear by the number of return instructors, assistants, volunteers, and girls who wished to continue participating in the NNGMTP." Many of these students have chosen to pursue degrees in math and engineering.

Response

I am deeply honored to be among the individuals chosen over the years for the Louise Hay Award. In the same way that Louise Hay paved a path for us, for several decades I have sought to continue a tradition of encouraging and supporting girls and young women in mathematics. Some ways I have done this are through my research and writing; girls mathematics programs I have conducted (e.g., the Northern Nevada Girls Math & Technology Program I started in 1998); education to teachers, parents, and others about girls/women and mathematics; and individual mentoring and encouragement to young girls through adult women. I am very grateful to have received this award for my work, which I will continue to perform as long as I can, with confidence that this chain of "sources of inspiration and opportunities" (in Louise's words) that started long before me will continue with future generations.

About this award

Established in 1991, the Hay Award recognizes outstanding achievements in any area of mathematics education. Louise Hay was widely recognized for her contributions to mathematical logic, for her strong leadership as Head of the Department of Mathematics, Statistics, and Computer Science at the University of Illinois at Chicago, for her devotion to students, and for her lifelong commitment to nurturing the talent of young women and men. 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.

AWM is *50*!

From its small but powerful beginning in 1971, to the expansive network in the mathematical sciences that it is today, AWM has a lot to celebrate in 2021! Our activities at the January JMM will be virtual this year, due to the pandemic. See page 21–27 for more information about our activities there.

The AWM Research Symposium originally planned for 2021 has been postponed until 2022. See https://awm-math.org/meetings/awm-research-symposium/ for the most up-to-date news.

Raegan Higgins Wins the Humphreys Award

Citation

AWM is pleased to present the 2021 Gweneth Humphreys Award to Raegan Higgins, Associate Professor of Mathematics in the Department of Mathematics and Statistics at Texas Tech University. Raegan Higgins has a PhD in Mathematics from the University of Nebraska, and her research interests revolve around time scales—particularly oscillation criteria for certain linear and nonlinear second order dynamic equations. She has also studied the impact of professional development on the self-efficacy of middle-school mathematics teachers.

At Texas Tech University, Higgins' excellence in teaching and mentoring and her commitment to diversity have consistently shined through. In addition to her formal role as academic advisor for both female and male graduate students, she co-founded the Young Women in Mathematics:

Raegan Higgins

Fostering Success program in 2013. This initiative led to the formation of an AWM student chapter in 2018 that Higgins co-advises. She is also a member of the organizing committee of the Emmy Noether High School Mathematics Day and over the years has given numerous talks, organized workshops, and served as career panelist for the female high school and undergraduate students who participate in this annual event. Since 2009, Raegan Higgins has served as faculty advisor for the Eta Lambda Chapter of Delta Sigma Theta Sorority and as Faculty Mentor and Mentor Cluster Leader for Mentor Tech (formally known as The Lauro Cavazos & Ophelia Powell-Malone Mentoring Program), a program for students from diverse backgrounds at Texas Tech. In 2014, Higgins received a Women in STEAM Award from the Center for the Integration of STEM Education and Research, and in 2020 she was recognized as an Integrated Scholar for her synergistic activities at the intersection of teaching, service and research.

An alumna of the Enhancing Diversity in Graduate Education (EDGE) program, and one always giving back, Higgins served as EDGE instructor in the years 2014 to 2017 and since 2017 has served as co-director of the program. Founded in 1998, the EDGE program has had a marked success at helping female undergraduate mathematics students transition into and thrive in graduate school. Raegan Higgins is a co-founder of the Network of Minorities in Mathematical Sciences. Through its website Mathematically Gifted and Black, the network highlights the contributions and accomplishments of Blacks in the mathematical sciences.

Raegan Higgins has positively impacted the academic trajectory of many women, particularly women of color, within and outside of her institution, and the AWM is pleased to honor her for her genuine and sustained commitment to the recruitment, mentoring, and retention of women in mathematics.

Response

I was surprised to learn that I had been selected as a recipient of the M. Gweneth Humphreys Award for Mentoring. I am deeply honored to receive this award. I extend my sincerest thanks to my department chair Magdalena Toda who nominated me, to those who supported my nomination, and to the award selection committee.

It is refreshing to be reminded that we are positively impacting students' lives through the seemingly small things. Listening and providing encouragement contribute endlessly to students' outlook and persistence. Several of us are beneficiaries of those small deeds. I will continue to

show my women students that they have a place in mathematics and help them find their entry point.

This recognition is for all the women who inspired me to pursue math and who continue to inspire me to do the work—the hard work, the good work, the needed work.

About this award

This award is named for M. Gweneth Humphreys (1911–2006). Professor Humphreys earned her master's degree from Smith College and her PhD at age 23 from the University of Chicago in 1935. She taught mathematics to women for her entire career, at Mount St. Scholastica College, 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.

BOOK REVIEW

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

Breaking the STEM Stereotype: Reaching Girls in Early Childhood, by Amanda Alzena Sullivan, Rowman & Littlefield, 2019. ISBN 978-1-475842-043

Reviewer: Marge Bayer

This book is based in part on the author's doctoral research in the DevTech Research Group at Tufts University. The group studies the role of technology, including coding and robotics, in child development and learning. Sullivan did not have a background in STEM before joining the group; her motivation was to broaden the experiences and opportunities for girls.

The book is divided into three parts: "The Great Gender Divide in STEM," "Stereotypes are Everywhere (and It's Becoming a Real Issue)," and "Break the STEM Stereotype in Early Childhood." It is a relatively short book (154 pages including appendices). The first two parts are a bit thin: a reader of the *AWM Newsletter* is unlikely to learn new things there. The book would be of greatest value for readers who have not been exposed to this sort of material, and especially for elementary school teachers and parents who are not themselves in STEM. I am not sure whether it will reach this audience, but I hope that some school districts and parent groups pick it up.

