ASSOCIATION FOR WOMEN IN MATHEMATICS

Newsletter

VOLUME 48, NO. 6 • NOVEMBER–DECEMBER 2018

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

Dear AWM Friends,

I have been thinking about *identity*. After all, being a member of the AWM is an affirmation of identity, more than anything else. As individuals, we don't join to receive a monthly journal, or to get discounts on annual meetings. The AWM gives our newsletter, our support, our advocacy to anyone and to all! We have banded together to promote equal opportunity in the currently male-dominated field of mathematics. Why do I, and nearly 200 other volunteers, work with such joy and passion towards this common goal? What propels us to seek this particular identity? How does our own identity evolve?

I recently read David Quammen's *The Tangled Tree*, which talks about the horizontal transmission of genes. Scientists now know that DNA doesn't have to be inherited vertically, passed down from parent to offspring over generations. DNA can be transferred from one cell to another, *horizontally*, through the cell membrane, an infection that "transforms identity." It made me think about those dog and owner look-alike competitions at the local park that I love to watch. They are amazing! That bulldog looks *just like* his owner. I always thought that owners, perhaps, selected dogs that looked like them. But the possibility of horizontal gene transfer (HGT) has given me a new perspective. Apparently, microbes can "leak" their DNA through their cell membranes, and this DNA can be absorbed by neighboring cells. Heredity doesn't require generations: it can happen in an instant. Is this why life partners begin to resemble each other after many years, why my friend Paula looks like her poodle? In other research,[1] it has been shown that gut bacteria communicate with our central nervous system, also affecting hormonal pathways. If microbes can change their DNA after interacting with neighboring cells, and if bacteria can affect our decisions and our feelings, then where does our sense of identity come from? I propose that we can share identity by sharing space, by sharing a meal. That our identity is malleable. This is not to say that I, as a white woman, will experience every day in the same way my friends of color do—who are frequently challenged in both big and small events—but my *identity*, my sense of who I am, is based on my friends, my collaborators and my colleagues, the people with whom I share my table (and my gut bacteria).

[1] See, for example, "Bacterial Broadband" by Michael Eisenstein, *Nature* (2016).

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ASSOCIATION FOR WOMEN IN MATHEMATICS

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

The *Newsletter* is published bi-monthly. Articles, letters to the editor, and announcements are welcome.

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

Circulation: 3500.

PRESIDENT'S REPORT *continued from page 1*

Ford Doolittle, a microbiologist and microbial ecologist, argues that, while our microbiome is diverse and varies widely from individual to individual, its functionality is fairly consistent. In his words, "It's the song, not the singer" that defines our microbial identities.[2] This description of a diverse choir singing in each of us, sharing the same song, reminds me of our organization. Some professional organizations are related to a particular job, but not ours. As an AWM member, you are part of this community regardless of where your career takes you. As a mathematician somewhere on the gender spectrum, as an ally of underrepresented groups, we share canonical experiences; we are a diverse group of singers singing the same song.

How can a community of volunteers, an organization whose goal is to promote equity and support *everyone* interested in mathematics, be successful? We have evolved organically over the past **47** years, our identity is shifting; we have many passions and interests, we are spread thin, we are not perfect. In order to better understand how to align our goals with our perceived identity as an organization, I asked for help from a task force of members of the math community. I am grateful to **Fern Hunt**, **Mary Gray**, **Herb Medina** and **Kim Ayers** for taking on the challenge to look critically at the AWM's current state, and to shape our next steps so that AWM can be a fair, equitable, and just organization that fully achieves its mission. With extensive input from the AWM membership, and through interviews with members of the wider math community, this task force identified several themes that we can work on together. While we seek to support all mathematicians, regardless of career path, we need to more actively support those whose focus is teaching and mentoring. We also need to be more proactive in including members of underrepresented ethnic groups in the AWM leadership and in our awards. Finally, we need to make sure that younger people and those from the LGBTQ+ community are actively welcomed into the AWM. I want to give a huge shout-out to the task force for their work, and to all of you who took the time to contribute your own thoughts and to participate in interviews. The Executive Committee is working now to turn the suggested strategies into tactics: we welcome your ideas and help as we move forward to implement the task force's recommendations.[3]

I'm sure that you all noticed the magic number 47 at the beginning of the previous paragraph. In fact, the AWM is nearing its 50th anniversary. How has our identity changed over the past half century? In recent weeks, two of our first AWM Presidents have been in the news. **Lenore Blum**, currently on the AWM Advisory Board, announced her resignation from Carnegie Mellon in response to sexism in the workplace. **Mary Gray** spoke up in a piece in the *Chronicle of Higher Education* about the #MeToo movement and what has changed since Anita Hill testified in 1991. Mary Gray and Lenore Blum, both instrumental in the early years of the AWM almost 50 years ago, are still actively shaping its

[2] "It's the song, not the singer," W.F. Doolittle and A. Booth, *Biology & Philosopy* (2017)

[3] If you are an AWM member and you are interested in reading the full report, please contact our Executive Director, Karoline Pershell, at karoline@awm-math.org.

identity. Where do we want to be when we turn 50, in 2021? To help us consider the question, we will include in future newsletters short reflections from previous AWM presidents. Stay tuned for what is sure to be a provocative and thoughtful series, and send us your own thoughts on how to celebrate our 50th.

Other AWM News. Our Policy and Advocacy Committee, chaired by **Gail Letzter**, has been active in the past few months. The committee has crafted a Diversity Statement and a statement regarding proposed changes to Title IX regulations, in addition to providing feedback on and endorsing a bill to "Provide for research to better understand the causes and consequences of sexual harassment affecting individuals in the scientific, technical, engineering, and mathematics workforce and to examine policies to reduce the prevalence and negative impact of such harassment." The new Government Advocacy Committee, chaired by **Michelle Snider**, is organizing a Hill Day on Tuesday, January 15th in conjunction with the Joint Math Meetings in Baltimore. An information session, open to all (even if you don't make the trip to the Hill), will be held on Tuesday morning at the JMM. Please register by December 15, 2018 if you are interested in joining us by emailing hillvisit@awm-math.org.

A few other notes about JMM 2019 related to the themes identified by the Inclusion Task Force: EC member **Talia Fernós** will be organizing an AWM panel titled "Promoting Inclusion in STEM (PI-STEM)" featuring a stellar line-up. The AWM poster session has been moved to a new time: Friday, January 18, 5–6:30 pm, a change we made so as not to conflict with the NAM banquet and lecture. Now we can attend both!

I am very pleased to announce the 2019 class of AWM Fellows. Their names and citations are given directly following my report, so I won't repeat them here. This class was selected from a stellar group of people who have shown extraordinary dedication to creating a more inclusive mathematics community. I am grateful for all they do to increase the success and visibility of women in mathematics. Please join me in honoring the 2019 AWM Fellows at the AWM Reception and Awards Presentation as part of the JMM in Baltimore on Wednesday evening, January 16.

For a full schedule of AWM events at the JMM, see our website. I hope to see you in Baltimore!

Our plans for the 2019 AWM Research Symposium are shaping up. Symposium co-organizers **Ruth Haas**, **Shelly Harvey**, **Raegan Higgins** and **Béatrice Rivière** are working hard with our hosts at Rice University to put together a stimulating few days. Please plan to join us on April 6 and 7 in Houston, Texas.

Thank you for being part of the AWM, and for helping to shape our identity.

Ami Radunskaya

Ami Radunskaya
September 29, 2018
Claremont, CA

Membership Dues
Membership runs from Oct. 1 to Sept. 30
Individual: $70 **Family:** $35
Contributing: $160
New member, affiliate and reciprocal members, 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 www.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 $10/issue plus shipping/handling ($5 minimum).

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

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

Newsletter Deadlines
Editorial: 24th of January, March, May, July, September, November
Ads: Feb. 1 for March–April, April 1 for May–June, June 1 for July–Aug., Aug. 1 for Sept.–Oct., Oct. 1 for Nov.–Dec., Dec. 1 for Jan.–Feb.

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 Kavita Ramanan, kavita_ramanan@brown.edu. Send everything else, including ads and address changes, to AWM, awm@awm-math.org.

ASSOCIATION FOR WOMEN IN MATHEMATICS

AWM ONLINE

The *AWM Newsletter* is freely available online.

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

Website: http://www.awm-math.org
Updates: webmaster@awm-math.org

Media Coordinator
Joanna Wares; jwares@richmond.edu

AWM DEADLINES

AWM-SIAM Sonia Kovalevsky Lecture:
November 1, 2018
Ruth I. Michler Memorial Prize:
November 1, 2018
RCCW Proposals:
January 1 and July 1, 2019
AWM Essay Contest: January 31, 2019
AWM Travel Grants: February 1 and
May 1, 2019
AWM Mentoring Travel Grants:
February 1, 2019
AWM-Microsoft Research Prize:
February 15, 2019
AWM Poster Contest; February 15, 2019
AWM-Sadosky Research Prize:
February 15, 2019
AWM Student Chapter Awards:
April 15, 2019
AWM Louise Hay Award:
April 30, 2019
AWM M. Gweneth Humphreys Award:
April 30, 2019

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2019 AWM Fellows

The Executive Committee of the Association for Women in Mathematics has established the AWM Fellows Program to recognize individuals who have demonstrated a sustained commitment to the support and advancement of women in the mathematical sciences, consistent with the AWM mission: "to 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 second class of AWM Fellows will be honored on January 16, 2019, at the AWM Reception and Awards Presentation at the Joint Mathematical Meetings in Baltimore. A nomination process was used to select the Fellows.

A new class of Fellows will be announced each January at the JMM. When reviewing nominations for the Fellows Program, the selection committee will be flexible in evaluating excellence in any work showing compelling evidence of a sustained and lasting commitment to women in the mathematical sciences. The next nomination process will be held April 1 – May 15, 2019.

2019 Class

Hélène Barcelo, Mathematical Sciences Research Institute
For her extraordinary service to the community of women in mathematics, starting with the Berkeley undergraduate research program for women and continuing in her capacity as deputy director of MSRI, working for women at all stages of their careers.

Lida Kittrell Barrett
For her profound and long-lasting effect in diversifying the committees and leadership of the MAA, during and beyond her term as its second woman president; for her value to the mathematics community as a pioneer and defender of women and under-represented groups.

Sun-Yung Alice Chang, Princeton University
For shattering the glass ceiling and inspiring women mathematicians to follow her lead; for her leadership of the Princeton mathematics department and her extraordinary record of groundbreaking research in geometric analysis that has had worldwide impact.

Amy Cohen, Rutgers University
For her remarkable achievements as a teacher, scholar, and administrator; for her service to the profession, as AWM treasurer and beyond; and for her important contributions to mathematics education through her talks, writing, and work with K–12 teachers.

Ingrid Daubechies, Duke University
For her promotion of women in mathematics through her own outstanding mathematical achievements and special efforts on behalf of women, mathematics education, and budding mathematicians in developing countries. She is a mathematician of world class whose work is a masterly example of how pure mathematics can profoundly impact real-world applications.

Chandler Davis, University of Toronto
For inspiring and supporting the activism of so many mathematicians of diverse background and beliefs, leading the way for the Association for Women in Mathematics since its beginning and throughout its history. For equal rights and encouragement in the pursuit of mathematics, he has been a lodestar.

