

ASSOCIATION FOR
WOMEN IN MATHEMATICS

Newsletter

VOLUME 41, NO. 4 • JULY-AUGUST 2011

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.

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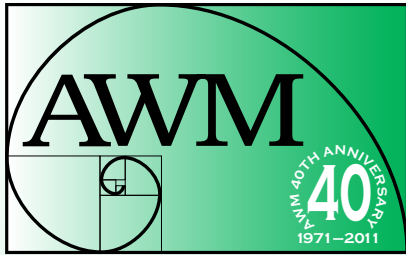
PRESIDENT'S REPORT

Financial update. As we approach the end of the fiscal year, I'd like to share with you some good news about our efforts over the past twelve months in acquiring grant funding for AWM programs, and to reflect on the financial health of this organization.

If you haven't done so recently, please take a few moments to check out the AWM website! Here you'll find information about the many activities, events, programs, prizes, and named lectures this organization has created and supports. Each of these programs and events requires, in addition to the efforts of many volunteers, staff support and funding for staff and participants. AWM currently has a part-time Executive Director (Maeve McCarthy), a Managing Director (Jennifer Lewis) and a Workshop Director (Cammey Cole Manning). The Executive and Managing Directors, along with the President and Past President (or President-Elect), help coordinate the efforts of volunteers who serve on committees and perform many vital tasks for AWM. These tasks include overseeing finances and preparing budgets, applying for grants, reviewing and selecting proposals, editing and contributing to the newsletter, organizing panels at meetings, community and K-12 outreach, addressing issues in math education, responding to timely matters of policy and advocacy, and many more. AWM depends on volunteers, and we are tremendously grateful for their efforts. AWM also depends heavily on its members, both private and institutional, as this is the primary source of funding for staff and infrastructure costs. While many professional societies generate a substantial amount of money through the production of journals, via library subscriptions, this revenue source is not available to AWM. Our funding comes from memberships, donations, advertising revenue in the newsletter, and grants. Unfortunately, grant support for our essential staff costs has been declining in recent years, despite the fact that AWM's grant proposals have been very successful. Federal agencies have been reducing the overall amounts of awards and have specifically targeted staff costs in re-budget requests. In fact, staff support from AWM grants has decreased by over 50% in the last three years. It is therefore more important than ever to maintain a healthy membership base, and I'll return to this point at the end of my report.

The ongoing events for which AWM seeks grant support include workshops and poster sessions at the Joint Mathematics Meetings (JMM) and the annual Society of Industrial and Applied Mathematics (SIAM) meeting, as well as named lectures at JMM, MathFest, and the SIAM annual meeting. One of the very successful

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ASSOCIATION FOR WOMEN IN MATHEMATICS

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

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

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

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programs at AWM is the Travel Grants for Women, funded continuously for over 20 years by NSF. The Sonia Kovalevsky Days is another long-standing program that requires major grant funding in order to offer small grants to universities and colleges for these problem solving activities and competitions for middle or high school age girls. Other AWM activities are either supported by donations and non-federal agencies (the Essay Contest, the Mentor Network, the Prizes) or do not have any sources of funding at all (the Student Chapters and the Teacher Partnership). This year, AWM has sought and found additional support for the special 40th anniversary events.

Here is a snapshot of some of the good news regarding our collective grant proposals. The 40th anniversary research conference at Brown (40 Years and Counting, information at <http://icerm.brown.edu/events/awm-anniversary-2011/>) has several sponsors, but the primary source of funding comes from an NSF grant that Georgia Benkart, Kristin Lauter and I prepared and submitted in 2010. The workshops at JMM in 2012 and (likely) 2013 are supported by a National Security Agency (NSA) grant, prepared and submitted by Georgia Benkart, Maeve McCarthy and me. This summer, the annual SIAM meeting is superseded by the International Congress of Industrial and Applied Mathematics (ICIAM), held in Vancouver in July 2011. AWM plans workshops and poster sessions at this venue that will be partly funded by the Office of Naval Research (ONR) via a grant awarded to Maeve McCarthy and me. A Department of Energy grant (whose PIs are Andrea Bertozzi, Cammey Cole Manning, Maeve McCarthy, Shari Moskow, and me) supports a wide range of AWM events including the three named lectures along with ICIAM and 40th anniversary events. The Sonia Kovalevsky grant submitted to NSF by Tai Melcher, Irina Mitrea, and Katherine Ott has been recommended for funding. We are all optimistic that this will be finalized by the time you are reading this report. The SK grant would also provide partial support for AWM's presence at the USA Science and Engineering Festival in 2012, an activity led by Irina Mitrea. Finally, in this coming year, AWM will be seeking continuing support for its Travel and Mentoring Grants. Cathy Kessel, Barbara Keyfitz and Krystyna Kuperberg were the PIs on the previous travel award grant, and Barbara has agreed to lead the efforts for future support.

One reason I am providing this level of detail about sources of financial support is to highlight the varied and essential behind-the-scenes efforts required to fund AWM programs. As you may imagine, AWM has faced some serious financial pressures in the past couple of years, similar to those confronted by many other private, public and non-profit organizations. For the first time since 2005, AWM will be raising dues for both individual and institutional members in the membership year beginning October 1, 2011. Individuals will be asked to pay \$65, and institutional memberships will cost \$25 more than last year. The projected increase in revenue, together with additional austerity measures, enabled us to present the Executive Committee with a balanced budget for the fiscal year starting July 1, 2011, with no interruption of our important ongoing programs and activities. However, the economic reality means that it will be challenging to take on additional projects. In order to meet this challenge, the objective of securing new private and foundational support for AWM is a priority in the next fiscal year.

Membership. AWM has projected a dynamic and vibrant outward face in 2011, with our normally high level of activity augmented by special events for the 40th anniversary. Internally, we have also focused attention on issues related to membership. Our most important challenge in membership lies in attracting and retaining the next generation of AWM members. At a retreat for Executive Committee and Long Range Planning Committee members this September, we will discuss some of the broad questions surrounding this issue. Is AWM visible to young women in mathematics? Does AWM understand and address the needs of the next generation? Your ideas and feedback on this subject are very welcome. You can write to me, or better yet, start and continue the discussion on the AWM Facebook page.



Jill Pipher
Providence, RI
May 24, 2011



Jill Pipher

Dawn Lott Named 2011 Falconer Lecturer

The Association for Women in Mathematics (AWM) and the Mathematical Association of America (MAA) are pleased to announce that Dawn Alisha Lott will deliver the Falconer Lecture at MathFest 2011. Dr. Lott is an Associate Professor of Mathematics at Delaware State University.

Lott earned her B.S. in Mathematics from Bucknell University, her M.S. in Applied Mathematics from Michigan State University, and her Ph.D. in Engineering Sciences and Applied Mathematics from Northwestern University under the supervision of Dr. Alvin Bayliss. She specializes in the numerical solution of partial differential equations, wave propagation and optical soliton theory, biomechanics and physiology.

Lott is a member of both the Applied Mathematics Research Center (AMRC) and the Center for Research and Education in Optical Science and Applications (CREOSA) at Delaware State. She directs the Honors Program and serves on the advisory board of the Ronald E. McNair Post-baccalaureate Program. She is committed to increasing the



Dawn Lott

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Membership Dues

Membership runs from Oct. 1 to Sept. 30

Individual: \$65 **Family (no newsletter):** \$30

Contributing: \$150

New member, new SIAM reciprocal member, retired, part-time: \$30

Student, unemployed: \$20

Outreach: \$10

Foreign memberships: \$10 add'l. for postage
Dues in excess of \$15 and all contributions are deductible from federal taxable income when itemizing.

Institutional Membership Levels

Category 1: \$325

Category 2: \$325

Category 3: \$200

Category 4: \$175

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.

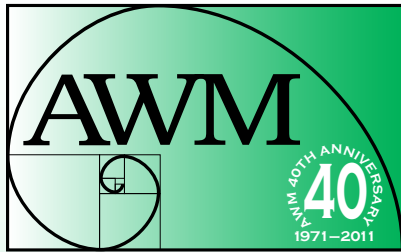
Newsletter Deadlines

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: awm@awm-math.org.