The author stresses that the formation of stereotypes happens very early, beginning at age two and pretty well set by early elementary school. So the examples and the suggested responses are focused on young children.

Half of the twelve chapters of the book start with a vignette, a situation in which a child or adult encounters or engages in stereotypical behavior. Either in the vignette or in the subsequent text, a response is given. These highlight how children internalize stereotypes early, as they are exposed through the adults and children around them, through books and media, and through advertisements. They illustrate the frustration of adults who want to raise children without gender stereotypes—we would all cringe at hearing our child say, "that is for boys!" But the book suggests age-appropriate responses to these encounters with stereotypes.

Discussion of the math and science components of the gender divide in STEM is mostly in the first part of the book. The author then focuses on technology and engineering. This is justified by saying that women have less representation in these areas than in math and science, and that elementary schools do not focus enough on technology and engineering. These are generally true, but it is also the case that the author's experience is mostly with robotics for children, and this influences her perspective. Since the emphasis is on the effect of stereotypes on preschool and elementary school children, something is lost when attitudes about mathematics and science are not part of the focus. In particular, it would be of value to understand if and how the relative progress in women's participation in the life sciences and even in mathematics, compared with computer science and engineering, relates to attitudes and stereotypes in the early childhood years. In addition, since the author is a strong advocate for involving young children in robotics, it would be interesting to know if this results in better engagement and achievement in mathematics and science.

Young children are exposed to gender stereotypes in all media. What first comes to mind, perhaps, are cartoons and Disney movies. (Disney's television show, *Doc McStuffins*, 2012–2020, is given as an example of a show that promoted diversity and nontraditional gender roles.) But children see a lot of advertising, which is not designed for the purpose of challenging stereotypes. The author cites research from 2007: children ages 2 through 7 were exposed to an average of 13,904

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television ads in a year, while for children ages 8 to 12, it was an average of 30,155 [p. 70]. Now much advertising is done on websites and apps, including those directed at children. Not only can such advertising perpetuate stereotypes, but it can trick children into leaving the site or app they are using, and even into purchasing products. (The Federal Trade Commission successfully sued Amazon, Apple and Google over this, in 2014.)

Besides advertising, in-store marketing strategies may reinforce stereotypes. In 2015, Target stores were criticized for labeling toy aisles "Building Sets" and "Girls' Building Sets." And of course the individual products were marketed with the stereotypes in mind. For my daughters we bought buckets of Lego bricks, not kits for building particular things from Lego. So we avoided the pink and purple Lego kits for girls, not to mention the movie tie-ins. (From looking at the Lego website, I am not sure whether you can still just buy a bucket of Lego bricks.)

Parents as role models are, of course, of the greatest importance. Children will naturally internalize conclusions from the division of labor of their parents, both inside the home and outside. They are strongly influenced by the ways their parents present themselves, and by the presence or absence of discussion about gender roles and stereotypes (and many other things). The author cites research from 2012 that found that children of same-gender parents showed less gender-stereotyped behavior in their play [p. 76]. I don't feel that my husband and I talked explicitly to our daughters much about gender stereotypes. But we were both math professors, and we shared pretty evenly childcare and household duties. Was this a factor in their career paths? One is a software engineer; the other, who I always thought was my "arts and humanities" daughter, is a data analyst.

Perhaps the most useful contribution of the book is specific advice to parents and children, often presented as bullet lists. This includes advice for parents and teachers on reducing stereotype threat [pp. 58–59]. I wonder about one such piece of advice, however: the author suggests that a teacher might say, "Keep in mind that if you are feeling anxious or nervous while taking this test, this could be the result of negative stereotypes and have nothing to do with your actual ability to do well on the test." This seems like it could backfire, that it could remind students of the stereotype and create the anxiety it was supposed to defuse, at least if it was said right before a test. Other suggestions include advice for choosing toys [pp. 66–67]; advice for parents to limit their children's screen time [pp. 68–69]; advice for parents for role-modeling [pp. 77–78]; advice for elementary teachers on curriculum [p. 81 and pp. 115–117]; and advice on providing girls with toys and tools that develop programming and engineering skills [p. 109].

Chapter 9 of the book is titled "Tools, Games and Products to Engage Girls in Pre-K through Early Elementary School." Here the author's own interest dominates: robotics.

CALL FOR NOMINATIONS

2022 Louise Hay Award

The Executive Committee of the Association for Women in Mathematics has established the Louise Hay Award for Contributions to Mathematics Education, to be awarded annually to a woman at the Joint Prize Session at the Joint Mathematics Meetings in January. The purpose of this award is to recognize 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.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted. Nominations for members of underrepresented minorities are especially encouraged. The nomination documents should include: a one to three page letter of nomination highlighting the exceptional contributions of the candidate to be recognized, a curriculum vitae of the candidate not to exceed three pages, and three letters supporting the nomination. It is strongly recommended that the letters represent a range of constituents affected by the nominee's work. Nomination materials for the Hay Award shall be submitted online. See the AWM website at www.awm-math.org for nomination instructions. Nominations must be received by **May 15, 2021** and will be kept active for three years. For more information, phone 401-455-4042, email awm@awm-math.org or visit https://awm-math.org/awards/hay-award/.

She makes the case that very young children can develop programming and engineering skills with robot kits and programming environments designed for their age. Most of these are described as gender-neutral, but the author also addresses the issue of whether we should support "girl-oriented" products in this category. One argument is that what a manufacturer considers "gender-neutral" may really be targeted at boys, and a greater variety of contexts for the products is desirable. Another is that in the real world we have to reach children where they are. If girls, whether due to socialization or from internal interest, are attracted to products that involve fashion, animals, and crafts, then we can use those to involve them in programming and design. It's even better if these are marketed in such a way that makes them accessible to boys as well.