Jacqueline Dewar, Loyola Marymount University
For her work to encourage females to study and be successful in mathematics; for her commitment to educating pre-service teachers, with particular attention to gender equity; for her outreach to liberal arts students to change attitudes about mathematics and women in mathematics; and for her exemplary teaching and mentoring.

Edray Herber Goins, Pomona College
For outstanding leadership in the mathematics community; for his efforts and success in making the community more fair and diverse; for inspiring and mentoring many individuals; and for his significant research in number theory.

Judy Green, Marymount University
For her role as a founding member of the Association for Women in Mathematics; for her long-standing service; and for her groundbreaking scholarly contributions in documenting the lives and work of the US women who earned PhDs in mathematics before 1940.

Pao-sheng Hsu, Independent
For her sustained efforts and achievements as a researcher and leader in mathematics education, especially for AWM; for her building of bridges connecting the communities of mathematicians, mathematics educators, and K–12 teachers; and for her work as a teacher and scholar of mathematics.

Ellen E. Kirkman, Wake Forest University
For her lifelong support of women in mathematics in research in noncommutative algebra and representation theory as well as in teaching; for her successful leadership and advocacy for women in so many professional organizations; and for her mentoring of women at all levels of the profession.

Maria M. Klawe, Harvey Mudd College
For exceptional impact on the advancement of girls and women in the mathematical sciences and in science and engineering more broadly, through her leadership in academia, industry, professional societies, and institutes, her fostering of innovative programs, and her influential research in computer science.

Anne M. Leggett, Loyola University Chicago
For extraordinary contributions in promoting opportunities for women in the mathematical sciences through AWM and as a teacher and scholar; for her amazing and steady work as editor of the AWM Newsletter *since 1977; and for her invaluable leadership and guidance.*

Magnhild Lien, California State University, Northridge
For extraordinary leadership and service devoted to advancing and supporting women in the mathematical sciences, as AWM Executive Director and, for a quarter century, as initiator, director, and fundraiser of programs for women.

Maeve Lewis McCarthy, Murray State University
For her commitment to mentoring students and colleagues; for her inspired service as executive director of AWM; and for her stewardship of the ADVANCE project at Murray State University.

Dusa McDuff, Barnard College, Columbia University
For her deep and vast contributions to research in symplectic geometry, leading by example as one of the most accomplished mathematicians of her generation; for her enthusiastic and sustained support of the IAS Women and Mathematics program; and her cultivation and support of junior mathematicians, including her nine women PhD students.

Irina Mitrea, Temple University
For her vast and impactful contributions toward encouraging and promoting women and girls in mathematics; for directly influencing school-aged girls, undergraduate and graduate students, and her junior women colleagues as an accomplished researcher and role model.

Alice Silverberg, University of California, Irvine
For her outstanding research in number theory and deep commitment to the promotion of fairness and equal opportunity evidenced by her service and outreach efforts. She has given over 300 invited lectures worldwide, and exposed sexism and discrimination in her blog Alice's Adventures in Numberland.

Audrey Terras, University of California, San Diego
For her great support of young women in mathematics throughout her career; for her superb record of research in number theory and her leadership in the profession; and for her role as the principal advisor for nine women PhDs.

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2019 AWM FELLOWS *continued from page 5*

Marie A. Vitulli, University of Oregon
For her exceptional efforts to promote women in mathematics through her active participation in AWM, on Facebook, in Wikipedia, and in writing AMS Notices *articles; for her contributions to commutative algebra and algebraic geometry*.

Judy Leavitt Walker, University of Nebraska-Lincoln
For her leadership in promoting girls and women in mathematics and STEM fields, for her mentoring activities; for her service to the profession manifested through conference organization (such as the Nebraska Conference for Undergraduate Women in Mathematics); for mathematical exposition; and for excellence in teaching and research.

Lesley Ward, University of South Australia
For her enduring commitment to supporting women in the mathematical sciences; for her mentoring in research; for her work on inclusivity; and for her leadership of the Women in Mathematics Special Interest Group in Australia.

Ulrica Wilson, Morehouse College
For her many years of supporting the professional development of women in their pursuit of graduate degrees in mathematics, most visibly through mentoring, teaching and program administration within the EDGE Program, and as associate director of diversity and outreach at ICERM.

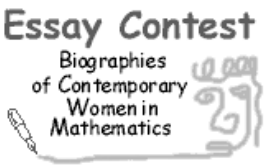
NSF-AWM Mentoring Travel Grants for Women

Mathematics Mentoring Grants. The objective of the NSF-AWM Mathematics Mentoring Travel Grants is to help junior women to develop a long-term working and mentoring relationship with a senior mathematician. This relationship should help the junior mathematician to establish her research program 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.

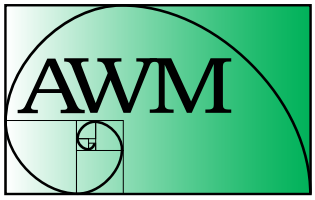
Eligibility and Applications. Please see the website (http://www.awm-math.org/travelgrants.html) for details on eligibility and do not hesitate to contact Steven Ferrucci at 401-455-4042 for guidance.

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



To increase awareness of women's ongoing contributions to the mathematical sciences, the Association for Women in Mathematics holds an essay contest for biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers. AWM is pleased to announce that the 2019 contest is sponsored by Math for America, www.mathforamerica.org.

The 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, a grand prize winner will have his or her entry published in the A*WM Newsletter*. For more information, contact Dr. Heather Lewis (the contest organizer) at hlewis5@naz.edu or see the contest web page: www.awm-math.org/biographies/contest.html. The deadline for electronic receipt of entries is **January 31, 2019.** (To volunteer as an interview subject, contact Dr. Joanna Bieri (interviewee coordinator) at joanna_bieri@redlands.edu.)



Jacqueline Dewar Honored with Hay Award

The Association for Women in Mathematics will present the 29th annual Louise Hay Award to Jacqueline Dewar of Loyola Marymount University in Los Angeles (LMU) in recognition of her many achievements as a professor, a leader in outreach, and a contributor to the scholarship of teaching and learning (SoTL). Her peers and students praise her as a teacher, mentor, and scholar.

With a PhD in mathematics, Dewar served LMU for 40 years. She advocated for active learning, initiated a biomathematics program, and developed courses in computer literacy, the history of women in mathematics, and mathematics in civic engagement. Her mentoring continues past graduation: in one notable case she guided a career that moved from classroom teaching into grants management, then to doctoral study and a post-secondary faculty position.

Dewar shares her expertise in mathematics and teaching with students and teachers widely. In 1978 she was a co-founder of the Math Science Interchange in Los Angeles, which still provides an annual career day, "Expanding Your Horizons–LA," for K–12 students and teachers. Thousands of girls and their teachers have attended these events. Dewar still leads workshops and trains other leaders. She was a major contributor to an NSF-funded collaboration among five four-year colleges and five community colleges to enhance preparation of mathematics and science teachers. This project's initiatives persist and have been replicated.

Dewar received the LMU President's Award for distinguished teaching and the Mathematical Association of America's Haimo Award. One indicator, among many, of scholarly leadership is her selection as co-editor of *Mathematics Education: A Spectrum of Work in Mathematical Sciences Departments*, published by Springer in 2016.

Jacqueline Dewar

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.

The 2019 Joint Mathematics Meetings will be held January 16–19 in Baltimore, MD. For further information on the Hay Award, including past winners, please visit https://sites.google.com/site/awmmath/programs/hay-award.

Suzanne Weekes

Suzanne Weekes Honored with Humphreys Award

The Association for Women in Mathematics is pleased to present the ninth annual M. Gweneth Humphreys Award to Suzanne Weekes, Professor of Mathematics in the Department of Mathematical Sciences at Worcester Polytechnic Institute (WPI). Weekes is a prominent applied mathematician at WPI whose research areas are dynamic materials, numerical methods, and computational fluid dynamics.

Weekes has served on the WPI faculty since 1998, where she has supervised many individual undergraduate and graduate research projects, as well as developed or led initiatives to bring students into research. Weekes was invited to serve as Director of the WPI Center for Industrial Mathematics and Statistics and was a Director of the WPI REU Program in Industrial Mathematics and Statistics, the first REU program that specifically focuses mathematics students' summers on working on research problems that come directly from industry. Weekes is also a founding co-director of the deeply impactful MSRI-UP program, devoted to "cultivating heretofore untapped mathematical talent" with a focus on communities traditionally underrepresented in mathematics. During her tenure at MSRI-UP, over 85 women, including more than 70 women from underrepresented groups, have participated and have been mentored through the program, with the majority continuing to graduate programs after college.

Weekes' current and former students had a range of moving tributes to offer: "Being randomly assigned to Professor Weekes as my academic adviser was most likely the best thing that could have ever happened to me here at WPI. Through her guidance and encouragement, I have discovered SIAM, traveled to my first mathematics conference, received a research grant, and will be presenting said research on an international scale. Because of her enthusiasm and belief in me, she has helped me achieve things I never thought were imaginable during my undergraduate career."

One student who writes of her struggles with self-doubt continues, "Although I had support and encouragement from various professors, none quite gave me the confidence and honest feedback like Professor Weekes." Another student, musing on the importance of role models, notes: "I didn't even know that it mattered that I had no female mentors, until I really knew Suzy." Finally, one student put it simply and powerfully: "Professor Weekes was our champion."

Suzanne Weekes exemplifies the tradition of Gweneth Humphreys, and the AWM is proud to pay tribute to her exceptional track record of support, guidance, unvarnished feedback, and inspiration.

This 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. 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 Woman's College, recognizes her commitment to and her profound influence on undergraduate students of mathematics.

The 2019 Joint Mathematics Meetings will be held January 16–19 in Baltimore, MD. For further information on the Hay Award, including past winners, please visit https://sites.google.com/site/awmmath/programs/humphreys-award.

BOOK REVIEW

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

The Glass Universe: How the Ladies of the Harvard Observatory Took the Measure of the Stars, by Dava Sobel, Viking, 2016, ISBN-13: 978-0670016952

Reviewer: Kathy Tomlinson, University of Wisconsin—River Falls

Dava Sobel's historical account of the work done at Harvard Observatory under the leadership of Edward Charles Pickering (serving 1877–1919) and Harlow Shapley (serving 1921–1952) illuminates the dedication, courage, and passion of women who made significant contributions to our knowledge of stellar phenomena. The titular "glass universe" refers to the half million glass photographic plates of the night sky taken at the Harvard Observatory between 1880 and 1990. These glass plates were a game changer in the study of stars. They replaced direct observations and thus tremendously increased both the quantity and the detail of data. In order to analyze all this new data, Pickering shrewdly recruited women to identify, catalog, measure position, and analyze spectra of the images captured on the glass plates.

One of the first women Pickering recruited for this work was Williamina Fleming, who was working as a maid in his household when he discovered her mathematical talents. With Pickering's strong lobbying, Fleming became the first woman ever to hold a title at Harvard. She had spent 18 years analyzing photographic plates when she became "curator of astronomical photographs," overseeing 12 "computers" (lab assistants). In 1893, Fleming identified the tenth stella nova ever found and the first to be found using stellar photography. She went on to discover nine more novae and more than 300 variable stars (stars whose brightnesses change in a periodic way), in addition to building a stellar classification scheme and cataloging more than 10,000 stars. I was not surprised to find that Fleming was paid 60% of her male counterparts' salaries, even those with lesser responsibilities. While Pickering was progressive in his inclusion of women in the academy, he did not seem to have been so open-minded about pay equity.