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AWM ONLINE

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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: October 1, 2011 and February 1, 2012

Early Career Mathematicians
Poster Session: July 31, 2011

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

AWM Workshop at JMM: August 15, 2011

AWM Alice T. Schafer Prize: Oct. 1, 2011

AWM Noether Lecture: October 15, 2011

AWM-SIAM Kovalevsky Lecture:
November 1, 2011

Ruth I. Michler Memorial Prize:
November 1, 2011

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2011 Falconer Lecturer *continued from page 3*

participation of women and underrepresented groups in the mathematical sciences. She has been an instructor and an advisor at the EDGE (Enhancing Diversity in Graduate Education).

Lott has served AWM by being a workshop chair, a member of the Mentor Network and a member of the Executive Committee (2006–2010). She has been Vice President of the National Association of Mathematicians (NAM) since 2005. She is currently a member of the Board of Governors of the MAA.

Lott's lecture at MathFest will be "Mathematical Interventions for Aneurysm Treatment." She will address the mathematical relationships and the hemodynamic factors predisposing aneurysms to further growth and rupture. Her talk will also discuss mathematical and biomechanical interventions for aneurysm treatment and will address societal effects of this vascular disease.

MathFest 2011 will be held August 4–6 in Lexington, KY. The Falconer lectures were established in memory of Etta Z. Falconer (1933–2002). Her many years of service in promoting mathematics at Spelman College and efforts to enhance the movement of minorities and women into scientific careers through many forums in the mathematics and science communities were extraordinary. Falconer lecturers are women who have made distinguished contributions to the mathematical sciences or mathematics education. Recent recipients of this honor include Ami Radunskaya, Kate Okikiolu, Rebecca Goldin, Katherine St. John and Trachette Jackson.

AWM Slate Announced!

We are pleased to announce the slate for this fall's AWM election. **Ruth Charney** (Brandeis University) has been nominated to serve as President-Elect. **Ellen Kirkman** (Wake Forest University) has been nominated to serve as Treasurer. **Annalisa Crannell** (Franklin & Marshall College), **Concha Gomez** (UC Berkeley Extension), **Tara Holm** (Cornell University), **Kristin Lauter** (Microsoft), **Maura Mast** (University of Massachusetts, Boston), **Elizabeth McMahon** (Lafayette College), **Gail Ratcliff** (Eastern Carolina University), and **Anna Wienhard** (Princeton University) have accepted nominations for Member-at-Large; four will be elected.

Nominations by petition signed by 15 members are due to our president by **September 1, 2011**.

Thanks to the Nominating Committee (Cathy Kessel, chair, Bryna Kra, Amy Ksir, Helen Moore, Karen Saxe, Katherine Socha, and Ann Trenk) for their efforts in producing this fine slate of candidates.

Letter to the Editor

To the Editor:

On reading the book review of *The Bold and the Brave: A History of Women in Science and Engineering* and seeing the often cited quotes of Hume and Humboldt regarding the emotionality of women, I wonder whether the AWM might be able to do more to combat the image of women as emotional. This image is quite pervasive and often even promoted by women themselves, phrased perhaps as being more “social” and “empathetic” rather than using the negative term “emotional.”

Often women in math departments, whether they be students or teachers, are treated as if they are more social than their male peers. Yet many are not and many prefer to work alone in a quiet place uninterrupted by chit chat and political debate. Some of my top math majors have been very reserved young women who are turned off by the idea of doing group projects and have confided in me that they want jobs where they can just solve things and not talk to people. Women mathematicians have complained they are asked to take guests to lunch and serve on interdepartmental committees because they supposedly communicate better. Then when the woman is as awkward or abrupt as some male mathematicians are, they get an extreme negative reaction because this is completely unexpected.

Yet repeatedly social science experiments appear to point to women as more social and encourage socialization as a way to attract women into the mathematics. We should definitely work to attract more social people into the field: social people can make better teachers and can serve on these committees and effectively communicate the concerns of their departments. We do want more social people around. But let's not phrase this as a way to attract women into mathematics. It just feeds into the old myth that “women are swayed by emotion.”

So let us all remember that when we serve as women mathematicians and women math majors and we speak to young women: that the real way we will inspire many of them to do mathematics is to show them the beauty of mathematics, because women are enlightened and they do possess understanding.

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Corrections

We apologize for the errors in the Awards at the JMM article in the May–June issue. “Citation for Ileana Streinu” should read “Citation for Erica Flapan.” “Citation for Annie Wilkinson” should read “Citation for Amie Wilkinson.” The meeting was held in New Orleans, LA, not San Francisco, CA. The errors have been corrected in the online issue and the newsletter archive.

AWM Essay Contest

Congratulations to all the winners of the 2011 AWM Essay Contest: Biographies of Contemporary Women in Mathematics! Last issue we printed the Grand Prize essay, “Mrs. Nan Mattai: More Than a Parking Spot,” written by Stephanie Wenclaswki, John F. Kennedy High School, Cedar Rapids, IA. As promised in that issue, this time we announce all the winners of the contest. To see all the prize-winning essays, visit <http://www.awm-math.org> and click on Past Results under the Essay Contest menu on the left.

Middle School Category

Winner

Sophia Marusic, Wydown Middle School,
Saint Louis, MO
Interviewed Anne Fleming
Title: “The Square Dancing Market Researcher”

Honorable mention

Cassandra Luca, Charles E. Brown Middle School,
Newton, MA
Title: “Logical Thinking: The Most Upheld Idea
of Dr. Magdalena Luca”

Honorable mention

Lisa Raymond-Schmidt, Wydown Middle School,
Saint Louis, MO
Interviewed Peggy Shamleffer
Title: “Dedication: The Key to Being Great”

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High School Category

Winner of Category and Grand Prize Winner

Stephanie Wenclawski, John F. Kennedy High School, Cedar Rapids, IA

Title: "Mrs. Nan Mattai: More Than a Parking Spot"

Honorable mention

Yanna Gong, Eden Prairie High School, Eden Prairie, MN

Title: "Wang Xiaoyun: Decoder of the Digital World"

Honorable mention

Shaina Wan, Ruth Asawa School of the Arts, San Francisco, CA

Title: "Jhina Alvarado-Morse"

Undergraduate Category

Winner

Jarami Bond, Heritage Christian Academy, Zebulon, NC

Interviewed Tennisha Brown

Title: "The Masterpiece"

Honorable mention

Siobhan Mccue, University of Maine, Orono, ME

Title: "Jen Tyne: For the Love of Math"

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

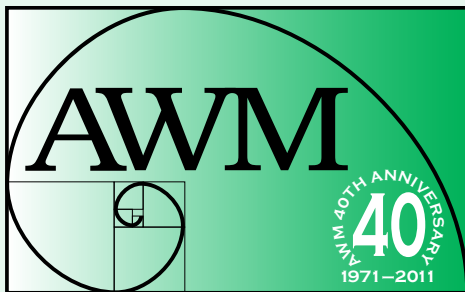
Toys and Tools in Pink: Cultural Narratives of Gender, Science, and Technology, Carol Colatrella, The Ohio State University Press, ISBN 978-0-8142-1147-2

Reviewer: Marge Bayer

Carol Colatrella opens *Toys and Tools in Pink* with the statement, "This book analyzes the ways in which fictional and cinematic narratives consider 'the leaky pipeline problem'" (p. 1) in STEM (science, technology, engineering and mathematics). Hm, can I think of a single fictional book or film that considers the leaky pipeline problem? This book does point out a couple of examples, but that is hardly the focus. A better summary of the goals of the book is (p. 8):

Looking closely at how gender matters in literary and cinematic characterizations, plots, and settings reveals that narrative structures establish political and ethical claims concerning the status of women's participation in scientific and technical fields.

The book is a work of cultural studies. The author describes how certain authors, novels, films and television shows depict women and girls who do science or are technologically capable. In some cases the creators of the work of fiction consciously considered the role of women in science and had some political or social goal in their writing or directing. In others they simply wrote under



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40 Years and Counting: AWM Celebrates its 40th Anniversary in 2011

To commemorate the occasion, we encourage all AWM members to:

- **Renew** your own membership.
- **Recruit** a new member. Personal invitations really work!
- **Remind** your institution of the benefits of institutional membership.
- **Reach** into your pocket and make a contribution to an AWM Circle of Giving or the AWM Anniversary Endowment Fund.

And be sure to check out the special celebratory events posted on the AWM website, www.awm-math.org.

the unspoken assumptions of their time; we can relate the ideas of the book to ideology or social views of the surrounding culture.