The book is a good introduction to issues of raising children to combat STEM stereotypes. I am interested to know if other countries or cultures have avoided these stereotypes or have addressed them successfully. Are there countries where there is a higher participation of women in technology and engineering? What can we learn from them? One drawback of the book is the lack of an index. There are, however, substantial reference lists at the end of each chapter. It would be good to get this into the hands of elementary school teachers and parents who are not themselves in STEM fields.

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.

Subversion on *9-1-1*

Sarah J. Greenwald, Appalachian State University

Chimney is a firefighter and paramedic on Fox's show *9-1-1*. In the episode "Pinned," which first aired on March 20, 2020, he comes home to find that his brother Albert is not alone. Albert has been with different women every night, and this night is no exception.

9-1-1 has a diverse cast of characters, including these Asian-American brothers. In an interview with *TV Guide*, Kenneth Choi, the actor who plays Chimney, comments that executive producer "Ryan Murphy is brilliant at subverting what you think would happen. I loved it. I happen to be an Asian American man and I've had my fair share of relationships, and you don't get to see that on screen. And when you don't see it you don't identify, so hopefully a lot of other Asian American men out there can identify. I'm proud to have taken on that mantle" (https://www.tvguide.com/news/9-1-1-chimney-kenneth-choi/). While Choi is talking about Chimney's relationships on the show, the same comment about subversion of tropes could also apply to Albert.

In this episode, Albert brought home someone he met at a club. Albert's new friend Megan, played by the actress Taylor Hook, is a BIPOC woman. She unabashedly introduces herself to Chimney and goes to change. Even though Megan and Albert are not wearing much in the way of clothes, she is not hypersexualized, any more than Albert is, at least. Chimney isn't happy:

Albert: Why are you upset?
Chimney: Because you brought some rando club girl to my home…
Albert: Bro, did you not see how pretty rando club girl is though?

Albert and Chimney are *not* portrayed as mathematically talented on the show. We find out that Megan is mathematically talented when she overhears the above conversation as she returns to the room, and responds:

Megan: FYI, random club girl is actually working on a PhD in applied mathematics.
Chimney: My apologies doctor, I did not mean to disparage you. I was aiming for him.
Megan: Apology accepted. Nice to meet you both.

Like Albert and Chimney, Megan doesn't fit into common tropes in popular culture. She does not deny or question her own mathematical talent. She is not frumpy nor a beautiful assistant—she is beautiful but no one's assistant. In "The Oppositional Gaze: Black Female Spectators" in the book *Black Looks: Race and Representation*, bell hooks writes "Disrupting conventional racist and sexist stereotypical representations of black female bodies, these scenes invite the audience to look differently" and goes on

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to say, "they do not simply offer diverse representations, they imagine new transgressive possibilities for the formulation of identity" (p. 130).

In *9-1-1*, this is a quick scene, so the writers Nadia Abass-Madden and Juan Carlos Coto didn't even have to give Megan's character a name, let alone a career. Plus, they and Hook gave Megan power in the way that she speaks to the brothers and the manner in which she carries herself. To me, in doing so, they humanized Megan and briefly showcased a BIPOC woman in mathematics who is beautiful, fun, unapologetic, unembarrassed and smart. A couple of other people to whom I've spoken about this episode had similar reactions to mine, but if you have seen this episode, what was your take on it? Is this the same old sexual objectification or a disruption of conventional stereotypes?

EDUCATION COLUMN

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

Checking in with Our Students and with Ourselves

Megan Breit-Goodwin, Mathematics Instructor, Anoka-Ramsey Community College, Megan.Breit-Goodwin@anokaramsey.edu

How are you?

This is the first question I ask my students when we meet. Then I pause. I pause for me, and I pause for the person I am with. Right now, I pause for you. Really, how are you?

I realized I was not okay on a Wednesday morning in September. A colleague from my college's student counseling office had emailed to tell me a student was going to be gone for a few weeks. I don't know the circumstances, and I never will. But I already knew that the student was not doing okay. Assignments were submitted late and the mathematics work had changed. The student had stopped responding to my email. I listened to my thinking and there had been a shift in my mind's narrative. I felt guilty. I told myself I had failed to care for this student, and feared I was hurting all my students. I felt hopeless.

By the end of September, ten percent of the students in my classes were in crisis. I teach at a two-year community college in the suburbs of Minneapolis. Many of the students in my classes are students of color. Many students are adults who work full time and have children or care for generations of family members. The trauma is palpable. Housing insecurity. Food insecurity. Illness. Mental health crises. Domestic violence. Educational inequities. Police brutality. Death. So much death. Turning on my computer each morning had been causing an anxiety reaction for a few weeks, and I remember holding my breath as I opened my email that day.

I met with two of my deans the next day. I had planned to discuss what was happening among the students in my classes, and how I could better support their learning. The first thing they asked me was, "How are you?" I told them I was okay. I was fine, right? My deans asked me again, "Really, how are you?" I didn't respond that time. They invited me to cry and while I cried they were quiet and present, holding space for me.

When my tears stopped, we talked. They directed me to the book *Trauma Stewardship: An Everyday Guide to Caring for Self While Caring for Others* by Laura van Dernoot Lipsky with Connie Burk. I devoured the book the next weekend. The text put words to what I had not yet named. I was experiencing secondary trauma through exposure to the trauma that was happening in the lives of my students. I recognized the trauma exposure response described in the book. I had feelings of helplessness, hopelessness, and inadequacy. I was filled with fear and guilt. I had physical pain and was exhausted but my internal dialog told me I wasn't doing enough. I was minimizing my own experience. I was rushing around, eating so quickly I didn't taste my food, telling my children to hurry up. I even had a distinct dissociative experience, where I had sat at my computer for nearly an hour, not moving, not working, just staring at the screen. Awakening to the pain and bearing witness to the trauma that is happening has been brutal.