For me as a mathematician, Henrietta Leavitt is the most intriguing astronomer in Sobel's book. Like Fleming, Leavitt began at the Observatory with the often tedious work of analyzing glass plates. However, this daughter of a Congregational pastor held a degree from Radcliffe. With small means of her own, she started as a volunteer, pursuing her passion of understanding the cosmos. In 1895, her first assignment was in photometry, measuring the brightness of individual stars. The work involved comparing the luminosity of stars with a reference guide dubbed the "fly spanker," a hand-tool shaped like a fly swatter, but with its one by three inch dimensions, it was "too small to do a fly much damage." Leavitt was soon focusing on Cepheid variables, stars that

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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 (http://www.awm-math.org/travelgrants.html) for details on eligibility and do not hesitate to contact Steven Ferrucci at 401-455-4042 for guidance.

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

pulsate radially, changing brightness in a predictable cycle. With a background in church music, Leavitt thought of each comparison star on the fly spanker as "its own particular note in the chorus of light, while some of the variables covered a wide range of several octaves." Within ten years of having begun her sky explorations, Leavitt was developing a relationship that in 2009 officially became known as "Leavitt's Law": the luminosity of a Cepheid variable star is a linear function of the logarithm of its period. Brighter stars have longer periods. As if this discovery's own amazing intrinsic value is not enough, it turns out that by comparing apparent brightness (which is inversely proportional to the square of distance) and actual brightness (computed from period using Leavitt's Law), astronomers had a new way to compute interstellar distances. This new method of computing distances eventually led Edwin Hubble to discover (in 1924, three years after Leavitt's death) that there is more than one galaxy in the universe. Leavitt spent nearly her entire career as a lab assistant, but was promoted to head of stellar photometry near the end of her life, when Shapley became Observatory Director. The mathematician Gösta Mittag-Leffler was interested in nominating Leavitt for a Nobel Prize and Shapley provided a glowing recommendation. Unfortunately, Leavitt had already died and the Nobel Prize is not awarded posthumously.

When famed astronomer Cecilia Payne-Gaposchkin—the first person to earn a PhD in astronomy from Radcliffe, the first woman to be promoted to full professor at Harvard and the first woman to chair a department at Harvard—came to Harvard as a graduate student she occupied the very desk that had belonged to Henrietta Leavitt. A key difference is that Payne received fellowship funding and arrived from England with her own research agenda, which she leveraged to avoid some of the more routine work in photometry that consumed much of Leavitt's life. With Shapley's encouragement, Payne pursued the PhD. In her doctoral thesis, Payne made a mathematical analysis of stellar spectra that resulted in the astonishing conclusion that hydrogen is a million times more abundant in stars than on earth. In 1933, while traveling in Europe, Payne met Sergei Gaposchkin, a Russian astronomer, living in Germany and facing Nazi persecution. Payne helped secure Gaposchkin a position at Harvard, and in 1934 they were married.

I was startled to find that Sobel included a passage (p. 241) in which Gaposchkin compares Payne to a delicious peach. So dehumanizing! Sobel's focus is a detailed historical account of the Harvard Observatory during the late 19th/early 20th century. Sobel does not really tell a story. She tells many well-written, interesting anecdotes, but provides little analysis or narrative connecting them together. Perhaps the peach analogy is there to remind us just how low the status of women was in 1934; what is shocking today was standard at the time. I would like a book that includes discussion to make this more explicit.

It seems that one thing has not changed over the years. When Payne-Gaposchkin became chair of Harvard Astronomy in 1956 she discovered that "the cares of the office alternately bored her and strained her nerves." While I

CALL FOR PROPOSALS

Research Collaboration Conferences for Women

Supported by a National Science Foundation ADVANCE grant, the AWM is working to establish and support research networks for women in all areas of mathematics research. As part of the grant, the AWM will 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: **January 1** and **July 1** annually.

More information about the ADVANCE Grant, Research Collaboration Conferences for Women, existing RCCW networks, and related initiatives can be found at http://awmadvance.org/.

am grateful to have had the opportunity to serve as my department's chair, I could not have said it better.

Two women who did not work for the Observatory, but as benefactors were equally important to its work, are Anna Palmer Draper and Catherine Wolfe Bruce. Physician and professor Henry Draper loved to photograph the stars in his free time. His wife, Anna, developed a passion for astronomy working with him. After his untimely death, Anna continued this work through the Henry Draper Memorial, funding telescopes, facilities and many women astronomers at Harvard. Through her generous gifts, Anna ensured her husband's legacy, especially the Henry Draper Catalogue, a monumental work of stellar classification that is still in regular use. Unlike Anna Draper, arts patron Catherine Bruce had no experience in astronomical work. At age 73 Bruce became interested in the stars, and Pickering was able to convince her to donate $50,000 toward the purchase of a 24-inch photographic telescope. Bruce continued to fund the Observatory's work, eventually endowing a gold medal to recognize lifelong achievement by an individual astronomer. She had the foresight to insist that eligibility criteria explicitly include: "persons of either sex." Keeping with Bruce's wishes, Pickering advocated for Williamina Fleming to receive the 1900 medal, but this was not to be. In fact, there were no women recipients until 1982 when it went to E. Margaret Burbidge.

The human impulse to chase a solar eclipse is a recurring theme in Sobel's book. In 1878, Anna Draper traveled with her husband on a camping trip to the Wyoming Territory so that she could dutifully call out the seconds of eclipse totality, from inside a tent, while everyone else beheld the amazing spectacle. This somewhat disheartening tale is redeemed in 1900 when Anna Draper joins a group of Harvard and MIT astronomers on a trip to Georgia for a successful eclipse with perfect weather. Astronomers were interested in an unusual chance to learn about an object they had detected orbiting near Mercury. For Draper, it was a "distinct thrill."

Sobel includes a section of photographs, a chronology of historical highlights, a glossary of terms used in astrophysics, and a biographical dictionary of the 52 most important people in her book. I found each of these additions crucial to making sense of the history. The work of the women at Harvard Observatory is an important part of the history of women scientists and mathematicians. We can be grateful to Sobel for taking it on.

EDUCATION COLUMN

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

Understanding and Supporting the New Majority College Student

Jackie Dewar, Professor Emerita of Mathematics, Loyola Marymount University

In late April, a friend gave me a copy of *Breakthrough Strategies: Classroom-based Practices to Support New Majority College Students* by Kathleen A. Ross, a 1997 MacArthur Fellow. I thought it a rather odd gift, since I had retired from college teaching in 2013, but I found the book fascinating in many ways and want to share a few ideas from it.

According to the US Census Bureau (Colby and Ortman, 2015, p. 9), the non-Hispanic White population in the US is currently the "majority" group, comprising (in 2014) 62.2% of the population. But by 2044, more than half of all Americans are projected to be members of a minority group (any group other than non-Hispanic White). While the non-Hispanic White population is projected to remain the largest single group out to 2060 and beyond, no group will have a majority share of the total. This shift will result in the US becoming a "majority-minority nation."

Ross explores what this shift means for college and university professors and how they might respond to it. She is in a unique position to do so, having helped found Heritage College (now Heritage University) in 1982, a minority-serving institution of higher education, located on a large Indian reservation (though Heritage is not a tribal college) in eastern Washington state. She served as its first president from 1982 until 2010. In fall 2017, the Heritage student body was 70% Hispanic/Latino and 11% American Indian or Native Alaskan (http://www.heritage.edu/about-heritage-university/fast-facts). Eighty-five percent of the students are described by Ross (2016, p. 111) as first-generation, and most are low-income.

While Heritage is definitely ahead of the curve, this shift is, or will be, taking place across all of higher ed. For example, according to Rick Seltzer (2018) in *Inside Higher Ed*, the University of California system now enrolls 273,000 students with 42 percent of its undergraduates being first-generation students and 38 percent being eligible for federal Pell Grants,

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the latter being a good stand-in measure for low-income status.

Ross uses the phrase "New Majority college students" to identify low-income first-generation students (Ross, 2016, p. viii). She opens the book by discussing how mismatches in communication can lead to profound misunderstandings between instructors and students. Their very different backgrounds and experiences influence their interpretations and understandings of many interactions in significantly different ways. Ross holds that in her experience "mutual misunderstanding, unintentional and not verbally named or analyzed, is a much more common occurrence for New Majority students and their college professors, staff, or administrators than has been recognized" (p. 26).

As she does throughout the book, Ross illustrates the concept with a variety of examples of communication mismatches arising because of differing expectations and cultural "rules" for behaviors such as eye contact (pp. 25–26), the length of the micropause (wait time) between a speaker and a responder (p. 31), and the appropriateness of asking questions (pp. 49–54). Dominant-culture instructors expect students to look them in the eyes, but in many cultures, this is seen as disrespectful. Also, in some cultures asking questions is considered inappropriate—one is expected to learn by watching others. These mismatches can cause significant problems when these students are in a "western" classroom.

The following vignette from the book struck a chord with me. An instructor might think a quiet place at home is the perfect place for a commuter student to complete an assignment. But for many Heritage students (all of whom are commuters), doing homework at home is not an option. Their family-oriented culture requires them to assist with chores or participate in family gatherings when at home. To excuse oneself to do homework when an aunt or grandmother is in the house is considered profoundly disrespectful (Ross, 2016, pp. 103–104). I recalled the course I co-developed with two of my colleagues to improve the success of beginning mathematics majors. It focused on problem solving skills, communicating mathematics orally and in writing, and creating a sense of community amongst the students who might otherwise be spread across many sections of precalculus, calculus, or beyond (Dewar, 2006). I taught it many times. Despite having a segment in the course on study skills for mathematics, it never occurred to me to actually ask my students where they were when they completed that or any other assignment, something Ross recommends. I wonder what I would have learned about my students by asking that question.

CALL FOR NOMINATIONS

The 2020 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 will be awarded every other year. The purpose of the award is to highlight exceptional research in some area of algebra by a woman early in her career. 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.

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 15, 2019**. If you have any questions, phone 401-455-4042 or email awm@awm-math.org.

Recently, I came across another example of how having had a totally different experience than that of one's students, and not realizing it, can color one's interpretation of a situation. In an article written by Cassie Walker Burke (2018) for Chalkbeat, a non-profit news organization, I read how such an incident made Tim King, a black man who co-founded the first college prep charter school for young black men on the southwest side of Chicago (http://www.urbanprep.org/about/history-creed), aware of his own bias. According to Burke (2018), King "recalled arriving at a student's house to drive him to college, only to see the young man walking out of the house with a trash bag. King … urged the student to hurry, mistakenly thinking he'd caught him trying to finish a chore. Instead, the trash bag contained the young man's clothes and belongings. King [said] the moment made him check his own bias, recalling his startling realization as he contrasted his student with himself: 'I took my things to college in a suitcase.' "

Returning to Ross, her book offers strategies for addressing many issues that New Majority students face. For example, to help them counter negative stereotypes, she suggests instructors acknowledge students as "future professionals," be candid about stereotypes, stress the power of professional writing and presentation skills, and supply examples of role models with similar identities. For each of these she gives specific advice and examples (Ross, 2016, pp. 191–196). The book is full of examples and strategies for increasing student engagement and success. While not all of her ideas will apply to mathematics teaching or to larger institutions, Ross is a voice worth hearing.