There is no attempt to determine the effect of these works of fiction on the attitudes of the society. Indeed, Colatrella points out that, “individual readers’ responses to plot, character, setting, and theme are difficult to predict, given the variety of personal and cultural experiences individuals bring to stories and the abilities of individuals to read narratives for different purposes.”

One chapter is titled “Female Criminals and Detectives.” The first connection Colatrella makes between crime fiction and science concerns the influence of phrenology on some 19th century literature. The novels of Balzac and Zola emphasized certain masculine characteristics of female criminals. In the 1890s Cesare Lombroso published an anthropometric study of women criminals. According to Colatrella, Lombroso cited examples of fictional characters, including those of Zola, to support his theories. Colatrella moves on to discuss *Dracula*. Here she stresses Mina Harker’s contribution to the defeat of Dracula, using the technology of communication (clipping newspapers, typing, writing shorthand, memorizing train schedules).

Unknown to me was a genre of fiction in the late 1800s and early 1900s dealing specifically with whether women should practice medicine. In 1848 the New England Female Medical College was founded. (It was the first medical school in the US to award the M.D. degree to an African-American man and to an African-American woman; it later became the Boston University School of Medicine.) For the rest of the 19th century, women had relatively good access to medical training. In 1910, however, the Carnegie Foundation published a study of medical education by Abraham Flexner. The study called for more rigid standards for medical schools and a reduction in the number of students admitted. Many medical schools closed, and some others stopped admitting women. But in the “golden age” of women’s participation in medicine in the US, a number of authors wrote fiction illustrating and supporting the work of women doctors and, in some cases, highlighting family and social issues that arose for these doctors. I wonder who read these books. Were they generally popular? Were they known to only a small group of people who were open to these ideas?

One modern novel that does deal directly with gender issues in the practice of academic science is *Intuition*, by Allegra Goodman. The setting is a cancer research lab, directed by two scientists, whose differences conform to gender stereotypes. Sandy Glass (a male Sandy) is boisterous and bold, more comfortable entertaining potential donors or speaking to the press than working out details and checking results. He pays little attention to the social dynamics of the

lab. Marion Mendelssohn (female) is careful, almost plodding, and persistent. She takes her role as mentor seriously, even if she is not always successful at it. Gender issues also arise in the family relations of the directors, as well as in the relationships and work of the postdocs in the lab.

Other examples of fiction that most directly deal with the role of women in science and technology (and other professional areas) are the Katharine Hepburn movies. As aviator, librarian (information manager), lawyer, inventor or foreign correspondent, Katherine Hepburn played a woman who challenged the restrictions placed on women of her time. Far from being an unattractive nerd, however, she also got the guy. What message did the audiences of the 1930s to 1950s take away from these films? Did they conclude that love (as, presumably, it should have) won out over ambition? Did they expand their view of appropriate roles for women?

Colatrella concludes that “Television and film represent science and technology as esoteric, risky, and dangerous and therefore attractive mostly to adventurous males and odd females.”

I was looking forward to reading the final chapter, “Conclusion: Children’s Narratives.” Most of the chapter, however, was devoted to television shows (almost none of which I had ever seen). I found a bit odd her choice of novels here—just two, and both written at least 50 years ago: *The Borrowers* by Mary Norton and *A Wrinkle in Time* by Madeleine L’Engle. *The Borrowers* is discussed because the girl Arietty takes on responsibilities not expected of a girl. But the book doesn’t tell us anything about girls in science and technology.

I confess to finding the writing style a bit irritating at times. I do not generally read literary criticism or cultural studies, so I am not sure whether the trouble I had was with this particular author or with this class of writing. A main issue was with the use of individual words (or nonwords). I do not see the need to use “foreground” as a verb or “imaginary” as a noun (when not referring to a complex number). A web search found no dictionary listing “emplot” as a word (and my spell checker didn’t recognize it), though it seems that Colatrella is not the unique writer to employ it. I had already learned the word “metonymic” in an “On Language” column, but neither my prior understanding nor the dictionary meaning gave me a clue as to its meaning in Colatrella’s sentences.

In this review I have skipped over the numerous examples from television the author uses. (I am too ignorant of popular culture to evaluate her references.) Colatrella concludes that “Television and film represent science and technology as esoteric, risky, and dangerous and therefore attractive mostly to adventurous males and odd females.” (p. 186)

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.

A Review of *Completeness*

Alice Silverberg

I loved the first half of *Completeness*, a play commissioned by the Sloan Foundation and the Manhattan Theatre Club, whose World Premiere took place in April at South Coast Repertory [1].

The *Completeness* of the title comes from NP-completeness, the concept from complexity theory. The program [2] includes a full page on “P vs NP—A Million Dollar Problem” (excerpted from a *Science News* article by Julie Rehmeier) and another full page explaining “The Importance of Algorithms” and “The World of Microbiology.”

The comedy revolves around Eliot, a theoretical computer science grad student, and Molly, a molecular biology grad student, and the ups and downs and intertwinings of their relationship and their academic careers.

If the goal (as it often seems to be) is to make math sexy to the general public, this play is a good model for how to do that. Eliot’s post-coital explanation of the Traveling Salesman Problem was brilliant. This was one of the most daring attempts to give a lengthy authentic explanation of a serious mathematical problem that I’ve seen in a play, and I think it was largely successful. The audience oohed and ahed in surprise and wonder at the large number of possible routes among a small number of cities. It’s nice to see a playwright who respects his audience enough to risk a long scientific explanation (the lengthy monologues on relationships came closer to straining the audience’s attention span than did the mathematical scenes). However, it’s possible that the appreciative and small audience at the Easter evening performance was largely a scientifically inclined one.

The playwright, Itamar Moses, became intrigued by the Traveling Salesman Problem when he took an electrical engineering class as an undergrad at Yale [3]. At a “post-show discussion,” the actor who played Eliot told the audience that he got very interested in the Traveling Salesman Problem while preparing for the part, learned a lot about it, and was so enthused that he even tried to solve it himself. A molecular

biologist came to a rehearsal and spoke with the cast about biology and various aspects of being in academia. I think that the efforts of the playwright, director, and actors to get science and scientists right paid off in the resulting authenticity (though I don’t know if the molecular biology was as authentic as the computer science).

For me, the best part was how egalitarian the play was. The protagonists are smart, strong, and independent. Two female supporting characters are computer science students. While all the characters have personal failings, they come across as competent scientists. The way the sex and the science mixed, including excessively logical “relationship” dialogue, was amusing. Even the full nudity was very egalitarian, a refreshing contrast to performances that feature female nudity and remind the viewer that the intended audience is heterosexual males. The playwright’s past experience seems to consist largely in depicting hyperintelligent ambitious men [4,5]. This seems to have served him well in portraying female scientists, though I was left, despite the cast’s marvelous acting, with a fuller understanding of and empathy for Eliot’s motivations than for Molly’s.

Issues of women in science arose in advice to the female students from their teachers: “You’re a woman in this field, so protect yourself. Start now.” Also, the thesis advisor mistook a grad student for a secretary.

While the play wasn’t as clear as I would have liked that the romantic relationship between Molly and her thesis advisor should never have happened at all, I think it did a great job of showing what sexual harassment looks like from the point of view of the less powerful partner. The theater’s video of excerpts from the play [6] includes part of the advisor-student confrontation. The breakup scene ends when Eliot interrupts and the advisor says they “were just discussing Molly’s funding for next year, that’s all” (to gasps from the audience).

The scenic design was awesome. The set is clever and complex, and watching the changes of set was like watching someone solve a mathematical Rubik’s Cube-like puzzle. Everything fit perfectly. Its one failing was that some of the action could be seen better from one side of the theater than the other.

The second half of the play fell apart, both intentionally and otherwise. It would have been nice if the use of NP-complete problems as a metaphor for everything, including human relationships, could have led to an interesting resolution of the plot. Instead (spoiler alert—though having this spoiled may increase your appreciation of the play), the playwright had the bizarre idea of showing that things

fall apart and backtrack before they get better by having his play fall apart. The actors did such a great job of convincing the audience that the electricity really went out for an extended period, that afterwards I contacted the theater to say that the power outage marred my understanding of the play and made it hard to write a review. I was surprised when they said that was all scripted, but they offered me comp tickets to see the play again. It was much better the second time around, when I knew that the flaws were intentional. However, it came across to me as if the young playwright realized too late that he wasn't going to meet the deadline for the commission, so he threw the second half together in a couple of all-nighters. If all the audience talks about afterwards is how "they flubbed the lighting," it's hard to consider that a success. The actors thought that about half the audience left the theater thinking the power outage was real.