To continue being the teacher I want to be, I need to understand and honor that I am experiencing secondary trauma. I also need to care for and manage it because I don't want to lose the joy of teaching students mathematics. Van Dernoot Lipsky developed a navigational tool called the Five Directions to guide the journey of proactive trauma stewardship described in the text. The Five Directions helped me rediscover a space of stillness. I began to examine the ways I was engaging in my teaching, how I was directing my focus, and the narrative I was constructing about my work. I allowed myself to view myself with compassion. This helped me shift my thinking just enough to put my shoes back on and keep on the journey, with new awareness of my experience and connection to my

community. The hopelessness I was feeling started to give way to confidence that I could care for myself in ways that would enable me to remain peaceful, present, and joyful in my work.

The trauma, grief, and pain are still present. The scale of it is overwhelming. Some students have returned to class. Some have not. Others have had to leave class. I am frustrated because I want to be back with students, in the same physical space, doing mathematics. That isn't possible right now. Instead, I have to calm my mind, settle my body, and open myself to dwell in our current space. It usually is a virtual space, often an asynchronous space. I am still with students. It looks different, and it feels different, but we are together. We are in community.

Yes, I did get to see the student again. When we connected on a video call, the first thing I asked was, "How are you?"

The work we are doing as educators right now is hard. It is so much more than we have ever had to do before. I look in awe as I see you, my AWM colleagues, doing amazing things. I see you taking meetings from the back of your child's closet. I see you bringing mathematics to your communities to help guide the response to COVID-19. I see you collaborating with your colleagues in new ways, trying new teaching and learning practices, and innovating ways to be with your students. I see you getting up every day (or some days), pouring a cup of coffee, shuffling over to your computer, opening your email, and being there. Being you. Being in community with your students, with your colleagues, and with me.

Maybe today, or maybe tomorrow, ask your students, "How are you?"

Ask your colleague, "How are you?"

Ask your partner, your neighbor, your child, or your parent, "How are you?"

And ask yourself, "How are you?"

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CALL FOR NOMINATIONS

2022 M. Gweneth Humphreys Award

The Executive Committee of the Association for Women in Mathematics has established a prize in memory of M. Gweneth Humphreys to recognize outstanding mentorship activities. This prize will be awarded annually to a mathematics teacher (of any gender) who has encouraged female undergraduate students to pursue mathematical careers and/or the study of mathematics at the graduate level. The recipient will receive a cash prize and honorary plaque and will be featured in an article in the AWM newsletter. The award is open to all regardless of nationality and citizenship. Nominees must be living at the time of their nomination.

The award is named for M. Gweneth Humphreys (1911–2006). Professor Humphreys graduated with honors in mathematics from the University of British Columbia in 1932, earning the prestigious Governor General's Gold Medal at graduation. After receiving her master's degree from Smith College in 1933, Humphreys earned her PhD at age 23 from the University of Chicago in 1935. She 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 Woman's College, recognizes her commitment to and her profound influence on undergraduate students of mathematics.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted. Nominations for members of underrepresented minorities are especially encouraged. The nomination documents should include: a nomination cover sheet; a letter of nomination explaining why the nominee qualifies for the award; the nominee's vita; a list of female students mentored by the nominee during their undergraduate years, with a brief account of their post-baccalaureate mathematical careers and/or graduate study in the mathematical sciences; and supporting letters from colleagues and/or students. At least one letter from a current or former student of the candidate must be included.

Nomination materials for the Humphreys Award shall be submitted online. See the AWM website at awm-math.org for nomination instructions. Nominations must be received by **May 15, 2021** and will be kept active for three years at the request of the nominator. For more information, phone 401-455-4042, email awm@awm-math.org or visit https://awm-math.org/awards/humphreys-award/.

Source: Van Dernoot Lipsky, L., & Burk, C. (2009). *Trauma stewardship: an everyday guide to caring for self while caring for others*. San Francisco: Berrett-Koehler Publishers.

Column Editor's Note: Last September, I announced that Pat Kenschaft would "retire" from writing for the Education Column after her 15th article, which appeared in the September–October 2020 issue.

I am pleased to announce that Yvonne Lai will be joining the rotation as her replacement in the September–October slot.

Yvonne Lai is Milton Mohr Associate Professor in the Department of Mathematics at the University of Nebraska-Lincoln. She is founding chair of the MAA's Special Interest Group on Mathematical Knowledge for Teaching, member and incoming chair of the MAA Committee on the Mathematical Education of Teachers (COMET), and a member of the writing team for the NCTM publication *Catalyzing Change in High School Mathematics*.

We look forward to hearing from Yvonne in 2021 and beyond.

The continuing column contributors are Megan Breit-Goodwin (January–February), Minerva Cordero (March–April), Erica Walker (May–June), Anna Bargagliotti (July–August), and myself (November–December).

Early Career Postdoctoral Fellowship Program

Press release, 14 Aug 2020, science.house.gov

The House Science, Space, and Technology Committee introduced the Supporting Early-Career Researchers Act. This legislation creates a new postdoctoral fellowship program at the NSF to help keep early career researchers whose employment opportunities have been impacted by the COVID-19 health crisis in the STEM pipeline.

Chairwoman Eddie Bernice Johnson (D-TX) said:

> I am deeply concerned about the disappearance of STEM job opportunities and the potential long-term consequences for our STEM pipeline. For established researchers, the COVID-19 crisis has severely limited their access to their laboratory space. But for early career researchers, these disruptions come at a critical juncture in their research career, threatening to derail their career path.

The bill was returned to committee, but has gained cosponsors as recently as November 2020.

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. 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, 2021**. If you have questions, phone 401-455-4042, email awm@awm-math.org, or visit https://awm-math.org/awards/awm-student-chapter-awards/.

AWM at Virtual JMM 2021

Register here: https://jointmathematicsmeetings.org/meetings/national/jmm2021/2247_reg
Note: All times are Mountain Standard Time.

