ASSOCIATION FOR WOMEN IN MATHEMATICS

Newsletter

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The purpose of the Association for Women in Mathematics is

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

IN THIS ISSUE

PRESIDENT'S REPORT

The March–April *AWM Newsletter* is dedicated to the memory of Cora Sadosky, AWM President 1993–1995 and long-time champion of the right of underrepresented minorities to pursue careers in mathematics.

Acknowledgement: It is my pleasure to begin my first report by expressing heartfelt thanks to Georgia Benkart for her service as President of AWM. During Georgia's tenure as President, AWM launched a new web site, featuring online newsletters and nominations, and also completed the digitization of the past newsletters. Georgia was instrumental in the creation of the Humphreys prize, which AWM presented for the first time during the 2011 prize session of the Joint Mathematics Meetings (JMM). She also worked very hard on all the 40th anniversary activities at JMM (some of which I describe below), as well as the "40 Years and Counting" research conference at Brown University planned for September 17–18, 2011. Georgia's outstanding leadership of AWM has resulted in a variety of special opportunities to provide guidance and information on issues that impact women's careers: the NSF has twice asked her to give presentations, at an NSF retreat and at a seminar. Georgia has initiated collaborative ventures with various professional societies, one of which culminated in the creation of the membership reciprocity agreement with SIAM. Many more initiatives are still in development. Georgia's efforts for AWM have been truly extraordinary and inspiring. I will be grateful for her invaluable assistance in her role as Past President in the coming year.

Remembering Cora Sadosky: Cora Sadosky, AWM President 1993–1995, passed away on December 3, 2010. Many people wrote to express their sadness and to send remembrances. The AWM business meeting on Thursday, January 6 at the 2011 JMM was largely devoted to a remembrance of Cora. Daniel Szyld of Temple University spoke about Cora's early years in Argentina and Venezuela. Abdul-Aziz Yakubu, chair of the Mathematics Department at Howard University, and Carol Wood of Wesleyan University spoke about Cora's impact on their personal and professional lives. James Donaldson, Dean of College of Arts and Sciences at Howard, was in the audience, as was a contingent of students from Howard University. Reuben Hersh, University of New Mexico, read remembrances by Cristina Pereyra, University of New Mexico, and Georgia Benkart read a note from Chandler Davis and created and narrated a slide show of photos from the AWM archive. A tribute to Cora appears in this newsletter.

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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.

Circulation: 3500.

President's Report *continued from page 1*

Report from the JMM: At each annual Joint Mathematics Meetings, AWM has a big presence: the Noether lecture, the Hay, Humphreys, and Schafer prizes, panel discussions, the grant-supported workshops for recent female Ph.D.'s, poster sessions for graduate students, the workshop mentoring dinner, a reception following the Gibbs Lecture, and an information booth in the exhibit area. This year, AWM planned several additional events to commemorate the 40th anniversary: a banquet with jazz and the special Hay, Schafer, and Michler minisymposia.

The Hay Minisymposium honored the memory of Louise Hay and the women who have received the Louise Hay Prize. Louise Schmir Hay was born in Metz, France, to Polish-Jewish parents. She and her family immigrated to the United States, where Hay earned her degrees in mathematics. In 1968, she came to the University of Illinois at Chicago as an associate professor. In 1980, she was appointed as Head of the Department of Mathematics, becoming at that time the only female head of a major research-oriented university mathematics department in the United States. She remained as head until her death in 1989, having developed an international reputation for her research in mathematical logic, recursive function theory, and theoretical computer science.

Cathy Kessel and W. James Lewis, University of Nebraska-Lincoln, organized the Hay Minisymposium and panel. The speakers included this year's prize winner, Patricia Campbell, University of Maryland; Joan Ferrini-Mundy, University Distinguished Professor in Mathematics Education at Michigan State University and Associate Dean for Science and Mathematics Education in the College of Natural Science; Susanna Epp, Vincent de Paul Professor of Mathematics at DePaul University; and Deborah Hughes Hallett, Adjunct Professor of Public Policy at Harvard University and Professor of Mathematics at the University of Arizona. The panel discussion was moderated by W. James Lewis and featured panelists Phyllis Chinn, Humboldt State University; Harriet Pollatsek, Mount Holyoke College; Annie Selden, New Mexico State University; and Martha Smith, University of Texas at Austin. All the speakers and panelists were Hay prize winners, and their citations are available on the AWM web pages.

The Michler-Mentoring Minisymposium at the JMM honored the memory of Ruth Michler and the women who have received the Michler Prize and AWM Mentoring Grants. Ruth Michler was born in Ithaca, New York, while her father was visiting the Mathematics Department at Cornell. She graduated with a Ph.D. in 1993 from the University of California, Berkeley. Ruth had just been promoted to Associate Professor at the University of North Texas, when she died in a tragic traffic accident at the age of 33 while on sabbatical at Northeastern University. Her parents Waltraud and Gerhard Michler established the Ruth I. Michler Memorial Prize in her memory. The prize, which is jointly administered by AWM and Cornell, provides a fellowship for a recently promoted associate professor to spend a semester in the Mathematics Department of Cornell University without teaching obligations.

Georgia Benkart spoke about Ruth Michler, "a gifted mathematician who gave generously of her time to help young mathematicians, and who continues to foster the careers of mid-career women in mathematics through this prize." Georgia introduced Ruth's father, Dr. Gerhard Michler, who had travelled from Germany to attend the minisymposium. Karen Vogtmann, representing Cornell University, spoke about how beneficial it has been to collaborate with AWM on this prize and to welcome such an amazing group of women to the Mathematics Department of Cornell.

All the Michler Prize winners, Rebecca Goldin (2007), Irina Mitrea (2008), Masha Gordina (2009), and Patricia Hersh (2010) gave research presentations in the minisymposium and all acknowledged the great impact that the award has had on their career.

The AWM-NSF Mentoring Travel Grants help early-career women develop a long-term working and mentoring relationship with a senior mathematician. Representing the many women who have received mentoring grants were Trachette Jackson and Beatrice Riviere, who gave presentations on their research. Marie Vitulli, University of Oregon, moderated the "Mentors Count!" panel featuring Allan Donsig, University of Nebraska-Lincoln; Rhonda Hughes, Bryn Mawr College; Trachette Jackson, University of Michigan; and Moira McDermott, Syracuse University.

Passing of the silver bowl: Georgia Benkart, AWM President, University of Wisconsin, Madison and Jill Pipher, AWM President Elect, Brown University

The Schafer Minisymposium honored the memory of Alice Schafer, AWM's second president and one of its founders, and the women who have been awarded the Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman. This prize was instituted during Rhonda Hughes' presidency of AWM and was awarded for the first time in 1990, while Jill Mesirov was president. Before the minisymposium began, Georgia Benkart introduced the 2011 Schafer Prize winner Sherry Gong and presented Schafer prizes to Ruthi Hortsch (runner-up) and Fan Wei (honorable mention). Two other honorable mention recipients, Jie Geng and Yinghui Wang, were unable to attend. Sherry received her award at the Joint Prize Session the next day. AWM's first president, Mary Gray, spoke on "Life in the Trenches with Alice, the Early Years." Georgia Benkart reported that her talk "attracted a huge crowd … and recalled AWM's fledgling days, the struggles, and some of the bright accomplishments that she and Alice had a hand in bringing about." Sami Assaf, Cheryl Grood, and Patricia Hersh organized the session of research talks: the speakers were Ioana Dumitriu, Kay Kirkpatrick, Melanie Matchett Wood, and Kate Ponto. Elizabeth Wilmer moderated a panel featuring panelists (and former Schafer Prize awardees) Linda Green, Patricia Hersh, Zvezdelina Stankova, and Josephine Yu. At least 25 Schafer prize recipients were in attendance. Schafer awardees have gone on to distinguished careers in mathematics, statistics, computer science, mathematics education, physics, applied and computational mathematics, and finance.

The AWM Noether Lecture has been delivered at the JMM annually since 1980 by women honored for their fundamental and sustained contributions to the mathematical sciences. This year's Noether Lecturer was Susan Montgomery, University of Southern California, who spoke on "Orthogonal Representations: From Groups to Hopf Algebras." She also co-organized a special session on Hopf algebras and their representations. Professor Montgomery received her Ph.D. in 1969 at the University of Chicago. In her distinguished career she has been a Guggenheim Fellow, edited or authored seven books, published one hundred papers, served on

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Membership Dues
Membership runs from Oct. 1 to Sept. 30
Individual: $55 **Family (no newsletter):** $30
Contributing: $125
New member, new SIAM reciprocal member, retired, part-time: $30
Student, unemployed: $20
Outreach: $10
Foreign memberships: $10 addt'l. for postage
Dues in excess of $15 and all contributions are deductible from federal taxable income when itemizing.

Institutional Membership Levels

Category 1: $300
Category 2: $300
Category 3: $175
Category 4: $150

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

Sponsorship Levels

α **Circle:** $5000+
β **Circle:** $2500–$4999

Other levels available.
See the AWM website for details.

Subscriptions and Back Orders—All members except family members receive a subscription to the newsletter as a privilege of membership. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for $55/year ($65 foreign). Back orders are $10/issue plus S&H ($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 $110 for a basic four-line ad. Additional lines are $13 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 material for media and book review columns to Anne Leggett, leggett@member.ams.org. Send all book review material to Marge Bayer, bayer@math.ku.edu. Send all media column material to Sarah Greenwald, greenwaldsj@appstate.edu and Alice Silverberg, asilverb@math.uci.edu. Send everything else, including ads and address changes, to AWM, fax: 703-359-7562, e-mail: e-mail: awm@awm-math.org.

numerous editorial boards, and chaired many important committees of AMS, AWM and MAA. We congratulate Susan Montgomery on this recognition of forty years of outstanding achievements. Congratulations also to Barbara Keyfitz, Ohio State University, who will give the 2012 Noether Lecture.

The President of AWM shares the stage at the JMM Prize Session with the presidents of AMS, MAA, SIAM, invited guests, and honorees. This year, AWM presented three prizes, with the Humphreys Prize awarded for the first time. The twenty-first annual Louise Hay Award for Contributions to Mathematics Education was presented to Patricia Campbell, University of Maryland. As a leader in the field of mathematics education, Dr. Campbell was recognized for her contributions to the teaching of mathematics in urban settings and for working in schools that serve predominately minority populations from low-income backgrounds. The first annual M. Gwynneth Humphreys Prize for Mentorship of Undergraduate Women in Mathematics was presented to Rhonda Hughes, Bryn Mawr College. Her nomination for this award included extraordinary testimonials from students she had encouraged, supported, inspired and challenged to succeed. Professor Hughes was President of AWM, 1987–89. The twenty-first annual Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman was presented to Sherry Gong of Harvard University. Sherry Gong is a senior who has already been involved in four different research projects and has authored or co-authored three papers. Congratulations to all on their achievements.

Looking ahead: In this fortieth anniversary year, AWM will continue to celebrate the progress of women in mathematical professions and to recognize individual achievements. At the same time, and in spite of increasing interest from the private sector and the business community in mathematics and mathematicians, the numbers of women entering graduate programs in mathematics (and in certain other mathematical sciences) are declining. To ensure that AWM's important role in supporting women in mathematics continues in this critical period, I ask for everyone's help as we focus on expanding our membership base. The SIAM reciprocity agreement should be the start of a campaign to find more members whose mathematical careers are in industry and business. The success of AWM events targeting middle and high school girls and women, such as the crowded activity booth at the USA Science and Engineering Festival and the grant funded SK Days, will help us attract the next generation of members to our organization. The Executive Committee's approval of the "Affiliate Membership Agreement" is the beginning of a global presence for AWM as well as an expansion of our membership community. Please remind your friends and colleagues about the significance of AWM and the impact of its activities for women in mathematics of all ages.

Jill Pipher

Jill Pipher
Providence, RI
January 24, 2011

ASSOCIATION FOR WOMEN IN MATHEMATICS

AWM ONLINE

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

Website
http://www.awm-math.org

AWM DEADLINES

NSF-AWM Travel Grants:
May 1, 2011 and October 1, 2011

AWM Louise Hay Award: April 30, 2011

AWM M. Gweneth Humphreys Award:
April 30, 2011

Sonia Kovalevsky High School and Middle School Mathematics Days: August 4, 2011

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Remembering Cora Sadosky

Introduction by Georgia Benkart

It was with deep sadness that AWM learned of the death of AWM's eleventh president Cora Sadosky on December 3, 2010. Cora was born in Buenos Aires, Argentina, on May 23, 1940. As a young child, she accompanied her parents while they pursued their mathematical studies in several European countries. Her mother Cora Ratto de Sadosky was a mathematician and political activist who founded La Junta de la Victoria (The Victory Union), a women's organization in Argentina of over 50,000 members devoted to furthering the anti-Nazi war effort. In 1945, as representative of her organization, Cora Ratto was a founding member of the International Women's Union at its first meeting in Paris. Cora's father Manuel Sadosky was one of Latin America's first computer scientists and later served as vice dean of the University of Buenos Aires.

Cora entered the university at the age of fifteen with the intention of majoring in physics but switched to mathematics after her first semester. During her undergraduate years, she had the great fortune to study with University of Chicago professors Alberto Calderón and Antoni Zygmund when they visited the University of Buenos Aires. She received her Licendiada degree in 1960, just two years after her mother received her Ph.D. in mathematics from the same university. In 1965, Cora earned her Ph.D. from the University of Chicago with Calderón as her adviser, but also supervised by Zygmund.

Following graduate school, Cora returned to Argentina and married Daniel Goldstein, an Argentinean physician. She joined the faculty of the University of Buenos Aires as an assistant professor of mathematics but, like many of her fellow faculty members, resigned in protest after a brutal assault by the police on the School of Sciences. After one semester of teaching at the Uruguay National University, she was appointed an assistant professor at Johns Hopkins University, where Daniel held a postdoctoral position.