The playwright has a talent for communicating science and for creating authentic dialogue and atmosphere for

scientists in academia. I hope that next time he plays on those strengths, rather than over-experimenting with what I've now learned is called "metatheatricity."

[1] <http://www.scr.org/calendar/view.aspx?id=3380>

[2] <http://www.scr.org/media/pdf/10-11programs/completeprog.pdf>

[3] <http://www.scr.org/interactive/dialoguefeb11/dialoguecomplete.aspx>

[4] http://articles.ocreger.com/2011-04-19/news/29452519_1_itamar-moses-scr-ambition

[5] <http://www.ocreger.com/entertainment/-297702-.html>

[6] http://www.youtube.com/watch?v=z8_3mNNGijw

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

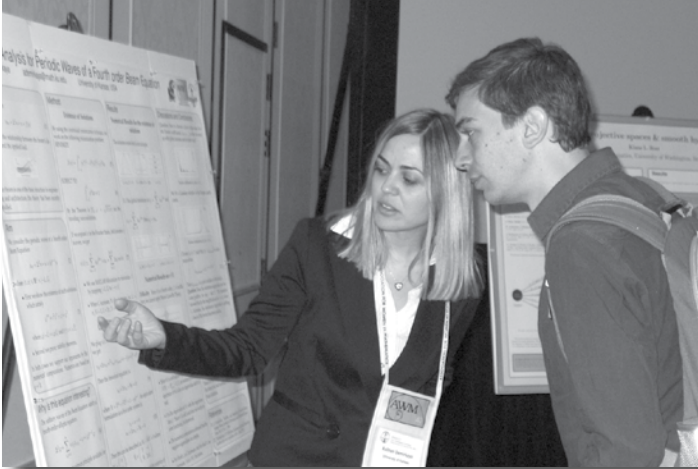
- mathematicians attending a research conference in mathematics education or related field.
- researchers in mathematics education or related field attending a mathematics conference.

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 grant 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.**

AWM at JMM



Aslihan Demirkaya explaining her poster



Jana Gevertz and Katie Gurski



Jill Pipher and Rosona Eldred



Emil Volcheck and Art Drisco with Emily Riehl at her poster



Jodi Black, Kiana Ross, and Ruth Haas



Emily Evans explaining her poster to Suzanne Lenhart



Masha Gordina, Trachette Jackson, Irina Mitrea, Patricia Hersh, Rebecca Goldin, Gerhard Michler, and Georgia Benkart



Jenny McNulty and Emily Witt



Susan Williams and Carol Wood



Kiana Ross explaining her poster



Irina Mitrea, Kara Greenfield, and Anne Leggett at the reception



Darla Kremer and Andrew Whelan at the reception

AWM at JMM



Jennifer Lewis and Barbara Keyfitz at the 40th anniversary banquet



Patricia Cahn explaining her poster



Susan Williams, Eva Strawbridge, and Georgia Benkart



Elizabeth Dan-Cohen, Christina Eubanks-Taylor, and Rachelle DeCoste



Workshop panel: Pierre Grimaud, Tad White, Christine Stevens, Sarah Frick, and Susan Williams



Deborah Hughes Haylett at Hay Minisymposium

Ruth I. Michler Prize

The Association for Women in Mathematics invites applications for the sixth annual Ruth I. Michler Memorial Prize.

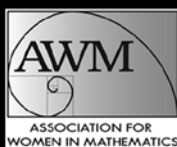
A \$47,000 prize will be awarded to a woman, recently promoted to associate professor or the equivalent, for a semester of mathematical research without teaching obligations in the Mathematics Department of Cornell University.

A supplemental housing/subsistence stipend award of \$3,000 will be provided. Office space, library access, and computing facilities will be provided by Cornell.

The application deadline is **November 1** for the award to be used during the 2012–13 academic year.



Cornell University



www.awm-math.org/michlerprize.html

AWM Workshop for Women Graduate Students and Recent Ph.D.'s at the 2012 Joint Mathematics Meetings

Application deadline: **August 15, 2011**

For many years, the Association for Women in Mathematics has held a series of workshops for women graduate students and recent Ph.D.'s in conjunction with major mathematics meetings. We have received support from the National Security Agency for the AWM Workshop to be held in conjunction with the Joint Mathematics Meetings in Boston, MA in January 2012.

FORMAT: Up to twenty women will be selected in advance of the workshop to present their work; the graduate students will present posters and the recent Ph.D.'s will give 20-minute talks. AWM will offer funding for travel and two days subsistence for the selected participants. The workshop will also include a dinner with a discussion period, a luncheon, and a panel discussion on areas of career development. Workshop participants will have the opportunity to meet with other women mathematicians at all stages of their careers.

All mathematicians (female and male) are invited to attend the talks, posters, and panel. Departments are urged to help graduate students and recent Ph.D.'s who are not selected for the workshop to obtain institutional support to attend the presentations and panel.

ELIGIBILITY: Applications are welcome from graduate students who have made substantial progress towards their theses and from women who have received their Ph.D.'s within approximately the last five years, whether or not they currently hold a post-doctoral or other academic position. Women with grants or other sources of support are welcome to apply. All non-US citizens must have a current US address.

All applications should include:

- a cover letter
 - a title of the proposed poster or talk
 - an abstract in the form required for AMS Special Session submissions for the Joint Mathematics Meetings
 - a concise description of research
 - a curriculum vitae
 - at least one letter of recommendation from a faculty member or research mathematician who knows the applicant's work.
- In particular, a graduate student should include a letter of recommendation from her thesis advisor.

Applications (including abstract submission via the Joint Mathematics Meetings website) must be completed electronically by **August 15, 2011**. See <http://www.awm-math.org/workshops.html>.

Are Students Worse Than They Used to Be?

Mary Morley, Ocean County College

It is not unusual for college faculty to complain that today's students are not as good as those of past decades. But are today's students really worse? And if so in what way? The available data do not support the idea that students graduating from high school know less mathematics than students of previous decades. In fact, today's students are more likely than their counterparts of the past to take relatively advanced mathematics courses in high school. However, there are two factors that could help explain faculty complaints. First, the percent of high school students who go on to college has increased significantly. This alone could result in a qualitative difference in the average college student. However, the second factor may be the more important explanation. Today's college students spend much less time doing homework than students of the past. In fact, according to Bureau of Labor Statistics, on an average weekday, full-time undergraduates spend only 3.3 hours on all educational activities. This includes attending class as well as readings and other homework. This leaves 3.0 hours for employment and 3.6 hours for leisure and sports.¹ In most other areas, 3.3 hours per day is not considered full-time.

The trend over the decades is for high school students to take more, and harder, classes. In 1978, only 6% of 17-year-old high school students reported that their highest-level math course was pre-calculus or higher. In 2008, 19% of the students reported pre-calculus or higher.² In 1979, only 25,000 students took an AP Calculus exam; by 1999, it was up to 158,000 students.³ In 2010, 324,865 students took an AP Calculus exam.⁴ However, taking more advanced courses does not seem to have increased proficiency levels for 17-year-olds. According to the National Assessment of Educational

Progress (NAEP), mathematical proficiency levels for 17-year-olds, with minor exceptions, have remained flat for decades.⁵

As part of their mission NAEP conducts long-term trend studies of mathematical achievement in 17-year-old American students. These studies do not support the idea that students today know less than past year's students, but they also do not support the idea that they know much more. Average mathematics scores for 17-year-olds are not significantly different from those of 1978.⁶ The lack of change also holds for the highest level of proficiency. NAEP defines several different performance levels in mathematics. Level 250 is "Numerical Operations and Beginning Problem Solving," level 300 is "Moderately Complex Procedures and Reasoning," and level 350 is "Multistep Problem Solving and Algebra." According to the NAEP, "Ninety-six percent of 17-year-olds performed at or above level 250 in 2008, and 59 percent performed at or above level 300. These percentages were not significantly different from the percentages in 2004 but were higher than in 1978." In 2008, only six percent of students achieved the highest level (350); this figure is not significantly different from 1978.⁷ The good news here is that more students are achieving the middle level of proficiency. However, it would appear that the "Multistep Problem Solving and Algebra" level would be necessary for college-level work.