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Editor's Note: Starting with this issue, from time to time the Education Column will include a short article "revisiting" previously discussed topics with updates or additional information. Readers are encouraged to send such updates to the editor (jdewar@lmu.edu) for possible inclusion.

Revisiting: Resegregation

Jackie Dewar, Professor Emerita of Mathematics, Loyola Marymount University

In her September–October 2017 column,[1] Pat Kenschaft mentioned "resegregation," a concept that I followed up on in my November–December 2017 column.[2] Recently, the *Atlantic Monthly* published an article titled "Segregation is not a myth."[3] The author, Will Stancil, tells us that according to his analysis of data from the National Center on Education Statistics, the number of segregated schools (defined as those schools where less than 40 percent of students are white), has approximately doubled between 1996 and 2016. Stancil, a research fellow at the University of Minnesota Law School, notes that there are skeptics who argue that resegregation is a myth that results from what happens to statistical measures of diversity when the underlying population increases in diversity. Stancil gives a rather detailed analysis of these issues, observing that "in a long-segregated system, the effects of increased diversity are inevitably lopsided." I recommend reading his analysis and commentary.

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MathFest 2018

Florida Atlantic University AWM Student Chapter enjoying summer tea at FAU before MathFest

The Florida Atlantic University AWM student chapter won the award for Fundraising. Receiving the award are Catherine Berrouet and Anae Myers. AWM President, Ami Radunskaya, and Student Chapter Awards committee chair, Giuliana Davidoff, presented the award.

AWM Executive Director, Karoline Pershell, engages prospective and current AWM members at the MathFest booth.

AWM President, Ami Radunskaya, and future AWM member Kepler Pershell-Scott

FAU AWM student chapter leaders, Catherine Berrouet and Anae Myers, demonstrate that they are "pillars" of our community at MAA MathFest 2018.

The University of Illinois AWM student chapter won the award for Outreach. Receiving the award are, left to right, Elizabeth Field (Treasurer), Claire Merriman, Jenna Zomback (Vice President) and Emily Shinkle (President). AWM President, Ami Radunskaya, and Student Chapter Awards committee chair, Giuliana Davidoff, presented the award.

AWM President Ami Radunskaya presents a plaque to the Etta Z. Falconer Lecturer, Pamela Gorkin at MAA MathFest.

NAM President, Edray Goins, presents a plaque to David Harold Blackwell Lecturer, Raegan Higgins at MAA MathFest.

Eugenia Cheng and Ami Radunskaya perform "Nuit Calme" by Henriëtte Bosmans at the President's Gala reception, MAA MathFest 2018.

MAA President, Deanna Haunsperger, hosts a special session for undergraduate women at MAA MathFest. Just visible in the back row, second and fourth from the left, are Alejandra Alvarado (AWM MathFest committee chair) and Karoline Pershell (AWM Executive Director). Photo credit: MAA

MathFest 2018

Become an AWM Wikipedia Fellow!

Jami Mathewson and Samantha Kao

In a new opportunity made available by AWM and Wiki Education, members can learn how to leverage their expertise on Wikipedia, thereby advancing public scholarship in their discipline and gaining unique professional development skills. Numerous authors have previously written about Wikipedia in the *AWM Newsletter* ([1], [2], [3], and [4]). Now in a three-month virtual course, members will directly impact public knowledge, gain new pedagogical tools, and collaborate with an interdisciplinary group of scholars to improve the world's most popular source of information. Wikipedia covers more than five million topics, but academic topics (particularly in science and math) are vastly underrepresented. The coverage of women and their professional achievements is lacking. Members of AWM are uniquely positioned to improve public knowledge of all of these areas. And as Wikipedia Fellows, they can take an active role in ensuring that the reference source is more equitable, accurate, and complete.

AWM member and graduate student at Western Washington University, Samantha Kao, is an AWM Wikipedia Fellow. She joined linguists, psychologists, and chemists in improving Wikipedia's coverage of a diverse range of scientific and mathematical topics. "During my first week in the course," Kao reflects, "I learned two astonishing facts that I would repeat nearly every time I told someone about my participation: roughly 80%–85% of Wikipedia editors are white males and only about 17% of Wikipedia biographies feature women. I immediately knew I would want to focus on biographies of women mathematicians. Once I started perusing Wikipedia with an editor's lens, I became much more aware of the inherent bias in many articles featuring women. Editing and improving current Wikipedia articles sets a better standard for what Wikipedia as a public encyclopedia should look like."

AWM members interested in learning more about Wikipedia Fellows can visit fellows.wikiedu.org or email fellows@wikiedu.org to sign up or to learn about upcoming opportunities.

Samantha Kao.
By Jami (Wiki Ed) [CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0)], from Wikimedia Commons

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See awm-math.org for the latest news!

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.

Uniform Convergence

Jennifer Schaefer, Dickinson College

I had the pleasure of seeing *Uniform Convergence*, a one-woman play written and performed by Rutgers University mathematics graduate student Corrine Yap, on the third evening of MathFest 2018 in Denver, CO. Yap is also the president of the AWM Student Chapter at Rutgers. In the play, Yap portrayed two female mathematicians: the legendary Russian mathematician Sofia Kovalevskaya and a fictional Asian-American professor teaching introductory real analysis. Scenes depicting the two characters were interwoven throughout the performance. Using music, motion, mathematics and prose, Yap shows us how the identities of these women affected their mathematical experiences and sways us to consider more deeply issues of gender and race in our society.

The play was performed in a cavernous ballroom of the conference hotel with an awkwardly positioned stage and uninspired overhead lighting. I was initially disappointed that the MAA had not acquired a more appropriate space for the production, but Yap made it work quite well. Her minimal set consisting of a desk, a dry erase board, and a flipchart was enough together with her mathematical and artistic abilities to vividly transform the space into Kovalevskaya's office and the Professor's classroom.

Yap portrayed Kovalevskaya in a simple scarf and with a small collection of books and papers as she tried to find someone to take her on as a student. Because of biases against women in mathematics, and initially her unmarried status, she was repeatedly dismissed. Kovalevskaya was eventually accepted by Weierstrass but only after she reached out to him numerous times to showcase her extraordinary mathematical work. The scenes with Kovalevskaya writing letter after letter were especially effective. Yap folded Kovalevskaya's letters into paper airplanes and flew them across the room to depict her letters traveling through the mail. She then used the brief moments between each correspondence to emphasize the mix of excitement, anxiety and possible rejection Kovalevskaya must have felt while waiting patiently for a response. Later when she was applying for jobs, the whole cycle began again with opportunities repeatedly withheld from her. The final scenes showed

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CALL FOR NOMINATIONS

AWM-Sadosky Research Prize in Analysis

The Executive Committee of the Association for Women in Mathematics has 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 a woman early in her career. 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, friends Judy and Paul S. Green and Concepción Ballester.

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 15, 2019**. If you have any questions, phone 401-455-4042 or email awm@awm-math.org.

Kovalevskaya leaving her family to pursue her mathematical career and thanking those who had given her a chance in spite of her gender. Many of these scenes, accompanied by background instrumental music, were presented in what sounded like Russian. However, one didn't need to understand the language to understand the story. Yap did an excellent job employing movement and expression to convey Kovalevskaya's perseverance through the recurrent discrimination she faced.

By removing her scarf and muting the instrumental music, Yap shifted the audience to the present day and became the Professor. She spoke directly to the full ballroom and covered typical classroom activities—talking through the syllabus, addressing attendance issues and introducing new course topics—as though we were students in her real analysis class. Yap's character encountered microaggressions such as a student asking "no, where are you really from?" as well as overt racism including a racial slur left on the Professor's flip chart. These tense moments showed the audience how the Professor's race, ethnicity, and gender affected her experience in the classroom.

She punctuated these experiences with frequent reflections by the Professor that used mathematical analogies to illuminate how the Professor's experiences were not just hers but a small part of greater societal issues. One particularly poignant analogy was the one where Yap used the definition of convergence to reflect on the idea of reaching a state of equality and inclusion in our society. Whereas convergence in everyday language means to meet or come together at a point, convergence in the mathematical sense means that we can become arbitrarily close to our limit, though we may never reach it. We like to believe that as society continues to make progress, a state of equality and inclusion is a limit we can actually achieve. However, the definition of convergence in the mathematical sense may be more fitting because for those seeking a state of equality and inclusion, no matter how much headway we hopefully will continue to make, we may still be an epsilon away from ever truly achieving it.

I highly recommend seeing a production or inviting Yap to your campus for a performance of *Uniform Convergence*. Based on the standing ovation Yap received at MathFest, I know others would enjoy it as much as I did! The play's connections to history, mathematics, gender, and

Join AWM on Capitol Hill!

Tuesday, January 15, 2019, in conjunction with the JMM in Baltimore
Register by December 15, 2018

AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

The AWM brings together students and mathematicians from across academia, industry, and government to highlight issues of importance for women and minorities in STEM fields to our Congressional representatives.

In small groups that include both students and professional mathematicians, you will get to meet with Congressional staff—and sometimes members of Congress—to discuss initiatives that impact our community.

Tentative Schedule:

Monday 1/14/19 Informal Evening Meet & Greet
Tuesday 1/15/19 Hill Visit Training in Baltimore
Travel to Capitol Hill Meetings at
Congressional Offices

To sign up, email hillvisit@awm-math.org or fill out our Hill Day Interest googleform at https://sites.google.com/site/awmmath/awm-resources/policy-and-advocacy

race would be of interest to a broad audience. As a consequence of the portrayals of the discrimination Kovalevskaya and the Professor faced, an added sense of validation may be felt by individuals from underrepresented groups who have experienced similar conflicts. In addition, those who have not thought deeply about gender and race in a mathematical setting would benefit from seeing *Uniform Convergence*. It provides insight into how gender and race can affect not only a person's experience in mathematics but in society as well. The play encourages us to reflect on the roles of gender and race and presents an opportunity to discuss these important issues with our students and peers. It also leaves us thinking. How many great mathematical ideas have we missed out on because as a community we haven't been open to diverse perspectives?

MATHEMATICS + MOTHERHOOD

Interview with Sumaia Saad Eddin

Lillian Pierce, the Nicholas J. and Theresa M. Leonardy Associate Professor of Mathematics, Duke University

Sumaia Saad Eddin is currently a Project Assistant working in number theory at the Johannes Kepler University in Linz, Austria, sponsored by the Institute of Financial Mathematics and Applied Number Theory. She earned her PhD in 2013, at Université Lille 1 in France.

M+M: Hello Sumaia! I'd like to start by learning about the type of research you are doing.

SSE: I am a number theorist with both algebraic and analytic interests. So far, my research has dealt with a selection of problems in number theory, and in other fields like cryptography and financial mathematics, including the Laurent-Stieltjes coefficients of Dirichlet L-series; the distribution of the special values of the logarithmic derivatives of the Dirichlet L-functions at $1+it$ when the Dirichlet character ranges over all characters modulo q and t is any fixed real number; arithmetical functions such as the divisor function; and the asymptotic behavior of the number of RSA-integers (composite integers that are products of two proportional primes). More recently, I have become very interested in studying the Laurent-Stieltjes coefficients of multiple zeta-functions of Euler-Zagier type at integer points. I also enjoy learning about combinatorial and probabilistic number theory and about more general topics in analysis. I am seeking to conduct collaborative research by using my knowledge of mathematics with other scientific areas, such as physics.