When Cora and Daniel returned to Argentina in 1968, there were no academic positions available for Cora, and she was forced to abandon mathematics for several years. Their daughter Cora Sol was born in 1971. Cora's thirty-year research collaboration with Mischa Cotlar began two years later. Cotlar had been her mother's Ph.D. adviser and coauthored with Cora Ratto a highly acclaimed and widely used text *Introducción al Algebra: Nociones de Álgebra Lineal.* In

Judy Green, Cora Sadosky, Carol Wood, and Lenore Blum

1974, Cora, her husband, daughter, and parents, along with Mischa Cotlar and his wife Yanny, were forced to flee Argentina by social and political unrest. They settled in Caracas, Venezuela, where Cora joined the faculty of the Mathematics Department at Universidad Central de Venezuela. In her tribute to Cotlar ("On the life and work of Mischa Cotlar." *Rev. Un. Mat. Argentina* 49 (2008), no. 2, i–iv) Cora remarked, "In Caracas, Mischa and I began to collaborate in earnest and together established an ambitious research program. Mathematically, our Caracas exile was extraordinarily productive." During this time, the seven exiles enjoyed the great friendship and hospitality of Concepción Ballester, who had left Argentina in 1966 to accept a faculty position in the Mathematics Department at UCV. Ballester is the mother of University of New Mexico mathematician Cristina Pereyra, who is a contributor to this *Newsletter* tribute. In 1980, Cora accepted an appointment as an associate professor of mathematics at Howard University in Washington, D.C., and she remained on the faculty there until her retirement.

As President of AWM from 1993 to 1995, Cora Sadosky organized AWM's move to the University of Maryland. She was instrumental in the establishment of the Emmy Noether Lecture at the International Congress of Mathematicians, which was given for the first time in 1994. In "Affirmative Action: What it is and What Should it Be?" which appears in the volume *Complexities* by Bettye Anne Case and Anne Leggett, and which is based on an invited address to the Canadian Mathematical Society upon its fiftieth anniversary and on an earlier article in the *AWM Newsletter* 25(5) (1995), 22–24, Cora recounts the following episode:

> Years ago, a friendly colleague told me his department was considering hiring a junior person in our field and asked me for a top candidate. After some thought I

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> mentioned one of the best junior researchers in the field. His answer was, "But we already have a woman!" and mine to him, "So would you hire a man for the job? I assume your faculty already has at least one man!"

Throughout her career Cora Sadosky remained a strong advocate for women in mathematics and an active proponent of the greater participation of African Americans in mathematics. Twice she was elected to the Council of the American Mathematical Society, and she was a fellow of the American Association for Advancement of Science.

A reorganization of the AWM business meeting at the Joint Mathematics Meetings in New Orleans in January enabled us to devote a portion of that meeting to a remembrance of Cora. Daniel Szyld of Temple University spoke about her early life in Argentina and her exile in Uruguay and Venezuela. The text of his talk appears below. Abdul-Aziz Yakubu, chair of the Mathematics Department at Howard University, recalled Cora's contributions as a much-treasured colleague and friend. James Donaldson, a mathematics colleague of Cora's, now Dean of the College of Arts and Sciences at Howard, travelled to New Orleans just to attend the remembrance. We were very grateful for his presence. Richard Bourgin has kindly shared his remembrances of Cora, his colleague at Howard, and of his thirty-year friendship with Cora and Daniel. Cora influenced an entire generation of young Argentinean mathematicians. Their memories of Cora appear below and were captured so capably by Reuben Hersh at the ceremony.

Announcement of Cora's death precipitated a flurry of e-mails among AWM's Executive Committee members and past officers. Judy Green, AWM treasurer during Cora's presidential term, describes below their years of AWM service and their enduring friendship. During the business meeting remembrance, Carol Wood echoed words she had shared in an earlier e-mails: "One of Cora's strengths, which I saw firsthand repeatedly during her/my terms as AWM presidents, was her profound interest in the youngest members of our community. The young women sensed her warmth and caring, and were accordingly drawn to her. She came to this role honestly through her mother, who influenced the lives and careers of budding mathematicians in Argentina. It sometimes felt as if Cora wanted to adopt the Schafer Prize winners, every one! Cora was an original, and it was a privilege and a delight for me to get to know her. Jill [Mesirov] made me cry when she mentioned the get-together (with photo) of the three of us—my presidency was sandwiched between Jill's and Cora's, and their friendships alone would have made the work worthwhile."

Terri Edwards, Cora Sadosky, and Sylvia Bozeman

Cora Sadosky, Carol Wood, and Jill Mesirov

Linda Keen shared these thoughts: "I was the nominating committee member who convinced Cora to run. She always teased me about it saying that I hadn't told her how hard it really was. We got to work together during her presidency and became friends. Her spunk and her warmth were apparent to everyone she encountered."

Linda Rothschild wrote, "As I read all your kind messages about Cora, I felt that it was unfair that she should die so young. I have proudly displayed her graduate text on the bookshelf in my office for many years and have referred many people to it. Her gentle style has helped many young mathematicians understand the difficult (and sometimes obscure) points in the 'classical' texts on Fourier analysis. Cora was one of a kind, a unique person, and special to AWM."

At the remembrance I read a brief quote sent by Chandler Davis, a longtime supporter of AWM: "Cora Sadosky was a

force of nature. We valued her tempestuous laughter; her incisive wit; her total impatience with fools, phoneys, and bigots; and her total patience in service of mathematics and justice. We will miss her but draw strength from her memory."

We extend our sympathy to Daniel, to Cora Sol Goldstein and her husband Thomas Johnson, to Cora's beloved granddaughter Sasha, and to all of Cora's many friends.

Judy Green

Cora Sadosky was an amazing person and I am grateful to AWM for having put me in a position that allowed me to become aware of just how amazing she was. In 1992 Cora and I, both of whom lived in the Washington, D.C., area, became president-elect and treasurer of AWM, and the AWM office moved to the nearby University of Maryland. Since we both were very involved in the move, Cora and I became close friends and over the years, together with our husbands, we spent many happy times, including holidays and vacations, together.

In the course of our friendship of almost twenty years, I learned a lot about Cora and her life. She and her husband, Daniel Goldstein, were political exiles. Because of their protest of a repressive military dictatorship, they were forced to flee Argentina to save their lives, leaving all their possessions behind. Despite having sacrificed the possibility of a career in her native Argentina, Cora was able to maintain an enthusiasm for involving new, young, people in doing what she loved so much, mathematics. I think her own words rather than my own will better let you see this. Those of you who knew Cora, or read her AWM president's reports, will, I hope, find the following typical.

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Six AWM presidents at the MSRI twentieth-fifth anniversary celebration: Cora Sadosky, Lenore Blum, Bhama Srinivasan, Carol Wood, Georgia Benkart, and Cathy Kessel

CALL FOR NOMINATIONS

2012 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 Ph.D. 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 http://sites.google.com/site/awmmath/programs/humphreys-award); 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; 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 this award should be sent to awm@awm-math.org. Nominations must be received by **April 30, 2011** and will be kept active for three years at the request of the nominator. For more information, phone (703) 934-0163, email awm@awm-math.org or visit www.awm-math.org/humphreysaward.html.

Cora Sadosky *continued from page 7*

For the July/August 1994 *AWM Newsletter* (24 no 4: 5) she wrote:

> Strange as it may seem at the end of this long report, I started out with the impression I had very little to say. That impression stemmed from my doing something it may be unwise for a current AWM president to do: I plunged into mathematics head on for three full weeks. I came out of that stint dazed, vaguely guilty and deeply happy. It is very clear that I enjoy like crazy doing mathematics! … I did not prove the Riemann Conjecture. My work was modest, but it gave me so much pleasure to do it!

Six months later, at the end of her term as AWM president she wrote (25 no 1: 6–7):

> I had never met so many women mathematicians, so many math teachers, so many graduate and undergraduate math students. How wonderful it has been. The brightest of all: those precious, unique marvels that are the Schafer Prize awardees. And all the young people that participate in the workshops. And all the people at meetings, scientific conferences, and funding agencies, who collaborate and contribute in so many ways in paving the roads for women to travel into mathematics.
>
> To hear our multiple voices, to perceive our diversity, to see it in the flesh and in the papers—what a privilege.
>
> A couple of days ago I had to answer on our behalf a questionnaire on AWM's commitment to minority inclusion into mathematics. I was so proud to write that our work for the right of women to mathematics is intertwined with our total commitment to the struggle for right of all people to mathematics.
>
> As a woman, as a Latin American, as a mathematician, I am so proud of our struggle. Much has been gained, it is true, and we should be happy about it. What women mathematicians in the U.S. have conquered in our quest for equity is unmatched in the world. Still, so much remains to be done. Until all deserving people find opportunities that correspond to their abilities and their contributions.
>
> We must not tire. We cannot cease to care. To go to a classroom and be in touch with the bright young people striving to do mathematics is enough reminder of our duty to open doors for them.…
>
> Contrary to the despicable joke about women mathematicians, Sofia Kovaleskaia and Emmy Noether were both women and mathematicians. We cannot be like them by mere will. But we can empower others to be like them. And better still. Let's do it.

As I copied these words, I heard them in Cora's voice and knew that both her mathematics and the inspiration she gave to young mathematicians will live on. What I hope will also live on is that her work was done despite the sacrifices she and her husband made for their beliefs. What Cora wrote of her mentor and long-time collaborator, Mischa Cotlar, applies to her and Daniel as well:

> Mischa's experiences in a country corrupted by decades of authoritarianism made him a staunch defender of human rights and civil liberties… For Mischa, social and ethical issues were not marginal problems. (On the Life and Work of Mischa Cotlar, *Rev. Un. Mat. Argentina* 49 no. 2 (2008): iii).

Cora, too, remained committed to making the world a better place to live for all people. We will miss her.

Cora and Schafer winners

Richard Bourgin

Cora and I were friends and colleagues for 30 years. We briefly met before classes started in August 1980 at Howard University, but I didn't get much of an impression of her then. Some days later her mother (who had been visiting her in Washington, D.C., and was also a mathematician and human rights activist) died suddenly. Despite that personal tragedy, Cora entered department life fully from the start. During those first months she made a number of suggestions or substantive changes in our undergraduate and graduate program offerings, most of which were later implemented. In the faculty discussions concerning curricular matters she argued cogently and strongly for her positions. Cora believed that

Daniel Goldstein and Cora Sadosky. Photo © Azia Yakubu

often less is more: students (especially at the undergraduate level) should be challenged by studying core ideas without obfuscating embellishments, enhanced by a few well chosen, easily understood examples. While her dedication to educational matters at college and graduate levels was steadfast, at times her ideas met strong resistance from some of her colleagues. She handled conflict well, neither seeking nor shying away from it. Cora and I saw eye to eye on most professional matters (and on many others), but as often as not we found ourselves in the minority, sometimes a minority of two. On those occasions in which we did prevail, her ability to speak clearly and forcefully to the issue at hand was often a key factor. She also understood when not to speak, which was just as important.

The lingua franca of many of our colleagues in the department is French. Cora matched their preferred language, switching seamlessly between French and English, often in rapid succession. In fact, she was trilingual and could move in and out of Spanish equally as well. She was very warm, quick to pick up social cues, urbane, and always civil. At the same time, it was important to Cora that people take full responsibility for their actions and she didn't care for those who, in her view, did not. She could be intense, sometimes dominating conversations when she felt strongly about what was being discussed.

On the other hand, Cora had great empathy and compassion for people who she believed were being treated unfairly. She provided succor and counsel to several such individuals, sometimes for an extended period. Over the years Cora helped a number of graduate students and young faculty (at Howard and elsewhere), new to the United States, who were products of the French educational system. Several ran into difficulties due to the unspoken differences in perceptions and assumptions in these two systems. Cora understood both extremely well and was able to guide them through problems of all sorts—from visas to tenure. She worked with many graduate students, watching over their progress with great care, advising and helping them, including giving financial help in the form of travel money to conferences and summer support. Their continued loyalty to her is notable. In fact, she had a Ph.D. student in the 1980s who still considers her his second mother and refers to her that way sometimes when we talk.

Cora and I became friends soon after her arrival at Howard. We socialized both on and off campus, often with her husband Daniel. Once Cora helped me pick out something for my future wife. As I remember it she was at least as happy with the choice as I was. She had wonderful taste and for many years thereafter I consulted her when shopping for my wife. Dinner at Cora and Daniel's was always delightful. They had a tiny kitchen with Daniel its undisputed master. Every meal I had there was memorable—the food was magnificent, and the conversation good. Before she went off to college we were usually joined by their daughter Cora Sol, to whom they were devoted. Cora and Daniel had wide ranging interests and areas of expertise, including a deep understanding of the causes and effects of oppression. One day I made an egregious (though innocent) mistake which caused hard feelings among some of my graduate students. When I later described to Cora what I thought had happened, she invited me to her home where she and Daniel placed that event in a much broader context. I finally understood what had really occurred and what misunderstandings I needed to address. It was a very important moment for me.

From time to time Cora said in passing that she would never see eighty. I always thought she was joking. She was so solid, such a presence, I thought she would outlast us all. I join the long list of family, friends and colleagues who will always miss her.

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Cora Sadosky and Howard students. Photo © Aziz Yakubu

Daniel B. Szyld, Temple University

I was asked to say a few words about Cora's life in Buenos Aires. I am honored to be able to do so.

I would like to start by saying that Cora was a quintessential Buenos Aires intellectual: widely read and extremely well-informed. She understood politics, and how politics influences all areas of our life including education and research. She was an activist, and by that I mean a passionate socially responsible individual, caring about many issues, including of course opportunities for women and African-Americans in mathematics.