If achievement levels of high school students have not changed much over the decades, there is an area that has seen a large change: the fraction of students who go on to college. According to the National Center for Educational Statistics, only 45% of recent high school graduates attended college in 1960.⁸ By 2008, that figure had jumped to 69%.⁹ In addition to the increase in students who attend college right out of high school, there has also been a large increase in older college students. According to the census, in 1980 there were 1.2 million students in US colleges over the age of 35. In 2008, there were 2.9 million.¹⁰ College used to be reserved for the elite, but now almost everyone ends up in college at some point in their lives. This may be one explanation for why

¹ <http://www.bls.gov/tus/charts/students.htm> (Accessed May 23, 2011)

² NAEP 2008 Trends in Educational Progress, <http://nces.ed.gov/nationsreportcard/pdf/main2008/2009479.pdf> (Accessed May 23, 2011)

³ David M. Bressoud, "AP Calculus: What We Know," Launchings, Mathematical Association of America, June 2009. http://www.maa.org/columns/launchings/launchings_06_09.html (Accessed May 23, 2011)

⁴ <http://professionals.collegeboard.com/profdownload/AP-Program-Summary-Report-2010.pdf> (Accessed May 23, 2011)

⁵ NAEP 2008 Trends in Educational Progress, <http://nces.ed.gov/nationsreportcard/pdf/main2008/2009479.pdf> (Accessed May 23, 2011)

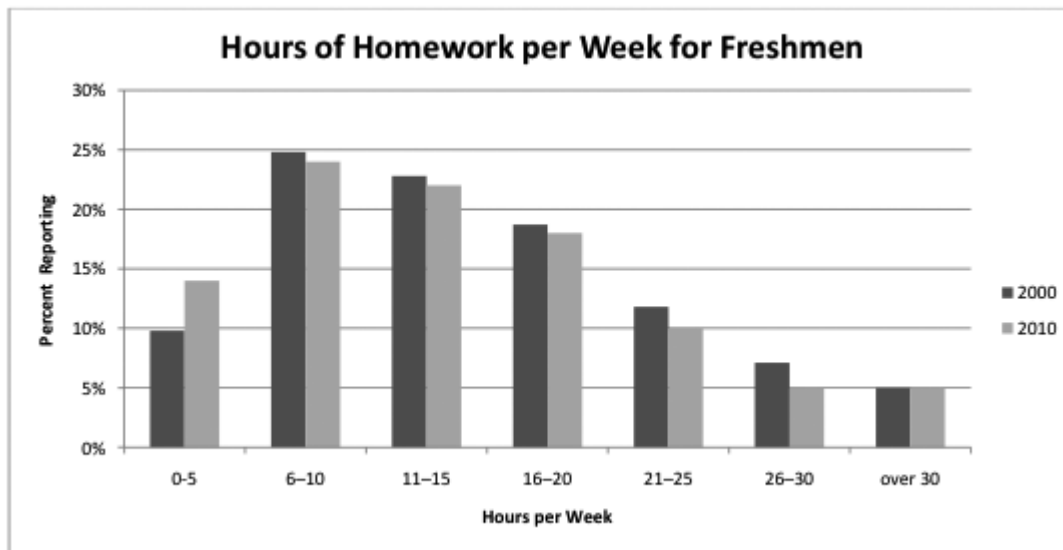
⁶ *Ibid.*

⁷ *Ibid.*

⁸ http://nces.ed.gov/programs/digest/d09/tables/dt09_200.asp?referrer=list (Accessed May 23, 2011)

⁹ *Ibid.*

¹⁰ 279 – College Enrollment-Summary by Sex, Race and Hispanic Origin: 2008, http://www.census.gov/compendia/statab/cats/education/higher_education_institutions_and_enrollment.html (Accessed May 23, 2011)



today’s students might seem less accomplished: on average they are. The percentage of students who graduate from high school able to do multi-step problem solving is still only 6%, and these high-achieving students form a smaller percentage of the college population than they did in earlier decades. Student mathematics scores did not increase from 1978 to 2008, but the percent going to college has increased from 50.1% to 68.7%.¹¹

Another area where today’s college students differ from students of previous decades is how they spend their time. Members of this group today report spending less time on homework. Students reported an average of 24.71 hours of homework per week in 1960; by 2003 they were only reporting 11.81 hours per week.¹² Even in the past decade, the amount of time students report spending on homework has continued to decline; see chart above.^{13, 14}

It is not clear why students are doing less homework. Perhaps faculty are just assigning less, or perhaps they are assigning less because the students aren’t doing it anyway. Faculty do report students are not doing all the homework assigned. In the Faculty Survey of Student Engagement, faculty were asked both how much time outside class they expected students to spend outside class, and how much time they thought students actually spent. Sixty four percent of

faculty expected students to spend more than 5 hours per week on their course, but only 24% thought their students spent that much time.¹⁵ There appears to be a disconnect between faculty and student perception on the importance of homework.

The small amount of time spent on homework is particularly problematic in mathematics. Lectures, group work, discovery, videos, etc. are nice, but the only way I know to really learn mathematics is by doing it. The 3.3 hours per day spent on all educational activities barely allows enough time to attend class, much less the practice time needed to become proficient in algebra or calculus. It may be possible to reverse this trend; it has reportedly been done in high school. The National Center for Educational Statistics reports, “Between 1980 and 2002, the percentage of sophomores spending more than 10 hours per week on homework increased from 7 to 37 percent.”¹⁶

The time freed up by not doing homework has not all gone to leisure activities. Students are also spending more time in paid employment. In 1960, students spent only 4.12 hours per week working; in 2003 it had increased to 9.47 hours per week,¹⁷ and today, to at least 15 hours per week.

continued on page 18

¹¹ dt09_200.asp?referrer=list <http://nces.ed.gov/programs/digest/d09/tables/> (Accessed May 23, 2011)

¹² Philip Babcock and Mindy Marks, “The Falling Time Cost of College: Evidence from Half a Century of Time Use Data,” National Bureau of Economic Research Working Paper No. 15954, April 2010.

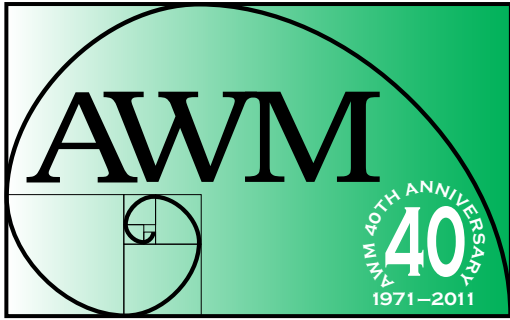
¹³ http://nsse.iub.edu/NSSE_2010_Results/pdf/NSSE_2010_AnnualResults.pdf, p 34. (Accessed May 23, 2011)

¹⁴ <http://nsse.iub.edu/pdf/NSSE%202000%20National%20Report.pdf>, p 33 (Accessed May 23, 2011)

¹⁵ Faculty survey of student engagement 2010, p 14. [http://fsse.iub.edu/pdf/FSSE_IR_2010/FSSE10-GrandFreqs-\(Total-CB\).pdf](http://fsse.iub.edu/pdf/FSSE_IR_2010/FSSE10-GrandFreqs-(Total-CB).pdf) (Accessed May 23, 2011)

¹⁶ <http://nces.ed.gov/programs/coe/2007/section3/indicator21.asp> (Accessed May 23, 2011)

¹⁷ Philip Babcock and Mindy Marks, “The Falling Time Cost of College: Evidence from Half a Century of Time Use Data,” National Bureau of Economic Research Working Paper No. 15954, April 2010.



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**

Monday, July 18

10:00 a.m. – 12:00 noon

Women at the Forefront of Applied Mathematics

1:30–2:20 p.m.

Panel: Institutional, Professional and Research Leadership

3:00–5:00 p.m.

Workshop: Opportunities beyond Academia

8:00–9:00 p.m.

AWM-SIAM Sonia Kovalevsky Lecture

Tuesday, July 19

10:00 a.m. –12:00 noon

Workshop: Research Talks by Recent Ph.D.'s I

3:00–5:00 p.m.

