

ASSOCIATION FOR
WOMEN IN MATHEMATICS

Newsletter

VOLUME 42, NO. 1 • JANUARY-FEBRUARY 2012

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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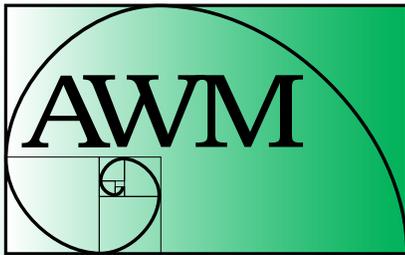
PRESIDENT'S REPORT

I am writing this report during the US Thanksgiving holiday weekend: the coming months of November and December 2011 will have marked some important transitions for AWM. By the time this newsletter reaches you, AWM elections will have taken place, and we will have a new President-Elect and other important officers of the organization. AWM will also have a new Executive Director (ED), Magnhild Lien, as of January 1, 2012. I would like to begin my report by thanking, and acknowledging the accomplishments of, our former ED, Maeve McCarthy, whose term ends on December 15, 2011.

Maeve has served as AWM Executive Director since May 2008, during which time she has redefined the position and has been an integral part of the management of the organization. She assisted the president in developing the current structure for the portfolios and committees, worked closely with Executive Committee members and facilitated their meetings, and was instrumentally involved in getting the new web site up and running, supervising the transfer of content and even doing some programming herself. As ED, Maeve was responsible for maintaining contact and building relationships with other professional organizations. During her tenure, the AWM-SIAM Sonia Kovalevsky Lecture was extended to 45 minutes from 30 minutes, and she was a lead organizer of several 40th anniversary events last summer at ICIAM. She has worked with AMS on AWM activities at the Joint Meetings and with MAA in increasing AWM visibility at the Falconer Lecture and in establishing the tradition of an AWM panel at MathFest. She strengthened AWM's relationship with Math for America, which has sponsored the Essay Contest for the past two years. Maeve has been responsible for providing oversight on AWM federal and foundational grant activities, and she has often served as PI or co-PI on these grants. In short, Maeve has advanced the organization on multiple fronts, and I would like to take this opportunity to express our deep appreciation for her successful efforts over the years.

It is therefore with enormous relief and delight that I announce a successful outcome to the AWM search for a new Executive Director. Magnhild Lien, Professor of Mathematics, California State University, Northridge (CSUN) comes to AWM with a wealth of administrative experience and a history of volunteer service to AWM. Magnhild has served as Chair of the Mathematics Department at CSUN, is a member of the Board of Governors of MAA, and has been the Assistant

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ASSOCIATION FOR WOMEN IN MATHEMATICS

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

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

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

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President's Report *continued from page 1*

Director of Teachers for a New Era, an initiative funded by a five million dollar grant from the Carnegie Corporation of New York. She has served as both an organizer and a mentor for the AWM Workshops at JMM and has extensive experience in coordinating volunteer activities at other professional events. AWM is grateful to CSUN for financial support to facilitate Magnhild's appointment as Executive Director.

I would also like to express our tremendous gratitude to Holly Gaff, who steps down on January 31, 2012 from her post as Web Editor. Holly served in this position for eight years and was a member of, or technical consultant to, numerous committees and task forces over her two terms, providing valuable technological expertise. In particular, recently she was instrumentally involved in the AWM transition to the Google web site. The new web site was a Google volunteer effort, and Holly interacted extensively with the Google team over the nearly two-year period while the work was in progress. In November, we began advertising for a volunteer to fill this post, which comes with an appointment to the AWM Executive Committee.

Many thanks to Rebecca Herb for eight years of dedicated service to AWM as Treasurer. Becky has been Treasurer of AWM during AWM's transition to a management company (STAT) that now handles billing, reimbursements and the preparation of monthly statements. She has always been willing to step in to help, even with issues not directly related to her position as treasurer; for example, during the transition period, she helped deal with AWM materials that were stored temporarily on the University of Maryland campus after our office move to STAT's headquarters. Becky makes yearly budget projections and has overseen all financial records submitted by STAT to AWM. I would like to express our deep appreciation for her faithful stewardship of these essential operations, and for her sage advice to the Executive Committee during difficult financial times.

As I write, AWM is preparing for events and activities at the AMS-MAA Joint Mathematics Meetings (JMM) in Boston early in January 2012. Barbara Keyfitz will give the Noether Lecture, and she has organized a Special Session as a companion to this event. Please join us at the AWM panel and at the AWM reception, which will feature a SET game in addition to the usual music, refreshments and meeting of friends and colleagues.

Transitions continue to be a central theme in Boston at the start of 2012. The AWM Executive Committee (EC) will be considering structural changes to (some of) the four Portfolios at its annual JMM meeting. The EC will also be discussing the report of an internal Task Force recently convened to review the workshop activities at the JMM and the SIAM annual meeting. Both of these topics were at the forefront of the discussions of the EC at the September 2011 retreat in Providence, RI. The conversation about new directions for AWM intensified following the 40th anniversary meeting at Brown. The stimulating mathematics at this meeting, coupled with an atmosphere of social good will, inspired many participants to suggest that AWM focus some of its

organizational and grant seeking efforts on similar events. However, an organization like ours, with a limited budget and staff, must make choices. If we intend to expand activities in certain areas, we must retire or cut back on others. I look forward to the thoughtful discussions of the EC in the near future, as well as to exciting changes for AWM that are in progress.



Jill Pipher
Providence, RI
November 27, 2011



Jill Pipher

LETTER TO THE EDITOR

Dear Editor,

Any T-shirt targeting a specific gender group is sexist, whether that T-shirt says “I’m Too Pretty to Do Homework” or “It’s AlgeBRA Not AlgeBRO.” In many parts of the country, particularly urban areas, there is no sexism against girls in math. Boys are underachieving. There is no reason for girls and boys even to be introduced to a male/female conflict in mathematics.

The T-shirts my students, male and female, proudly wear in the Bronx are gender neutral. Some are classics: “There are 10 kinds of people: those who know binary and those who don’t.” Some are T-shirts from their high school math teams and clubs.

I remember that my own favorite math T-shirt back when I was in high school was the exclusive “New York City Mathematics Team” T-shirt complete with the NYC skyline in white on red. This was a T-shirt I had earned as one of the top 40 kids in the city. I don’t remember how many girls were on the team, but the top two selected as the leaders included one guy from Hunter High School (which first admitted boys in 1974) and one girl from Bronx Science (which first admitted girls in 1946). Many a mathematician, male and female, went to these schools before and after their becoming coed. The guys going to these non-sexist coed schools have become some of the non-sexist mathematicians we appreciate so much.

So let’s not fight gender stereotyping with reverse stereotyping and separation. Let’s just wear those really cool gender neutral math T-shirts!

Best,

Christina Sormani
Department of Mathematics
CUNY GC and Lehman College

Membership Dues

Membership runs from Oct. 1 to Sept. 30

Individual: \$65 **Family:** \$30

Contributing: \$150

New member, affiliate and reciprocal members, retired, part-time: \$30

Student, unemployed: \$20

Outreach: \$10

Foreign memberships: \$10 add’l. for postage
Dues in excess of \$85 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 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 \$65/year (\$75 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 \$116 for a basic four-line ad. Additional lines are \$14 each. See the AWM website for *Newsletter* display ad rates.

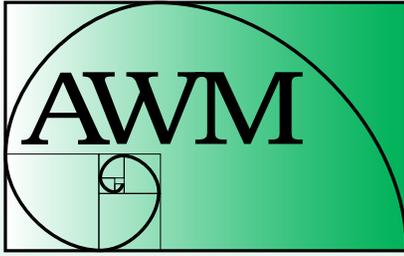
Newsletter Deadlines

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.



ASSOCIATION FOR
WOMEN IN MATHEMATICS

AWM ONLINE

AWM Web Editor: Holly Gaff
hgaff@odu.edu

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

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

AWM DEADLINES

Essay Contest: January 31, 2012

NSF-AWM Mentoring Travel Grants:
February 1, 2012

NSF-AWM Travel Grants:
February 1 and May 1, 2012

Sonia Kovalevsky High School and
Middle School Mathematics Days:
February 4, 2012

Louise Hay Award: April 30, 2012

M. Gweneth Humphreys Award:
April 30, 2012

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Magnhild Lien Named AWM Executive Director

Effective January 1, 2012, the AWM has named **Magnhild Lien** as its Executive Director. In conjunction with the AWM President and the Managing Director, Lien will support the work of the volunteer officers on the AWM Executive Committee, as well as strengthening and expanding the non-board volunteer corps for the AWM. She will be involved with all AWM activities at the Joint Mathematics Meetings, the SIAM Annual Meeting and MathFest. Her duties will include overseeing grant and fundraising efforts, developing a recruitment plan to increase the growth of the Association, and carrying out new initiatives.



Magnhild Lien

Born and raised in Norway, Lien came to Canada in the seventies and received her B.A. in mathematics, with great distinction, from McGill

University. She went to University of Iowa, where she earned an M.S. and a Ph.D. in mathematics working under the direction of Jon Simon. Before coming to California State University Northridge (CSUN), where she is currently working, Lien spent two years at College of Charleston and one year at Syracuse University.

At CSUN, as she rose through the ranks from assistant to full professor, Lien became increasingly more involved with administrative responsibilities. She served as chair of the mathematics department and most recently as the assistant director of Teachers for a New Era, an initiative supported by the Carnegie Corporation of New York. Lien has been actively involved with the AWM for many years, most recently as a mentor for the AWM Workshop participants at the JMM. She has been a member of the JMM Workshop Organizing Committee and the selection committee for AWM travel grants. Lien is an active member of MAA where she has served on the Board of the Southern California-Nevada Section and is currently the Section Governor. In 1997, she secured external funds for and organized a residential summer research program for undergraduate women in mathematics held at CSUN.