Wednesday, January 6, 2021

AMS-AWM Special Session on Women of Color in Applied Math and Analysis, I

8:00 a.m. – 10:20 a.m. MST

Organizers:
- **Mirjeta Pasha** (Arizona State University)
- **Nancy Rodriguez** (University of Colorado Boulder)
- **Caprice Stanley** (The Johns Hopkins University Applied Physics Lab)
- **Omayra Ortega** (Sonoma State University)

Presenters:
- 8:00 a.m.
  Poncelet Quadrilaterals Four Ways
  Andrei Martinez-Finkelshtein, Baylor University and University of Almeria, Spain
  Brian Simanek, Baylor University
  Markus Hunziker, Baylor University
  Taylor A. Poe*, Baylor University
- 8:30 a.m.
  Computational Methods for Solving Inverse Problems in Imaging
  Malena I. Español*, School of Mathematical and Statistical Sciences, Arizona State University
- 9:30 a.m.
  On the ratio of current age to total life for null recurrent renewal processes
  Yujia Ding*, Claremont Graduate University
  John Angus, Claremont Graduate University
- 10:00 a.m.
  Portfolio Rebalancing with Illiquid Assets
  Lynesia R. Taylor*, North Carolina State University

AMS-AWM Special Session on Women of Color in Applied Math and Analysis, II

2:15 p.m. – 6:05 p.m. MST

Organizers: Same as Session I.

Presenters:
- 2:15 p.m.
  Krylov meets Bregman: Sparse image reconstruction with nonnegativity constraint
  Mirjeta Pasha*, Arizona State University
  Lothar Reichel, Kent State University
  Alessandro Buccini, University of Cagliari
- 2:45 p.m.
  Exploring Language with Linear Algebra
  Tai-Danae Bradley*, Alphabet (Google) X
- 3:15 p.m.
  Transmission dynamics of COVID-19 in Ecuador and age-dependent control strategies
  Joan Ponce*, Purdue University
  Sheng Zhang, Purdue University
- 3:45 p.m.
  Finding Pattern Formation in a Model for Wealth and Amenities
  A. Hasan, Duke University
  N. Rodriguez, University of Colorado, Boulder
  L. Wang*, University of Colorado, Boulder
- 4:15 p.m.
  Machine Learning Applications to the Electrical Impedance Tomography Inverse Problem
  Shyla R. Kupis*, NSF NRT Fellow in School of Mathematical and Statistical Sciences/Clemson University
  Vincent Barra, Professor in Computer Science/ Clermont-Auvergne University, LIMOS Laboratory
  Taufiquar Khan, Chair of Department of Mathematics and Statistics/University of North Carolina Charlotte
- 4:45 p.m.
  To isolate or not to isolate: The impact of changing behavior on COVID-19 transmission
  Folashade B. Agusto*, University of Kansas
- 5:15 p.m.
  Methods for Analyzing Movement in Single Particle Tracking
  Keisha Cook*, Tulane University
  Scott McKinley, Tulane University
- 5:45 p.m.
  Modeling and Parameter Inference in Biological Systems
  Suzanne Sindi*, University of California, Merced

Thursday, January 7, 2021

AMS-AWM Special Session on Women of Color in Topology and Algebra, I

8:00 a.m. – 11:50 a.m. MST

Organizers:
- **Emille Davie Lawrence** (University of San Francisco)
- **Candice Price** (Smith College)
- **Carmen Wright** (Jackson State University)

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Presenters:

- 8:00 a.m.
  Inversion generating functions for signed pattern avoiding permutations
  Naiomi Cameron*, Spelman College
  Kendra Killpatrick, Pepperdine University

- 8:30 a.m.
  Intrinsic Tame Filling Functions for Groups
  Anisah N. Nu'Man*, Spelman College

- 9:00 a.m.
  Centralizer-like Subgroups Associated with the n-Engel Word Inside a Direct Product of Groups
  Dandrielle C. Lewis*, High Point University
  Maggie Reardon, University of Colorado Boulder
  Bridget Lee, University of Wisconsin Eau Claire

- 9:30 a.m.
  Marked Length Spectrum Rigidity with Partial Data
  Noelle Sawyer*, Southwestern University

- 10:00 a.m.
  Invariants of Hopf actions on path algebras of quivers
  Ana Elena Berrizbeitia*, Colorado Mesa University

- 10:30 a.m.
  Hajos-type Constructions and Neighborhood Complexes
  Benjamin Braun, University of Kentucky
  Julianne Vega*, Kennesaw State University

- 11:00 a.m.
  Zariski dense surface subgroups in SL(n,Q)
  Carmen Galaz-García*, University of California, Santa Barbara

- 11:30 a.m.
  Knot concordance invariants and homomorphisms
  Irving Dai, MIT
  Jennifer Hom*, Georgia Tech
  Matthew Stoffregen, MSU
  Linh Truong, University of Michigan

AMS-AWM Special Session on Women of Color in Topology and Algebra, II

1:00 p.m. – 3:20 p.m. MST

Organizers: Same as Session I.

Presenters:

- 1:00 p.m.
  The Cobweb Interpretation of the B_2 Spider
  Sherilyn Tamagawa*, Davidson College

CALL FOR NOMINATIONS

The 2022 AWM-Microsoft Research Prize in Algebra and Number Theory

The Executive Committee of the Association for Women in Mathematics has established the AWM-Microsoft Research Prize in Algebra and Number Theory. First presented in 2014, the prize is awarded every other year. The purpose of the award is to highlight exceptional research in some area of algebra by women early in their careers. The field will be broadly interpreted to include number theory, cryptography, combinatorics and other applications, as well as more traditional areas of algebra. Candidates should be women based at US institutions who are within 10 years of receiving their PhD, or having not yet received tenure, at the nomination deadline.

The AWM-Microsoft Research Prize serves to highlight to the community outstanding contributions by women in the field and to advance the careers of the prize recipients. The award is made possible by a generous contribution from Microsoft Research.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted. Nominations of members of underrepresented minorities are especially welcome. The nomination should include: 1) a one to three page letter of nomination highlighting the exceptional contributions of the candidate; 2) a curriculum vitae of the candidate not to exceed three pages; and 3) three letters supporting the nomination (submitted independently). Nomination materials should be submitted online at MathPrograms.org. The submission link will be available 45 days prior to the nomination deadline. Review of candidates will begin in mid-February. For full consideration, nominations should be submitted by **February 1, 2021**. If you have any questions, phone 401-455-4042, email awm@awm-math.org or see https://awm-math.org/awards/awm-microsoft-research-prize/.