Workshop: Research Talks by Recent Ph.D.'s II

6:00–8:00 p.m.

Workshop: Graduate Student Posters

MathFest, Lexington, KY, August 4–6, 2011

Friday, August 5

8:00–8:25 a.m.

AWM-MAA Coffee Reception

8:30–9:20 a.m.

AWM-MAA Etta Z. Falconer Lecture

1:00–2:30 p.m.

Poster Session: Celebrating AWM Student Chapters

Saturday, August 6

2:40–4:00 p.m.

Panel: Moving up the Career Ladder in Academia

The grand finale event will be

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

- **ORGANIZERS:** Georgia Benkart, *University of Wisconsin-Madison*
Kristin Lauter, *Microsoft Research*
Jill Pipher, *Brown University and ICERM*
- **PLENARY SPEAKERS:** Andrea Bertozzi, *UCLA*
Laura DeMarco, *University of Illinois at Chicago*
Barbara Keyfitz, *The Ohio State University*
Hee Oh, *Brown University*
- **SPECIAL SESSIONS on a wide-range of topics in pure and applied mathematics and math education:**
including Algebraic Geometry and Commutative Algebra, Combinatorics and Graph Theory, Conservation Laws, Cryptography, Geometric Group Theory, Geometry of Flag Manifolds, Group Theory and Representation Theory, Homotopy Theory, Mathematical Biology, Mathematics Education, Model Theory, Nonlinear Dynamics, Nonlinear Wave Phenomena, Number Theory, Numerical Methods and Scientific Computing, Probability, Riemannian Geometry, and Symplectic Geometry
- **BANQUET**
- **POSTER SESSIONS:** for early career mathematicians

Please visit <http://sites.google.com/site/awmmath/awm40events> for details on registration, housing, and the special sessions, and to apply to present a poster.

Many thanks to our sponsors and funders:



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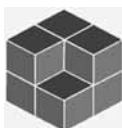


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CELEBRATE!

Perhaps they just need the money, and their employment is causing them to spend less time on homework, or perhaps it is the other way around. Either way the two trends do seem to reinforce each other.

When I started writing this article, I thought I was going to show that students are the same as they have always been. Unfortunately, it does appear that the faculty's complaints have some basis in fact. Even though achievement

scores for 17-year-olds have not gone down over time, the percentage of students going to college has increased. These two factors combined mean the average college student may know less than those of earlier decades. Compounding the problem is the small amount of time today's students spend on homework. The homework figures are for all college students, so one can hope that they spend more time on homework in mathematics courses. But we have to do better, if we want to produce a generation of educated citizens.

Sonia Kovalevsky High School and Middle School Mathematics Days

Pending funding 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 pending funding. Applications must be received by **August 4, 2011**. Application decisions will be made in late August.

Applications materials should be sent as ONE pdf file. Visit <https://sites.google.com/site/awmmath/programs/kovalevsky-days> for specific online application instructions. Applications by mail or fax will not be accepted. For further information, call 703-934-0163 or email awm@awm-math.org.

AWM Teacher Partnership Program

Pao-sheng Hsu, Suzanne Lenhart, Erica Voolich

Since August 2006, Suzanne Lenhart, past president of AWM and currently Associate Director for Education, Outreach, and Diversity of the National Institute for Mathematical and Biological Synthesis at the University of Tennessee; Erica Voolich, a middle school teacher who has founded a fund to promote mathematics education in the schools in her area in Massachusetts; and Pao-sheng Hsu, a mathematician who has engaged in research in mathematics education and worked in afterschool programs for middle school students, have organized a Teacher Partnership Program for the Association for Women in Mathematics. The program originally focused on pairing individuals; in March 2011, it was revised with a new format. The goal of the program is, as before, to link teachers of mathematics in schools, museums, technical institutes, two-year colleges, and universities with other teachers working in an environment different from their own and with mathematicians working in business, government, and industry.

New Format

The program has a new format, a Wiggio page (www.wiggio.com) devoted to a forum for teachers and

mathematicians to exchange ideas related to issues important to mathematicians and teachers alike. The site is used to share information on mathematics-related activities on specific events (such as Pi Day, Mathematics Awareness Week, or a mathematician's birthday). The organizers hope that the participants will form a partnership of the two communities. Information on joining the program is at <http://sites.google.com/site/awmmath/programs/teacher-partnership> or at <http://www.awm-math.org> (click on Teacher Partnership in the left column).

Background & History

The AWM Teacher Partnership envisioned participant activities to include:

- electronic communications;
- teaching projects;
- classroom visits when feasible;
- outside-of-classroom activities in mathematics

With the new format, the organizers hope that the participants who have already worked with a partner will continue their work, and that some participants will find their own partners in the discussions and collaborate.

Examples of such collaborations are:

- a university instructor may request a teacher from a school to visit her class for prospective teachers;

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CALL FOR NOMINATIONS:

The 2012 Kovalevsky Lecture

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

The mathematicians who have given the prize lecture in the past are: Linda R. Petzold, Joyce R. McLaughlin, Ingrid Daubechies, Irene Fonseca, Lai-Sang Young, Dianne P. O'Leary, Andrea Bertozzi, and Suzanne Lenhart. This year's lecture will be delivered by Susanne Brenner.

The lectureship may be awarded to anyone in the scientific or engineering community whose work highlights the achievements of women in applied or computational mathematics. The nomination must be accompanied by a written justification and a citation of about 100 words that may be read when introducing the speaker. Nominations should be sent to www.awm-math.org. Nominations must be received by **November 1, 2011** and will be kept active for two years.

The awardee will be chosen by a selection committee consisting of two members of AWM and two members of SIAM. Consult www.siam.org/prizes/sponsored/Kovalevsky.php and www.awm-math.org/kovalevskylectures.html for more details.

Partnership Program *continued from page 19*

- a high school teacher may ask to work with a mathematician working in industry;
- a children's museum activity programmer may want to work with a mathematician;
- a teacher in a school may cooperate with a mathematician for after-school activities.

In addition to electronic communications, partners may visit each other's classrooms, collaborate in teaching projects, or cooperate in writing grant proposals.

From 2006 to 2010, the AWM website was used to solicit requests from mathematicians (broadly interpreted) and K–12 teachers for a partner to work together. The three organizers would get together approximately once a month to match applicants. Most of the matched partners would communicate by email, but occasionally for some, when geographically feasible, they visited. By April 2010, 134 people had requested a partner and almost 80 matches were made involving almost 120 people. A listserv was created for those who had been matched to share information and ideas. A formative evaluation was done using SurveyMonkey in October, 2008; 21 participated in the survey and some emails were returned. Responses indicated that many of the people who were matched were not working together. Some also indicated that they thought the listserv was a good resource and would like to stay with the program even though they were no longer working with a partner. Available upon request is a copy of a paper describing the work of the program that was presented at the 10th international

conference of The Mathematics Education into the 21st Century Project in September 2009.

At the end of 2010, an outside professional helped the organizers examine what had been done, what was learned, and what might still be useful to do. There were several very successful partnerships in which either the partners became friends or collaborated. One spectacular partnership was written up and posted on the program website: a mathematician went to the teacher's schools and coached students on a mathematics competition and prepared them for science fairs; the teacher was a guest lecturer in the mathematician's teacher preparation class and also participated in a research project funded by the National Science Foundation. That the partnership should be a two-way benefit to the participants is the highest hope of the program organizers, and this particular one achieved that. Alas, it had been the hardest thing for the organizers to match participants so that it is geographically feasible for them to exchange visits: the pool was simply not large enough. As several who responded to questions in the program surveys of 2008 and 2010 indicated, these participants were very busy people and found it easy under pressure to give up active participation in the program. The organizers concluded that new ways are needed to promote communication and partnerships among our two communities: teachers and mathematicians.

Please send comments and suggestions to the organizers:

Pao-sheng Hsu, paoshenghsu@gmail.com

Suzanne Lenhart, lenhart@math.ut.edu

Erica Voolich, voolich@gmail.com

CALL FOR NOMINATIONS:

Alice T. Schafer Mathematics Prize

The Executive Committee of the Association for Women in Mathematics calls for nominations for the Alice T. Schafer Mathematics Prize to be awarded to an undergraduate woman for excellence in mathematics. All members of the mathematical community are invited to submit nominations for the Prize. The nominee may be at any level in her undergraduate career, but must be an undergraduate as of October 1, 2011. She must either be a US citizen or have a school address in the US. The Prize will be awarded at the Joint Prize Session at the Joint Mathematics Meetings in Boston, MA, January 2012.