Lien's research area is knot theory. Other professional interests include mathematics education and women in mathematics. In the latter area, Lien has written two papers with her husband, sociologist Harvey Rich, on the influence of gender in science and mathematics.

While serving the AWM as Executive Director, Lien will continue in her faculty position at CSUN. Lien states, "Professional organizations play an important role in promoting and supporting its members. AWM's focus on issues of special interest to women mathematicians meshes extremely well with my determination to support and mentor women in the mathematical sciences. The AWM should continue to serve as a liaison between its members and the other professional organizations in the mathematical sciences, ensure that issues of concern to women mathematicians are in the forefront, support and encourage women to

take on leadership roles both at the local and national level, promote and increase the visibility of women as research mathematicians, and spread the ‘I can do mathematics’ message to young girls. I am excited about the opportunity to help carry forward the excellent work already done by the AWM and explore new ways to further expand women mathematicians’ role in the greater mathematical community.”

Regarding her appointment, AWM President Jill Pipher says: “The Executive Director of AWM is a key position in AWM, offering an opportunity to shape the organization scientifically as well as administratively. AWM is very fortunate to have attracted Magnhild Lien to this post, and we look forward to enjoying the benefits of her successful and extensive research and management experience.”

Bonnie Gold Honored with Hay Award



Bonnie Gold

The AWM will present the twenty-second annual Louise Hay Award to **Bonnie Gold**, professor of mathematics at Monmouth University, at the Joint Mathematics Meetings in Boston, MA. Established in 1991, the Hay Award recognizes outstanding achievements in any area of mathematics education. Louise Hay was widely recognized for her contributions to mathematical logic, for

her strong leadership as Head of the Department of Mathematics, Statistics, and Computer Science at the University of Illinois at Chicago, for her devotion to students, and for her lifelong commitment to nurturing the talent of young women and men. The annual presentation of this award is intended to highlight the importance of mathematics education and to evoke the memory of all that Hay exemplified as a teacher, scholar, administrator, and human being.

Bonnie Gold received her Ph.D. in mathematical logic from Cornell University in 1976. Later, Gold found her true calling not only in teaching university level mathematics but also in writing about and working for mathematics and mathematics education in the areas of assessment

and philosophy of mathematics. An outstanding teacher, she has given generously and extensively of her time to professional service.

Gold served as department chair at Wabash College and at Monmouth University. She has developed a wide variety of courses, ranging from calculus for the biological sciences to Platonic Dialogues as Drama.

She co-edited the books *Assessment Practices in Undergraduate Mathematics* and *Proof and Other Dilemmas: Mathematics and Philosophy*. She is known for her insightful reviews of numerous books on philosophy of mathematics.

Annie Selden states that “Bonnie has a very wide variety of professional interests in mathematics, philosophy of mathematics, and mathematics education.” Roger Simons refers to her as a “leader in developing departmental assessment techniques” and points out that Gold has two major motivations: one is “to get many more mathematicians to think about philosophical issues”; the other is that “she believes that our understanding of what mathematics is affects the way we teach or should teach.”

In her response to this award, Gold points out that “participating in the national discussion of teaching mathematics also led me to develop a wide range of new courses at Monmouth to improve our future elementary teachers’ background as well as the quantitative literacy of our general education students.”

The AWM is pleased to honor Bonnie Gold for her career achievements—as a teacher, researcher, and in service to the mathematics education community.

AWM Web Editor sought: The Web Editor is an appointed member of the AWM Executive Committee who has responsibility for maintaining a current and informative website. The Web Editor, working with Managing Director, Executive Director, President, and EC, is responsible for approving, preparing and prioritizing all materials that will be posted to the website. The Web Editor should have appropriate technological skills. While the position is voluntary, a small amount of funds could be provided for a part-time student assistant (generally 1–2 hours per week). This position will begin February 1, 2012. If you would be interested in serving as the next AWM Web Editor, please contact Jill Pipher (Jill_Pipher@icerm.brown.edu). See the AWM website for further info.

Deanna Haunsperger Honored with Humphreys Award

The AWM will present the second annual M. Gweneth Humphreys Award to **Deanna Haunsperger**, Professor of Mathematics at Carleton College, at the Joint Mathematics Meetings in Boston, MA. This award is named for M. Gweneth Humphreys (1911–2006). Professor Humphreys graduated with honors in mathematics from the University of British Columbia in 1932, earning the prestigious Governor General's Gold Medal 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.

Dr. Haunsperger's nomination letters describe the amazing community of women in mathematics that she has created and nurtured for many years. She is a dedicated mentor, going out of her way to help young women make connections in the mathematical world.

Colleagues at Carleton credit her with helping to build and sustain the strong community of math majors

there. She has served as co-Editor of *Math Horizons* and as Second Vice President of the MAA.

Deanna Haunsperger, together with Stephen Kennedy, conceived of the Summer Mathematics Program to mentor talented women early in their undergraduate studies. They have directed it nearly every summer since 1995, with Deanna playing the primary role in mentoring the participants. This program is different from



Deanna Haunsperger

other mathematics programs for women because it is intended for mathematically talented students in their first or second year of college who are uncertain about their future mathematical trajectory. Many are from small colleges from which few students go on to earn a Ph.D. in mathematics. The program gives these students a community of women who are serious about mathematics, and in the end many pursue graduate studies in mathematics.

The AWM is pleased to honor Haunsperger for her wonderful 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 creating a thriving community which supports them throughout their mathematical careers.

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 the Hay Award shall be submitted online. See the AWM website at www.awm-math.org for nomination instructions. Nominations must be received by **April 30, 2012** 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.

Rebecca Goldin to Be a *Nifty Fifty* (*times 2*) Speaker

By participating in the USA Science and Engineering Festival on April 28–29, 2012, the Association for Women in Mathematics will join several hundred of the nation's leading science and engineering organizations, including colleges and universities, corporations, federal agencies, museums and science centers, and professional engineering and science societies.

Amongst the many groups associated with the Festival is the *Nifty Fifty (times 2)*. These are a group of one hundred noted science and engineering professionals who will fan out across the Washington, DC area in the 2011–2012 school year to speak about their work and careers at various middle and high schools.

AWM is pleased to announce that **Rebecca Goldin**, an associate professor at George Mason University, will be the AWM *Nifty Fifty* speaker.

After earning a bachelor's degree in mathematics with honors from Harvard University, Goldin spent a year in France at the École Normale Supérieure collaborating with Bernard Teissier on toric varieties. She then returned to Cambridge to pursue her doctorate at the Massachusetts Institute of Technology, where she investigated the cohomology ring of weight varieties under the direction of Victor Guillemin. A two and a half year NSF Postdoctoral

Fellowship at the University of Maryland was followed by an appointment to the mathematics department at George Mason University, where she is now a tenured associate professor.

In 2007, she became the first recipient of the AWM Ruth I. Michler Award. She was selected as the AWM-MAA Etta Z. Falconer

Lecturer in 2008. She is currently the Director of Research at the Statistical Assessment Service (STATS), a non-profit organization affiliated with George Mason University.

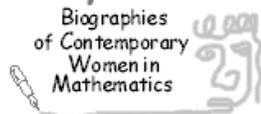
The Association for Women in Mathematics' goal in participating in the Festival is to help young women to learn about the career potential in doing mathematics. The organizer of AWM's events at the USA Science & Engineering Festival is Irina Mitrea, a member of the AWM Executive Committee.

The USA Science & Engineering Festival Expo and Book Fair will be held on April 28–29, 2012 on the National Mall in Washington, D.C. For a complete list of sponsors, partners and exhibitors, visit www.usasciencefestival.org.



Rebecca Goldin

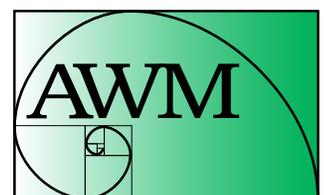
Essay Contest



To increase awareness of women's ongoing contributions to the mathematical sciences, the Association for Women in Mathematics holds an essay contest for biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers. AWM is pleased to announce that the 2012 contest is sponsored by Math for America,

www.mathforamerica.org.

The essays will be based primarily on an interview with a woman currently working in a mathematical career. The AWM Essay Contest is open to students in the following categories: **grades 6–8**, **grades 9–12**, and **undergraduate**. At least one winning entry will be chosen from each category. Winners will receive a prize, and their essays will be published online at the AWM website. Additionally, a grand prize winner will have his or her entry published in the AWM *Newsletter*. For more information, contact Dr. Heather Lewis (the contest organizer) at hlewis5@naz.edu or see the contest web page: www.awm-math.org/biographies/contest.html. The deadline for electronic receipt of entries is **January 31, 2012**. (To volunteer as an interview subject, contact Heather Lewis at the email address given.)



ASSOCIATION FOR
WOMEN IN MATHEMATICS



BOOK REVIEW

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

Philosophy of Science after Feminism, Janet A. Kourany, Oxford University Press, ISBN13: 978-0-19-973262-3, ISBN10: 0-19-973262-0

Reviewer: Gizem Karaali, Pomona College, (gizem.karaali@pomona.edu). She is also an editor of the Journal of Humanistic Mathematics.

Janet Kourany's book is a strange one: published by Oxford University Press (as a part of its Studies in Feminist Philosophy series), it is an academically oriented book, but reading it, you sense that this is not yet another theoretical monograph. For Kourany has her ax to grind, and more importantly she has a program to promote. The program is for philosophers of science and is motivated and encouraged by the amazing work done in the past few decades by feminist scientists and feminist scholars of science, technology, and society.¹ In the following I will try to explain why I think you might want to read the book even if you do not describe yourself as a philosopher. I must admit I have a sneaking suspicion that the author has a rather uneasy stance toward mathematics (about which I will say more below). I believe, nonetheless, that the book has much to offer to the readers of this newsletter.