Many people are aware that there was a military government in Argentina during the 1976–1983 period, during which thousands of people were disappeared, tortured and killed. There was also an earlier military government from 1966 to 1973. In July 1966, barely a month after the Junta had taken power, the infamous "Noche de los bastones largos" (or night of the long batons) took place. Students and faculty had taken over several schools of the Universidad de Buenos Aires in protest against the military coup and their stated goal of reversing the 1918 law granting the University autonomy, or self-government. On that night, police assaulted the schools, hitting the occupiers with their long batons and destroying libraries and laboratories. Four hundred people were detained. Later, many professors were fired, and many more resigned in protest. Cora was a young assistant professor at that time, and she was one of those who resigned. I should note that her father and mother also resigned at that time. He was a vice-dean, and she was an associate professor.

After two years teaching in Montevideo and at Johns Hopkins, Cora was back in Buenos Aires, still under the dictatorship. She was unable to have an academic position, and she worked for a literary press for a while. Thus, for a few years she left mathematics. She told me once that one of the hardest things in her life was the process of going back to doing mathematics after that hiatus. But eventually back she was, starting her collaboration with Mischa Cotlar, a collaboration which would last over thirty years.

But then the second coup came in 1973, at a time when a paramilitary group was active, threatening those who they perceived as leftists. The group known as the "triple A" was the Argentine Anti-communist Alliance and had threatened Cora's family. If you watched the Argentine movie, *The Secret in Her Eyes,* which won last year's Oscar, you would recognize this climate of terror. Cora's parents, Manuel Sadosky and Cora Ratto de Sadosky, were well-known intellectuals and political activists. Cora Ratto had been a leader of the student union at the University in the 1930s. Later she created a women's organization devoted to helping the anti-Nazi war effort. The group eventually had fifty thousand members. She also co-edited a magazine called *Columna diez* (*Column Ten*) in the 1960s, devoted to the analysis of the impact of science and technology on international politics, and in particular it brought to light many issues related to the Vietnam War.

Cora Sadosky, her parents, her husband Daniel Goldstein, and daughter Cora Sol Goldstein, thus left Argentina again, this time for exile in Venezuela. Cotlar had taught in Venezuela before and had contacts there. Cotlar also went into exile at that time, and Cora and he worked together at the Universidad Central de Venezuela until Cora left Caracas for the U.S. I met her first at the Courant Institute in the late 1970s when she was at the Institute for Advanced Studies and would frequently visit Louis Niremberg at NYU. In 1980 she moved to Washington for her job at Howard University.

Cora's passion for social issues was only matched by her passion for mathematics and her love of her immediate family, including in recent years her granddaughter Sasha Malena. Her intellect was rich, her intensity was penetrating. She left a big mark on many of us. There is a little bit of Cora in many of us.

Give me your tired, your poor,
Your huddled masses yearning to breathe free…[1]

Cora Sadosky fought many battles and on many fronts. She had tremendous convictions against many injustices, gender inequality, and discrimination in our society. She often took the flag of the underrepresented, underserved, and underestimated. She chose to fight many of her battles from within the mathematical community, sometimes even risking her own mathematical career. She showed a lot of courage in this sense and never worried about the consequences for her. She was never afraid to express her views.

We are deeply saddened for her passing, but through her teachings we celebrate her life. To remember her we choose to focus on personal experiences that are not so well-known, particularly about her mentorship role and her unselfish devotion to help young mathematicians.[2]

[1] from *The New Colossus* by Emma Lazarus, the poem engraved on the Statue of Liberty

[2] A biographical sketch of Cora Sadosky and some of the historical events surrounding her life in different countries can be found for example at http://www.agnesscott.edu/lriddle/women/corasadosky.htm.

Cora always wanted to help students who were interested in following a research career in mathematics. In particular she interacted with many students in Venezuela and in Argentina. In her years in Caracas, Cora was very influential on a group of Venezuelan mathematicians, María Dolores Morán, Ramón Bruzual, Marisela Domínguez and Stefania Marcantognini, among others, and a Uruguayan mathematician, Rodrigo Arocena, who earned their Ph.D. degrees at the Universidad Central de Venezuela (UCV). She also aided others to pursue their doctorates in the US, including Gustavo Ponce who went to Courant Institute in 1978 and later Cristina Pereyra who went to Yale University in 1987. Likewise, during her sabbatical year in Buenos Aires in 1984–1985 she helped many Argentinian mathematicians come to the US for their doctoral degrees, among them, José Zero who went to the University of Pennsylvania, Estela Gavosto and Rodolfo Torres who went to Washington University, and Andrea Nahmod and Lucas Monzón who went to Yale University.

Over the last thirty years Cora conducted her professional life in the US, but she continued to be interested in mathematics in Argentina and Venezuela, where she often visited Mischa Cotlar. She was always trying to help colleagues and students in those countries in any way she could.

Three years ago Cora retired from Howard University where she had been a professor since 1980. With her husband, Daniel Goldstein, they moved to California to be closer to their daughter Cora Sol, son-in-law Tom, and beloved granddaughter Sasha.

We remember here particular moments and aspects of her mentorship.

Gustavo Ponce: In 1976, the Universidad Central de Venezuela started a graduate program in mathematics. At that time I was Cora's TA in a course on advanced calculus. She convinced me to take two more advanced courses, one with Mischa Cotlar in functional analysis and a seminar on harmonic analysis where Cora and Mischa alternated as lecturers. These courses shaped my view of mathematics, and the enthusiasm of both lecturers was as inspiring as the content. In retrospect, it is amazing that the topics were and still are so fruitful in problems related to my research interests, the field of nonlinear partial differential equations.

Cora suggested that I should pursue a career as a mathematician and recommended that I apply to the Courant Institute. She even made a providential call to Louis Nirenberg asking for an answer to my application: it turned out that it had been lost. This was just one of the many favors for which I feel so much in debt to her. She has been a systematic source of inspiration and academic advice and a model of intellectual integrity since those years at UCV.

Estela Gavosto and Rodolfo Torres: We met Cora at an annual meeting of the Unión Matemática Argentina in the mid '80s and often visited her then in Buenos Aires (we were living and studying in Rosario, another city in Argentina). From the first time we met she showed a lot of interest in getting to know us, mathematically and otherwise, and listening to what we wanted to do in our lives, so she could help us maximize our options. She never pushed us in any direction, but she was the first to suggest that we study in the US. We still remember her words when we told her that it would be impossible to get fellowships for both of us at the same university. Her almost irritated response was one we heard from her many times over the years and in many different circumstances: "... and who told you that? If you plan and do the things right you can do it." Her attitude remained the same over the years. She was always positive and enthusiastic. Nothing ever seemed impossible to her. With her help we went to do our Ph.D. degrees at Washington University in St. Louis. She strongly encouraged us to go there and told us it would be a great place for us and a good match for many of our interests. She was right. Not only did we find a great math graduate program but also a terrific atmosphere where we met fantastic teachers and other students who have become long lasting friends and mathematical colleagues. Several years later, we also thought it would be impossible to get postdoctoral positions at the same place or nearby ones, and then impossible to get tenure-track jobs at the same university. "And who told you that?" Cora repeated time and time again. She was there always ready to give advice and help us in what she could. She understood the "two-body problem" better than anybody, brought awareness about this common issue in our profession, and worked hard to help people in this situation. She was tireless in trying to achieve any goal she set her mind to and always infected us with her optimism.

Cora was also concerned with many other aspects of the academic life and she often told us to learn about them and encouraged us to be proactive. She taught us that for any change to take place people really need to get involved. We will always be very thankful for all her help, mentorship and guiding example.

Andrea Nahmod: Cora Sadosky was my professor and undergraduate advisor in Buenos Aires. She was also a friend. In 1984–1985, during the last year of my Licenciatura en Matemáticas (a degree similar to a Master of Science), several research mathematicians living abroad during the military

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regime returned to the Universidad de Buenos Aires for a year, to teach. Cora Sadosky was one of them. I knew of her before her arrival in Buenos Aires, where she spent her sabbatical year, through one of my uncles, Victor E. Nahmod. Victor, a biomedical researcher and physician, had been a clinical teacher of Daniel Goldstein, Cora's husband, at the Instituto de Investigaciones Medicas at the Universidad de Buenos Aires. Victor and Daniel then became scientific collaborators for many years. Of course, Victor knew Cora's parents and Mischa Cotlar. But I first met Cora at the campus of the Universidad de Buenos Aires at the beginning of Fall 1984 and like many others rushed to enroll in her topics course on "Singular Integral Operators and the Theory of A_p Weights." To say that this course opened up our heads would be an understatement. To this date, I marvel at the course notes and at how deep and useful was the mathematics she taught us back then. It was an easy decision to do my Licenciatura's thesis under her supervision. I recall going one morning to her office to discuss it and spending practically the whole day with her at the blackboard passionately explaining to me lots of "hard analysis." It was exhilarating. For my thesis, we settled on *Factorization of operators and the Nikishin-Stein theory.* Garcia Cuerva and Rubio de Francia were at that time writing their celebrated book, and Cora had drafts of some of its chapters. I recall leaving her office that day late in the afternoon with these, together with a pile of papers by Grothendieck, Maurey, Nikishin, Stein, Pisier and others. These were the first research papers I read, and I learned to do so with Cora.

When I decided later that year to pursue my Ph.D. in the US, Cora did much more than write letters of recommendation on my behalf. She truly guided me and helped me each step of the way. Alberto Calderón was also in Argentina at that time after his first retirement from the University of Chicago. He had been my professor in functional analysis, and thanks to Cora he was a member of my Licenciatura's thesis committee and after my defense wrote a letter of recommendation on my behalf. I graduated in November of 1985, and by then Cora had returned to the US. Since the earliest I could start graduate school in the US was

NSF-AWM Travel Grants for Women

Mathematics Travel Grants. Enabling women mathematicians to attend conferences in their fields 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.

Mathematics Education Travel Grants. There are a variety of reasons to encourage interaction between mathematicians and educational researchers. National reports recommend encouraging collaboration between mathematicians and researchers in education and related fields in order to improve the education of teachers and students. Communication between mathematicians and educational researchers is often poor and second-hand accounts of research in education can be misleading. Particularly relevant to the AWM is the fact that high-profile panels of mathematicians and educational researchers rarely include women mathematicians. The Mathematics Education Research Travel Grants provide full or partial support for travel and subsistence for

- mathematicians attending a research conference in mathematics education or related field.
- researchers in mathematics education or related field attending a mathematics conference.

Selection Procedure. All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians and mathematics education researchers appointed by the AWM. A maximum of $1500 for domestic travel and of $2000 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. These travel funds are provided by the Division of Mathematical Sciences (DMS) of the National Science Foundation. The conference or the applicant's research must be in an area supported by DMS. Applicants must be women holding a doctorate (or equivalent) and with a work address in the USA (or home address, in the case of unemployed applicants). Please see the website (http://www.awm-math.org/travelgrants.html) for further details and do not hesitate to contact Jennifer Lewis at 703-934-0163, ext. 213 for guidance.

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

September 1986, Cora worried about how to, mathematically, make the most out of the 10 months in between. She thought it was fundamental that I continue learning mathematics until I started my Ph.D. in the US. She suggested several topics and gave me her own copy of J.L. Journé's book, while asking C. Segovia to read it with me and make sure I learned the material inside out in the months ahead. Cora went out of her way also at a personal level, reassuring my parents I was not going far away alone, for she and Daniel would take care of me. And so they did. My first two weeks in the US and ever away from home were at her home in Washington, D.C. Cora later insisted I call her collect from New Haven often to her home in D.C. to tell her about my studies and life at Yale, to let her know I was alright. I visited Cora and stayed at her home many times afterwards, in Washington, D.C. and while she spent a year at MSRI in Berkeley during 1987–1988. She was always there for me as a mentor and as a friend throughout my graduate school years in New Haven.

Cora had an impeccable work ethic and very high standards; she was all about being the best you can be, as a mathematician and as a person. She inspired all of us to work harder and be better, each day, every day. Many of us would probably not be professional mathematicians had it not been for Cora. Our gratitude is infinite.

Cristina Pereyra: Corita, as we knew her, was a dear friend of my mother, Concepción Ballester, from the time before I was born; so were her parents Cora Ratto and Manuel. All of them, my mother included, were mathematicians who grew up in the golden era of mathematics in Argentina, the fifties and the sixties, a time when Laurent Schwartz and Antoni Zygmund would visit Buenos Aires because the US and Europe were interested in identifying and helping talented budding mathematicians. In one of those visits Zygmund recruited Alberto Calderón and Mischa Cotlar to the University of Chicago. In turn, Calderón and Zygmund would become Corita's advisors at Chicago, where she received her Ph.D. in 1965.

In 1964, my mother, my older brother and me joined my father in the US where he was getting his Ph.D. We never returned to Argentina; by 1967 many of my parents' former colleagues in Buenos Aires had been fired or had resigned from the university for political reasons. Instead we landed in Caracas, where my parents became professors at the Universidad Central de Venezuela. Things in Argentina only got worse, and in 1974, when Corita, her husband Daniel, young daughter Cora Sol and her parents came as political refugees to Venezuela, we all lived in the same building (San Bartolomé; in Caracas every building has a name instead of a number). We were in the 12th floor of one tower, Cora Ratto and Manuel on the first floor of the same tower, Corita, Daniel and Cora Sol in the 11th floor of the other tower, with magnificent views to El Avila, the mountain that separates Caracas from the Caribbean Sea. This was no coincidence, my mother must have arranged things for her dear friends.

Mischa Cotlar also arrived in Venezuela, escaping the asphyxiating political climate in Argentina. Before leaving Buenos Aires Corita had started her lifelong collaboration with Mischa, which spanned more than 30 years, with more than 30 influential joint papers in harmonic and functional analysis and in operator theory. After Corita left Venezuela in the early '80s, she kept visiting once or twice a year to work with Mischa; during those visits she would stay with my mother. Cora and Mischa would work like crazy for many hours each day, but Cora would return to my mother's house to relax and to enjoy her company.

I was too young to have Cora as my teacher in Caracas, when in turn I decided that after all mathematics was my call. However Cora was instrumental in helping me choose which graduate schools to apply to, and her support was fundamental to enter Yale. I remember before arriving in New Haven in 1987 spending a week in Washington warming up with Cora and Daniel, as Andrea Nahmod had done the year before, and as Lucas Monzón did the next year when he also came. The rest is history: Cora became part of my mathematical family, or more precisely, I became part of hers. Cora always was there through my professional career to offer support and advice.