The letter of nomination should include, but is not limited to, an evaluation of the nominee on the following criteria: quality of performance in advanced mathematics courses and special programs, demonstration of real interest in mathematics, ability for independent work in mathematics, and performance in mathematical competitions at the local or national level, if any.

With letter of nomination, please include a copy of transcripts and indicate undergraduate level. Any additional supporting materials (e.g., reports from summer work using math, copies of talks, recommendation letters from professors, colleagues, etc.) should be enclosed with the nomination. Nomination materials for this award, with the exception of transcripts, should be sent to awm@awm-math.org. Transcripts should be mailed to: The Alice T. Schafer Award Selection Committee, Association for Women in Mathematics, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030. Nominations must be received by **October 1, 2011**. If you have questions, phone 703-934-0163, email awm@awm-math.org, or visit www.awm-math.org.

AWM Statement on Fairness in Testing

March 2011

We support the Code of Fair Testing Practices in Education (2004), Washington, DC: Joint Committee on Testing Practices posted currently at <http://www.apa.org/science/programs/testing/fair-code.aspx>.

The code elaborates on the fundamental principle that testers “have an obligation to provide and use tests that are fair to all test takers regardless of age, gender, disability, race, ethnicity, national origin, religion, sexual orientation, linguistic background, or other personal characteristics.”

We specifically note the large body of literature on bias in testing. Multiple studies show that calling attention to gender or ethnicity prior to a test results in a statistically significant decrease in test scores among individuals whose gender or ethnicity is stereotypically associated with lower performance in the subject area. Therefore we support not collecting, mentioning, or listing demographic information immediately prior to or during a test. Rather, such information should be collected or verified during a registration several days or perhaps weeks prior to testing; alternatively this collection and verification can be performed after the test has been completed. Information about test takers may bias graders as well, so we support precautionary measures. Therefore when feasible, a grader should not be given any personal or demographic information regarding the test takers.

Encouraging Women and Minorities in Mathematics

AMS, April 2011

The American Mathematical Society is honoring two programs that do an outstanding job of encouraging women and members of underrepresented minority groups to pursue studies in the mathematical sciences. The annual “Mathematics Programs that Make a Difference” award highlights two programs that have developed successful, replicable methods for increasing participation of these groups in the field.

For 2011 the honored programs are the Center for Women in Mathematics at Smith College and the Department of Mathematics at North Carolina State University.

“The programs recognized this year are truly remarkable,” said Susan Loepp of Williams College, who served as chair of the selection committee. “Students in these programs receive extraordinary and individualized mentoring in a supportive, yet demanding atmosphere. The number of women and underrepresented minorities who are inspired to continue in mathematics because of these two programs is impressive.”

Center for Women in Mathematics, Smith College

Founded in 2007, the Center for Women in Mathematics at Smith College has quickly established itself
continued on page 22

CALL FOR NOMINATIONS:

The 2013 Noether Lecture

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

The mathematicians who have given the Noether lectures in the past are: Jessie MacWilliams, Olga Taussky Todd, Julia Robinson, Cathleen Morawetz, Mary Ellen Rudin, Jane Cronin Scanlon, Yvonne Choquet-Bruhat, Joan Birman, Karen Uhlenbeck, Mary Wheeler, Bhama Srinivasan, Alexandra Bellow, Nancy Kopell, Linda Keen, Lesley Sibner, Olga Ladyzhenskaya, Judith Sally, Olga Oleinik, Linda Rothschild, Dusa McDuff, Krystyna Kuperberg, Margaret Wright, Sun-Yung Alice Chang, Lenore Blum, Jean Taylor, Svetlana Katok, Lai-Sang Young, Ingrid Daubechies, Karen Vogtmann, Audrey Terras, Fan Chung Graham, Carolyn Gordon and Susan Montgomery. Barbara Keyfitz will deliver the 2012 lecture.

The letter of nomination should include a one-page outline of the nominee’s contribution to mathematics, giving four of her most important papers and other relevant information. Nominations should be sent by **October 15, 2011** to awm@awm-math.org. If you have questions, phone 703-934-0163 or email awm@awm-math.org.

Encouraging Women and Minorities in Mathematics *continued from page 21*

as a welcoming and challenging place for women wanting to prepare for graduate studies in mathematics. The center focuses on a particular, and crucial, group: women who discover their desire to do mathematics only after having exited the traditional educational track and who need to build up or refresh their backgrounds to be able to enter graduate school.

The center's post-baccalaureate program, the first in mathematics in the U.S., attracts students from all over the country. In this one-year program, students take upper-level courses in the Smith mathematics department and can also take courses at other nearby colleges and universities. In addition, the center designed two special courses that prepare students to become part of the mathematical community and to get started on research. With funding from the National Science Foundation, the center provides tuition and a living stipend for some of the post-baccalaureate students who are U.S. citizens or permanent residents.

Among the center's other activities is a Junior Program for undergraduate women from outside Smith College who want to spend one or both semesters of their junior year in a mathematically intense environment. The center also hosts an annual conference called Women In Mathematics In New England (WIMIN). The center is well integrated into the Smith College mathematics department and capitalizes on some of the department's assets, such as the Math Forum, a welcoming and comfortable space where students and teachers gather for conversation, study, and relaxation. At the same time, the center has had a positive, revitalizing influence on the Smith mathematics department by bringing together a group of active, serious, and motivated women who inspire other Smith students. Other mathematics departments around the country have begun programs emulating the Center for Women in Mathematics.

Data about the center's students demonstrate its success. By the fall of 2010, 24 women had completed the post-baccalaureate program. Of those, 17 entered graduate school in the mathematical sciences immediately after completing the program, and 5 will have entered after brief deferrals. Only one student has dropped out of the graduate program. Ten new students joined the program in the fall of 2010.

The Center's program directors are Ruth Haas and Jim Henle.

Department of Mathematics, North Carolina State University

The recipient of last year's AMS Award for an Exemplary Program or Achievement in a Mathematics Department, the Department of Mathematics at North Carolina State University has excelled in just about everything mathematics departments do. This time, the department was chosen for the Programs that Make a Difference distinction for one particular achievement: its extraordinary record in serving students who have traditionally been underrepresented in mathematics, especially African-Americans.

According to the Annual Survey of mathematics departments that the AMS and collaborating organizations prepare each year, the nation's main Ph.D.-producing mathematics departments awarded doctorates to 73 African-Americans during the academic years 1999–2000 to 2008–2009 (this counts US citizens only). Nine of these 73, or 12.3%, graduated from the NCSU mathematics department. And NCSU is not an enormous producer of mathematics Ph.D.'s overall; in that same time period and within that same group of mathematics departments, NCSU accounted for just 2% of the total number of Ph.D.'s produced. The department's impressive record has continued, with a total of four additional African-Americans receiving their Ph.D.'s in the 2009–2010 and 2010–2011 academic years.

What accounts for this achievement? One factor is the department's commitment, starting more than a decade ago, to recruiting domestic students into its graduate program. Another factor is the substantial support the department offers to students. An S-STEM grant from the National Science Foundation provides financial support for all of the department's African-American students during the first two years in graduate school. A third factor in the department's success lies in the broad and flexible nature of its graduate program. Students have a wide variety of research areas to choose from, and many opportunities are available to work on interdisciplinary problems with researchers in other university departments, in industry, and in government laboratories.

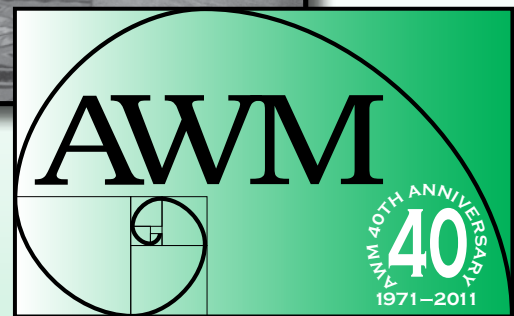
The final, and perhaps most important, factor is the faculty's commitment to students. The department's success with students from underrepresented groups is not due to outsized efforts by a small number of faculty members. Indeed, the 13 African-Americans who received their Ph.D.'s in the department during the academic years 1999–2000 to 2010–2011 were spread among 12 different advisors.