The main components of the central argument of the book (or should I say manifesto?) can best be described by Kourany herself:

1. [S]cience can be a powerful ally in the struggle for equality for women, but all too frequently has not been. (page 12)

Kourany starts with some facts that make it undeniable that the world is still very much a male-centered, male-oriented place. Several instances of mistreatment of women across the world (including some data from developed nations) are thrown at the reader in rapid succession, and even though one who chooses to pick up this book is probably already sympathetic to the feminist stance, by the end of the first few pages there is no way to deny its significance and relevance.

¹ Some of this work and books that present it have been reviewed in this *Newsletter* before.

Then she takes us on a tour de force on the role science has played in these matters. She proves with some concrete and fascinating example cases that science has the potential to aid us in our pursuit for a more just world, but also that it has too often been allied with conservative forces that aim to continue the status quo. Scientific references that go all the way up to the publication date of the book are used, for instance, to prove that scientists investigating in a supposedly objective manner why "there are cognitive differences between the sexes" are engaging in a value-laden activity. I love one of her quotes: "studying 'sex differences' in cognition is not a neutral activity, any more than studying 'racial differences' in cognition. As long as our society is sexist, racist, or biased in any other way, any claim to find group differences is likely, sooner or later, to be held up as proof of the more powerful group's superiority." (from Janet Shibley Hyde as quoted on page 6). In particular she skillfully argues that:

2. [A] new and more adequate understanding of scientific objectivity [is] needed, one better equipped than the ideal of value-free science to deal with the problems of sexism and androcentrism [and other inequalitarian values]. (page 57)

Then she goes on to propose the ideal of socially responsible science (SRS) as a suitable replacement for, and an obvious improvement upon, the ideal of value-free science. For Kourany, SRS means not only that we should aim to remove all sexist, androcentrist and other antisocial values from scientific practice, but also that we should strive to replace them with morally positive socially progressive values. For we must acknowledge, according to her, that science cannot be done in vacuo, and in this specific case, in the absence of values, and in fact that removing negative stereotypes is a value-laden action on its own.

The following is her main defense against those who would oppose her proposal:

3. [The ideal of socially responsible science] does not sacrifice science as a genuine source of knowledge but merely acknowledges that science has other goals and other responsibilities besides its epistemic ones. (page 74)

In other words, socially responsible science is good science, not only in terms of its moral values, but also in terms of its rational, knowledge-based outcomes. Kourany is not proposing a politically correct watered-down science which cannot go anywhere; on the contrary she wants her science

to do what it does best, to create knowledge, but in a socially conscientious manner.

Next Kourany ties her argument to her main audience: philosophers of science. Her words at this point transform into a call for collective action:

4. [T]here is a need ... to ... urge philosophers of science to criticize and even transform science rather than conform to it ... to be met by ... broadening our conception of scientific rationality to encompass the ethical aspects of science, by acknowledging the inextricable interconnections of the ethical and the epistemic. (page 120)

Kourany provides a historical precedent for such a social awareness in philosophy of science, arguing that several members of the Vienna Circle were motivated by a deep sense of social and political urgency and progressive idealism. She advocates this proactive role for the discipline as an opportunity to change the visible irrelevance of philosophy of science to current science practice.

But this does not yet describe the full extent of Kourany's ambitions for the discipline. She intends this new, socially conscientious stance to create concrete, organic connections to scientific practice, but furthermore:

5. With its emphasis on social values and social change and the changes in science these mandate, this new program for philosophy of science [will] catapult philosophers of science right out of academia into the political realm, working to bring about social change via the social/political/epistemic initiatives they defend. (page 18)

Kourany supports her claims and her position with substantive evidence and provides concrete guidelines for the philosophers of science willing to take her up on her proposal. Hers is an attractive, ambitious program and seems to promise much to the discipline it addresses (philosophy of science) as well as to practitioners of science and the wider society. I was convinced at the end of the book that the kind of science she wants to create is possible and that philosophers of science can have a significant impact on the way this may come to be.

A mathematician's postscript

As followers of the field are surely aware, feminist studies of science have, to this day, focused almost exclusively on social, behavioral, medical and biological sciences; Kourany's focus is on psychology, sociology, economics, political

continued on page 10

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 www.awm-math.org/humphreysaward.html); a letter of nomination explaining why the nominee qualifies for the award; the nominee's vita; a list of female students mentored by the nominee during their undergraduate years, with a brief account of their post-baccalaureate mathematical careers and/or graduate study in the mathematical sciences; and supporting letters from colleagues and/or students (at least one letter from a current or former student of the candidate must be included).

Nomination materials for the Humphreys Award shall be submitted online. See the AWM website at www.awm-math.org for nomination instructions. Nominations must be received by **April 30, 2012** 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.

science, archaeology, anthropology, biology, and medical science (page 76). Mathematics remains mostly unexamined territory for feminist scholars. As Suzanne Damarin says at the beginning of her 2008 essay “Toward Thinking Feminism and Mathematics Together” (*Signs, Journal of Women in Culture and Society*, Autumn 2008, Vol. 34, no. 1, pages 101–123), “[t]he boundary separating mathematics from women’s studies and feminist theory, while not as forbidding as a prison wall, is nonetheless substantial and rarely crossed.” True, mathematics education researchers have ventured into investigations of feminist approaches to the mathematics classroom, but mathematics practice on its own is not often viewed as an appropriate or welcoming environment for feminism. I think this view has to be unpacked and investigated further.

I surmise that two generally accepted features of the nature of mathematics may be the main culprits here: 1) the abstract nature of pure mathematical work (which may seem irrelevant to theorists interested mainly in social contexts and implications) and 2) the seemingly value-free nature of pure mathematics (which some may reflexively [and perhaps subconsciously] associate with the cold, the austere, the male).

Though Kourany rarely mentions mathematics in her monograph (as far as I could see, the four letter word **m-a-t-h** shows up only on pages 8, 9, 42, and 62), as a (highly opinionated) mathematician (perhaps excessively) sensitized to reading (ill-conceived) views about mathematics by non-mathematicians, I have sensed a hint of hostility toward mathematics, sprinkled in here and there. My overly sensitive nose picks up both strands of reasoning mentioned above, and together these allow her to dismiss mathematics (and its ally, philosophy of mathematics) from the table of socially conscientious science. If math and her philosophical sister have souls, they obviously have not been able to convince Kourany of this fact.

It must be clear to anyone who ever sets foot in a mathematics classroom in the role of instructor that the contexts in which we teach mathematics are certainly not free from social and moral values. (For a reminder, one might wish to check out B. Shulman, 2002, “Is there enough poison gas to kill the city?: The teaching of ethics in mathematics classes,” *The College Mathematics Journal*, Vol. 33 no. 2, pages 118–125.) It might even be obvious to many that certain teaching methods may be more welcoming than others for students from groups that are underrepresented in the STEM fields. However some might retort that

the work, the practice, of the mathematician, outside the classroom, is indeed free from societal and moral values. Is it perhaps necessary to remind such people that many mathematicians were involved in the war effort of both sides during the 1940s? Or that NSA is one of the largest employers of mathematicians today?² But those are different, some may say. And we all might have met the pure mathematician, following G. H. Hardy, proudly announcing that she is doing useless math, and that her work will never lead to anyone’s death, nor will it result in the wealthy and the powerful to become more so; yes, how about her? (Is this not a moral professional stance on its own?)

I have already gone over my word limit, so I will hold off on giving concrete examples. (Stop me one day at a conference, or shoot me an email if you’d like me to continue to pontificate). But it is clear that a significant portion of today’s mathematics community does not agree with the verdict that math is inherently independent of society and can have no (constructive) impact on social justice issues. Simply googling “mathematics and social justice” yields over 5.8 million hits (on November 17, 2011). The links will not lead to rants (or, alright, treatises) about how math does not say anything creative or positive about social justice. On the contrary. The first hit brings up <http://www.radicalmath.org>, a site for math teachers that provides them materials to incorporate social justice issues into their classroom work. I myself was a part of a most exciting AMS panel during the 2011 Joint Math Meetings, “Proving Hardy Wrong: Math Research with Social Justice Applications” (organized by Eva Curry). And there are many more threads to follow if one is interested. Paraphrasing my colleague Ami Radunskaya, there is so much out there about how math and social justice issues can interact, nobody should be able to claim ignorance about such connections.

Coda

All that said, I would still love to meet Kourany and congratulate her on a well-written book that proposes an exciting and yet realizable plan to make the world a better place. In this highly unlikely scenario, I would probably next move on to talking with her about mathematics, until she would politely excuse herself and leave.

²This is probably a good time to acknowledge that my mathematics research has most recently been supported by the NSF and the NSA.

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.

WIMM Watch: Julia Robinson and Hilbert's Tenth Problem on Television

Sarah J. Greenwald

A film about Julia Robinson is making its way to television. The distributor, American Public Television, advertises [1]:

Narrated by actress Danica McKellar (*The Wonder Years*), *Julia Robinson and Hilbert's Tenth Problem* presents the inspiring life story of the pioneering American mathematician Julia Robinson (1919–1985) and charts her major contribution to solving one of the 20th century's most vexing mathematical questions—Hilbert's Tenth. The documentary is pieced together by a wide array of archival footage, stills and recordings, recollections from other mathematicians—including the three others responsible for solving H10—and warm reminiscences by her sister/biographer, Constance Reid.