In October 2007, Cora helped me and Wilfredo Urbina organize an afternoon in honor of Mischa Cotlar who had died that January. She came to Albuquerque and stayed with my mother together with María Dolores (Loló) Moran and Stefania Marcantognini who had come from Venezuela. We saw Cora last in April 2009 when she came to Albuquerque and stayed again with my mother for five days for the 12th New Mexico Analysis Seminar; she looked well. It was a shock to learn of her passing, hard to accept that such a vital woman and life-long dear friend had left us.

Wilfredo Urbina: I met Cora at the Universidad Central de Venezuela where I was doing my undergraduate studies in mathematics. Later I was her TA in an advanced calculus course and then in 1978, when I started my master's degree, I had the privilege to take her course Introduction to Harmonic Analysis. The notes of that course were the base of her famous book *Interpolation of Operators and Singular Integrals* published by Marcel Dekker a year later. It was a very tough course for me but I must say that it had a lasting influence on

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my career. Also I attended the analysis seminar that Mischa and Cora organized and that is still running today at UCV. Later I went to get my Ph.D. at the University of Minnesota, in principle to study probability, but I met Gene Fabes so I went back to analysis, and then back to the things that I had learned from Mischa and Cora in Caracas.

Cora was a real enthusiast of mathematics, willing to help anyone who showed serious interest in studying it. Her solidarity and support for so many mathematicians from Latin America is very well known. Cora's help in the organization of an international conference to celebrate Mischa's 80th birthday in Caracas in January 1994 was invaluable, as was her help and input when we organized an afternoon in honor of Mischa Cotlar in Albuquerque in October 2007. When I came back to the States in 2004, due to the political situation in Venezuela, Cora was an important reference for me, and I got her support in the painful process of looking for jobs. We met several times in Albuquerque (in October 2007 and April 2009) and in Zacatecas during the AMS-SMM Joint Meeting in July 2007; on every occasion we had a wonderful time together, enjoying good mathematics and good food.

We all met each other through Cora. At a special year in harmonic analysis at MSRI in 1987–1988, she introduced Andrea, Gustavo, Wilfredo, Estela and Rodolfo to each other, and we had a great time together. Cora jump-started the beautiful friendships and professional relations we have kept among us over the years. Every time we talked to Cora, she asked us what we were up to in mathematics, and she wanted details! She also wanted to know how what we were working on, fitted into the big picture of mathematics. She was very critical about mathematics. She once told us that Antoni Zygmund taught her to judge mathematicians by their theorems, that when someone spoke highly of a mathematician, Zygmund would always like to see the theorems the mathematician had proved. She did the same. If you said to her that you like mathematician X she would ask you to explain his/her mathematics. Cora was a person who always expressed her views in a very direct way. But she never let disagreements she might have with a mathematics colleague on other issues affect her appreciation of his/her mathematics. When it came to mathematics, Cora indeed judged mathematicians by their theorems.

Cora was a vibrant, strong minded and outspoken woman, who fought all her life for human rights, who helped uncountable young mathematicians without expecting anything in return. Cora was a phenomenal mathematician, in a time when it was not easy for women, and she championed this cause all her life, becoming president of the AWM in the early '90s.

Cora taught all of us by example how to mentor, how to help younger mathematicians pursue their dreams. Cora touched our lives in many ways but she never wanted to be thanked for her good deeds; she believed instead in paying it forward to others. Helping students reach their potential may be the best way to honor her memory. We will deeply miss her.

Estela A. Gavosto (University of Kansas, Lawrence)
Andrea R. Nahmod (University of Massachusetts, Amherst)
María Cristina Pereyra (University of New Mexico, Albuquerque)
Gustavo Ponce (University of California, Santa Barbara)
Rodolfo H. Torres (University of Kansas, Lawrence)
Wilfredo Urbina (Roosevelt University, Chicago)

CALL FOR NOMINATIONS:

2012 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 this award should be sent to awm@awm-math.org. Nominations must be received by **April 30, 2011** and will be kept active for three years. For more information, phone (703) 934-0163, email awm@awm-math.org or visit www.awm-math.org.

Mazzucato Wins Michler Prize

AWM and Cornell University are pleased to announce that Anna Mazzucato, Pennsylvania State University, will receive the 2011–12 Ruth I. Michler Memorial Prize.

The Michler Prize grants a mid-career woman in academia a residential fellowship in the Cornell University mathematics department without teaching obligations. This pioneering venture was established through a very generous donation from the Michler family and the efforts of many people at AWM and Cornell.

Anna Mazzucato was selected to receive the Michler Prize because of her wide range of mathematical talents. In 1994, she earned her Laurea (BS/MS) in Mathematical Physics at Universitá degli Studi di Milano. Mazzucato received her Ph.D. in Mathematics at the University of North Carolina, Chapel Hill, in 2000. She studied the Navier-Stokes and other nonlinear evolution equations under the direction of Michael Taylor.

In 2000, Mazzucato was a Clay Mathematics Institute Liftoff Mathematician. She has been a Gibbs Instructor at Yale University, a postdoctoral fellow at the Mathematical Sciences Research Institute and a postdoctoral associate at the Institute for Mathematics and its Applications. She has been at the Pennsylvania State University since 2003 where she is currently an Associate Professor in the Department of Mathematics.

Mazzucato's research involves the analysis of partial differential equations, particularly those arising from continuum mechanics of deformable solids and incompressible fluids, and associated inverse problems. Her work is partially funded by the National Science Foundation.

Anna Mazzucato

At Cornell, Mazzucato plans to continue her work on the analysis of weak solutions of the Navier-Stokes and Euler equations, related questions on transport by irregular vector fields, and the analysis of boundary value/interface problems for elliptic systems in singular domains with applications to the finite element method. She is looking forward to her time at Cornell and her potential collaborations with Timothy Healey, Camil Muscalu, Alfred Schatz, Robert Strichartz and Lars Wahlbin.

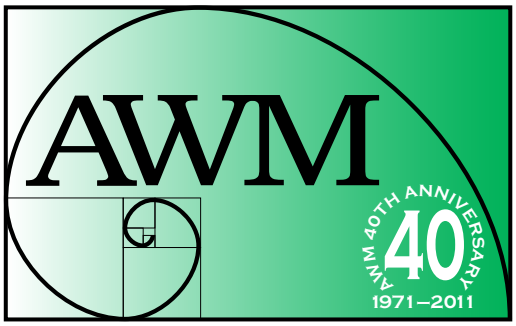
Ruth Michler's parents Gerhard and Waltraud Michler of Essen, Germany established the memorial prize with the Association for Women in Mathematics because Ruth was deeply committed to its mission of supporting women mathematicians. Cornell University was chosen as the host institution because of its distinctive research atmosphere and because Ithaca was Ruth's birthplace. At the time of her death, Ruth was in Boston as an NSF visiting scholar at Northeastern University. A recently promoted associate professor of mathematics at the University of North Texas, she was killed on November 1, 2000 at the age of 33 in a tragic accident, cutting short the career of an excellent mathematician.

NSF Program Directors

The Division of Mathematical Sciences (DMS), within the Directorate for Mathematical and Physical Sciences, National Science Foundation, announces a nationwide search for mathematical sciences professionals to fill Program Director positions. Program Directors bear the primary responsibility for carrying out the Agency's overall mission. To discharge this responsibility requires not only knowledge in the appropriate disciplines, but also a commitment to high standards, a considerable breadth of interest and receptivity to new ideas, a strong sense of fairness, good judgment, and a high degree of personal integrity.

Applicants should have a Ph.D. or equivalent training in a field of the mathematical sciences, broad knowledge of one of the relevant disciplinary areas of the DMS, knowledge of the general scientific community, skill in written communication and preparation of technical reports, ability to communicate orally, and several years of successful independent research. Some administrative experience and experience working in teams are desirable. Skills in multidisciplinary research are highly desirable.

See http://www.nsf.gov/pubs/2011/mps11001/ mps11001.jsp for further information. Review of applications has already begun.



ASSOCIATION FOR WOMEN IN MATHEMATICS

CELEBRATE!

40 Years and Counting: 2011 is AWM's 40th Anniversary Year!

We hope you and your colleagues will join us for these AWM anniversary events:

AWM 40th Anniversary Embedded Meeting at ICIAM 2011, Vancouver, BC, July 18–22, 2011

- Organizers: Gerda de Vries, University of Alberta; Maeve L. McCarthy, Murray State University; and Joyce R. McLaughlin, Rensselaer Polytechnic Institute

- Minisymposium: "Women at the Forefront of Applied Mathematics"

  Speakers: Leah Edelstein-Keshet, University of British Columbia; Joyce R. McLaughlin, Rensselaer Polytechnic Institute; Jane Wang, Cornell University; Margaret H. Wright, Courant Institute of Mathematical Sciences, New York University

- Panel: "Institutional, Professional and Research Leadership"

  Panelists: Nalini Joshi, University of Sydney, Australia; Barbara Keyfitz, Ohio State University; Rachel Kuske, University of British Columbia; Beatrice Pelloni, University of Reading, UK; Moderator: Joyce R. McLaughlin, Rensselaer Polytechnic Institute

Other AWM Events at ICIAM 2011

- AWM-SIAM Sonia Kovalevsky Lecture
  Susanne Brenner, Louisiana State University

- AWM Workshop for Graduate Students and Recent Ph.D.'s

- AWM Workshop Career Minisymposium and Panel: "Opportunities Beyond Academia"

  Panelists: Kristyn Maschhoff, Cray, Inc.; Cynthia A. Phillips, Sandia National Laboratories; Marsha Berger, Courant Institute of Mathematical Sciences, New York University

40 Years and Counting: AWM's Celebration of Women in Mathematics, Brown University, September 17–18, 2011

And be sure to watch for other special anniversary events and further details on the AWM website, www.awm-math.org.

AWM at the New Orleans JMM

AWM NOETHER LECTURE

The 2011 Noether Lecture, "Orthogonal Representations: From Groups to Hopf Algebras," was delivered by M. Susan Montgomery, University of Southern California. She was introduced by Brooke Shipley, University of Illinois at Chicago.

Abstract: In recent years Hopf algebras have had applications in mathematical physics, in particular conformal field theory, and in other parts of mathematics, such as knot theory and operator algebras. In this talk we discuss some recent progress in the representation theory of Hopf algebras which extends classical work in group theory.

Frobenius and Schur showed in 1906 that one can decide whether or not a complex representation V of a finite group G is real by computing the value of

$$\nu(V) = \frac{1}{|G|} \sum_g \chi(g^2),$$

where χ is the character of V. $\nu(V)$, the indicator of V, takes only three values, 0, 1, or -1. The representation is real precisely when $\nu(V) = +1$; equivalently V has a symmetric non-degenerate C-bilinear G-invariant form. Thus the elements of G act as orthogonal transformations on V.

In the last decade, Frobenius-Schur indicators have been extended to finite dimensional Hopf algebras and beyond, such as to quasi-Hopf algebras and fusion categories; they are invariants of the monoidal (tensor) category of representations. Moreover there are applications of indicators to Hopf algebras whose statements do not use indicators, such as results about classification or about the exponent of the Hopf algebra.

Citation for M. Susan Montgomery

M. Susan Montgomery received her B.A. from the University of Michigan and her Ph.D. in Mathematics from the University of Chicago. She has been on the faculty of the University of Southern California since 1970. Montgomery has also spent sabbaticals at the Hebrew University of Jerusalem, the University of Leeds, the University of Munich, the Mittag-Leffler Institute, and MSRI.

In 1984 she was a John S. Guggenheim Memorial Foundation Fellow, and in 1987, received a Raubenheimer Outstanding Faculty Award from USC.

Susan Montgomery, USC, and Jean Taylor, Courant/NYU, emerita Rutgers

She has given an AMS Invited Address at the Joint Mathematics Meetings in 1984 and at a sectional meeting in 2005. In 2009, she gave a plenary lecture at the summer meeting of the Canadian Math Society. She has also given numerous lectures at meetings and universities around the world.

Montgomery was the Principal Lecturer at the Conference Board of the Mathematical Sciences conference in 1992 on Hopf algebras, and her CBMS monograph *Hopf Algebras and Their Actions on Rings* is widely cited.

She served as an editor for the *Journal of Algebra* for over 20 years. She was also an editor for the AMS *Proceedings, AMS Surveys and Monographs,* and *Advances in Math* and currently is on the editorial boards of *Algebras and Representation Theory* and of *Algebra and Number Theory.*

She has been very active in the American Mathematical Society, serving on the Board of Trustees for 10 years. She has also served on the Council, the Policy Committee on Publications, and most recently on the Nominating Committee. She was also a member of the Board on Mathematical Sciences (BMS), serving one year on the Executive Committee.

Montgomery has been active in the Association for Women in Mathematics for 35 years. She was a member of the Executive Committee from 1975–1976. She served on the Nominating Committee in 1982 (as chair) and again in 2009. She was on the committee to select the Noether Lecturer from 1990–1992. At USC, she has served on the Provost's Committee on Women in Science and Engineering since 2000. However, she regards her main contribution to women in mathematics to be doing mathematics with her women coauthors and Ph.D. students.

Montgomery's early research was on group action on rings, but since the 1980s, she has worked primarily in Hopf algebras, their representations, and their actions on other algebras.

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AWM PRIZES

Louise Hay Award for Contributions to Mathematics Education

AWM established the Louise Hay Award for Contributions to Mathematics Education to recognize outstanding achievements in any area of mathematics education. While Louise Hay was widely recognized for her contributions to mathematical logic and for her strong leadership as Head of the Department of Mathematics, Statistics, and Computer Science at the University of Illinois at Chicago, her devotion to students and her lifelong commitment to nurturing the talent of young women and men secure her reputation as a consummate educator. 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.