The department head is Loek Helminck.



In celebration of its 40th anniversary, the Association for Women in Mathematics calls for junior women to make poster presentations for the 40 Years and Counting: AWM's Celebration of Women in Mathematics conference to be held at Brown University, September 17–18, 2011.

Partial support is available for women graduate students and recent Ph.D.'s.



**ASSOCIATION FOR
WOMEN IN MATHEMATICS**

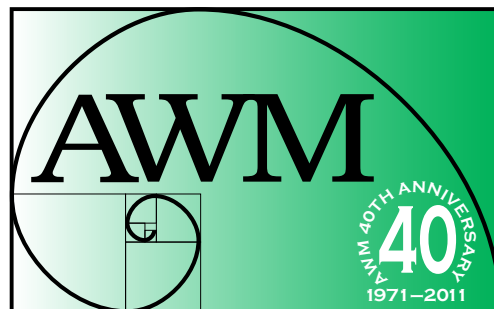
**Submit poster and funding applications online by July 31, 2011 to
<http://sites.google.com/site/awmmath/awm40events/awm40posters>.**

ADVERTISEMENTS

Association for Women in Mathematics Executive Director

The Association for Women in Mathematics (AWM) is seeking applicants for the position of Executive Director.

The AWM is dedicated to achieving full participation and equity for women and girls in the mathematical sciences. In support of this mission, AWM seeks to promote awareness and recognition of women's achievements in the mathematical sciences, to administer programs that encourage women and girls to study and have careers in mathematics, and to build community among all mathematical scientists. AWM currently has more than 3000 members (women and men) representing a broad spectrum of the mathematical community—from the United States and around the world. AWM is one of 17 member societies of the Conference Board of the Mathematical Sciences.



ASSOCIATION FOR
WOMEN IN MATHEMATICS

This position requires an advanced degree in any field of mathematics, preferably a Ph.D. The Executive Director will be expected to supervise volunteers, programs, and activities, to work with volunteers in preparing grant proposals and grant reports, to assist with fundraising efforts and membership drives, to represent the AWM at some major mathematics conferences, and to prepare press releases and announcements. The Executive Director will work closely with the AWM President, Executive Committee, and staff.

This is a part-time position for a (renewable) term of two years that may be combined with an existing academic appointment. The term begins on January 1, 2012 (but a paid training period could begin in early fall 2011). The AWM office is in Fairfax, VA, but the geographic location of the Executive Director is flexible. Ultimately, we seek an accomplished individual who is passionate about supporting women in mathematics.

Review of applications will begin on May 1, 2011 and will continue until the position is filled. Applicants are asked to describe why they feel well suited to this position and how this position could best fit with their existing plans. A letter of application, a curriculum vitae/resumé describing employment history, and contact information for at least three people willing to be called upon to provide a reference should be sent as a single PDF file to Jill_Pipher@Brown.edu.

**For more information about AWM, please visit our Web site at <http://www.awm-math.org/>.
*AWM is an Equal Opportunity, Affirmative Action Employer***

2011–2012 Rates: Institutions

Institutional Dues Schedule

Category 1.....	\$325
Category 2.....	\$325
Category 3.....	\$200
Category 4.....	\$175

For further information or to sign up at these levels, see www.awm-math.org.

MSRI



The Mathematical Sciences Research Institute in Berkeley, California,
solicits registration for participation in the upcoming 2011-12 workshops:

Connections for Women:

Connections for Women in Quantitative Geometry

August 18, 2011 to August 19, 2011

Organized By: Keith Ball (University College London),
Eva Kopecka (Mathematical Institute, Prague), Assaf Naor (Courant Institute),
and Yuval Peres (Microsoft Research)

Connections for Women:

Discrete Lattice Models in Mathematics, Physics, and Computing

January 11, 2012 to January 13, 2012

Organized By: Beatrice de Tiliere (University of Neuchâtel),
Dana Randall (Georgia Institute of Technology), and
Chris Soteros (University of Saskatchewan)

Further information can be found at www.msri.org.

Students, recent Ph.D.'s, women, and minorities are particularly encouraged to apply.
Funding awards are made typically 8 weeks before the workshop begins.
Requests received after the funding deadlines are considered only if additional funds
become available.

The Institute is committed to the principles of Equal Opportunity and Affirmative Action.

ADVERTISEMENTS

TEXAS A&M UNIVERSITY—Senior Faculty Position in Applied and Computational Mathematics—As part of Texas A&M University's recognition of the increasing importance of the modeling and computational sciences, the Department of Mathematics (<http://www.math.tamu.edu>) is recruiting for a senior faculty position in applied and computational mathematics. This position is one of three new senior lines dedicated to computational science that were created as part of an initiative led by the Institute for Applied Mathematics and Computational Science (<http://iamcs.tamu.edu>). Considerable startup funding is available. Computational science has become inherently multidisciplinary. As a result, successful candidates for this position should be able to demonstrate a strong record of research accomplishments and leadership both within the mathematics discipline and in multidisciplinary initiatives. Documentation of such success should include a record of publication in both mathematics and a multidisciplinary application area and examples of collaboration and program building. Special emphasis will be placed on applied analysis and scientific computation. Areas of particular interest are multiscale modeling and simulations as well as uncertainty analysis. Additional information can be obtained by contacting the search committee chair, Dr. Jay R. Walton (jwalton@math.tamu.edu).

Individuals wishing to be considered for this position should send a copy of their CV and a letter of interest to:

Dr. Jay R. Walton, Chair
IUMRI Mathematics Search Committee
Department of Mathematics
3368 TAMU
Texas A&M University
College Station TX 77843-3368

Electronic submissions will also be accepted and should be sent to: jwalton@math.tamu.edu, with IUMRI Mathematics Position in the Subject Line. Additional information and letters of reference will be solicited after a preliminary review. Review of the applicant pool will begin April 1, 2011. Start dates are flexible, and the position will remain open until filled. Texas A&M University is an Equal Opportunity Employer and has a policy of being responsive to the needs of dual-career couples.

International Workshop on **Geometric Methods in Infinite-dimensional Dynamical Systems**

Brown University, Providence RI
4-6 November 2011

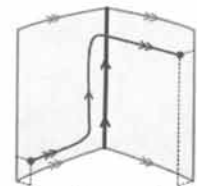
Organizers: S Balasuriya, A Doelman, T Kaper, J Lega, B Sandstede

Themes: Data assimilation, Neuroscience, Nonlinear optics,
Singular perturbations, Stability of nonlinear waves

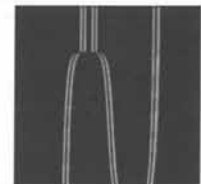
Details and registration (deadline 9 September 2011) at
<http://www.dam.brown.edu/people/sandsted/conferences/gmids-11.php>



Nonlinear Optics



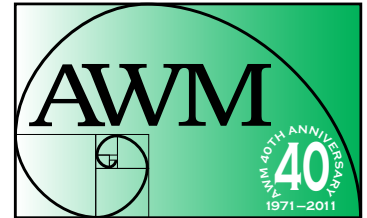
Singular Perturbations



Nonlinear Waves

2011–2012 Individual Membership Form

JOIN ONLINE at www.awm-math.org!



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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.org, (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.
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Institution/Company: _____

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

If student, check one:

- Graduate Undergraduate

If not employed, leave position and institution blank.

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.

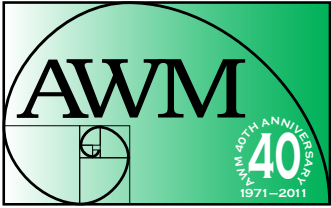
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| <input type="checkbox"/> RETIRED or PART-TIME EMPLOYED MEMBERSHIP (<i>circle one</i>) | \$ 30 | _____ |
| <input type="checkbox"/> STUDENT or UNEMPLOYED (<i>circle one</i>) | \$ 20 | _____ |
| <input type="checkbox"/> OUTREACH MEMBERSHIP | \$ 10 | _____ |
| <input type="checkbox"/> ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO)....For additional postage, add..... | \$ 10 | _____ |
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Volume 41, Number 4, July–August 2011

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11240 Waples Mill Road
Suite 200
Fairfax, VA 22030

or E-MAIL:

awm@awm-math.org

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