Director and producer George Paul Csicsery of Zala Films originally released the film as a DVD in 2008. I am a fan of Csicsery's mathematical films and I am pleased that this film will reach even more people. A number of PBS stations have already aired the television version. Csicsery's website [3] states that the broadcast may appear on public television stations between October 2011 and September 2014. Csicsery acknowledges that the adaptation to television was made possible with support from the Mathematical Association of America and the National Science Foundation. For more information, please see Judith Roitman's *AWM Newsletter* review of the DVD [2].

Further Reading

1. American Public Television. "Julia Robinson and Hilbert's Tenth Problem." <http://bit.ly/qln4sv>
2. Roitman, Judith. "Julia Robinson and Hilbert's Tenth Problem." *AWM Newsletter*, July–August 2009, Volume 39, Number 4, p. 9–13. <http://www.drivehq.com/file/df.aspx?isGallary=true&shareID=8755087&fileID=751135161>
3. Zala Films. "Julia Robinson and Hilbert's Tenth Problem." <http://www.zalafilms.com/news.html>

Review of the video *Hard Problems*

Melissa A. Desjarlais, Valparaiso University

Hard Problems is a DVD about U.S. high school students participating in the International Mathematics Olympiad (IMO). The DVD brings up issues of what it means to be a competition-level mathematics student, in terms of personal life, shared community with similar students, and educational pathways. It also illuminates what it means to be in the tiny minority of females who participate in this competition. Many of these issues are presented from the point of view of the students themselves. As a mathematics educator who has interests in gender and problem solving, it held my attention. I think it can hold the attention of your students, too.

The main feature on this DVD chronicles the journey of six high school students representing the U.S. in 2006 in Slovenia. Since first participating in 1974, the United States has sent 222 students to the IMO, yet only three of them were female. One of the bonus features on this DVD recounts their stories. Other bonus features describe employment of mathematicians in finance, the home and educational background of the students, and a history of the IMO. Note that there is a 45-minute classroom version of the feature film that could be shown during a typical class period.

This film introduces us to a group of high school students manifestly similar to typical high school students, engaged in a competitive activity much like sports competitions that are so valued in U.S. high schools. The kids go to training camp, they are feted, and they learn discipline. We see the team members at home, with their families, and doing non-mathematics activities. We hear them talk about their early experiences with mathematics and their feelings about mathematics. They enjoy mathematics and

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solving problems, and this enjoyment is apparent in their conversations.

The feature movie follows the students through a series of tests which have the same form as the IMO. These two-day tests not only winnow the field down to the final six, they also prepare students psychologically. A difficult first day can be discouraging, yet students learn how to come back the second day and still perform with their best ability.

After the U.S. IMO team is selected, the six students prepare at the Mathematics Olympiad Summer Program (MOSP) in Lincoln, NE before attending the final competition in July. The MOSP is a very intense three weeks of mathematics. At the MSOP the students, who may not have experienced such an intense environment before, are dropped into the deep end. However, it is a very collaborative

environment. The students discover that there are other students similar to themselves, who find joy in mathematics and like to solve problems and want to compete.

Then they travel to Slovenia for the 2006 IMO. The IMO is a two-day competition where each day the students have 4.5 hours to work on three problems. This was one of the biggest IMOs to date, with 498 students from 90 countries. The U.S. team won two gold medals and four silvers and placed fifth as a team.

The feature film ends with the six U.S. IMO team members talking about the experience of participating in the IMO. One student talked about how the culmination of the training for the IMO gave him more confidence and how he has learned to reflect on problems he has done; someone's result on the test does not erase the learning or the experience. Another student talked about how the IMO inspired him to study mathematics deeply; if he did not have

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.**

the competitive aspect, he might not have been spurred as far in mathematics. He also said the IMO introduces young mathematicians to what they might do in their future life. Another student talked about how competitions helped him to think better mathematically, and he enjoys doing mathematics because of the connections, interpretations, and creativity it allows.

Bonus Feature: Girls and the IMO

A bonus feature video included on this DVD describes the participation of girls in the IMO. Most years approximately 10% of the participants are female. However, since first participating in 1974, only three out of the 222 U.S. participants have been female. (Note that there are not 222 distinct students since some participate in multiple years.) This video describes the stories of those three: Melanie Wood, Alison Miller, and Sherry Gong. Even though they were never on the same team, the three women did know each other. After competing in the IMO, they would come back and coach team members in later years.

In 2007 the United States participated for the first time in the China Girls' Mathematical Olympiad. It was a successful showing for the U.S. since five of the eight girls received medals. Sherry Gong was one of the participants and Alison Miller was one of the coaches of the team.

This feature is one that young females can benefit from watching. First, it is very inspiring to hear the women talk about their experiences and their love of mathematics. I came to appreciate the strength of their feelings. Second, even though females are sparse, they have a sense of community. One example is MOSP (mentioned by both Alison and Sherry), and another is the growing community resulting from the China Girls' Mathematical Olympiad. Having a supportive community for females can provide ways to show that girls can be good at mathematics and give them opportunities to increase their interest in mathematics. As stated earlier, a supportive community can also be critical in increasing the participation of females in mathematics and science.

The message of these videos has all the more impact coming from the IMO team members themselves. Students can see that mathematics can be engaging and useful. Hopefully it will inspire some of them to either participate in some of the American Mathematics Competition contests or continue their mathematical studies beyond high school. As a college professor who has often taught mathematics courses for students with weak quantitative skills, anxiety about mathematics, or dislike of mathematics, it is nice to hear students talking about their enjoyment of mathematics.

Other Bonus Features

There are three other videos included on the DVD: *Mathematicians in Finance, Families and Schooling*, and *History of the IMO*. The DVD also includes the problems and solutions from the 2006 IMO (as a pdf). *Mathematicians in Finance* illustrates the applicability of mathematics and gives one example of a career that relies heavily on strong mathematical skills. *Families and Schooling* shows how parents facilitate their children's mathematical development. The final bonus feature tells the history of the IMO and describes how mathematics competitions can have a positive influence on the educational system. The general level of mathematics education often improves as soon as a country organizes a national mathematics competition.

Lessons for Encouraging Mathematics Students

During the features on *Hard Problems*, people frequently remarked or alluded to the sense of community and the positive effect it can have. This can be important to all mathematics students, but especially female students for whom a feeling of isolation may be worse than for male mathematics students. Students who attend the Mathematical Olympiad Summer Program (MOSP) often feel a sense of isolation in their respective schools, even if they are surrounded by many people, due to their strong mathematical ability. In certain mathematics classes there may be only a few females with well over the majority of students being male. Yet when they arrive at MOSP, they are surrounded by other similar students.

Melanie, Alison, and Sherry all commented on their experiences at MOSP, the summer prep program. Melanie was only the third girl ever to attend. The previous two girls each wrote a letter to Melanie about their experiences at MOSP, which were not always very positive. Melanie appreciated the letters. When Alison attended, she felt that she was the least prepared, yet she found it exciting to be around people who knew lots of mathematics. While listening to the mathematics lectures, she realized this was what she wanted to do. Sherry also had a positive time at MOSP, to the extent that she misses it when she is not there. Sherry specifically said that MOSP felt like home, since she can connect more easily with other students there than students at her school.

Closely tied to community is the concept of support. Not only did the students receive support from fellow IMO students, but they often had family supporting them; this was a common feature of the MOSP and IMO participants.

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The importance of family support has been documented [4]. Families of two IMO students helped them travel to the educational opportunities they needed, with some family members driving the students to and from local college campuses. Parents sometimes found other books and resources for the students to study. Melanie, a former IMO participant, praised her mother for being supportive of everything she did without being pushy or expressing particular expectations. Even if a student may not be IMO-caliber, having sufficient support can make a significant difference in what can be accomplished.

Another issue is education. In these videos, people explicitly viewed the U.S. team at the IMO as a reflection on the high quality of the education system. To some extent, I would agree, since these students have gone through the system here. It is notable that many of these students are not going through the public K–12 system and instead attend private schools, academies, or classes at universities. On the one hand, they find the education in the U.S. helps them prepare for academic competitions, but on the other hand they are using resources that are not available to all students. Their talent was identified early, and their parents had the resources to give them opportunities to enhance their talent. If all students could attend schools with small class sizes, individual attention from teachers on a regular basis, and a personal mathematics coach, the academic performance of students across the country could be very different.

The final issue I would like to discuss is gender. There are numerous studies looking at gender differences (or similarities) in mathematics, often on a large scale. Progress has been made in addressing these differences over the last 40 years (e.g., [1, 2, 3]). Yet in the upper echelons, only three females have been members of the U.S. team for the IMO since 1974. With such a small sample size it is difficult to draw conclusions about why these three became members of the IMO team, but some common aspects can be found.

All three of the IMO girls are excited about mathematics and enjoy doing mathematics. As the U.S. Team Leader, Zuming Feng, stated in a bonus feature, to encourage girls to get past the social pressure against girls doing mathematics it is important to stir their interest. He says that it is important to get girls to “tackle problems, play with problems” and to get them to enjoy the process, since it will help them in later scientific exploration. I mentioned support as being important for any student; it is especially important for females to counter the social pressure. After-

school mathematics clubs, summer programs, or just a teacher taking time to personally encourage a girl to pursue mathematics, are all sources of crucial social support. An international mathematics competition just for girls also provides incentive to study mathematics and improve their abilities.

Overall, I would recommend this DVD with both the feature film and bonus features. It tells a compelling story of U.S. students preparing, participating, and succeeding at the IMO. The DVD gives additional background about the three females who have been U.S. IMO team members. It includes students talking about mathematics and how they enjoy it. It shows that there are careers that use mathematics that are not in education or academia. This DVD can be inspiring to young students and encourage them to continue studying mathematics.