Citation for Patricia Campbell

In recognition of her leadership and contributions in research, teaching, and service to mathematics education, the Association for Women in Mathematics (AWM) presents the twenty-first annual Louise Hay Award for Contributions to Mathematics Education to Professor Patricia Campbell of the Department of Curriculum and Instruction at the University of Maryland. Throughout her career, Dr. Campbell has engaged and challenged her students, university colleagues, professional colleagues, school administrators, and classroom teachers to advance the teaching of mathematics.

Patricia Campbell

As a leader in the field of mathematics education, Campbell is esteemed especially for her contributions to the teaching and learning of mathematics in urban settings and for working in schools that serve predominately minority populations from low-income backgrounds.

Campbell has worked in schools to improve student learning for two decades. From 1989–1997, she led Project IMPACT, a professional development effort that demonstrated the feasibility of school-wide mathematics reform, supplementing summer professional development with in-school mathematics specialists in order to increase achievement in schools with predominately minority populations. In 1996, after hearing about Campbell's work at an NSF Conference, Dr. Andrea Bowden, Supervisor of Science, Mathematics and Health Education for the Baltimore City School System, invited Campbell to collaborate in developing the MARS Project (Mathematics: Application and Reasoning Skills). This systemic effort addressed a complex set of problems besetting Baltimore's public schools, targeting poor student achievement through system-wide teacher development in mathematics. With Campbell as the Principal Investigator, the MARS Project was awarded a five million dollar grant through the NSF Local Systemic Initiative program.

In her letter of support for Campbell's nomination for the Louise Hay award, Bowden wrote, "The MARS program began as a professional development effort, but quickly grew to encompass a complete revamping of elementary mathematics. This included policy changes, reallocation of fiscal resources, development of K–5 curriculum and assessment aligned to state and national standards, implementation of an effective instructional model, training of mathematics instructional support teachers based in schools, and the adoption of a textbook and resources that supported MARS.… Between 1996 and 2001, 3355 teachers from 105 elementary schools participated in quality professional development of 10 to 100 hours with 1508 teachers completing over 60 hours. Nearly 68,000 K–5 students in Baltimore City Schools used the new and engaging MARS elementary curriculum. Between 1998 and 2001, Baltimore City elementary students showed dramatic increases in scores in all grades on CTBS [California Test of Basic Skills] with students in classes of the most highly trained teachers exhibiting the most gain…. For the first time in nearly 20 years, urban children in Baltimore City were at or near national norms in mathematics! … It is difficult to capture the magnitude and to do justice to Dr. Campbell's incredible devotion of time, energy, expertise, and commitment."

Through Campbell's current research, she continues to pursue her efforts to ensure quality education for all children. As part of the research component of The Mid-Atlantic Center for Mathematics Teaching and Learning, Campbell leads a research project that is poised to assess the impact of Grade 4–8 teachers' knowledge of mathematics and mathematics pedagogy on student achievement. Her current work in the area of mathematics leadership at the elementary level builds on her prior efforts, and her evaluation of the work and role of elementary mathematics specialists will contribute significantly to the research in this area.

Campbell is active in national organizations serving the profession and speaks widely to disseminate the findings of her research. In the letter from Francis (Skip) Fennell, Past President of the National Council of Teachers of Mathematics (NCTM), Professor Fennell highlighted some of Campbell's activities on the national level. "She was elected to and served as a member of the NCTM's Board of Directors from 1996–1999, she directed the Council's Research Catalyst Conference and served as a member of the Editorial Panel for the 2007 Yearbook entitled *The Learning of Mathematics.* She has also served on the Council's task force on Teaching and Learning Mathematics in Poor Communities. Dr. Campbell served as Co-Chair of the Executive Board of the American Educational Research Association's Special Interest Group on Research in Mathematics Education. In this role she was instrumental in the planning and staging of NCTM's Research Presession."

Campbell's service to public and national organizations has not diminished her service to the university. She is an active and highly respected member of her department, the College of Education, and the university. As a teacher, mentor, and colleague, Campbell has gained the appreciation of her students and colleagues for her commitment, skill and energy for the cause of mathematics education and for challenging them to think more deeply about the tough issues they must confront. She has served in various capacities on both the College Park Campus Senate and the College of Education Senate. She understands the importance of senior faculty mentoring new colleagues and participating in the deliberations about curriculum, programs, and policy. Over the course of her career Campbell has been the advisor for 11 students who have completed the doctorate and 49 students who have completed a masters degree. Currently she serves as an advisor to 6 doctoral students and 5 masters students.

It is a very great pleasure to honor Dr. Patricia Campbell with the 2011 Louise Hay Award for her career achievements—as a teacher, researcher, and in service to the mathematics education community—in furthering the cause of mathematics education on behalf of *all* elementary school students.

Response from Campbell

I must admit that I was more than a little surprised when I learned that I was to receive the Louise Hay Award from the Association for Women in Mathematics. I am especially honored to accept this recognition from an association committed to enhancing equity in opportunity and treatment in the mathematical sciences at all levels. As a high school and undergraduate student, I never experienced bias because of my gender. Instead I benefited from skilled and thoughtful teachers who patiently answered all the questions that a naïve student from a town of 122 people could ask and who introduced me to this intriguing field where a miserable memory for names and dates did not matter because you could always connect ideas and figure things out. And, while I was aware that there were many more males than females in my graduate mathematics and statistics courses, by then I had decided that that did not matter either. The key was simply to work hard and to keep asking lots of questions.

While in graduate school, I found that what intrigued me most were not questions addressing the content and nature of mathematics, but rather mathematics teaching and the interplay between mathematics teaching and learning. As my research in mathematics education progressed, I became more conscious of the fact that I was one of the lucky ones. My rural upbringing had not hindered me, in part because two amazing high school teachers had prepared me for college mathematics and in part because my parents were adamant that their children would go to college, even though it meant that any future grandchildren would probably not be raised near them. But too many students are not lucky. They endure persistent inequities in schooling and in support, as evidenced by the disparities in educational outcomes that plague students in urban and poorly resourced communities. And so, over time, I joined with colleagues to seek funding to pursue a simple-to-state idea: What would happen if we applied what we think we know from research addressing the teaching and learning of mathematics to the reality of public schooling, investigating the impact of systemic efforts to stimulate and support change with existing teachers in urban settings?

While I have written and spoken about this work, it is not only mine. Project IMPACT benefited from the insightful and persistent efforts of Tom Rowan, Honi Bamberger, Brenda Hammond, Josie Robles, Anna Suarez, and Patricia Cartland Noble. The MARS Project would have collapsed multiple times if not for the skill and knowledge of Andrea Bowden, Melva Greene, Marilyn Strutchens, Sheila Evans, Joyce Wheeler,

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Jeannette Davis, and Florencetine Jasmin. These individuals and too many others to name worked tirelessly to intercede with administrators and to forge collaborations with teachers in order to advance a single intent: expecting and supporting children's efforts to make sense of mathematics. I have been fortunate to learn from and to work with these dedicated educators.

While these efforts to impact student achievement were successful, they also highlighted how little we apply of what we do know and how much we do not know. We do not understand what aspects of teachers' mathematical content knowledge really matter when it comes to advancing student understanding and achievement, as well as what knowledge of mathematical pedagogy a teacher needs to draw on when teaching. We know very little about how to support pre-service and in-service teachers' efforts to develop accessible and usable knowledge about mathematics and mathematics teaching and learning, knowledge teachers call upon when they teach. This work is underway, and much of it involves mathematics education researchers who are collaborating with mathematicians and with school district mathematics supervisors.

On behalf of those whose passion for mathematics fuels their collaboration across their differing disciplinary perspectives, as well as those who accomplished so much in Project IMPACT and the MARS Project, I gratefully accept this award with much appreciation.

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

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 Ph.D. 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.

Georgia Benkart and Rhonda Hughes

Citation for Rhonda Hughes

In recognition of her outstanding mentoring of undergraduate women in mathematics, the Association for Women in Mathematics (AWM) presents the first M. Gweneth Humphreys Award to Rhonda J. Hughes, Helen Herrmann Professor of Mathematics at Bryn Mawr College.

Hughes' nomination letters describe success stories arising from her efforts to develop students' mathematical skills and self-confidence. She is a dedicated and motivating teacher at all undergraduate levels, from basic calculus to advanced PDEs. She ably identifies research topics that match the students' interests and abilities.

The selection committee marveled at the daring of Hughes' approach. It is relatively easy—worthwhile but easy—to encourage an undergraduate arriving at college with a solid record of accomplishment in mathematics and with eagerness to learn more. However, our committee took particular note of the risk-taking involved, to say nothing of the hard work, in Hughes' encouragement of students whose potential had previously gone unnoticed, even by the students themselves. The results bear witness to the strength of Hughes' belief in her students, to the force of her personality, and to the contagious quality of her enthusiasm for mathematics.

Particularly stunning are the accounts of students who began college convinced they were "bad at mathematics," but who were charmed by Hughes into taking calculus with her: the calculus course goes at least okay, so they take more mathematics, still not convinced of their own abilities but warming to the subject. The students end up majoring in mathematics, doing a research project, and proceeding to graduate programs and careers in mathematics. The overall numbers are striking, and

the mathematics program at Bryn Mawr has flourished in the time Hughes has been there, with large increases in majors.

Leslie Cheng, now Hughes' colleague and departmental chair, gives a striking account of her own odyssey under Hughes' guidance. Cheng writes: "I was told (in high school) that I would be successful in life as long as I avoided math at all costs." Fast-forward several years. Cheng writes, "She continues to mentor, support, encourage, inspire, and challenge me, and I am still learning from her."

Hughes has brought her knowledge concerning the encouragement of young women in mathematics to the national level. She has served AWM in many ways, including as president in 1987–89. She has also served often as organizer, panelist and speaker in activities aimed at increasing the participation of women and minorities in mathematics.

After having identified the challenges that some young women face, especially minority women, Hughes began programs to help negotiate crucial transitions, the first one being from undergraduate course work to the math major. In 1998, she and Professor Sylvia Bozeman of Spelman College created the on-going EDGE program, which addresses with marked success the transition from college to graduate school.

The AWM is pleased to honor Rhonda Hughes for her prodigious achievements and unwavering efforts over decades in the mentoring of undergraduate women in mathematics, in particular in attracting them into the study of mathematics and in guiding them through crucial transitions in their mathematical careers.

Response from Hughes

I am deeply honored to be the first recipient of the M. Gweneth Humphreys Award for Mentoring given by the AWM. Dr. Humphreys received a Ph.D. from the University of Chicago at a time when women mathematicians were far more rare than they are now. Her work at Randolph-Macon Woman's College inspired generations of students, and I am humbled to be awarded this honor in her name. Moreover, AWM has been a vital part of my mathematical life since my early years in graduate school, and it is particularly gratifying to be honored by the organization that has inspired, informed, and supported my career in mathematics.

When I began to teach, I knew I wanted to make students feel good about themselves; I wanted to convince students that they could succeed in mathematics. Bryn Mawr College provided me with the ideal environment to do this, and I am delighted and proud of all those students who chose to pursue the field that has given me so much joy. I wish to thank AWM and the Selection Committee for recognizing me with this great honor.

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

In 1990, the Executive Committee of the Association for Women in Mathematics established the annual Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman. The prize is named for Alice T. Schafer (1915–2009), one of the founders of AWM and its second president, who contributed greatly to women in mathematics throughout her career. The criteria for selection include, but are not limited to, the quality of the nominees' performance in mathematics courses and special programs, an exhibition of real interest in mathematics, the ability to do independent work, and (if applicable) performance in mathematical competitions.

AWM is pleased to present the twentieth annual Alice T. Schafer Prize to **Sherry Gong**, Harvard University. **Ruthi Hortsch**, University of Michigan, is recognized as runner-up, while **Jie Geng**, UC Berkeley; **Yinghui Wang**, MIT; and **Fan Wei**, MIT, receive honorable mention.

Sherry Gong

Citation for Sherry Gong

Sherry Gong is a senior at Harvard University where her performance in her classes has been outstanding. She began with Harvard's famous problem solving class, in which she achieved a score above 100, and since her sophomore year has taken numerous graduate mathematics courses, earning As in all of them. Whether in a class or independently mastering background for a research project, her recommenders were universally amazed by her ability to master sophisticated mathematics rapidly.

Gong has been involved in four different research projects and is the author or co-author of three papers. She spent summer 2008 at the Duluth REU researching cyclotomic

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polynomials; her paper was published in the *Journal of Number Theory.* In 2009 she worked with a group at MIT that did research on computing the dimension of the space of characters of the Lie algebra of Hamiltonian vector fields on a symplectic vector space; their work will be published shortly. She and an economist have published a paper in *Integers* on congruence conditions characterizing primes. Most recently she did research on periodic cyclic cohomology of group algebras of torsion free groups at Vanderbilt.

As a high school student, Gong medaled repeatedly in the International Mathematical Olympiad, winning a gold medal in 2007. After entering college, she returned to the Mathematical Olympiad Summer Program as a grader and also served as a grader for the Mathematical Olympiad of Central America and the Caribbean. In 2010 Gong served as one of the coaches for the USA team for the China Girls' Mathematical Olympiad. Five of the eight girls on the team won gold medals, and the head coach describes Gong as "a young lady with a great heart, thoughtful and gentle" who pushed the students with "acute mathematical insights and inspiring personality."

Gong's mentors describe a remarkable young mathematician, exceptionally talented and original, with one commenting she is already "comparable to some of the best mathematical minds I know."

Response from Gong

I am deeply honored to be selected to receive the Alice T. Schafer Prize. I would like to thank the AWM for inspiring and encouraging women in mathematics. I am grateful to many people who have brought me to this stage mathematically. Thank you to Zuming Feng, for teaching, guiding and encouraging me throughout my high school years. To Dennis Gaitsgory, who has been an amazing teacher and adviser. To Guoliang Yu and Pavel Etingof for guiding me in undergraduate research and sharing with me their penetrating mathematical insights, and in particular, to Joe Gallian who introduced me to the world of mathematical research through his wonderful REU program. I would like to thank the Harvard and MIT mathematics departments for the wisdom and guidance they have shared with me.