- 1:30 p.m.
  Infinite-type surfaces
  Priyam Patel*, University of Utah

- 2:00 p.m.
  Twisted Mazur pattern satellite knots and bordered Floer theory
  Biji Wong*, Max Planck Institute for Mathematics

- 2:30 p.m.
  Covers and Curves
  Tarik Aougab, Haverford College
  Max Lahn, University of Michigan
  Marissa Kawehi Loving*, Georgia Tech
  Yang Xiao, California

- 3:00 p.m.
  Interlace Polynomials of Lollipop and Tadpole Graphs
  Christina Eubanks-Turner*, Loyola Marymount University
  Kathryn Cole, Loyola Marymount University
  Megan Lee, Loyola Marymount University

Association for Women in Mathematics Panel — *Equity, Ethics, and Bias in Mathematics*

1:00 p.m. – 2:30 p.m. MST

At the 2021 JMM, in lieu of the Noether Lecture, the AWM will host a panel of experts on issues of equity, ethics, and bias in algorithm development and in research more generally. Historically, mathematics has been presented as a neutral arbiter of "truth," but the development and application of mathematics can have significant moral and ethical context and implications. With this event, the AWM seeks to highlight and promote the work that a growing number of experts in the mathematical sciences are already doing, as a step toward broadening the conversation and moving the mathematics community toward greater awareness of the unintended ethical consequences of our work. Each panelist will give a short prepared presentation, with time for moderated Q&A afterwards.

Organizers:
- **Alina Bucur** (University of California San Diego)
- **Amanda Bower** (University of Michigan)
- **Carla Cotwright-Williams** (AWM Executive Committee)
- **Courtney Gibbons** (Hamilton College)
- **Alana Huszar** (University of Michigan)
- **Lily Khadjavi** (Loyola Marymount University)
- **Adriana Salerno** (Bates College)
- **Michelle Snider** (IDA/Center for Computing Sciences)

Moderator:
- **Carla Cotwright-Williams** (AWM Executive Committee)

Panelists:
- **Loretta Cheeks** (DS Innovation & Strong TIES, CEO)
- **Maria De-Arteaga** (The University of Texas at Austin)
- **Kristian Lum** (University of Pennsylvania)
- **Suresh Venkatasubramanian** (University of Utah)

Association for Women in Mathematics Panel — *AWM Through the Decades*

2:30 p.m. – 4:00 p.m. MST

Since its founding in 1971, the Association for Women in Mathematics has been a force for positive change in the culture and demographics of the mathematics world and an effective voice of support for women in the mathematical sciences. AWM Through the Decades is an event to celebrate the 50th anniversary of the organization's founding. It will feature five AWM past presidents, one from each decade, discussing the major challenges that they and AWM faced during their presidency, and the challenges they see for expanding the participation of women in mathematics in the decades ahead. The audience will be treated to reflections on the history of women in mathematics in the last five decades and on what the next five decades may hold in store.

Organizers:
- **Georgia Benkart** (University of Wisconsin – Madison)
- **Emille Davie Lawrence** (University of San Francisco)

Moderator:
- **Ruth Haas** (University of Hawaii at Mānoa – Current AWM President)

Panelists:
- **Mary Gray** (American University – First President and one of the founders)
- **Rhonda Hughes** (Bryn Mawr College)
- **Kristin Lauter** (Microsoft Research)
- **Suzanne Lenhart** (University of Tennessee)
- **Carol Wood (**Wesleyan University)

Joint Prize Session

This event has been cancelled. AWM Prize winners will be honored at the AWM Prize Ceremony taking place on Friday from 5:00-7:00 pm.

Friday, January 8, 2021

AWM Workshop Poster Presentations by Women Graduate Students and Reception

3:45 p.m. – 5:00 p.m. MST

Poster Session Organizers from AWM's JMM Committee:
- **Donatella Danielli** (Arizona State University)
- **Irina Mitrea** (Temple University)
- **Radmila Sazdanovic** (North Carolina State University)

Poster Judging Coordinator
- **Emilie Wiesner** (Ithaca College)

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Graduate Student Poster Presenters
All at 3:45 p.m.

- *A PDE model for chemotaxis with logarithmic sensitivity and logistic growth*
  Padi Fuster Aguilera*, Tulane University
  Kun Zhao, Tulane University
  Vincent R. Martinez, Hunter College (CUNY)
- *An Inverse Scattering Obstacle Problem with Partial Thin Coatings*
  Fioralba Cakoni, Rutgers University, New Brunswick
  Heejin Lee*, Rutgers University, New Brunswick
- *Shock formation of the Burgers-Hilbert equation*
  Ruoxuan Yang*, Massachusetts Institute of Technology
- *Logarithmic Sobolev Inequalities on Non-isotropic Heisenberg Groups*
  Liangbing Luo*, University of Connecticut
- *Free Energy and Overlaps of a Spherical Spin Glass Model with External Field*
  Elizabeth M. Collins-Woodfin*, University of Michigan
  Jinho Baik, University of Michigan
  Pierre Le Doussal, École Normale Supérieure
  Hao Wu, University of Michigan
- *Averaging with the divisor function*
  Christina Giannitsi*, Georgia Institute of Technology
  Michael Lacey, Georgia Institute of Technology
- *Which locally homogeneous compact 3-manifolds admit m-Quasi Einstein metrics?*
  Alice Wu Lim*, Syracuse University
- *A free boundary tumor growth model with a time delay in cell proliferation*
  Xinyue Evelyn Zhao*, University of Notre Dame
  Bei Hu, University of Notre Dame
- *Gradient Ambient Obstruction Solitons on Homogeneous Manifolds*
  Erin R. Griffin*, Syracuse University
- *Boundary Homogenization for Trapping Rates of Two Patchy Objects*
  Claire E. Plunkett*, University of Utah
  Sean D. Lawley, University of Utah
- *Bifurcation results for elliptic problems with subcritical nonlinearity on the boundary*
  Shalmali Bandyopadhyay*, University of North Carolina at Greensboro
  M. Chhetri, University of North Carolina at Greensboro
  B. Delgado, Southern Federal University
  N. Mavinga, Swarthmore College
  R. Pardo, Universidad Complutense de Madrid
- *Mathematics behind the dynamics of the Hénon-Heiles system*
  Ovidiu Costin, The Ohio State University
  Rodica Costin, The Ohio State University
  Kriti Sehgal*, The Ohio State University
- *Poncelet Quadrilaterals Four Ways*
  Taylor Poe*, Baylor University
- *Understanding the effect of fibrinogen interactions on fibrin gel time and structure*
  Anna Nelson*, University of Utah
- *Modeling Intermittent Hormone Therapy for Prostate Cancer Using Various Time Scales*
  Casey Mills*, Texas Tech University