References

1. Fennema, Elizabeth, & Julia A. Sherman. (1977). Sex-related differences in mathematics achievement, spatial visualization, and affective factors. *American Educational Research Journal*, 14, 51–71.
2. Hyde, Janet Shibley. (1990). Meta-analysis and the psychology of gender differences. *Signs: Journal of Women in Culture and Society*, 16 (1): 55–73.
3. Hyde, Janet Shibley. (2005). The gender similarities hypothesis. *American Psychologist*, 60 (6): 581–592.
4. Jacobs, Janis E., Pamela Davis-Kean, Martha Bleeker, Jacquelynne S. Eccles, & Oksana Malanchuk. (2005). I can, but I don't want to: The impact of parents, interests, and activities on gender differences in math. In Ann M. Gallagher & James S. Kaufman, eds., *Gender Differences in Mathematics: An Integrative Psychological Approach*, 246–263.

Further Reading List

- Gallager, Ann M. and James C. Kaufman, eds. *Gender Differences in Mathematics: An Integrative Psychological Approach*. New York, NY: Cambridge University Press, 2005.
- Olson, Steve. *Count Down: Six Kids Vie for Glory at the World's Toughest Math Competition*. New York, NY: Houghton Mifflin, 2004.
- Walkerdine, Valerie. *Counting Girls Out: Girls and Mathematics*. Abingdon, UK: Routledge, 1998.

How Far Have We Come?

Patricia Hale, Department of Mathematics and Statistics, California State Polytechnic University, Pomona

Many of us have been involved with any number of national and state efforts to increase the participation of women in advanced mathematical careers over the past ten to twenty years. At the national level there has been the NSF funded ADVANCE Institutional Transformation Grants focusing on female faculty, while programs such as those at the University of Nebraska and the EDGE Program have been working to increase the number of female Ph.D. recipients. Have these efforts made any impact on the profession?

The table below indicates the percentages of women participating in mathematical endeavors at various stages of an academic career [1, 2]. It is worth noting that we do not seem to be losing women any faster than men from bachelor's to master's degree. However, we clearly seem to be losing women in graduate school, and then in tenure-track academic positions. We would like to think that women are perhaps going to postdoctoral research appointments, but in 2009 women only received (almost) 20% of these positions at Ph.D.-granting institutions. A similar percentage applies to non-academic positions.

In fact, if we delve deeper into the data we will see that the higher the ranking of the group of institutions, the lower the percentage of women. Thus, even though we see improvement in the percentages of women in advanced

mathematics—going from 9% to 13% of the tenure-track faculty at doctoral granting institutions—it is apparent there are still some barriers for women.

What are these barriers? “It’s the climate,” stated one female colleague from a Tier I institution in a recent discussion on why the pipeline is still leaking. I greatly appreciated her candor, but also recognize that “changing the climate for women” in mathematics department is often very difficult. It is often not clear what a “chilly climate” means or more importantly how to improve it.

The Women in Science and Engineering Leadership Institute (WISELI, wiseli.engr.wisc.edu) at the University of Wisconsin-Madison have made available on their website a brochure which explains the difficulty in defining climate and also its importance for a positive work environment [3]. They found that factors contributing to women’s concerns about the climate included:

- Lack of respect/consideration/politeness
- Insufficient sense of community or belonging
- Lack of recognition/visibility/value
- Ineffective communication
- Lack of support/inequitable access to professional development opportunities
- Difficulties achieving balance between work and family or personal life
- Illegal behaviors and demeaning, sexualizing, or condescending language and behaviors
- Retention/tenure of women and minority faculty, staff, and students

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Year	Bachelor's degree awarded	Master's degree awarded	Ph.D. degree awarded	Full time tenure-track faculty	Full time tenure-track faculty
				I, II, III & VA	M & B
2000	*	*	29%	9%	22%
2001	*	*	31%	10%	24%
2002	42%	*	32%	10%	23%
2003	41%	*	33%	10%	24%
2004	42%	44%	8%	11%	24%
2005	40%	40%	27%	11%	25%
2006	40%	42%	29%	12%	26%
2007	39%	40%	31%	12%	26%
2008	41%	41%	30%	13%	25%
2009	41%	40%	29%	13%	28%

* The AMS did not include this information in the Annual Survey in these years.

Another Tier I institution that has stood out as having done a good job of articulating what made the environment inequitable for women in STEM is MIT. In the 1990s MIT recognized there was a problem, investigated the problem and took steps to rectify the situation. In March 2011 MIT released a follow up report to their initial 1999 and 2002 reports [4]. It was found that the environment for women at MIT was much improved, but that efforts still needed to be made so that women are not marginalized.

The steps taken by MIT, and recommendations by WISELI and other ADVANCE institutions, to improve the climate for women might suggest a list of “Best Practices for Improving the Climate for Women.” Some of these steps are:

- Increasing the percentage of women in tenure-track faculty positions. This often includes educating department chairs and search committees on issues of implicit bias amongst faculty members themselves and in letters of recommendation received in support of a female applicant.
- Removal of the stigma for childbearing including extension of the tenure clock and on-site childcare facilities.
- Making clear family leave policies and informing new faculty on what the policies are. Clearly communicating expectations and policies regarding tenure and promotion. Effective communication regarding all policies would be in writing, on a website, and presented orally to each faculty member.
- Implementing a mentoring program to help insure that no—especially junior—faculty “fall through the cracks.”
- Build community, recognize accomplishments, treat everyone with respect.
- Administrative oversight to ensure equitable hiring policies and treatment of women as well as mechanisms for dealing with issues as they arise.

We probably all recognize a few (but not all) of these practices being implemented at our own institutions and departments. Convincing colleagues and administrators that “climate change” is worth putting effort into is difficult. What I admire most about the work at MIT is that it recognizes that the effort is ongoing and requires frequent re-examination not to lose ground gained by past efforts.

However, none of this addresses the precipitous leak in the pipeline from Ph.D. to post Ph.D. The National Research Council (NRC) examined why women in science, including mathematics, were less likely than men to seek academic

research positions and more likely to quit before attaining tenure. They were not able to identify the reasons why this occurs but state that they did not explore the impact of family obligations. Further, NIH and NSF data indicate that women in mathematics and science receive 63% and 54% respectively of pre-doctoral awards, but only 25% and 23% of post-doctoral awards [5].

The issues of family obligations, particularly childbearing and rearing issues, are often not addressed for graduate students and postdocs. With rare exceptions, family leave policies that remove the stigma of childbearing for graduate students are non-existent. There are exceptions such as Harvard, Stanford and other Tier I institutions. I have heard of one state university in Colorado that has a family leave policy for graduate students.

Although I know of a few institutions that have implemented equitable family leave policies for graduate students, I have many anecdotal stories of women dropping out of graduate school with a master’s degree due to pregnancy. Recently, one unexpectedly pregnant student was faced with the dilemma of losing her student health insurance policy if she took a leave of absence from her academic studies. Further, she would lose her assistantship. Her situation created a negative reaction amongst four other female graduate students in the department; they did not feel that an academic career in mathematics welcomed women. Two of these women quickly switched to the mathematics education department; another is applying to Ph.D. programs in mathematics education that are not in mathematics departments—she believes that mathematicians are still biased against women. She may be right. This particular student attended the Joint Meetings for the first time in New Orleans in 2011. She registered onsite with a two year old on the counter. No one advised her that childcare was available; she found the small print on this subject in the conference program after the meetings were over.

Just as efforts have been made to identify and implement best practices for female faculty, this needs to be done for graduate students and postdocs. We must recognize that the transition from undergraduate student to research mathematician occurs during a woman’s reproductive years. The academic community needs to address this issue and create an environment in which women, and their families, feel welcome at every stage.

Works Cited

1. Cleary, Richard, James W. Maxwell, and Colleen A. Rose. “2009 Annual Survey of the Mathematical Sciences in the United States.” *Notices of the AMS*

- 57.10 (2010): 1306–317. Retrieved from American Mathematical Society, <http://www.ams.org/profession/data/annual-survey/2009Survey-Third-Report.pdf>.
2. Conrad, Janet, Nancy Hopkins, Terry Orr-Weaver, Mary Potter, Paola Rizzoli, Hazel Sive, Gigiliola Staffilani, JoAnne Stubbe, Sallie Chisholm, Lorna Gibson, Shafi Goldwasser, Barbara Liskov, Dava Newman, Caroline Ross, and Leona Samson. *A Report on the Status of Women Faculty in the Schools of Science and Engineering at MIT, 2011*. Rep. School of Science and School of Engineering. Massachusetts Institute of Technology, 20 Mar. 2011. Retrieved from Massachusetts Institute of Technology, <http://web.mit.edu/newsoffice/images/documents/women-report-2011.pdf>.
 3. Kirkman, Ellen, James W. Maxwell, and Colleen A. Rose. “2004 Annual Survey of the Mathematical Sciences (Third Report),” *Notices of the AMS* 52.8 (2005): 871–83. Retrieved from American Mathematical Society, <http://www.ams.org/profession/data/annual-survey/2004Survey-Third-Report.pdf>.
 4. Mason, Mary Ann, Marc Goulden, and Karie Frasch. “Keeping Women in the Science Pipeline.” Retrieved from The University of California, Berkeley, http://www.law.berkeley.edu/files/Keeping_Women_in_the_Science_Pipeline-sloan.pdf.
 5. Women In Science & Engineering Leadership Institute. *Enhancing Department Climate: A Guide for Department Chairs*. Women In Science & Engineering Leadership Institute, 2008. Retrieved from Women In Science & Engineering Leadership Institute, <http://wiseli.engr.wisc.edu/docs/ClimateBrochure.pdf>.