M+M: Professionally speaking, where are you working now, and what has been your career path to get to this point?

Sumaia Saad Eddin and her son, Awss

SSE: I got my PhD degree from the University of Lille-France in June 2013. From September 2012 to August 2014, I was a teaching assistant at the University of Lille. It was a postdoctoral position under the status of temporary lecturer and researcher. During 2014, I was a visiting researcher at the Max Planck Institute for Mathematics Bonn-Germany for four months, where I had the opportunity to meet and work with Dr. Pieter Moree. At the end of 2014, I moved to Austria, where I got a postdoc position at the Institute of Financial Mathematics and Applied Number Theory at Johannes Kepler University Linz, for three years. Last March 2017, I received an invitation from Professor K. Matsumoto to be a visiting researcher for one year at Nagoya University in Japan. Now, I am again in Austria at the same institute where I had been working before. Unfortunately, my position this time is only for one year.

M+M: When I first met you in Bonn in 2014, I remember you were expecting a child. In fact I remember being impressed by two talks I saw you give during that time—it was so refreshing to see a pregnant mathematician give

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seminar talks! Tell me a bit about how your family has developed alongside your career.

SSE: Yes, that is right. When we met in Bonn in July 2014, I was pregnant. At that time, I remember I had the energy to do everything. I attended and gave several talks in different countries: France, Germany, Finland, and Austria. I remember too, when my maternity leave started, I was not happy. I didn't want to stop working. Let me mention that the head of our institute in Linz, Professor Gerhard Larcher, always supports me in any way possible, and in general strongly encourages women.

Quite frankly, the first period after pregnancy was very difficult. Everything changed. My time, body, everything. Fortunately, my husband was beside me all the time and I think, without his efforts and support, I could not have come back to my job as soon as I did. It was a very hard time for us; in particular, our families are in Syria. By the way, my son's name is Awss. The most beautiful present I got in my life ever.

The first seven months, when I wanted to attend a conference, my family always accompanied me. I didn't let that be an obstacle. I traveled to Spain, Germany, Hungary, and France. I am so happy that I have a wonderful husband. He didn't ever mind looking after Awss if I wanted to attend a conference someplace else.

Last year, when I received the invitation from Nagoya University, it was a very hard decision for us to leave everything in Austria and travel to Japan. I knew it was very important for my career and I was excited to work with such a brilliant name in number theory. When I asked my husband for his opinion, he didn't hesitate to encourage me to make the move to Japan so that I could develop my skills.

M+M: It is very impressive that you have traveled academically so much after having your first baby. What are the mathematical benefits of travel that you find outweigh the difficulty of traveling with a baby?

SSE: In my view, I see that it is important to participate in conferences and seminars for introducing my results to others. Moreover, many ideas and projects can be created during these events. We can meet many mathematicians and discuss ideas with them. I know it is not

CALL FOR NOMINATIONS

2020 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 (female or male) 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.

The nomination documents should include: a nomination cover sheet (available at www.awm-math.org/humphreysaward.html); 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 www.awm-math.org for nomination instructions. Nominations must be received by **April 30, 2019** 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 www.awm-math.org/humphreysaward.html.

Sumaia Saad Eddin

easy to travel with a baby or to leave him at home. But, I believe that my husband gives our son the same love and care that I do.

M+M: When you were growing up in Syria, at what point did you decide to have a career in research mathematics?

SSE: In the beginning, my dream was humble. I wanted to be a teacher of mathematics or a lawyer. Since I could not be a lawyer, I decided to study mathematics. After the first year at Damascus University, my dream started growing bigger. I wanted to be a teacher at the university, and I did that when I graduated. At that time, it was my biggest dream. Everything changed when I got a grant from Damascus University to study in France. I was one of the students who had the highest academic degree at the university. Thus, I realized that I could go ahead in mathematics. Now I am a researcher in number theory, and I am so happy about this.

M+M: What is your ultimate goal, professionally?

SSE: My passion for mathematics leads me to proceed with my research in number theory, despite the difficulties in our life. I feel that I have full energy and enthusiasm for doing that. I would be so happy if I could continue my way in research mathematics and teach as well. Now, my dream is to have a stable job and a way of life that will give me more confidence and stability.

M+M: I wish that for you too. It is very difficult to do research under the pressures you have faced in these recent years. I admire your perseverance in pursuing your powerful dream of a career in research mathematics, and congratulate you on your wonderful son.

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 develop-ment, and (4) funding/sustainability. More details about each category can be found on the AWM website www.awm-math.org.

Eligibility: Any chapter may nominate itself for awards in at most two of the four categories.

The nomination should include: 1) A cover letter: The cover letter should summarize the chapter's qualifications for the award category to which it is nominating itself. If the chapter is applying in two categories, it should ensure that both categories are clearly included in one cover letter. 2) An activities report: The activities report, 500–1000 words in length, should give a detailed description of the particular work for which it is seeking an award. If the chapter is applying in two categories, a separate activities report is required for each. Nomination materials should be submitted online at MathPrograms.org. The submission link will be available 45 days prior to the nomination deadline. Nominations must be received by **April 15, 2019**. If you have questions, phone 401-455-4042, email awm@awm-math.org, or visit www.awm-math.org.

As You Do Unto Us

Izabella Laba; reprinted with permission from her post of January 21, 2018 at her blog The Accidental Mathematician*;* https://ilaba.wordpress.com/2018/01/21/as-you-do-unto-us/#more-4285*; hotlinks have been converted to footnotes for the benefit of readers of the print edition of this* Newsletter

This post is for the men in mathematics who have been disturbed by the recent wave of disclosures and push-back against sexual harassment. You are horrified to learn that men have been doing such things, and you extend your sympathy to the victims, but you also need to know the possible implications for you. You've been asking us to clarify the rules: when you're patting a woman on the back, where exactly do you have to stop before you get accused of grabbing her ass? Could we please draw red lines across our backs to demarcate the allowed from the unforgivable? You've been arguing about fairness, intentionality, proportionality, due process and reasonable doubt. You've been citing examples, both from the public sphere and from your own experience. I've never before seen so many men come to feminist discussions with well researched facts and cross-checked citations.

That's good. I'm very glad that you are doing this. I've been engaging in these discussions individually on social media as time permits, but I also want to post a few things here for those who might be interested.

First, there's a popular misconception that must be addressed, namely that such cases are *only* about the crossing of personal and sexual boundaries. No. Grabbing or exposing body parts at work is not just gross; it also derails and blocks our professional advancement and therefore our access to power in the society. Sadly, women at work are too often seen as primarily personal and sexual beings who should be satisfied with social popularity and possibly sexual gratification instead of seeking actual professional success. Our complaints about men who sabotage our careers are dismissed as "personal" disagreements. It therefore stands to reason that our complaints are more likely to be taken seriously when the boundaries of acceptable *personal* behaviour are also crossed and when the acts in question would still be viewed as deplorable if they had occurred outside of the workplace. That's not where the story begins, though, nor does it end there.

I have some reading for you. This article by Rebecca Traister[1] elaborates on sexual harassment being not just a sexual issue but also a work issue. This earlier one[2] elucidates our experience of sexual harassment in the broader context of gender discrimination, including our own complicity in it, from angles that are rarely spelled out so clearly. Both articles are excellent. Both are centered on women who have attained, or aspire to, a certain professional status; while this is a narrowing of the subject (as Traister admits explicitly in both pieces), the specificity should resonate well enough with mathematicians.

I also want to know whether you are worried that you might now be treated the way that we have been treated all along. Everything about this that scares you, every possibility that careers could be thwarted or ended unfairly, every part of this system that can be turned against you so easily when those in power demand it—yes, you're right. We know that. We've been living with those threats, and working under them, ever since we were allowed into professional spaces at all. We've been told that academic careers demand sacrifices, that maybe we were just less interested or motivated or inclined to take risks, that if you can't stand the heat etc. But now that you have the opportunity to reflect on that heat, maybe we could discuss installing a fan and opening some windows?

You are concerned when we tell you to "believe women." You point out cases when publicly made rape allegations were debunked later. You say that people don't always tell the truth, that they might have a vested interest in lying, and that even when a woman believes that she's being truthful, another observer might see the same situation differently. You emphasize the legal concept of proof beyond reasonable doubt. In social and professional situations that do not require that standard, you still don't consider the word of one person, or several, to constitute sufficient evidence. It does not console you that false allegations are rare, because you don't want to play lottery with your career or those of your colleagues.

Does that make it easier to understand our objections to having your word against ours accepted as conclusive? I've been in that situation many times: I say X, a male colleague says Y, therefore Y must be true. Could we please stop that? In particular, when you reassure us that there is no sexism in math communities—a statement that you might have a vested interest in making—would you mind if we didn't just take your word for it? Would you understand that, even when you honestly believe that a situation was not sexist, we

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[1] https://www.thecut.com/2017/12/rebecca-traister-this-moment-isnt-just-about-sex.html

[2] https://www.thecut.com/2017/11/rebecca-traister-on-the-post-weinstein-reckoning.html

might disagree? And please don't tell us that sexist incidents in math are rare. I don't actually believe that—sexism is a broad operating principle, not just a small number of isolated incidents—but even if they were rare, you still would not want us to play lottery with our careers, would you?

You don't want to be tried and sentenced in the court of public opinion, especially not on the internet. You insist on due process and institutional guarantees of fairness. Maybe, then, you could stop telling us that transparency and peer pressure, in forms such as "open peer review" or online comments on math papers, will cure all social ills in mathematics including sexism. Somehow, you don't have the same faith in the wisdom of public opinion when the public is not guaranteed to be dominated by people who think like you do. Peer pressure is no longer a universal fix for every problem when it points towards believing someone else.

You are worried that innocent touch—a friendly gesture, an accidental brush against a coworker's body in a crowded hallway—might be misinterpreted and blown out of proportion. You've seen radical proposals: no meetings behind closed doors, no dinners with female colleagues without a spouse present. You do feel that these go too far, but then can we please tell you how to interact with women at work without raising suspicions?

I absolutely agree. We all should be able to focus on our work without the constant threat that anything we say or do could be interpreted in a sexualized manner. You know what else would be great? If women could have normal working relationships with male mentors, collaborators and friends without the ever-present gossip and innuendo. If we could network and socialize like everyone else, without the suspicion that we're really after the Mrs. degree or at least sexual favours. You might or might not have noticed the problem in the past, but either way it probably did not affect your career, because (as Traister points out[3]) the roles assigned to men and women in such situations are not symmetric. Now, it bothers you. It should.

You argue that we should not just criminalize the human condition in all its imperfections. We should distinguish between actual criminal acts and behaviour that's merely boorish or unwelcome. Maybe he was just trying to be nice; maybe he thought she wanted it; maybe he did it but it's really such a minor offence and we should not be policing people's behaviour to that extent. We should allow room for honest mistakes and refrain from disproportionate punishment.

That's a great conversation to have. I'll take this opportunity to point out that there are criminal laws that classify groping as a misdemeanor[4] (with details depending on the jurisdiction), and that unwanted sexual advances at work can be deemed harassing in a civil lawsuit based on the effect they have on the workplace environment, even if the acts involved are not illegal in and of themselves. Criminal guilt is different from civil liability, which, by the way, requires only preponderance of evidence and not proof beyond reasonable doubt. And that's different from informal social and professional consequences, such as when people don't necessarily want to sue you, but don't really want to work with you, either.