AWM Business Meeting

5:00 p.m. – 5:30 p.m. MST

We invite all AWM Members to attend, and this meeting is open to the public. We run through a quick "year in review" discussing what AWM has been working on this last year. This is always an open opportunity for the math community to bring up concerns, questions and interests about AWM.

Chairs:
- **Ruth Haas** (AWM President)
- **Kathryn Leonard** (AWM President-elect)

AWM Awards Presentation

5:30 p.m. – 7:00 p.m. MST

Connect and reconnect with your community while celebrating recipients of this year's AWM prizes.

We will be acknowledging the new class of AWM Fellows, the AWM Joan and Joseph Birman Research Prize in Topology and Geometry, the Gweneth Humphreys Award, the Louise Hay Award, the Schafer Prize and Dissertation Prize winners, and the AWM Service Award winners!

Chairs: Same as above.

Saturday, January 9, 2021

AWM Workshop on Women in Analysis (WoAN)

8:00 a.m. – 5:05 p.m. MST

The AWM Workshop on Women in Analysis (WoAN) will bring together female mathematicians working at the interface between Real and Harmonic Analysis, Partial Differential Equations and Geometric Measure Theory. Topics of emphasis include elliptic boundary value problems, free boundary problems, non-linear dispersive equations, Fourier restriction problems, and oscillatory integrals. This is a follow-up of the 2019 BIRS Workshop for the WoAN Research Network. All JMM attendees are invited to attend the program.

Organizers from AWM's JMM Committee and the ADVANCE WoAN Network:
- **Donatella Danielli** (Arizona State University)
- **Irina Mitrea** (Temple University)

Presenters:

- 8:00 a.m.
  On superorthogonality
  Lillian B. Pierce*, Duke University

- 8:25 a.m.
  On Holomorphic Hardy Spaces Inherited by Variety-Deleted Domains in C^n
  Anne-Katrin Gallagher, Gallagher Tool & Instrument LLC
  Purvi Gupta*, Indian Institute of Science
  Loredana Lanzani, Syracuse University
  Liz Vivas, Ohio State University

- 8:50 a.m.
  Determining a Lorentzian metric from the source-to-solution map for the relativistic Boltzmann equation
  Tracey Balehowsky*, University of Helsinki
  Antti Kujanpää, University of Helsinki
  Matti Lassas, University of Helsinki
  Tony Liimatainen, University of Helsinki

- 9:15 a.m.
  From the Peierls-Nabarro model to the equation of motion of the dislocation continuum
  Stefania Patrizi*, University of Texas at Austin

- 9:40 a.m.
  Oscillatory integral operators and geometric stability
  Ellen Urheim*, University of Pennsylvania

- 10:05 a.m.
  Existence Results for Nonlinear Perturbations of Asymmetric Spectrum with Weights
  Nsoki Mavinga*, Swarthmore College
  Quinn A. Morris, Appalachian State University
  Stephen B. Robinson, Wake Forest University

- 10:30 p.m.
  On Estimates for Brascamp-Lieb forms in L^p-spaces with power weights
  Katharine Ott*, Bates College
  Russell Brown, University of Kentucky

Mentoring Lunch

- 2:15 p.m.
  Boundary value problems for elliptic complex coefficient operators and systems in the presence of p-ellipticity
  Jill Pipher*, Brown University

- 3:05 p.m.
  Relative expander entropy in the presence of a two-sided obstacle and applications
  Jacob Bernstein, Johns Hopkins University
  Lu Wang*, California Institute of Technology

- 3:30 p.m.
  A classification of distinct dyadic systems
  Theresa C. Anderson*, Purdue University
  Bingyang Hu, Purdue University

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CALL FOR NOMINATIONS

The 2022 AWM-Sadosky Research Prize in Analysis

The Executive Committee of the Association for Women in Mathematics established the AWM-Sadosky Research Prize in Analysis. First presented in 2014, the prize will be awarded every other year. The purpose of the award is to highlight exceptional research in analysis by women early in their careers. Candidates should be women based at US institutions who are within 10 years of receiving their PhD, or having not yet received tenure, at the nomination deadline.

The AWM-Sadosky Research Prize serves to highlight to the community outstanding contributions by women in the field and to advance the careers of the prize recipients. The award 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.

Anyone can be a nominator, whether or not they are AWM members. Self-nominations are permitted. Nominations of members of underrepresented minorities are especially welcome. The nomination should include: 1) a one to three page letter of nomination highlighting the exceptional contributions of the candidate, 2) a curriculum vitae of the candidate not to exceed three pages, and 3) three letters supporting the nomination (submitted independently). Nomination materials should be submitted online at MathPrograms.org. The submission link will be available 45 days prior to the nomination deadline. Review of candidates will begin in mid-February. For full consideration, nominations should be submitted by **February 1, 2021**. If you have any questions, phone 401-455-4042, email awm@awm-math.org or see https://awm-math.org/awards/awm-sadosky-research-prize/.