IISSAM 2012

Jackie Dewar, Professor of Mathematics, Loyola Marymount University

The Scholarship of Teaching and Learning: An Invitation & Call for Proposals

The scholarship of teaching and learning (SoTL) movement (Boyer, 1990) invites faculty to view their classrooms as sites for inquiry. Questions about teaching or problems with students’ learning become invitations for faculty to investigate these in a scholarly way. The Education Column (Dewar, 2007) in the November–December 2007 issue of this newsletter contained an article, “Scholarship of Teaching and Learning: What? Why Now?” that provided an overview of this work in higher education and some examples and resources for carrying out SoTL in mathematics. It is worth noting that the MAA has supported contributed paper sessions on SoTL at the Joint Mathematics Meetings (2007, 2010, 2011, and 2012) and offered MAA minicourses at national meetings (JMM 2006, 2007, 2008 and MathFest, 2009). Recently, Project NeXT panels at the joint meetings (2009, 2011, 2012) have addressed the topic of SoTL as well.

The Carnegie Foundation for the Advancement in Teaching was a leading proponent and supporter of SoTL from 1998–2009, with separate programs aimed at mentoring individual SoTL scholars and garnering support from professional societies and institutions of higher education. Major support for SoTL work continues today under the

leadership of various other groups. One of Carnegie’s most successful programs, the CASTL (Carnegie Academy for the Scholarship of Teaching and Learning) Scholars Program mentored 150 post-secondary faculty, including eleven mathematicians, in six cohorts spread over nine years. With the help of Carnegie staff, these scholars worked on scholarship of teaching and learning projects, and many went on to become leaders in the SoTL movement.

A summer institute modeled on the SoTL mentoring process developed by Carnegie continues to this day, now under the name International Institute for SoTL Scholars and Mentors (IISSAM). The heart of the Institute is a process of mentoring work-in-progress by providing feedback and support in small groups of scholars with an assigned mentor. The next IISSAM will be held May 31 – June 2, 2012 at Loyola Marymount University in Los Angeles, CA. It will bring together new and seasoned SoTL scholars, other faculty, and administrators to engage the 2012 theme of *The Ecology of Teaching and Learning*. SoTL will serve as a lens through which participants explore what roles teaching and learning can play in helping students assume responsibility for the world they live in. This year’s theme invites explorations of teaching practices that take into account global, local or classroom environments.

IISSAM’s organizers (a consortium consisting of Canisius College, Columbia College Chicago, Creighton University, Loyola Marymount University, Truman State University, and University of Houston-Clear Lake) invite participants to Los Angeles to engage in thought-provoking discussions, stimulating presentations and hands-on activities, to learn in SoTL

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workshops, and to meet colleagues with similar interests and creative ideas. Individuals or teams may propose a project to be mentored or they may attend as active participants at IISSAM 2012. The Call for Project Proposals from the IISSAM website follows.

For IISSAM 2012, proposals are sought that:

- Pose questions in any post-secondary discipline or field the scholar teaches in.
- Come from individual scholars or teams of scholars.
- Frame a well-defined question about teaching and learning of importance to others.
- Acknowledge the need for systematic investigation and methodology.
- Represent genuine work-in-progress that can benefit from mentoring.
- Engage the Institute's theme or another SoTL question.

IISSAM seeks genuine work-in-progress that would benefit from mentoring. Ideally, applicants will have a well-defined question to investigate, know what approaches others have taken to investigate similar or related questions, and have carefully thought about how to approach the question.

The application and selection process is based on a 750–1250 word application essay that addresses the following questions:

1. What is the central question you plan to explore in your proposed work?
2. Why is your central question important to you and to others who might benefit from or build on your findings?
3. How do you plan to conduct your investigation? What sources of evidence do you plan to examine? What methods will you employ to gather and make sense of this evidence?
4. How do you plan to make your work available to others in ways that facilitate scholarly critique and review, and that contribute to thought and practice beyond the local?
5. What aspects of the design and character of this work are not yet fully developed? What questions do you have and what do you still need to know?

Proposals must be received by **January 30, 2012**. Notifications are anticipated by March 16, 2012. For submission details, see <http://www.iissam.org>.

References

- Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. San Francisco, CA: Jossey-Bass.
- Dewar, J. (2007, November–December). Scholarship of teaching and learning: What? Why now? *AWM Newsletter* (36)7, 26–28.

AMS Study on “Gender Gap”

AMS, December 2011

“I’m too pretty to do math.” This slogan appeared on a T-shirt marketed this year to girls. After outraged objections, the shirt was pulled from stores, but is still available for sale on the internet—and its familiar message continues to echo: It’s boys, not girls, who excel in math. Was the outrage over the shirt knee-jerk political correctness? Is it perhaps time just to accept the fact that boys are better at math than girls?

Not unless you ignore the data. A major new study appearing in the January 2012 issue of the *Notices of the American Mathematical Society* (<http://www.ams.org/notices>) marshals a plethora of evidence showing that many of the hypotheses put forth to account for the so-called “gender

gap” in mathematics performance fail to hold up. The article, “Debunking Myths about Gender and Mathematics Performance” by Jonathan Kane and Janet Mertz, takes a scientific, fact-based look at a subject that too often is obscured by prejudice and simplistic explanations.

To start with, Kane and Mertz note that, by several measures, girls actually *do* perform as well as boys in mathematics. In many countries, there is no gender gap in mathematics performance at either the average or very high level. In other countries, notably the United States, the gap has greatly narrowed in recent decades. For example, some U.S. test score data show that girls have reached parity with boys in mathematics, even at the high school level, where a significant gap existed forty years ago. Another piece of evidence is found among U.S. students who are highly gifted in mathematics, namely, those who score 700 or higher on the quantitative section of the SAT prior to age 13. In the 1970s, the ratio of boys to girls in this group

was 13:1; today it is 3:1. Likewise, the percentage of U.S. Ph.D.'s in the mathematical sciences awarded to women has risen from 5% to 30% over the past half century. If biology were destiny and boys had a "math gene" that girls lack, such large differences would not be found over time or between countries.

Nevertheless, other measures continue to show a significant gender gap in mathematics performance. Various hypotheses have been advanced to explain why this gap occurs. Kane and Mertz analyzed international data on mathematics performance to test these hypotheses. One is the "greater male variability hypothesis," famously reiterated in 2005 by Lawrence Summers when he was president of Harvard University. This hypothesis proposes that variability in intellectual abilities is intrinsically greater among males—hence, in mathematics, boys predominate among those who excel, as well as among those who do poorly.

To test this hypothesis, Kane and Mertz calculated "variance ratios" for dozens of countries from throughout the world. These ratios compare variability in boys' math performance to variability in girls' math performance. For example, using test scores from the 2007 Trends in International Mathematics and Science Study (TIMSS), Kane and Mertz found that the variance ratio for Taiwanese eighth graders was 1.31, indicating that there was quite a bit more variability in math scores among boys than among girls. However, in Morocco, the ratio was 1.00, indicating the amount of variability observed in the two groups was identical. In Tunisia, this ratio was 0.91, indicating there was somewhat more variability in math scores among girls than among boys. In the U.S., this ratio was 1.08, a very small difference from 1 that cannot explain why there are so few women among the tenured mathematics faculty at the top U.S. research universities.

If the "greater male variability hypothesis" were true, boys' math scores should show greater variance than girls' math scores in all countries; one should also not see such big, reproducible differences from country to country. Therefore, Kane and Mertz conclude that this hypothesis does not hold up. Kane and Mertz suggest that there are sociocultural factors that differ among countries; some of these factors, such as different educational experiences and patterns of school attendance, lead to country-specific differences in boys' variances and girls' variances and, thus, their variance ratios.

Kane and Mertz took the same kind of data-driven approach to examine some additional hypotheses for explaining the gender gap, such as the "single-gender

classroom hypothesis" and the "Muslim culture hypothesis," both of which have been proposed in recent years by folks including Steven Levitt of Freakonomics fame. Again, Kane and Mertz found that the data do not support these hypotheses. Rather, they observed no consistent relationship between the gender gap and either co-educational schooling or most of the country's inhabitants being Muslim.

They also examined the "gap due to inequity hypothesis," which proposes that the gender gap in math performance is due to social and cultural inequities between males and females. To examine this hypothesis, they used an international gender gap index that compares the genders in terms of income, education, health, and political participation. Relating these indices to math scores, they concluded that math achievement for both boys and girls tends to be higher in countries where gender equity is better. In addition, in wealthier countries, women's participation and salary in the paid labor force was the main factor linked to higher math scores for students of both genders. "We found that boys as well as girls tend to do better in math when raised in countries where females have better equality, and that's both new and important," says Kane. "It makes sense that when women are well educated and earn a good income, the math scores of their children of both genders benefit."

Mertz adds, "Many folks believe gender equity is a win-lose zero-sum game: If females are given more, males end up with less. Our results indicate that, at least for math achievement, gender equity is a win-win situation."

The article by Kane and Mertz is now available on the *Notices* web site.

Carleton Summer Program

The mathematics department of Carleton College, with funding from NSF, will again offer its month-long summer mathematics program to eighteen mathematically talented first- and second-year undergraduate women in 2012. By introducing these students to new and exciting areas of mathematics that they would not see in a standard undergraduate curriculum, and by honing their skills in writing and speaking mathematics, the program leaders endeavor to excite these women to pursue advanced degrees in the mathematical sciences, and, more importantly, to increase each woman's confidence in her own abilities and connect them all into a supportive network to carry them through the remainder of their undergraduate and graduate educations.

continued on page 20

Carleton Summer Program *continued from page 19*

At the heart of the program are two demanding, intense courses under the supervision of female faculty who are accomplished researchers and extraordinary teachers; this year instructors are Erica Flapan of Pomona College and Liz Stanhope of Lewis and Clark College. Besides the coursework, participants take part in a variety of mathematical events: panel discussions on graduate schools and careers, colloquia on a variety of topics, recreational problem-solving, and visits from at least one REU organizer and the organizer of the Budapest Semester. The mathematical part of the program is balanced with weekend events including canoeing, hiking, picnics, and tubing.