Citation for Ruthi Hortsch

Ruthi Hortsch is a senior mathematics major at the University of Michigan, where she has excelled in undergraduate courses and is currently taking second-year graduate mathematics courses. She is a mathematical leader who has served as a peer-tutor and as a course assistant, worked with gifted high school students, and organized a problem solving class.

Ruthi Hortsch and Georgia Benkart

Hortsch has been involved in three successful mathematics research projects (in addition to doing research in physics). She worked with a group at Michigan on vertex algebras, and their work has recently appeared in the *Journal of Algebra.* She is in the process of preparing for publication her results from a project in which she solved the problem of describing the de Rham cohomology of a particular exceptional curve as a representation for the automorphism group of that curve. During summer 2010, she solved a challenging problem "initially intended as a possible Ph.D. thesis topic" which drew upon knowledge of number theory, group theory, algebraic geometry, algebraic topology, and complex analysis.

Her recommenders describe her as having "a talent that is already strong," someone who "keeps getting better and better," and predict that she "has an exceptional and brilliant career ahead of her."

Response from Hortsch

I am honored to be the runner-up for the Schafer Prize. Thank you to the AWM for this distinction, and for their hard work and dedication to advancing the work of women in mathematics. My deepest thanks to my family, whose love and encouragement has always supported me. Many people, particularly at the University of Michigan, have provided me with support and while I cannot name them all, my thanks goes to them. I am particularly grateful to Stephen DeBacker, who instilled in me a passion for mathematics and whose advice and encouragement has been integral these past few years. Thank you to Mike Zieve, whose infectious energy

has made working on research with him a joy and whose mathematical insights have given me a deeper understanding, to Bryden Cais, whose advice and guidance have shaped my interests, and Djordje Milicevic, whose teaching and care have encouraged and inspired me.

Citation for Jie Geng

Jie Geng is a senior double majoring in mathematics and economics at UC Berkeley. Her coursework is very impressive: she aced both her undergraduate and several graduate mathematics classes, showing broad mathematical interests and abilities. Her recommenders describe her as "terrific" and "the best undergraduate I have taught in over two decades at Berkeley and Stanford."

In addition to her outstanding academic performance, Geng has devoted a lot of energy during her undergraduate studies to teaching mathematics, both in China, her country of origin, and at UC Berkeley. She has also been involved in mathematical research, as part of the RIPS (Research in Industrial Projects for Students) program at the Institute for Pure and Applied Mathematics, where she studied the effects of carbon emission penalties on the use of different fuels.

Response from Geng

I am honored to be selected as an honorable mention for the Schafer Prize. Thank you AWM for supporting women in mathematics. I would like to thank all the professors and other people who have brought me to my mathematical maturity. I would like to thank Professor Pitman and Professor Adhikari for noticing me, bringing me confidence and giving me advice for my pursuit in probability and statistics, and for their dedication to undergraduate teaching. To Mike Leong for introducing me to the possibility of doing statistics and training me to become an experienced math and stats tutor. To RIPS at UCLA for a wonderful summer research program, especially to Hai Qian for being a responsible and helpful academic mentor. To Baoping Liu, Yuhao Huang, Theo Johnson-Freyd and Michaeel Kazi for being extremely approachable TAs and my role models as young mathematicians. Further thanks to the Berkeley mathematics department and statistics department for their incredible range and depth of course offering, guidance and encouragement.

Citation for Yinghui Wang

Yinghui Wang is a senior mathematics and economics major at Massachusetts Institute of Technology who has excelled in a wide variety of undergraduate and graduate mathematics classes. Wang's recommenders uniformly praised her motivation, mathematical maturity, clear exposition, independence, and creativity.

Wang has been active in three separate research projects though the SPUR and UROP programs at MIT. Wang's results

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Many Schafer winners, past and present:
Row 1: Jacqueline Kohles Anderson, Kate Ponto, Karen Lange, Camilla Barnes Smith, Sherry Gong, Hannah Alpert; Row 2: Josephine Yu, Rebecca Field, Suzanne Sindi, Melanie Matchett Wood, Alexandra Ovetsky Fradkin, Patricia Hersh, Debra Boutin, Fan Wei, Ruthi Hortsch, Kay Kirkpatrick; Row 3: Elizabeth Wilmer, Susan Goldstine, Cheryl Grood, Linda Green, Zvezdelina Stankova, Ioana Dumitriu

from one of those projects, involving the "perfect solution" to a complex analysis problem with important applications in differential equations, has already appeared in the *IMA Journal of Numerical Analysis*. Last summer, Wang participated in the SMALL REU at Williams College, where her work generalizing theorems by Zeckendorff and Lekkerkerker for Fibonacci numbers has led to three articles that are expected to appear in strong journals. Moreover, her presentation of these results at Ohio State's Young Mathematicians Conference last August was recognized with the top prize, and she has been invited to speak on this work at an AMS sectional meeting.

Response from Wang

I am very honored to be an Honorable Mention of the Alice T. Schafer Prize. Thanks to the AWM for this award and for their invaluable effort in encouragement and recognition of women in mathematics. I would like to thank all teachers who have guided, helped and nurtured me in mathematics, especially my advisor Ju-Lee Kim, David Jerison, Steven J. Miller, Richard Stanley and Gilbert Strang. I am also very grateful to the MIT mathematics department for providing an inspiring and wonderful environment in which I could pursue my love in mathematics. Finally, I would like to thank my parents for their constant and unconditional support to me.

Sonia Kovalevsky High School and Middle School Mathematics Days

Through a grant from the National Science Foundation (NSF), the Association for Women in Mathematics expects to support Sonia Kovalevsky High School and Middle School Mathematics Days at colleges and universities throughout the country. Sonia Kovalevsky Days have been organized by AWM and institutions around the country since 1985, when AWM sponsored a symposium on Sonia Kovalevsky. They consist of a program of workshops, talks, and problem-solving competitions for female high school or middle school students and their teachers, both women and men. The purposes are to encourage young women to continue their study of mathematics, to assist them with the sometimes difficult transitions between middle school and high school mathematics and between high school and college mathematics, to assist the teachers of women mathematics students, and to encourage colleges and universities to develop more extensive cooperation with middle schools and high schools in their area.

AWM awards grants ranging on average from $1500 to $2200 each ($3000 maximum) to universities and colleges. Historically Black Colleges and Universities are particularly encouraged to apply. Programs targeted toward inner city or rural schools are especially welcome.

Applications, not to exceed six pages, should include:

- a cover letter including the proposed date of the SK Day, expected number of attendees (with breakdown of ethnic background, if known), grade level the program is aimed toward (e.g., 9th and 10th grade only), total amount requested, and organizer(s) contact information;
- plans for activities, including specific speakers to the extent known;
- qualifications of the person(s) to be in charge;
- plans for recruitment, including the securing of diversity among participants;
- detailed budget (Please itemize all direct costs in budget, e.g., food, room rental, advertising, copying, supplies, student giveaways. Honoraria for speakers should be reasonable and should not, in total, exceed 20% of the overall budget. Stipends and personnel costs are not permitted for organizers. The grant does not permit reimbursement for indirect costs or fringe benefits.);
- local resources in support of the project, if any; and
- tentative follow-up and evaluation plans.

Organizers should send announcements including date and location of their SK Days to the AWM web editor for inclusion on the AWM website. If funded, a report of the event along with receipts (originals or copies) for reimbursement must be submitted to AWM within 30 days of the event date or by June 1, whichever comes first. Reimbursements will be made in one disbursement; no funds may be disbursed prior to the event date. The annual fall deadline is August 4, with a potential additional selection cycle with a deadline of February 4.

AWM anticipates awarding 12 to 20 grants for Fall 2011 and Spring 2012. Applications must be received by **August 4, 2011**. Decisions on funding will be made in late August.

Applications materials shall be submitted online. See the AWM website at www.awm-math.org. for application instructions. Applications by mail or fax will not be accepted. For further information, call 703-934-0163, email awm@awm-math.org, or visit www.awm-math.org/kovalevsky.html.

Citation for Fan Wei

Fan Wei is a junior mathematics major at Massachusetts Institute of Technology. In addition to her outstanding coursework and successful mathematical competition career, she is already an accomplished researcher, having worked on a number of projects. Wei's recommenders describe her as a very quick learner, "very impressive," with a "bright future as a research mathematician."

One of Wei's research projects relates to the weak Bruhat order and separable permutations and was presented at the Permutation Patterns conference, where it was "enthusiastically received" and "stirred up a lot of interest." The subsequent paper will be submitted to the proceedings of the conference. Wei's other project, on the splitting fields of generalized Rikuna polynomials, was completed while she was a participant in the SMALL REU at Williams College. Wei is described as having been "an essential part" of the group of students in charge of the project, which, once the writing is completed, will be submitted for publication.

Fan Wei and Georgia Benkart

Response from Wei

I am very honored and grateful to receive the certificate of Honorable Mention for the Alice T. Schafer Prize. It is a great encouragement for me and I would like to thank AWM for providing this award and including me as part of its honor. I owe thanks to my mom and dad for their constant love, understanding, and tolerance. My home has always been my motivation and will always be. I also want to express my thankfulness to Professor Stanley for his nomination and being such a nice advisor and teacher. He guided my first math research and gave me my first impression of the math community. I want to thank Williams College SMALL REU, my advisor Professor Pacelli, and my teammates for giving me such a great summer experience. I am also grateful to MIT math department, especially Professor Artin, Professor Edelman, David Jordan, Professor Kumar, and also Professor Brams at New York University for their great help, patience, and support. I also thank all my friends for giving me a second family. I am lucky to know all of them.

AWM Workshop

Cammey Cole Manning, AWM Workshop Director

The 2011 Joint Mathematics Meetings were held January 6–9, 2011 in New Orleans, Louisiana. The AWM Workshop for Women Graduate Students and Recent Ph.D.'s took place on January 8 and 9, 2011 and was organized by **Elizabeth Allman**, University of Alaska Fairbanks; **Alissa Crans**, Loyola Marymount University; **Rachelle DeCoste**, Wheaton College; and **Susan William**s, University of South Alabama. This dedicated group of women was an energetic committee who had many great ideas and brought a variety of perspectives to the conversations during the planning of the workshop.

The workshop dinner was held on Saturday evening. This was the first opportunity for graduate and post-doctoral participants to meet with their mentors. The dinner began with informal remarks by AWM President **Georgia Benkart**. Participants, mentors, committee members, and special guests enjoyed lively conversation throughout the evening.

The workshop continued on Sunday with talks by recent Ph.D.'s, poster presentations by graduate students, and a career panel. The focus of the career panel was "Starting a Career in Mathematics." The panelists included **Sarah Frick**, Furman University; **Pierre Gremaud**, North Carolina State University and the Statistical and Applied Mathematical Sciences Institute; **Christine Stevens**, St. Louis University; and **Tad White**, National Security Agency. **Susan Williams**, University of South Alabama, served as moderator. The panelists brought unique perspectives and shared words of wisdom based on their own experiences. The audience clearly appreciated the panelists'

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candor in talking about a wide variety of topics including writing teaching statements and negotiating salaries, finding ways to make one more prepared for jobs in industry, and balancing one's personal life and career.

The highlight of the workshop was the presentations by workshop participants. Eight recent Ph.D.'s presented diverse research talks during two sessions, one in the morning and one in the afternoon. The presenters and the titles of their talks were:

Elizabeth Dan-Cohen, Jacobs University Bremen
Tensor Category of Integrable Modules over sl_∞, so_∞, *and* sp_∞

Christina L. Eubanks-Turner, University of Louisiana at Lafayette
Prime Ideals in Birational Extensions of Two-Dimensional Power Series Rings

Jana Gevertz, The College of New Jersey
Predicting Tumor Response to Vascular-Targeting Therapies Using a Mathematical Model

Amanda C. Hager, USMA West Point
Freeness of Arrangement Bundles

Nsoki Mavinga, University of Rochester, NY
Steklov-Neumann Eigenproblems and Nonlinear Elliptic Equations with Nonlinear Boundary Conditions

Elizabeth M. Niese, Virginia Tech
Divisibility Properties and Recursions for the Hilbert Series of Macdonald Polynomials

Eva M. Strawbridge, University of Chicago
Compatibility of Slender Body Theory and Surface Traction

Bei Zhang, Northwestern University
Fourier-Jacobi Coefficients of Eisenstein Series on Unitary Group and the Application in Iwasawa Main Conjecture

Twelve graduate students presented posters during an extremely well attended poster session. The presenters and their poster titles were:

Jodi A. Black, Emory University
Zero Cycles of Degree One on Principal Homogeneous Spaces

Catherine Andrea Buell, North Carolina State University
Conjugacy Classes of σ*-stable Maximal k-split Tori*

Patricia R. Cahn, Dartmouth College
A Generalization of Turaev's Virtual String Cobracket and the Homotopy Rank of a Virtual String

Aslihan Demirkaya, University of Kansas
Long Time Behavior of Radially Symmetric Solutions of the Higher Dimensional Kuramoto-Sivashinsky Equation

Rosona M. Eldred, University of Illinois at Urbana-Champaign
Calculus of Functors

Emily J. Evans, Worcester Polytechnic Institute
A Finite Element Approach to C^β *Extension Using Prefractals*

Lisa Melanson, Northwestern University
Modeling of Intracranial Aneurysms Using Immersed Boundary Methods

Maria Carmen Reguera, Georgia Institute of Technology
A Counterexample Related to Muckenhoupt-Wheeden Conjecture

Emily Riehl, University of Chicago
Algebraic Model Structures

Paige E. Rinker, Dartmouth College
Cluster Analysis of Data on Finite Groups and Homogeneous Spaces

Kiana L. Ross, University of Washington
Characterizations of Projective Spaces and Smooth Quadric Hypersurfaces via $\Lambda^p T_X$

Emily E. Witt, University of Michigan
An Example of Computing Local Cohomology

This workshop was made possible by funding from the National Security Agency. A special thanks to **Georgia Benkart**, **Vrushali Bokil**, **Katie Gurski**, **Ruth Haas**, **Trisha Hersh**, **Suzanne Lenhart**, **Magnhild Lien**, **Maura Mast**, **Jenny McNulty**, **Jill Pipher**, **Jenny Quinn**, **Chris Stevens**, **Sylvia Wiegand**, and **Carol Woo**d for serving as mentors. These women shared their varied experiences and provided invaluable guidance.