- 3:55 p.m.
  Fourier restriction to degenerate hypersurfaces
  Betsy Stovall*, University of Wisconsin-Madison

- 4:20 p.m.
  A problem in shape optimization
  Cornelia Mihaila*, University of Chicago

- 4:45 p.m.
  Perturbative estimates for the one-phase Stefan Problem
  Daniela De Silva*, Columbia University, Barnard College

The AWM 2021 JMM Organizing Committee

A special thanks to the AWM committee members who have helped organize this year's program!

Donatella Danielli (Arizona State University)
Workshop Organizer
Loredana Lanzani (Syracuse University)
Workshop Organizer
Alice Mark (Rutgers University)
Workshop Organizer
Irina Mitrea (Temple University)
Workshop Organizer
Radmila Sazdanovic (North Carolina State University)
Chair
Liz Vivas (Ohio State University)
Workshop Organizer
Emilie Wiesner (Ithaca University)
Poster Judging Coordinator

Additional Events of Interest

Invited Addresses:

Joint Invited Addresses

- **Linda J. S. Allen**, Texas Tech University, *Modeling of Viral Zoonotic Infectious Diseases from Wildlife to Humans.* (AMS-MAA)
- **Trachette Jackson**, University of Michigan, *Turning cancer discoveries into effective treatments with the aid of mathematical modeling.* (MAA-AMS-SIAM Gerald and Judith Porter Public Lecture)
- **Amie Wilkinson**, University of Chicago, *Symmetry and asymmetry in Dynamics.* (AMS-MAA)

AMS Invited Addresses

- **Douglas N. Arnold**, University of Minnesota, *Structure preservation in the discretization of partial differential equations.*
- **Ryan Hynd**, University of Pennsylvania, *The Hamilton-Jacobi equation, past and present.*
- **Ciprian Manolescu**, Stanford University, *Khovanov homology and surfaces in four-manifolds.* (AMS Maryam Mirzakhani Lecture)
- **Andrea Nahmod**, University of Massachusetts Amherst, *Propagation of randomness under the flow of nonlinear dispersive equations*
- **Lenka Zdeborová**, EPFL (Ecole Polytechnique Fédérale de Lausanne), *What Physics Teaches us about Computation in High Dimensions* (AMS Josiah Willard Gibbs Lecture)
- **Xinwen Zhu**, California Institute of Technology, *Arithmetic and geometric Langlands program.*

MAA Invited Addresses

- **Nathan Kaplan**, University of California, Irvine, *Codes from polynomials over finite fields.*
- **Angela Sheffield**, National Nuclear Security Administration, *Next-generation AI: We're pushing AI beyond ML—and we need your help.*
- **Stephanie Singer**, Hatfield School of Government, Portland State University and Verified Voting, *Detecting anomalies in the 2020 election.*
- **Chelsea Walton**, University of Illinois at Urbana-Champaign, *Navigating collaboration.*

Invited Addresses of Other Organizations

- **Dana Bartosova**, University of Florida, *Non-metrizable universal minimal flows.* (ASL)
- **Anton Bernshteyn**, Georgia Institute of Technology, *Descriptive combinatorics and distributed algorithms.* (ASL)
- **Gabriel Conant**, University of Cambridge, *Model theoretic tameness in multiplicative combinatorics.* (ASL)
- **Barbara F. Csima**, University of Waterloo, *Understanding Frameworks for Priority Arguments in Computability Theory.* (ASL)
- **Russell Miller**, Queens College & CUNY Graduate Center, *Computable structure theory with noncomputable structures.* (ASL)
- **Christian Rosendal**, University of Illinois at Chicago, *Groups with bounded geometry.* (ASL)
- **Charles Steinhorn**, Department of Mathematics and Statistics, Vassar College, *Asymptotic and multidimensional asymptotic classes of finite structures.* (ASL)
- **Chelsea Walton**, University of Illinois Urbana-Champaign, *An Invitation to Noncommutative Algebra.* (NAM)
- **Talitha Washington**, Clark Atlanta University and the Atlanta University Center, *Leveraging Data Science at HBCUs to Advance Innovation* (NAM)
- **Thaleia Zariphopoulou**, University of Texas at Austin, *Human machine interaction models and stochastic optimization* (SIAM)

MAA Contributed Paper Sessions:

MAA Contributed Paper Session on The EDGE (Enhancing Diversity in Graduate Education) program: Pure and Applied Talks by Women Math Warriors, I and II

Friday, January 8, 2021, 9:00 a.m. – 11:55 a.m.
Friday, January 8, 2021, 1:00 p.m. – 2:55 p.m.

Organizers:

- **Ziva Myer,** Duke University
- **Laurel Ohm**, University of Minnesota
- **Shanise Walker**, University of Wisconsin

MAA Contributed Paper Session on Promoting Women in Mathematics, I, II and III

Wednesday, January 6, 2021, 8:00 a.m. – 10:55 a.m.
Wednesday, January 6, 2021, 2:15 p.m. – 4:50 p.m.
Saturday, January 9, 2021, 9:00 a.m. – 10:55 a.m.

Sponsored by the AWM 50th Anniversary Committee, the Joint Committee on Women (JCW), the MAA Committee on the Participation of Women, PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies, and Spectra.

Organizers:

- **Francesca Bernardi**, Worcester Polytechnic Institute
- **Sarah Greenwald**, Appalachian State University
- **Judy Holdener**, Kenyon College
- **Semra Kilic-Bahi**, Colby-Sawyer College
- **Anila Yadavalli**, University of Minnesota

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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Applications are invited from individuals in the mathematical sciences. Applicants must have a PhD or an equivalent doctoral-level degree by the application deadline (February 1, 2021). Applicants must be US citizens. Federal employees are not eligible.

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