Past participants report increased facility with mathematics, bolstered self-confidence, and new or renewed excitement toward mathematics. More than 40% have gone on to earn a Ph.D.

First- or second-year women students seeking an invigorating month-long exposure to mathematics next summer (June 17 – July 15) should consult our website at www.math.carleton.edu/smp or contact Deanna Haunsperger at Department of Mathematics, Carleton College, Northfield, MN 55057 (dhaunspe@carleton.edu). Application deadline is **February 17, 2012**.

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 high 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 2012 and Spring 2013. Applications must be received by **February 4, 2012**. Decisions on funding will be made in late February.

Applications materials should be submitted online. See the AWM website at <https://sites.google.com/site/awmmath/programs/kovalevsky-days> 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 <http://www.awm-math.org/kovalevsky.html>.

More from AWM's 40th Anniversary Conference at ICERM

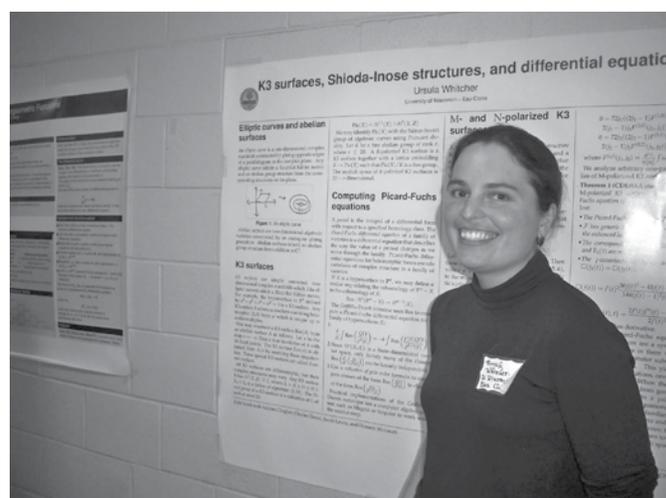


Some of the participants in the Number Theory Special Session:

Back row: Cristina Ballantine (College of the Holy Cross), Melanie Matchett Wood (University of Wisconsin), Jackie Anderson (Brown University), Alina Bucur (UCSD), Ekin Ozman (University of Texas, Austin), Adriana Salerno (Bates College), Laura Hall-Seelig (Merrimack College), Li-Mei Lim (Brown University), Michelle Manes (University of Hawaii), Kristin Lauter (Microsoft Research); Middle row: Brooke Feigon (CCNY), Jessica Libertini-Mikhaylov (US Military Academy/URI), Jen Balakrishnan (Harvard University), Renate Scheidler (University of Calgary); Front row: Lola Thompson (Dartmouth College), Hatice Sahinoglu (Brown University), Bianca Viray (Brown University), Alice Silverberg (UC Irvine), Nadia Heninger (UCSD). Photo Credit: Kiran Kedlaya



Magnhild Lien (soon to be AWM Executive Director), Jill Pipher (AWM President), and Georgia Benkart (AWM Past President). Courtesy of the AMS.



Ursula Whitcher (University of Wisconsin – Eau Claire) at her poster

GGAMES

Shafiqah Faust, Spelman College

“After attending the first Gladys T. Glass Annual Mathematics Education Symposium [GGAMES], mathematics education seems like the chance of a lifetime, a field that I have the opportunity to join”: this was my reply to my peers in my differential equations course, when asked, “What did you learn from the symposium?” Before that day in October 2009, I would never have considered joining the mathematics education field. I know that GGAMES not only changed my perspective on becoming an educator, but also changed the perspectives of many of my peers.

GGAMES, created by the mathematics department at Spelman College, was named after one of the most dedicated mathematics professors the college has ever seen, one who has been devoted to mathematics education since the beginning of her career. Dr. Gladys T. Glass, who has taught at Spelman for fifty years, is a native and resident of Atlanta and a special professor to the mathematics majors at

Spelman College. Not only is she our Spelman Sister, but she is an exemplary role model for all math majors here.

Glass served in the U.S. Army for two years before attending Spelman. After graduating, she obtained a masters degree in mathematics from Atlanta University. She later earned a Ph.D. in mathematics education from Georgia State University; her research centered on mathematics anxiety among female college students. In 1959, she joined the Spelman College faculty and taught until her retirement in 2010. Over her fifty-year career she taught a broad range of courses at every level, including Methods of Teaching Mathematics, and visited student teachers in mathematics at their assigned high schools in her role as liaison to the Education Department.

Spelman College’s math department named the Mathematics Education Symposium for Glass not only because of her great work and dedication to Spelman, but also to highlight the importance of mathematics education and the contributions of those who choose careers in this area. GGAMES was designed with specific goals in mind: to inform the Spelman College community about issues in mathematics education, to bring together math teachers

NSF-AWM Mentoring Travel Grants for Women

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

Mathematics Education Mentoring Grants. Women mathematicians who wish to collaborate with an educational researcher or to learn about educational research may use the mentoring grants to travel to collaborate with or be mentored by a mathematics education researcher. In order to be considered for one of the travel grants, a mathematics applicant must hold a doctorate in mathematics. A mentor should hold a doctorate in mathematics education or in a related field such as psychology or curriculum and instruction. The applicant’s research must be in a field which is supported by the Division of Mathematical Sciences of the National Science Foundation.

Selection Procedure. AWM expects to award up to seven grants, in amounts up to \$5,000 each. Awardees may request to use any unexpended funds for further travel to work with the same individual during the following year. In such cases, a formal request must be submitted by the following February 1 to the selection committee or funds will be released for re-allocation. (Applicants for mentoring travel grants may in exceptional cases receive up to two such grants throughout their careers, possibly in successive years; each such grant would require a new proposal and would go through the usual competition.) For foreign travel, U.S. air carriers must be used (exceptions only per federal grant regulations; prior AWM approval required).

Eligibility and Applications. 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 is one award period per year. Applications are due **February 1**.

from all educational levels for crucial discussions on these issues, and to showcase Spelman's role in increasing the number of teachers and leaders in mathematics education nationwide, with emphasis on the impact and contributions of Gladys T. Glass.

The program was a half day long, beginning with a recognition luncheon that was followed by an informative lecture from Dr. Josephine Davis, "Equity in Mathematics: Challenges and Opportunities." Davis, one of Glass's former students and former president of York College, paid tribute to Glass's role as a stabilizing presence in the department during the turbulent 1960s civil rights era. Davis provided an international perspective, based on her research and experiences, on the challenges confronted by U.S. mathematics educators. In the next session three Spelman alumnae engaged in a panel discussion on progress and issues in the mathematics education field. Two award-winning

teachers, also alumnae, gave presentations on "The Journey from Spelman's Gates to the Mathematics Classroom" as the last event of the afternoon.

School teachers from the metro Atlanta area, college professors, college mathematics majors, and a group of high school students, all attended GGAMES with eagerness to hear about not only the challenges, but also the career paths of many who earned the B.S. in mathematics from Spelman College and became award winners and leaders among middle and high school mathematics teachers.

The field of mathematics is facing many challenges today that should be discussed on college campuses across the nation. GGAMES provides a model for colleges and universities all over the country to take on the challenge of having a conversation about the importance of mathematics education and its current directions.

AWM at CBMS Forum

Cathy Kessel, Chair, AWM Education Committee

The Conference Board of the Mathematical Sciences (CBMS), of which AWM is a member, held a Forum on Teaching Teachers in the Era of the Common Core in Reston, Virginia on October 2–4. The title of the conference is a reference to the Common Core State Standards for Mathematics (which have been adopted by 47 states) and the update of the CBMS report *The Mathematical Education of Teachers*.

The speakers at the Forum included mathematicians, mathematics education researchers, and teachers. Cathy Kessel, Erica Voolich, and Susan Wildstrom (all members of the AWM Education Committee) attended the conference. Other attendees included representatives of CBMS societies, as well as teams from states, regions, and organizations such as Math for America, the Algebra Project, the Council of Presidential Awardees in Mathematics, and College Board. Some teams represented Math Science Partnerships, such as Focus on Math and NebraskaMath.

The significance of the conference is suggested by Suzanne Wilson's talk. Wilson described the Common Core State Standards (CCSS) as "an unprecedented and unified effort to promise U.S. children a high quality, focused mathematical and scientific education that involves both focal and core ideas and high quality, aligned assessments."

However:

Making good on the promise of these standards will require a revolution in our P–20 educational system:

- In what and how we teach
- In how we organize instruction
- In how we collaborate
- In how we learn from the efforts.

As in previous years, this Forum was designed to foster communication among different constituencies in mathematics education. Significantly more teachers were involved as presenters and attendees than before, contributing to increased communication between teachers and other constituencies.

Some breakout sessions collected input from Forum participants in order to inform the update of *The Mathematical Education of Teachers* report. These focused on the mathematics that teachers need to know, and when and how they should come to know it. Among topics of other breakout sessions were elementary mathematics specialists, teacher preparation in statistics, and preparing teachers and teacher leaders. Discussion in these and other breakout sessions reflected the CCSS context.

Many of the powerpoint presentations from the Forum are on the CBMS web site: www.cbmsweb.org/Forum4/Presentations/index.htm.