More next issue

Citations and responses for prizes and awards given by other societies at the JMM will appear next time, as will more photos from AWM events.

Carol Wood, Wesleyan University, at the banquet

Above: Fun at the banquet

Left: Michler-Mentoring Symposium: Michler speakers Patricia Hersh, North Carolina State University; Rebecca Goldin, George Mason University; and Irina Mitrea, IMA associate director

Hay Minisymposium speakers: Deborah Hughes Hallett, University of Arizona and Harvard Kennedy School, and Susanna Epp, DePaul University

AWM's 40th at the JMM

Hay Minisymposium panelists: Phyllis Chinn, Humboldt State University, and Annie Selden, New Mexico State University

Schafer Minisymposium speakers: Kay Kirkpatrick, Courant Institute and Paris IX Dauphine; Ioana Dimutriu, University of Washington; Kate Ponto, University of Kentucky; Melanie Matchett Wood, AIM and Stanford University; and Mary Gray, American University

Mentors Count! panelists: Front row: moderator Marie Vitulli, University of Oregon; Trachette Jackson, University of Michigan; Ruth Haas, Smith College; and Rhonda Hughes, Bryn Mawr College. Back row: Allan Donsig, University of Nebraska-Lincoln and Moira McDermott, Syracuse University

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, greenwaldsj@appstate.edu *and Alice Silverberg, University of California, Irvine,* asilverb@math.uci.edu.

Sabermetrics and *The Simpsons*

Andrew Nestler, Santa Monica College

A recent episode of the television comedy series *The Simpsons* was centered around sabermetrics, the statistical analysis of baseball. The name comes from the acronym SABR, which stands for the Society for American Baseball Research.

In the episode "MoneyBart" (Season 22, Episode 3, Original Airdate October 10, 2010), young Lisa Simpson agrees to fill in as coach for her older brother Bart's Little League baseball team. She discovers that one of her scientist heroes, Professor Frink, and some of her father's former college classmates are passionate about sabermetrics. As the professor explains, "The field was developed by statistician Bill James," who replies in a cameo appearance, "I made baseball as much fun as doing your taxes!" They loan Lisa a large number of textbooks with titles including *Moneyball* and *Schrödinger's Bat,* and one with Euler's equation as its title.

Lisa becomes obsessed with using statistical results to coach her team toward victory.

Lisa: Bart, this guy has walked the last two batters, and if he walks you, we win the game. Don't swing at anything.
Bart: But I'm on a hot streak!
Lisa: Hot streaks are a statistical illusion!
Bart: I wish you were a statistical illusion!
Lisa: Well there's a 97% chance I'm not, so do what I say!

Later, Lisa cuts Bart from the team for disobeying her coaching based on sabermetrics.

Ralph: When is Bart coming back?
Lisa: He's not. He thought he was better than the laws of probability. Anyone else think he's better than the laws of probability?

[One player raises his hand.]

Lisa: Well, you're not!

When a player is unable to play for health reasons, Bart returns and is determined to play his favorite sport based on instinct. Lisa gets caught up in the excitement of his outrageous attempt to steal home. Though the team loses the championship game, she confides in her brother, "You made me love baseball, not as a collection of numbers, but as an unpredictable, passionate game, beaten in excitement only by every other sport."

The episode features several staples of *Simpsons* episodes, in particular Lisa's proclivity for logic and quantitative reasoning, and comedy based around math and science but not at the expense of those who study those subjects. For more information on math and *The Simpsons*, visit SimpsonsMath.com.

The title of the episode refers to the title of Michael M. Lewis's book, *Moneyball: The Art of Winning an Unfair Game* (W.W. Norton & Co. Inc., 2003), which details the efforts of the Oakland Athletics' general manager Billy Beane to use a sabermetric approach to create a competitive team. A feature film based on the book and starring Brad Pitt is filming now for a 2011 release.

BOOK REVIEW

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

Delusions of Gender: How Our Minds, Society, and Neurosexism Create Difference, Cordelia Fine, W.W. Norton & Company, New York, 2010, ISBN 978-0-393-06838-2

Reviewer: Judy Roitman, University of Kansas

A Facebook friend recently linked in his status to an article in sciencedaily.com (December 22, 2010) in which primatologists discovered that some little girl chimpanzees nurtured sticks as if they were babies—they even built little nests for them—while little boy chimpanzees didn't, thus proving that sex differences in behavior are innate. "Interesting, no?" my friend wrote. "Interesting? No." I responded.[1] In the same week another friend told me about a compelling radio report in which a transsexual taking testosterone suddenly became interested in trucks, and another taking estrogen

[1] If you read the sciencedaily.com article, you'll understand my skepticism; the details did not support the conclusion, as even the authors semi-admitted.

suddenly became interested in makeup, thus proving that gender preferences are hormonally based.

Oy.

Why do people take such pleasure in biological justifications of gender stereotypes? And why is their automatic reaction when you point out the rather large leaps in their "reasoning" to say: "Oh, you feminists just don't want to accept facts"?

So it has been a great pleasure, this winter vacation, to read Cordelia Fine's *Delusions of Gender: How Our Minds, Society, and Neurosexism Create Difference,* which carefully and with great precision demolishes the nonsense that pervades the popular and technical literature pretending to be scientific fact, exposing it as truthiness which is nowhere close to truth.

To set some context, consider the industry—that's the only word for it—that has grown up pushing purported sex differences in public policy. One example, would it were the only one, is the Gurian Institute, which Fine refers to a number of times in her book. The Gurian Institute churns out workshops and books on the difference between male and female brains, among adults, children, and even infants, promotes child-rearing, educational, and business strategies which differentiate by gender, and enrolls schools and entire school systems in their project (such schools are known as Gurian schools). Fine deftly exposes the shoddy scholarship (rather, "scholarship") behind all this, but I had to wade through 14.5 glowing pages of Google search before I found a link questioning the Gurian party line (from women's e-news). This kind of gender essentialism comes in neurological dress-up, making it even more insidious than hormone-based models—for what is our mind if not a neurological substrate? Or so the contemporary myth goes. Fine calls this conflation of mind and brain applied to gender "neurosexism."

She has four major weapons in her deconstruction of gender differences: careful explication of social psychology experiments in which small manipulations of the environment change gender performance (thus showing the subtle and remarkably flexible ways in which gender plays out in our lives); painstaking reading of the scientific literature, in which we discover that works cited for certain findings in fact do not support what they were cited as supporting; careful examination of the influences small children (including babies) deal with as they construct gender—it is our blindness to this construction and its cultural constraints that leads to the failure of imagination that makes us think that what is must forever be; and history.

A book as rich and carefully constructed as *Delusions of Gender,* which discusses hundreds of studies, cannot be fairly summarized in a relatively short review, so I will give an example of each of the major techniques used.

Careful explication of social psychology studies: One of the most robust findings about gender difference is male superiority in mental rotation. The subject is shown a drawing of a three-dimensional shape and asked to match it to a rotated version (multiple choice with distractors). Mental rotation superiority is often cited as one reason for male superiority in science and mathematics (although, as Fine points out, the chain of reasoning here is suspect). Men always do much better on average in mental rotation than women. Or do they?

In 1994, Sharps, Price, and Williams told one group of participants that mental rotation is associated with success on male tasks; as usual, the men did much better than the women. But another group of participants was told that mental rotation is associated with female tasks: needlepoint, sewing, flower arrangement…. Suddenly the men did not do so well. In case you're not convinced by this study, Fine gives you three other studies of the effect of social context on mental rotation. (And, to give an idea of the density of this book, she does this in less than two pages.)

As Fine puts it: "Pick a gender difference, any difference. Now watch very closely as—*poof!*—it's gone." (p. 26)

Painstaking reading of the scientific literature: Remember the chimpanzees with which I began this review? Citation of what non-human non-adult primates do in play is, apparently, a bulwark of the belief that, as Fine quotes (p. 125), "biologically based sex differences in activity preferences significantly influence sex differences in childhood object choice" and provide "another nail in the coffin for the idea that similar preferences in human children are entirely due to culture."

How can one argue with primate studies? Fine doesn't argue, instead she looks carefully at them. Here we describe just one. In 2002, Hines and Alexander studied the play of vervet monkeys. They gave them two boy toys, two girl toys, and two neutral toys. Male vervets divided their time equally, but female vervets spent more than a third of their time with the girl toys. Impressive, yes? But, wait, one of the girl toys was a pan. To quote Fine, "Although it is true that primatologists regularly uncover hitherto unknown skills in our nonhuman cousins, the art of heated cuisine is not yet one of them." Just exactly who is gendering the toys here? Furthermore, if instead of gendering toys in human terms you categorize them as animate vs. inanimate, there were no differences between the sexes.

Those coffin nails are starting to look rusty.

Careful examination of gender construction: It starts early.

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In 2004 a McGill research team analyzed hundreds of birth announcements. Parents of boys expressed pride. Parents of girls expressed happiness. Furthermore, a 2002 study by Jost and colleagues found that, although 51% of all births were boys, 53% of all birth announcements were about boys. These babies have barely left the hospital and already their world is gendered. No wonder small children expend so much mental energy on gender.

History: Take the notion that pink is for girls. This is so embedded in North American and Australian society that the Australian child psychologist Dr. Michael Carr-Gregg "sagely" (Fine's word) explains it as follows: "The reason why girls like pink is that their brains are structured completely differently to [sic] boys." (p. 208). But, as Fine points out, before the end of the nineteenth century small boys and girls both wore white dresses. Color was encouraged in the early twentieth century, as well as pants for boys, to help small children learn gender distinctions (and she notes how interesting it is that people thought this had to be learned), but the colors were pink for boys and blue for girls. It wasn't until the mid-twentieth century that we began to solidify the process which led to any contemporary North American or Australian toddler knowing that girls are pink and purple, boys are blue and camouflage. Or, as my granddaughter patiently explained to me at three, when I asked her if she would lend her Dora blanket to a hypothetical boy who needed one at naptime: boys use Spiderman blankets, not Dora ones. Why? Because boys do not use Dora blankets (said slowly to me as one speaks slowly to someone one believes to be an idiot). One wonders which structure in the female brain has Dora-receptors.

Her discussion of neurosexism is worth special mention. Fine is a psychologist whose previous book is *A Mind of Its Own: How Your Brain Distorts and Deceives.* This positions her well to note the leaps of faith inherent in neurological explanations of human behavior, and the facts they ignore, as follows: 1. Contrary to what you may have heard, mind is not brain. 2. Different physical substrates can be used by different people to accomplish the same tasks. (She doesn't mention hydrocephalics in this context, so I will: some children whose brains were physically damaged by hydrocephalus in the days before shunts led reasonably normal lives, even though they had hardly any frontal lobes at all.) 3. When we see parts of the brain lighting up onscreen, those aren't the parts that are active, they are the parts that are *more* active; we have no idea which parts of the brain are doing what. 4. Brains are shaped by environment as well as genes. 5. And, finally, as one might expect by now, she looks carefully at the data and finds that, in fact, just as mental rotation is not a robust gender marker, neither is the corpus callosum, or the left or right hemisphere, or….

One last example, to give you the flavor of her writing:

> Some researchers recently scanned an Atlantic salmon while showing it emotionally charged photographs. The salmon—which, by the way, "was not alive at the time of scanning"—was "asked to determine what emotion the individual in the photo must have been experiencing." Using standard statistical procedures, they found significant brain activity in one small region of the dead fish's brain while it performed the empathizing task, compared with brain activity during a "rest." The researchers conclude not that this particular region of the brain is involved in postmortem piscine empathizing, but that the kind of statistical thresholds commonly used in neuroimaging studies … are inadequate because they allow too many spurious results through the net. (p. 150)

Did I mention that Fine is, as the product description on Amazon has it, "wickedly funny"?

When I first heard about this book it was clear, even before reading it, that this is the book we've been waiting for. Now, having read it, I can assure you that it is even better than I thought it could be.

But reading Fine's author's note I had the sobering remembrance that this is not the first book we've been waiting for. Ruth Bleier's *Science and Gender* came out in 1984, Anne Fausto-Sterling's *The Myths of Gender* in 1985. They might not have been as encyclopedic or written with as much panache, but the outlines of the story are there, and have been for at least 25 years. Bleier's and Fausto-Sterling's pioneering work had a huge effect on many people, including me, but, apparently, not on enough of us. I wish a better fate for *Delusions of Gender.* As I write this, its Amazon rank is 28,305 (down from about 17,000 a few days ago). That's not good enough. Buy it. Get your friends, your colleagues, your family members to buy it, or buy it for them. Get it to your local school board. Make it required reading, not only in gender studies, but in freshman sociology, biology, education and business courses. Get it on the *New York Times* bestseller list. Too late for Oprah…

Our culture is saturated with sloppy self-reinforcing non-thinking about gender. It will take a monumental effort to get it off those tracks. *Delusions of Gender* is an excellent place to start.