Which part of this concerns you? Are you worried about criminal law when you complain that complimenting women or discussing gender differences is "not allowed"? These are not illegal, although it's easy to be confused about this when the actually illegal grabs and squeezes are almost never prosecuted, either. Do you feel that terms like "hostile atmosphere" are too vague and open to interpretation? Why, yes, they are. This has been a problem for us for a long time. I'm glad that you are starting to notice.

Are you concerned about the unregulated kind of retaliation? Right. Isn't it horrifying how easy it is[5] to sideline an inconvenient person and block their career? How everyone else just goes along with it without asking questions? Isn't it scary how often the formal procedures merely rubberstamp decisions made elsewhere? How the costs of trying to turn the wheel against the current are so prohibitively high that few attempt it and a "win" is still a loss? That's the system in which we have had to function all along. Yes, this does happen in mathematics,[6] and here's much more from academia in general.[7] You've been saying that you had no idea, either of the scale of the harassment problem or the silencing and retaliation schemes; but maybe at least on some level you did know, seeing as you are now anticipating with such clarity what might happen to you if the tides were reversed.

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[3] Ibid

[4] https://rewire.news/article/2017/12/15/case-youre-wondering-groping-illegal/

[5] http://www.vulture.com/2017/12/harvey-weinstein-rejected-mira-sorvino-for-bad-santa-film.html?utm_campaign=vulture&utm_medium=s1&utm_source=fb

[6] https://www.chronicle.com/article/I-Spoke-Up-Against-My-Harasser/241991?cid=wcontentlist_hp_5

[7] https://www.chronicle.com/article/A-Complete-Culture-of/242040

continued on page 24

As for policing minor offences and tolerance for mistakes: yes, we should talk about that as well. Because women have always had to walk very thin lines, not only between the personal and professional, but also between competent and likable,[8] between too emotional and not emotional enough,[9] between professional expectations for leaders and experts and social norms for women.[10] We could spend a very long time talking about the many ways in which women's behaviour is being policed, including by men who claim to be feminist. (And to be clear, everything here goes double for women of colour.) We've even acquired a reputation for being risk-averse because we have so much less room to make mistakes and so much less to gain from trying.[11] By all means, let's acknowledge that nobody is perfect, but let's also extend the same understanding to the non-male half of the species.

And to go back to where we started: consider how men just won't stop advising us on this matter.[12] They tell us how we should report accusations, who should or should not be believed, what procedures we should follow, what our priorities should be, how we should relate to the men we work with in this moment in time. They implore us not to overreact and to conduct our investigations in ways they consider appropriate and praiseworthy. They recommend steps we could take, point out things they would not advise, provide their own estimates of the frequency and intensity of the same harassment that they claim they have never seen anyway.

You sure look worried about being silenced. About people not listening to you and denying you access to their conversations. About your input not being sought or considered in decisions that might concern you.

Guess who else has been in that position all along? I have no trouble at all believing that you were not aware of most of the harassment that is now being uncovered. I did not actually know it, either, although I was probably much less surprised than you were. That's because we have not been allowed to talk about it. We had to maintain confidentiality, or there was no procedure, or there was a procedure but it did not permit us to speak and others to listen. We find ourselves silenced and trapped. Are you concerned when career administrators come in and run academic institutions with no input from you? Give us a reason to think that there is a difference between them and yourselves.

There is a well-known feminist critique of the absence of structure:[13] informal systems tend to benefit those who are already well situated, and alienate those who are not. Academic governance regulations, especially in their legacy form, can combine the worst of both worlds. They are too vague to actually prohibit specific forms of sexism, racism and discrimination even when lip service is paid to general principles, relying instead on collegiality, tradition and custom. At the same time, they are fully capable of applying teeth and claws when we try to challenge that laissez-faire-for-some status quo. Even when media scrutiny forces the issue, even when the public mood is as favourable as it is now, we are still not free to talk. Confidentiality regulations are still in force. Retaliation is still possible and expected, if not against us personally, then against our students and trainees.

This all becomes very clear to you as soon as you have to entertain the possibility that you might end up on the wrong side of it. And again, I agree. I'm not interested in a simple reversal of power.[14] The feminist utopia would be equality, not reverse subjugation. But if we're going to even try to get there from here, then we have to recognize where "here" is, and act accordingly and deliberately. It's not enough to just summon fairness with an earnest invocation of good intentions.

If you want to help, the best thing you can do is take a back seat from time to time and listen to women who have more expertise and more access to information. Too often, the task of repairing the system is entrusted to those who are not likely to be able to diagnose the problem. Collegiality works well enough when the disagreements are between colleagues of similar social standing, even as it fails to account for gender, race and class. Tradition and custom can be easy enough to defend for those who flourished in their

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[8] https://gender.stanford.edu/news-publications/gender-news/women-leaders-does-likeability-really-matter

[9] http://www.huffingtonpost.ca/entry/hillary-clinton-exposed-the-emotional-tightrope-women-are-constantly-walking_us_57d1a3efe4b03d2d45992613

[10] https://hbr.org/2013/04/for-women-leaders-likability-a

[11] http://nautil.us/issue/48/chaos/the-hidden-sexism-of-how-we-think-about-risk

[12] https://www.vox.com/culture/2017/12/20/16797400/why-wont-matt-damon-stop-talking-sexual-harassment

[13] http://www.jofreeman.com/joreen/tyranny.htm

[14] https://www.washingtonpost.com/entertainment/books/the-power-is-our-eras-handmaids-tale/2017/10/10/032a5866-ad05-11e7-9e58-e6288544af98_story.html

warmth, and the specific ways in which they never meant for women to be there in the first place are not necessarily intuitively obvious to a well-meaning person. You are only beginning to see how things could go wrong. You don't know half of it.

You probably won't be able to defend us from sexual harassment directly when it occurs. The perpetrators are good at preempting such interventions. But you can help us shift the balance of power, by promoting women, supporting their work, and nominating them for positions of responsibility. I trust that you will be able to do this in an intelligent manner. Don't lose sight of the actual goal. Don't follow my recommendations in a counterproductive manner (for instance, by drowning women in pointless committee assignments) and then come back here to complain. Approach it like you would a hard math problem after your first naive approach has failed. Learn, talk to experts, test your educated guesses against the reality.

Good luck. We will all need it.

ASSOCIATION FOR WOMEN IN MATHEMATICS

AWM Will Be *50* in 2021!

Can you believe that the AWM is closing in on its Golden Anniversary?! 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! As we start the countdown, help us develop and plan the festivities. Watch this space for ways that you can be involved in celebrating the great work we have already accomplished, and join us in looking forward to the amazing future of this timeless (and yet timely!) organization.

CALL FOR NOMINATIONS

2020 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.

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 **April 30, 2019** and will be kept active for three years. For more information, phone 401-455-4042, email awm@awm-math.org or visit www.awm-math.org.

In Memoriam

Mary Lee Berners-Lee (1924–2017)

See https://www.theguardian.com/technology/2018/jan/23/mary-lee-berners-lee-obituary *for the full obituary, which was written by Georgina Ferry. It's a good read.*

Computer scientist Mary Lee Berners-Lee died November 29, 2017 at the age of 93. On the programming team for the first computer sold commercially in the world, the Ferranti Mark I in 1951, she later led a successful campaign at Ferranti for equal pay for male and female programmers. After the birth of her first child, she began working at home as a consultant, "writing programs at home to track weather balloons for the Air Ministry and to solve problems of 'bus bunching' for London Transport, among others." She called herself "the grandmother of the web" because this first child, now known as Sir Tim Berners-Lee, built the first web server, website and browser in 1989.

Jane Cronin Scanlon (1922–2018)

from the AMS website

Scanlon, a longtime professor at Rutgers University who gave the Emmy Noether Lecture in 1985 (and published under her birth name, Jane Cronin), died June 19, 2018 at the age of 95. She received her PhD from the University of Michigan in 1949 under the direction of Erich Rothe, then held postdoctoral positions at Harvard University and Princeton University. Scanlon moved to Wheaton College (MA) and to Brooklyn Polytechnic Institute before taking the position at Rutgers in 1965. She retired from the university in 1991 but continued to do research until the last two years of her life. In her profile posted by the Association for Women in Mathematics, Scanlon says this about mathematics: "Part of the attraction and fascination of mathematics is the idea of making, you make something that wasn't there before. You start out sometimes with a very vague idea, and you turn it into something very specific and concrete—if you're lucky!" Scanlon had been an AMS member since 1942. Read more about her life in the obituary available at https://www.krowickigorny.com/notices/DrJaneCronin-Scanlon.

Mary Wardrop (1933–2018)

from the AMS website

Mary Wardrop died March 18, 2018 at the age of 84. She received her PhD from the University of North Carolina at Chapel Hill in 1964 under the direction of John Sheridan MacNerney. Wardrop then taught at the University of North Carolina at Charlotte for 13 years before moving to Central Michigan University in 1977. She was a member of the faculty at Central Michigan until her retirement. Her obituary notes that she "had a very generous heart.... Discussions with her always came back to the importance of giving back, especially to those truly in need." Wardrop had been an AMS member since 1958.

Announcements

Renew Your AWM Membership!

When you give to AWM by renewing your membership or through a donation, your support helps make possible AWM's continued programs and presence. It matters that our voice is in the room, and that we are all working to change the narrative around women in mathematics. AWM is updating our systems, so you will notice that the renewal page looks different! Questions? Email awm@awm-math.org.

Your SPAM Filters Are Too Good!

AWM is updating our infrastructure, building a new member database and using new software and email addresses to share information with members. We find that some filters recognize that these are "young" email addresses and are shunting AWM's communications to SPAM! Please check your SPAM folders for AWM announcements and move them to your inbox to keep receiving updates about what is happening in your organization!

Child Care Grants for JMM 2019

The AMS and the MAA will provide approximately 80 reimbursement grants of $250 per family to help with the cost of child care for a number of registered participants at 2019 JMM. The funds may be used for child care that frees a parent to participate more fully in JMM. Registration for the JMM as well as membership in the AMS or MAA is required to apply for this program.

Applications will be accepted on a first-come, first-served basis until **November 12, 2018**. Final decisions on recipients will be made on or before **November 28, 2018**.

Please note that you are solely responsible for arranging child care. You may use this grant for child care expenses from local resources in Baltimore, or for any other form of child care (such as hiring a nanny at home, bringing a caregiver with you to Baltimore, etc.) This gives you the freedom to use these funds in the way that is most useful to your family. Child care services will not be offered at the JMM nor will the AMS and MAA make recommendations for child care providers. Should you wish to use a local child care provider, you will need to make all the arrangements on your own.

Visit https://www.mathprograms.org/db/programs/692 to apply.

NAM Looking for Black Math PhDs Who Graduated 2007–2018

The National Association of Mathematicians is working to update the Mathematicians of the African Diaspora web pages (currently under construction). They are looking for information on individuals from the African Diaspora who graduated with a doctoral degree in the mathematical sciences between 2007 and 2018. If you can help, please send each mathematician's name, degree year and institution, and current email address to Caleb Ashley (ashley.cj@gmail.com, with subject Math African Diaspora contact).The new website is expected to be completed in February of 2019.