DIRECTOR SEARCH ANNOUNCEMENT



APPPLICATIONS ARE INVITED FOR THE POSITION OF **DIRECTOR** at the **Mathematical Sciences Research Institute (MSRI)**, an independent research organization located on the campus of the University of California in Berkeley. The appointment will be for a five-year term beginning August 1, 2013.

The Institute is dedicated to the advancement and communication of fundamental knowledge in mathematics, to the development of human capital for the growth and use of that knowledge, and to the cultivation in the larger society of awareness and appreciation of the beauty, power and importance of mathematical ideas and ways of understanding the world.

The attributes of a successful candidate for Director will include:

- 1) Outstanding mathematical accomplishments and visibility within and respect of the mathematical community.
- 2) Strong managerial, administrative and implementation skills.
- 3) A knowledge of and interest in furthering the programs of MSRI.
- 4) Strong interpersonal skills with a variety of constituencies.

A full job description can be viewed at www.msri.org/directorsearch.

Please communicate interest in this position to the **Director Search Committee, MSRI**, by writing to directorsearch@msri.org. While applications will be considered until the position is filled, the committee will start discussions at the **end of February, 2012**.

A completed application will include a CV and a statement of views about how MSRI should continue to develop. Letters of recommendation solicited by the candidate are not required, but will be accepted, and should be addressed to the Director Search Committee, 17 Gauss Way, Berkeley, CA 94720-5070.

MSRI is an equal opportunity employer/affirmative action employer.

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The Society for Industrial and Applied Mathematics (SIAM) and the Association for Women in Mathematics (AWM) are reciprocal societies. AWM members get a 20% discount off the SIAM regular member dues rate and receive all the benefits of regular membership. SIAM members who join AWM receive a discounted new member rate of \$30 per year for two years.



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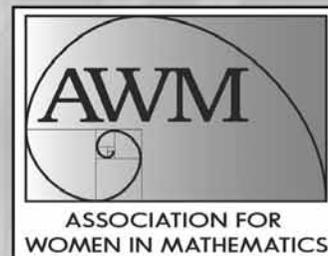
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ADVERTISEMENTS

Nominations Solicited for Blackwell–Tapia Prize

Nominations are solicited for the sixth Blackwell–Tapia Prize, which will be awarded at a conference to be held at the Institute for Computational and Experimental Research in Mathematics (ICERM) on November 9–10, 2012.

Nominees should be active mathematical scientists who have (1) contributed and continue to contribute significantly to research in their fields of expertise; and (2) served as role models for mathematical scientists and students from underrepresented minority groups or contributed in other significant ways to addressing the problem of the underrepresentation of minorities in mathematics.

Nominations should include a letter addressing both eligibility requirements, along with a CV of the nominee. Additional letters supporting the nomination may be included, but are not required. Nominations should be sent by e-mail to Robert Megginson at meggin@umich.edu by February 12, 2012.

The biennial Blackwell–Tapia Prize was established in 2002 by the Mathematical and Theoretical Biology Institute and the Mathematical Sciences Research Institute in honor of the late David H. Blackwell and Richard A. Tapia, distinguished mathematical scientists who have been inspirations to more than a generation of African American and Latino/Latina students and professionals in the mathematical sciences. A consortium of U.S. mathematics institutes, which host the conference in turn, supports the conference at which the prize is awarded. Previous hosts have been MSRI (2002), IPAM (2004), IMA (2006), SAMSI (2008), and MBI (2010). Prior to the first awarding of the prize, an initial Blackwell–Tapia Conference was held at Cornell University in 2000, supported by MTBI and MSRI. The prize itself is funded by a generous donation from Cornell. Previous recipients of the Blackwell–Tapia Prize are Arlie Petters (2002), Rodrigo Bañuelos (2004), William Massey (2006), Juan Meza (2008), and Trachette Jackson (2010).

Details at: <http://icerm.brown.edu/blackwell-tapia-2012>

ENHANCING DIVERSITY IN GRADUATE EDUCATION

(EDGE)—The 2012 EDGE Summer Program will be held June 4 – June 29 on the campus of Pomona College, Claremont, CA, with Dr. Talithia Williams (Harvey Mudd College) as Session Leader. Enhancing Diversity in Graduate Education (EDGE) is a postbaccalaureate program designed to strengthen the abilities of women students to successfully complete graduate programs in the mathematical sciences, with particular inclusion of women from underrepresented groups. The summer session provides courses in analysis and algebra, a topical minicourse, guest lecturers, and advanced graduate student mentors. EDGE participants also benefit from follow-up mentoring and networking opportunities throughout the academic year. Applicants to the EDGE Program must be women who are 1) graduating seniors who have applied to graduate programs in the mathematical sciences for Fall 2012 (2) recent recipients of undergraduate degrees who are now entering graduate programs, or (3) first-year graduate students. All applicants must be accepted into doctoral programs prior to their entry into EDGE and should have completed standard junior/senior-level undergraduate courses in analysis and abstract algebra. Participants are provided travel, room and board, and a stipend of \$3,000. For application materials and additional details, visit the website at <http://www.edgeforwomen.org/> The deadline for applications is **February 27, 2012**.

GEORGIA INSTITUTE OF TECHNOLOGY—Faculty Positions—

The School of Mathematics at Georgia Tech is accepting applications for faculty positions at all ranks and in all areas of Pure and Applied Mathematics and Statistics. Applications by highly qualified candidates from groups underrepresented in the mathematical sciences are particularly encouraged. See www.math.gatech.edu/resources/employment for more details and application instructions.

POMONA COLLEGE—Three-year visiting position in pure or applied

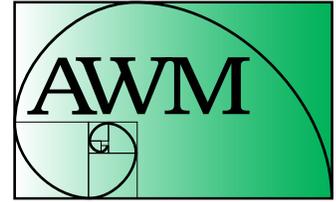
mathematics—Submit applications online at mathjobs.org. Application includes a letter of application, curriculum vitae, graduate transcripts, at least three letters of recommendation (at least one should evaluate teaching), a description, for the non-specialist, of research accomplishments and plans, and a statement of teaching philosophy. Will fully consider applications completed by **February 14, 2012**. Pomona College is an equal opportunity employer and especially invites applications from women and members of underrepresented groups.

WESTERN ILLINOIS UNIVERSITY—Two Tenure-Track Positions,

Assistant Professor, August 2012. 9-11 hours teaching, research, service expected. **QUALIFICATIONS:** Ph.D. in mathematical sciences area; demonstrated or potential for excellence in teaching; a record of or potential for research; a record of or commitment to service. **SCREENING BEGINS** December 1, 2011; continues until position filled. Preliminary interviews: either at Boston, MA Joint Meetings or through Skype. Applications and supporting documentation must be submitted electronically via <http://www.mathjobs.org>. Include letter, vita, teaching statement, research description, three reference letters, transcripts (photocopies). Iraj Kalantari, Chair, Mathematics Department, Western Illinois University, Macomb, IL 61455-1390. See <http://www.wiu.edu/employment/faculty-admin.php?id=1005>. *WIU has a non-discrimination policy that includes sex, race, color, sexual orientation, gender identity and gender expression, religion, age, marital status, national origin, disability, or veteran status.*

2011–2012 Individual Membership Form

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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>.

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Degree(s)	Institution(s)	Year(s)
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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.

- | | | |
|---|-------|-------|
| <input type="checkbox"/> REGULAR INDIVIDUAL MEMBERSHIP (New Members, Affiliate Members, and Reciprocal Members ONLY)..... | \$ 30 | _____ |
| <input type="checkbox"/> REGULAR INDIVIDUAL MEMBERSHIP..... | \$ 65 | _____ |
| <input type="checkbox"/> 2ND FAMILY MEMBERSHIP..... | \$ 30 | _____ |
| <i>Please indicate regular family member: _____</i> | | |
| <input type="checkbox"/> CONTRIBUTING MEMBERSHIP (includes designation of a free student membership) | \$150 | _____ |
| <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 | _____ |
| All payments must be in U.S. funds using cash, U.S. postal orders, or checks drawn on U.S. banks. | | |
| <input type="checkbox"/> CONTRIBUTION to the AWM ANNUAL GIVING CAMPAIGN..... | \$ | _____ |
| <input type="checkbox"/> CONTRIBUTION to the AWM ALICE T. SCHAFER PRIZE FUND | \$ | _____ |
| <input type="checkbox"/> CONTRIBUTION to the AWM ANNIVERSARY ENDOWMENT FUND | \$ | _____ |

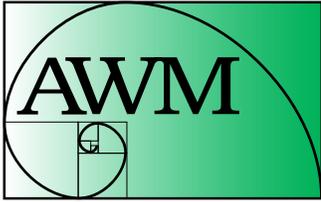
Dues in excess of \$85 and all cash contributions are deductible from federal taxable income when itemizing.

- I do not want my name to appear in annual lists of contributing members.
 I do not want my name to appear in annual lists of contributors to AWM's funds.

Select preferred newsletter delivery method: Print Electronic

Gift membership from: _____

TOTAL ENCLOSED \$ _____



ASSOCIATION FOR
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Volume 42, Number 1, January–February 2012

ADDRESS CORRECTION FORM

- Please change my address to:
- Please send membership information to my colleague listed below:
- No forwarding address known for the individual listed below (enclose copy of label):
(Please print)

Name _____

Address _____

City _____ State _____ Zip _____

Country (if not U.S.) _____ E-mail Address _____

Position _____ Institution/Org. _____

Telephone: Home _____ Work _____

MAIL TO:

AWM
11240 Waples Mill Road
Suite 200
Fairfax, VA 22030

or E-MAIL:

awm@awm-math.org

- I **DO NOT** want my AWM membership information to be released for the **Combined Membership List (CML)**.