EDUCATION COLUMN

FUN with Mu Alpha Theta!

by Suzanne Lenhart, University of Tennessee with contributions from Betsy Yanik, Emporia State University; Kay Weiss, Executive Director of Mu Alpha Theta; and Kelly Moran, National Institute for Mathematical and Biological Synthesis

Looking for some FUN activities that you can share with high school students? Check out Mu Alpha Theta! Mu Alpha Theta (MAΘ) is the National Mathematics Honor Society for High School and Two-Year College students, with 84,000 student members in the USA and eleven foreign countries. The organization was formed in 1957 by a subcommittee of the National Council of Teachers of Mathematics. Since that time, MAΘ has grown to 1800 school chapters. Through MAΘ, students can participate in a series of national tests taken right at their school or in competitions at the local, state, regional and national conventions. Mu Alpha Theta and its Educational Foundation also award scholarships, grants to students wishing to do mathematical research or attend a college math program during the summer, and cash awards to outstanding students, teachers, and clubs.

I first experienced a MAΘ state competition when my son was a freshman at Bearden High School in Knoxville. He, another student, and I decided to try out the state competition, not knowing what to expect. It turned out to be a really enjoyable day. There were math competitions of various types, volleyball, poster making, and short talks given by students. The convention was held at Carter High School in Strawberry Plains, Tennessee, and the theme was "strawberry pi"—they even served strawberry pie for dessert! I discovered we could do well in the competition with two smart students and we had FUN. I was hooked on MAΘ.

In 2002, I started working one afternoon a week with the Math Club at Bearden High School and continue to this day. We do enrichment activities, play games, and participate in competitions, many of which are sponsored free by MAΘ.

In 2004, we went to the National Convention in Huntsville, AL with four students. You would have thought that you were at a sports competition with all the enthusiasm and cheering. Teams had cool t-shirts with unusual math slogans like "Kiss me, I'm a math geek," or "Ask me, I'm Asian" (implying that Asian students know the answers). About 600 students and 100 sponsors attended and about one-third of the student participants were female. During the four days, students participated in about 10 different competitions, some as individuals and others in teams. Students took tests in very specific topics, like "Complex Numbers" and "Logs, Radicals and Exponents." In the Chalk Talks event, a student was assigned a topic beforehand and gave a seven-minute talk using a board and one note card on topics like "Mathematics and Sports" or "Mathematics and the Weather." The 2005 National Convention in Hawaii also included amazing field trips, one almost every day, including swimming at Waikiki Beach and a final award ceremony at a luau. And at all these events creative themes seem to be the norm—for example, the state convention in 2004 at McMinn County High School, partially sponsored by Mayfield's Dairy, was themed "Cows, Cowculus, and Cowculators."

In our state, MAΘ competitions are small with about 80 students and 12 teachers. But in Florida, MAΘ is BIG with over 1000 students attending their state convention. The state also runs many regional competitions during the year. While the national MAΘ divides its member schools into four regions and Region 4 has over 22,000 members, half of those members are in Florida. You might ask "What's up with Florida and all their interest?"

Maybe you should check out MAΘ chapters and competitions in your area. We need more participants to challenge the Florida schools at the National Convention!

Check out www.mualphatheta.org.

AWM Childcare Statement

prepared by Evelyn Sander on behalf of the Policy and Advocacy committee; approved by the Executive Committee, November 2010

It is often critical to parents with young children that onsite childcare be made available at technical meetings, but there is little uniformity in the practice of providing childcare. A list of principles supported by the Association for Women in Mathematics follows.

Large society-sponsored national meetings

Onsite childcare should be available for the children of participants, and a room should be provided for the use of nursing mothers. Information about these facilities should be prominently displayed along with other details of the conference.

Reasonable prices are necessary to make it feasible for parents to use these services; we applaud the American Mathematical Society and the Mathematical Association of

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AWM Childcare Statement *continued from page 31*

America for subsidizing costs at the annual Joint Mathematical Meetings and encourage other societies to do the same.

Small conferences

At small meetings, it is not always possible to provide onsite childcare. The local organizers should be prepared to provide details of local childcare options for parents who need this service. The fact that child care information is available on request should be communicated to all potential conference participants well in advance of the conference.

AWM Conflict of Interest Policy

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

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

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

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

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

Opportunities

Project NExT

Project NExT (New Experiences in Teaching) is a professional development program for new and recent Ph.D.'s in the mathematical sciences (including pure and applied mathematics, statistics, operations research, and mathematics education). It addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors. In 2011, about sixty faculty members will be selected to participate in a workshop preceding the Mathematical Association of America (MAA) 2011 summer meeting, in activities during the summer MAA meetings in 2011 and 2012, in the Joint Mathematical Meetings in January 2012, and in an electronic discussion network. Faculty for whom the 2011–2012 academic year will be the first or second year of full-time teaching (post-Ph.D.) at the college or university level are invited to apply to become Project NExT Fellows.

Applications for the 2011–2012 Fellowship year are due **April 15, 2011**. For more information, see the Project NExT website, http://archives.math.utk.edu/projnext/, or contact Aparna Higgins, Director, at Aparna.Higgins@notes.udayton.edu. Project NExT is a program of the MAA.

A list of Project NExT sponsors, further information about Project NExT, and links to application instructions and the online application form, can be found on the Project NExT web site http://archives.math.utk.edu/projnext/.

Music and the Sciences

The symposium "Music and the Sciences: Synergies among musical arts, math, science, and engineering" will be held at the AAAS Pacific Division Annual Meeting at the University of San Diego, June 12–16, 2011. The purpose of this symposium is to bring people artificially separated by modern disciplines together to re-explore the common ground shared by math, science, engineering, and music. Presentations that explore various synergies among music, math, science, and engineering are solicited. It is expected that a wide variety of topics will be covered including music composition, neurological perception of music, and acoustics.

In particular, we invite presenters with interests in the math and music field. Please e-mail avelo@sandiego.edu by

April 19, 2011 if you would like to give a presentation. Also, feel free to forward this announcement to anyone who might be interested. Please note that presenters are welcome from all over the US and are not limited to the West Coast only.

For further information, please feel free to contact Ani Velo, Department of Mathematics and Computer Science University of San Diego, 5998 Alcala Park, San Diego, CA 92110, e-mail: avelo@sandiego.edu; phone: (619) 260-7846; fax: (619) 260-4293.

NSF-CBMS Regional Research Conferences

The National Science Foundation has funded six NSF-CBMS Regional Research Conferences to be held in 2011. These conferences are intended to stimulate interest and activity in mathematical research. Each five day conference features a distinguished lecturer who delivers ten lectures on a topic of important current research in one sharply focused area of the mathematical sciences.

Support for about 30 participants is provided and the conference organizer invites both established researchers and interested newcomers, including postdoctoral fellows and graduate students, to attend.

Information about the series and guidelines for submitting proposals for future conferences are found in the Call for Proposals for the 2012 NSF-CBMS Regional Research Conferences. Proposals are due **April 15, 2011**. See www.cbmsweb.org for further information.

The six conferences to be held in 2011 are listed below.

Deformation Theory of Algebras and Modules
Martin Markl, lecturer
May 16–20 at North Carolina State University
Kailash C. Misra and Thomas J. Lada, organizers
www4.ncsu.edu/~lada/nsfcbms.htm

Ergodic Methods in the Theory of Fractals
Harry Furstenberg, lecturer
June 18–23 at Kent State University
Dmitry Ryabogin and Artem Zvavitch, organizer
www.kent.edu/math/events/conferences/cbms2011.cfm

Global Harmonic Analysis
Steve Zelditch, lecturer
June 20–24 at the University of Kentucky
Peter Hislop and Peter Perry, organizers
www.math.uky.edu/cbms

Radial Basis Functions: Mathematical Developments and Applications
Bengt Fornberg and Natasha Flyer, lecturers
June 20–24 at the University of Massachusetts Dartmouth
Saeja Kim, Sigal Gottlieb, Alfa Heryudono, and Cheng Wang, organizers
www.umassdcomputing.org/conference/rbfcbms2011

Mathematical Epidemiology with Applications
Carlos Castillo-Chavez and Fred Brauer, lecturers
July 25–29 at East Tennessee State University
Ariel Cintron-Arias and Anant P. Godbole, organizers
www.etsu.edu/cas/math/cbms.aspx

3-Manifolds, Artin Groups, and Cubical Geometry
Daniel T. Wise, lecturer
August 1–5 at City University of New York
Jason Behrstock, organizer
comet.lehman.edu/behrstock/cbms/

WIN2

We invite applications from female number theorists (graduate students, postdocs, and junior faculty) for participation in the 5-day BIRS workshop WIN2: Women in Numbers 2 to be held November 6–11, 2011. The workshop is designed to facilitate the growth of the female number theory community by bringing together researchers at various stages of their careers to create a fertile ground for research collaboration and mentorship. It will focus on research projects started during the week of the workshop with the potential for on-going collaboration among the participants. The same format that was used with great success during the first WIN workshop held at BIRS in November 2008 will be followed.

Preference will be given to graduate students and postdocs working in areas of number theory related to the proposed projects: The Arithmetic of Elliptic Curves (Alice Silverberg, Alina Cojocaru), Arithmetic Geometry (Rachel Pries, June Zhu), Number Theory in Functions Fields (Yu-Ru Liu, Alina Bucur), Arithmetic Intersection Theory (Kristin Lauter, Bianca Viray), Analytic Number Theory (Chantal David, Heekyoung Hahn), Elliptic Surfaces and Mahler Measure (Marie-José Bertin, Matilde Lalin), K-theory and Algebraic Number Theory (Sujatha Ramdorai, Wiesia Niziol), and other groups TBA.

The application deadline is **April 1, 2011**. For more information and how to apply, please refer to the website: http://www.dms.umontreal.ca/~mlalin/win2/.

Search for the Executive Director of the Mathematical Association of America

Position

The Executive Committee of the Mathematical Association of America seeks candidates for the position of Executive Director to succeed Dr. Tina Straley, who will retire in December 2011 after twelve years of outstanding service. This position offers the appropriate candidate the opportunity to have a strong influence on all activities of the Association, as well as the responsibility of overseeing a large, complex, and diverse operation. The desired starting date is January 1, 2012.

Duties and terms of appointment

The Mathematical Association of America is the largest professional society that focuses on mathematics accessible at the undergraduate level. The approximately 20,000 members include university, college, and high school teachers; graduate and undergraduate students; pure and applied mathematicians; computer scientists; statisticians; and many others in academia, government, business, and industry. Through its active program of publications, meetings, and conferences, the Association provides expository mathematics, professional development programs for faculty, and resources for teaching and learning. Its programs include the American Mathematics Competitions (AMC), the Putnam Examination, and Project NExT. The Association has its headquarters in Washington, DC. The AMC office is located in Lincoln, Nebraska.

The economic condition of the Association is healthy with an annual operating budget of approximately $8 million, There is a staff of just over 40 people in the two offices.

The Executive Director is a full-time employee of the Association with administrative responsibility for the Association, is in charge of the facilities and staff of the Association, carries out such other duties as may be assigned by the Board, and is empowered to employ persons to discharge these duties. The directors of the various divisions report directly to the Executive Director. Besides these management duties, the Executive Director, together with the officers, provides leadership to the Association in furthering its mission to advance the mathematical sciences, especially at the collegiate level. The Executive Director, together with the President, represents the Association to outside groups and individuals.

The Executive Director serves at the pleasure of the Board. The terms of appointment, salary, and benefits will be consistent with the nature and responsibilities of the position and will be determined by mutual agreement between the Executive Committee and the prospective appointee.

Qualifications

A candidate for the office of Executive Director should be a mathematician with significant administrative experience. The position calls for interaction with the staff, membership, and patrons of the Association as well as leaders of other scientific societies. Leadership, communication skills, and diplomacy are prime requisites.

Applications

A search committee chaired by Ron Graham <graham@ucsd.edu> has been formed to seek and review applications. All communication with the committee will be held in confidence. Suggestions of suitable candidates are most welcome. Applicants should submit a CV, letter of interest, and an explanation of how their qualifications and experience will contribute to support the mission and build the future of the MAA. For full consideration, these should be sent by April 1, 2011, to:

Executive Director Search Committee
c/o Julie Forster, Office of the MAA Secretary
Box 15, Patterson 301
Westminster College
New Wilmington, PA 16172-0001
forstejm@westminster.edu

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MAA
MATHEMATICAL ASSOCIATION OF AMERICA

2011–2012 Individual Membership Form

JOIN ONLINE at www.awm-math.org!

ASSOCIATION FOR WOMEN IN MATHEMATICS

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http://www.awm-math.org
awm@awm-math.org

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CITY _____ STATE/PROVINCE _____

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AWM's membership year is from October 1 to September 30. Please fill in this information and return it along with your DUES to: AWM Membership, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030.

The AWM *Newsletter* is published six times a year and is a privilege of membership. If you have questions, contact AWM at awm@awm-math.net, (703)934-0163, or visit our website at: http://www.awm-math.org.

☐ I **do not** want my membership information to be listed in the AWM Public Online Directory.

☐ I **do not** want my AWM membership information to be released for the Combined Membership List.

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Position: _____

Institution/Company: _____

If student, check one:

☐ Graduate ☐ Undergraduate

If not employed, leave position and institution blank.

City: _____ State/Province: _____ Zip/Postal Code: _____ Country: _____

DEGREES EARNED:

	Degree(s)	Institution(s)	Year(s)
Doctorate:	_____	_____	_____
Master's:	_____	_____	_____
Bachelor's:	_____	_____	_____

Individual Dues Schedule

Please check the appropriate membership category below. Make checks or money order payable to: Association for Women in Mathematics.
NOTE: All checks must be drawn on U.S. banks and be in U.S. funds. AWM membership year is October 1 to September 30.

☐ REGULAR INDIVIDUAL MEMBERSHIP (New Members and new SIAM Reciprocal Members ONLY)	$ 30	_____
☐ REGULAR INDIVIDUAL MEMBERSHIP	$ 55	_____
☐ 2ND FAMILY MEMBERSHIP (NO newsletter) *Please indicate regular family member:* _____	$ 30	_____
☐ CONTRIBUTING MEMBERSHIP	$125	_____
☐ RETIRED or PART-TIME EMPLOYED MEMBERSHIP *(circle one)*	$ 30	_____
☐ STUDENT or UNEMPLOYED *(circle one)*	$ 20	_____
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