Thoughts on Hearing of a Nobel Prize in Physics

Karoline Pershell, AWM Executive Director

Much has been made in recent weeks of the fact that one of this year's Laureates of the Nobel Prize in Physics, our sister Donna Strickland, was merely an associate professor and didn't even have a Wikipedia page prior to her Nobel Prize. Strickland, who calls herself a "laser jock," was the third woman (of 209 individuals) to win a Nobel in physics. Compare this to mathematics, where only one woman (of 60 individuals) has won a Fields Medal.

Strickland's status prior to winning the Prize underscores the reality that women (and particularly women of color) tend to be underrecognized for their achievements. This lack of recognition can lead to perceived lack of accomplishment in an individual's research.

Let's note the good things that can happen when an individual is recognized for her work: awards, speaking engagements providing travel opportunities to stay better connected to her research community, opportunities for grants and other funding, all of which can lead to promotion, and of course, job satisfaction. Beyond the individual, these types of recognition result in greater visibility to the mathematics community of noteworthy women—one more step in normalizing the attitudes of the next generation about who can be a mathematician. Perhaps most importantly, recognition of one's work puts it more squarely in the eyes of the mathematics community and aids in dissemination of the work to the mathematics community at large, to the benefit of all.

AWM cares deeply about the recognition of the contributions of women in mathematics, of course. First, AWM has partnered with Wikipedia to offer AWM-Wikipedia Fellows (see the article earlier on page 16), to promote the visibility online of women in the mathematical sciences.

Second, AWM formed a Scientific Advisory Committee in 2015, which is charged with obtaining names of potential nominees and to help procure nominations for women to be recipients of distinguished prizes, awards and honors of organizations related to the mathematical sciences. AWM hopes to aid in shepherding the nominations, but we need your help!

AWM is currently working on a new website, where we plan to be able to take submissions and recommendations for major awards. But we can't write the nomination packets ourselves. We need the greater community to pitch in and participate in this effort. We'll give you more info as this work continues.

Please don't forget to nominate worthy colleagues and yourself for AWM's many awards! Reminders for awards are interspersed in every newsletter, or email AWM for a deadlines sheet (awm@awm-math.org).

There is still much work to do. We are so grateful to be doing it together.

Tenured/Tenured-Track Faculty Position(s)

Cornell University's School of Operations Research and Information Engineering (ORIE) seeks to fill multiple tenured/tenured-track faculty positions for its Ithaca campus. We will primarily consider applicants with research interests in the areas of discrete optimization and financial engineering, especially those individuals who do computation, who work with data, or whose work intersects with machine learning. Nevertheless, we welcome strong applicants from all research areas represented within ORIE, especially those in resonance with the College of Engineering Strategic Areas: **https://www.engineering.cornell.edu/research-and-faculty/strategic-areas-research**.

Requisite is a strong interest in the broad mission of the School, exceptional potential for leadership in research and education, an ability and willingness to teach at all levels of the program, and a Ph.D. in operations research, mathematics, statistics, or a related field by the start of the appointment. Salary will be appropriate to qualifications and engineering school norms.

Cornell ORIE is a diverse group of high-quality researchers and educators interested in probability, optimization, statistics, machine learning, simulation, and a wide array of applications such as e-commerce, supply chains, scheduling, manufacturing, transportation systems, health care, financial engineering, service systems and network science. We value mathematical and technical depth and innovation, and experience with applications and practice. Ideal candidates will have correspondingly broad training and interests.

Please apply online at **https://academicjobsonline.org/ajo/jobs/11870** with a cover letter, CV, statements of teaching and research interests, sample publications, at least three reference letters and, for junior applicants, a doctoral transcript. All applications completed by November 16, 2018 will receive full consideration, but we urge candidates to submit all required material as soon as possible. We will accept applications until we fill the positions.

ORIE and the College of Engineering at Cornell embrace diversity and seek candidates who can contribute to a welcoming climate for students of all races and genders. Cornell University seeks to meet the needs of dual career couples, has a Dual Career program, and is a member of the Upstate New York Higher Education Recruitment Consortium to assist with dual career searches. Visit **www.unyherc.org/home** to see positions available in higher education in the upstate New York area. Diversity and Inclusion are a part of Cornell's heritage.

Cornell University is an innovative Ivy League university and a great place to work. Our inclusive community of scholars, students and staff impart an uncommon sense of larger purpose and contribute creative ideas to further the university's mission of teaching, discovery and engagement. With our main campus located in Ithaca, NY Cornell's far-flung global presence includes the medical college's campuses in Manhattan and Doha, Qatar, as well as the new Cornell Tech campus located on Roosevelt Island in the heart of New York City.

We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities. We strongly encourage qualified women and minority candidates to apply.

Faculty Position - Operations Research and Information Engineering (ORIE)

A faculty position in Operations Research and Information Engineering (ORIE) is available at the Cornell Tech campus in New York City. The position is part of the Jacobs Technion-Cornell Institute, and we particularly encourage candidates whose work fits into Jacobs Institute application-domain emphases in the areas of urban technology, especially related to the intersection of digital and physical systems, and digital health technologies.

The position is within Cornell University's School of ORIE, and applicants with research interests represented within Cornell ORIE are welcome at all levels, including tenured and tenure-track. The School consists of a diverse group of high-quality researchers and educators interested in probability, optimization, statistics, simulation, and a wide array of applications such as e-commerce, supply chains, scheduling, manufacturing, transportation systems, health care, financial engineering, service systems and network science. Cornell ORIE spans both the Ithaca and New York City campuses, but the successful candidate's teaching and research will be based in New York City. (Interested candidates can apply for a Cornell Tech in NYC position, a Cornell Ithaca ORIE position, or both, but the two campuses have different application sites; please see the Cornell Ithaca ad for the Ithaca application URL.)

Candidates must hold a Ph.D. in operations research, mathematics, statistics, or a related field by the start of the appointment, and have demonstrated an ability to conduct outstanding research at the level of tenure-track or tenured faculty in Cornell ORIE. They must also have a strong commitment to engagement outside of academia in ways that foster significant commercial or societal impact, as aligned with the mission of the Cornell Tech campus. The Institute seeks candidates with demonstrated transdisciplinary interests and a track record of translational science. The successful candidate will be expected to pursue an active research program, to teach Master's and Ph.D.-level graduate courses, and to supervise graduate students.

All applications completed by November 16, 2018 will receive full consideration, but we urge candidates to submit all required material as soon as possible. We will accept applications until we fill the positions. Applicants should submit a curriculum vitae, brief statements of research and teaching interests, and the names and contact information of at least three references. They should also identify one or two top publications to which they have made significant contributions. A distinguishing characteristic of research at Cornell Tech, in addition to world-class academic work, is that it engages deeply with external communities, organizations, K-12 education, and industry to address real-world problems and contexts that amplify the direct commercial and societal impact of our research. Accordingly, within a clearly identified subsection of the research statement, the candidate should address prior accomplishments and future plans related to this kind of direct commercial and/or societal impact of their research. Applications are on-line at

https://academicjobsonline.org/ajo/jobs/12018

Inquiries about your application may be directed to Sheri Minarski at **slm339@cornell.edu**.

Cornell University is an innovative Ivy League university and a great place to work. Our inclusive community of scholars, students and staff impart an uncommon sense of larger purpose and contribute creative ideas to further the university's mission of teaching, discovery and engagement. With our main campus located in Ithaca, NY Cornell's far-flung global presence includes the medical college's campuses in Manhattan and Doha, Qatar, as well as the new Cornell Tech campus located on Roosevelt Island in the heart of New York City.

Diversity and Inclusion are a part of Cornell University's heritage.
We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.

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PRINCETON UNIVERSITY

FACULTY POSITIONS IN MATHEMATICS

The Princeton University Mathematics Department expects to offer several junior faculty positions and postdoctoral appointments for the 2019—2020 academic year:

Instructorship: 1-year positions; normally renewed for 1–2 additional years. Ph.D. required.

Veblen Research Instructorships: 3-year positions (offered jointly by the Princeton University Mathematics Department and the School of Mathematics at the Institute for Advanced Study) for outstanding new Ph.D.s. Typically, the first and third years of these appointments are spent teaching and conducting research at Princeton University and the second year is spent conducting research (without teaching duties) at the Institute for Advanced Study. (Please see the MathJobs advertisement under THE INSTITUTE FOR ADVANCED STUDY for additional details about the Veblen Research positions.)

Assistant Professorships: 3-year renewable appointments; teaching experience preferred. Ph.D. required.

Postdoctoral Research Associates or Associate Research Scholars: one-year, full-time positions for recent Ph.D. recipients or more senior researchers who wish to carry out research in mathematics with a Princeton faculty member, with possibility of renewal subject to continued funding and satisfactory performance.

Please note: Applicants will automatically be considered for all open junior faculty positions and postdoctoral appointments. The Department is interested in candidates who, through their research, teaching, and service, will contribute to the diversity and excellence of the academic community.

All applications should be submitted via MathJobs at https://www.mathjobs.org/jobs/jobs/12646. For inquiries, please e-mail: application@math.princeton.edu. DEADLINE FOR APPLICATIONS: December 1, 2018.

These positions are subject to the University's background check policy.

Princeton University is an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to age, race, color, religion, sex, sexual orientation, gender identity or expression, national origin, disability status, protected veteran status, or any other characteristic protected by law. EEO IS THE LAW.

The American Mathematical Society Boost Your Career in Washington—The American Mathematical Society (AMS), in conjunction with the American Association for the Advancement of Science (AAAS), sponsors a Congressional Fellow each year who spends the year working on the staff of a Member of Congress or a congressional committee, working as a special legislative assistant in legislative and policy areas requiring scientific and technical input. The program includes an orientation on congressional and executive branch operations, and a year-long seminar series on issues involving science, technology and public policy. This unique fellowship opportunity is part of the larger AAAS Science & Technology Policy Fellowships (STPF) program, with assignments in federal agencies, on Capitol Hill and in the judicial branch. Fellows are on the front line of vital issues that impact society, specifically for outstanding Ph.D. mathematicians, scientists and engineers to learn first-hand about policymaking while contributing their STEM knowledge to American government. Fellows broaden their career paths while engaging with policymakers, administrators and thought leaders. They represent a broad range of backgrounds, disciplines and career stages, and are members of a strong corps of 3,000+ policy-savvy STEM leaders across academia, government, nonprofits and industry. Currently, there are not many mathematicians in the STPF ranks: change that by applying to become a fellow today! The AMS sponsors one fellowship placement in Congress each year. Application deadline for the AMS Congressional Fellowship is **February 15, 2019**. Learn more and apply at http://bit.ly/2LaVLlB

Carleton College—Department of Mathematics—The Carleton College Department of Mathematics and Statistics anticipates hiring for a tenure-track position in Analysis at the Assistant Professor level, to begin September 1, 2019. Ph.D. in hand or imminent completion by that date is expected. Appointment at a higher level may be considered in exceptional cases. Please apply through Math Jobs. To ensure full consideration all application materials should be received by **November 30, 201**8. Carleton College does not discriminate on the basis of race, color, creed, ethnicity, religion, sex, national origin, marital status, veteran status, actual or perceived sexual orientation, gender identity or expression, status with regard to public assistance, disability, or age in providing employment or access to its educational facilities and activities. We are committed to developing our faculty to better reflect the diversity of our student body and American society. Women and members of minority groups are strongly encouraged to apply.

Dartmouth College—Department of Mathematics—The Department of Mathematics announces an opening for the 2019-2020 academic year, with a preference for an appointment at the rank of Associate or Full Professor. The department has an interest in hiring in geometry, broadly defined, but also welcomes applications from excellent candidates in other areas of pure mathematics, especially those that strengthen or build connections among our relevant research areas, which include (but are not limited to) combinatorics, analysis, number theory, and topology. Applicants should apply online at www.mathjobs.org Position ID: TG #12552. Applicants received by **December 15, 2018** will receive first consideration. For more information about this position, please visit our website: https://www.math.dartmouth.edu/activities/recruiting/. Dartmouth College is an equal opportunity/affirmative action employer with a strong commitment to diversity and inclusion. We prohibit discrimination on the basis of race, color, religion, sex, age, national origin, sexual orientation, gender identity or expression, disability, veteran status, marital status, or any other legally protected status. Applications by members of all underrepresented groups are encouraged.

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Dartmouth College—Department of Mathematics—The Department of Mathematics at Dartmouth announces two senior openings in applied mathematics at the rank of Professor, with initial appointment as early as 2019-2020, as the inaugural Jack Byrne Professors of Applied Mathematics. We seek acknowledged international leaders in applied mathematics with exemplary track records in creating mathematical and statistical methodological advances and their applications, especially as relates to the social, health, or financial sciences. These positions will sit within the Department of Mathematics and extend our existing group in applied mathematics. Current applied and computational interests in the department include complex systems, computational social sciences, network analysis, statistical learning, mathematical biology, stochastic processes, numerical analysis, PDE, imaging, and signal processing. Our strength in applied mathematics is complemented by strength in several areas in theoretical mathematics. Together with a recent third senior position in decision sciences in Dartmouth's top-ranked Tuck School of Business, these positions will be part of the Byrne Cluster. They represent further investment in the department's continued efforts to expand its research efforts and related pedagogy in applied mathematics. We seek candidates with the potential to bridge multiple research areas both inside and outside the Department of Mathematics. The Byrne Cluster comes with programmatic funds to support those goals. In addition to research qualifications, candidates should have a keen interest and demonstrated excellence in teaching and mentorship of both undergraduates and graduate students. Initiate application at www.mathjobs.org — Position ID: JBPAM #12522.

Northwestern University—Department of Mathematics—Tenure-track Position. Applications are invited for an Assistant Professor position starting in September 1, 2019. Priority will be given to exceptionally promising research mathematicians. We invite applications from qualified mathematicians in all fields. Minimum qualifications include a Ph.D. in Mathematics, which must be conferred by September 1, 2019. Applications should be made electronically at www.mathjobs.org and should include (1) the American Mathematical Society Cover Sheet for Academic Employment, (2) a curriculum vitae, (3) a research statement, and (4) four letters of recommendation, one of which discusses the candidate's teaching qualifications. Inquiries may be sent to: tenure@math.northwestern.edu. The review process starts **November 1, 2018**; applications arriving after this date may also receive consideration. Northwestern University is an Equal Opportunity, Affirmative Action Employer of all protected classes, including veterans and individuals with disabilities. Women, racial and ethnic minorities, individuals with disabilities, and veterans are encouraged to apply. Hiring is contingent upon eligibility to work in the United States.

Northwestern University—Department of Mathematics—Assistant Professor of Instruction. Northwestern University's Department of Mathematics invites applications for a full-time, benefits-eligible, non-tenure eligible faculty appointment as Assistant Professor of Instruction, beginning September 1, 2019. Duties include teaching six quarter-long undergraduate courses per academic year, course leadership, curriculum development, mentoring of new faculty and teaching assistants, and other departmental service primarily focused on undergraduate education. This a continuing appointment, subject to periodic review, with possible promotions to Associate Professor of Instruction and Professor of Instruction. Minimum qualifications include a Ph.D. in Mathematics, which must be conferred by September 1, 2019. Preference will be given to candidates who have demonstrated excellence, breadth, and innovation in teaching. We are interested in candidates whose primary career goal is undergraduate mathematics education particularly at the introductory levels. Applications should be made electronically at www.mathjobs.org and should include (1) the American Mathematical Society Cover Sheet for Academic Employment, (2) a curriculum vitae, (3) a detailed teaching statement, (4) a statement of mathematical interests, and (5) four letters of recommendation, at least two of which discuss the candidate's teaching qualifications in depth. Inquiries may be sent to: hiring@math.northwestern.edu. Review of application materials will begin on **November 1, 2018** and will continue until the position is filled. Northwestern University is an Equal Opportunity, Affirmative Action Employer of all protected classes, including veterans and individuals with disabilities. Women, racial and ethnic minorities, individuals with disabilities, and veterans are encouraged to apply. Hiring is contingent upon eligibility to work in the United States.

Williams College—Department of Mathematics—The Williams College Department of Mathematics and Statistics invites applications for a new tenure-track position in Statistics, beginning fall 2019, at the rank of assistant professor. A more senior appointment is also possible for a qualified candidate at a later stage in their career. The candidate should have a Ph.D. in Statistics or a closely related field by the time of appointment. We are seeking candidates who show evidence and/or promise of excellence in teaching and a strong research program that can engage undergraduate students. The candidate will become the seventh tenure-track statistician in the department, joining a vibrant and innovative group of statisticians with an established statistics major. For more information on the Department of Mathematics and Statistics, visit http://math.williams.edu/. Candidates may apply via https://apply.interfolio.com/50978 by uploading a cover letter addressed to Professor Richard De Veaux, a curriculum vitae, a teaching statement, a description of research plans, and three letters of recommendation on teaching and research. The Department is committed to building a diverse and inclusive community. In your application materials, we also ask you to address how your teaching, scholarship, mentorship and/or community service might support Williams's commitment to diversity and inclusion. Expectations: The teaching load is two courses per 12-week semester and a winter term course every other January. The candidate will be expected to teach introductory statistics, core courses for the statistics major, and elective courses in their areas of interest. The successful candidate will establish an independent research program that results in scholarly publications. Williams College provides broad support for start-up funds, funding for student research assistants, faculty professional development funds, and a shared computer cluster for parallel computation. Review of applications will begin on or after **October 1st** and will continue until the position is filled. All offers of employment are contingent upon completion of a background check. Further information is available at https://faculty.williams.edu/prospective-faculty/background-check-policy/. Williams College is a coeducational liberal arts institution located in the Berkshire Hills of western Massachusetts. The college has built its reputation on outstanding teaching and scholarship and on the academic excellence of its approximately 2,000 students. Please visit the Williams College website (http://www.williams.edu). Beyond meeting fully its legal obligations for non-discrimination, Williams College is committed to building a diverse and inclusive community where members from all backgrounds can live, learn, and thrive.

Williams College—Department of Mathematics—The Williams College Department of Mathematics and Statistics invites applications for a one-year visiting position in statistics, to begin fall 2019. Candidates should have earned a Ph.D. in statistics, or a related field by summer, 2019. We will consider candidates with any area of statistical expertise. Visiting Assistant Professors are asked to teach four courses per year on our 12-week semester schedule, advise several undergraduate student colloquia (our capstone experience for seniors), and make small contributions to service activities in the department. This set of professional duties provides a window into the experience of being a statistician in a liberal arts setting. Our department offers a vibrant undergraduate program with majors in mathematics (including an applied mathematics emphasis) and in statistics. For more information, see our website. The multidisciplinary environment is a rich and collegial setting for student education and faculty research. Williams College provides: the opportunity to apply for student research assistant support; a standard, annual allocation of funds to support travel and research; and a shared computer cluster for parallel computation. Visiting Assistant Professors are also eligible to participate in the college's comprehensive First3 professional development program. Approximately one hour from the Albany, NY airport, Williams College is located in Williamstown, a thriving destination proximate to: three major art museums; theater, music, and dance festivals; community supported agriculture farms; a highly-rated public school system; and many other resources. The Williams

undergraduate student body has 40% U.S. minority enrollment and nearly 10% international enrollment. Reflecting the institution's values, our department is diverse and inclusive, with 50% of our faculty being women, people of color, and/or members of the LGBTQ+ community. We encourage applications from members of underrepresented groups with respect to gender, race and ethnicity, religion, sexual orientation, disability status, socioeconomic background, and other axes of diversity.

Applications should be submitted via https://www.apply.interfolio.com/54115. Your application should include the following components. 1) Please provide a cover letter. This letter might describe your interest in Williams and in the liberal arts, and provide a brief summary of your professional experience and future goals. We ask you to address how your teaching, scholarship, mentorship and/or community service might support Williams' commitment to diversity and inclusion. 2) Please provide a current curriculum vitae. 3) Please provide a teaching statement. Ideally, this statement should be 2 - 3 pages long, and it might address your teaching philosophy, teaching experience, and any other reflections or relevant information you would like to share. 4) Please have at least three recommenders submit letters of recommendation. If possible, at least one of these letters should comment on your teaching or on any other instructional capacities in which you have served.

If you have questions about this position, contact search committee chair Richard De Veaux (rdeveaux@williams.edu). Review of applications will begin on or after **November 1** and will continue until the position is filled. All offers of employment are contingent upon completion of a background check. Further information is available at https://faculty.williams.edu/prospective-faculty/background-check-policy. Williams College is a coeducational liberal arts institution located in the Berkshire Hills of western Massachusetts. The college has built its reputation on outstanding teaching and scholarship and on the academic excellence of its approximately 2,000 students. Please visit the Williams College website. Beyond meeting fully its legal obligations for non-discrimination, Williams College is committed to building a diverse and inclusive community where members from all backgrounds can live, learn, and thrive.

Williams College—Department of Mathematics and Statistics—The Williams College Department of Mathematics and Statistics invites applications for two two-year visiting positions in mathematics, to begin fall 2019. Candidates should have earned a Ph.D. in mathematics, applied mathematics, or a related field by summer, 2019. We will consider candidates with any area of mathematical expertise. Visiting Assistant Professors are asked to teach four courses per year on our 12-week semester schedule, advise several undergraduate student colloquia (our capstone experience for seniors), and make small contributions to service activities in the department. This set of professional duties provides a window into the experience of being a mathematician in a liberal arts setting. Our department offers a vibrant undergraduate program with majors in mathematics (including an applied mathematics emphasis) and in statistics. For more information, see https://math.williams.edu. The multidisciplinary environment is a rich and collegial setting for student education and faculty research. Williams College provides: the opportunity to apply for student research assistant support; a standard, annual allocation of funds to support travel and research; and a shared computer cluster for parallel computation. Visiting Assistant Professors are also eligible to participate in the college's comprehensive First Three professional development program (https://faculty-networks.williams.edu/networking-opportunities).

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If you have questions about this position, contact search committee chair Chad Topaz (cmt6@williams.edu). Review of applications will begin on or after November 1 and will continue until the positions are filled. All offers of employment are contingent upon completion of a background check. Further information is available at https://faculty.williams.edu/prospective-faculty/background-check-policy. Williams College is a coeducational liberal arts institution located in the Berkshire Hills of western Massachusetts. The college has built its reputation on outstanding teaching and scholarship and on the academic excellence of its approximately 2,000 students. Please visit the Williams College website (http://www.williams.edu). Beyond meeting fully its legal obligations for non-discrimination, Williams College is committed to building a diverse and inclusive community where members from all backgrounds can live, learn, and thrive.

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