

AWM

ASSOCIATION
FOR WOMEN IN
MATHEMATICS

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NEWSLETTER

January–February 2008

President's Report

Dear Colleagues:

You may recall that in a fall 2006 President's Report, Barbara Keyfitz described the workshop "Women in Mathematics" that took place at the Banff International Research Station (BIRS):

The Committee on Women of the Canadian Mathematical Society, as well as the AWM Executive Committee, was consulted about how to mount such an unprecedented event. With rather little time to plan, it was decided to make this a workshop truly on the status of women. Women and men, in positions of leadership and junior people, mathematicians and people who had studied women and mathematics, were invited, from all three countries in North America. Not everyone could accept the invitation, of course, but the group of 35 people that finally assembled in the glorious Banff Centre during a beautiful early fall week was varied and dedicated. It included no fewer than six past present and future AWM presidents as well as several institute directors (some overlap there) and representatives....

A goal quickly formed: to produce a forward-looking report that will take account of recent findings and will make specific recommendations intended to benefit the entire academic mathematical community—including women, of course.

I'm very pleased to announce that the BIRS report was finished in the fall of 2007. By the time you receive this newsletter, it will have been discussed in several places, including the Joint Meetings. (The report has been posted on Barbara Keyfitz's Web page. I've put the URL and other references at the end of this report.)

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The purpose of the Association for Women in Mathematics is

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

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

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EXECUTIVE COMMITTEE

President

Cathy Kessel
Apt. C
2627 Etna Street
Berkeley, CA 94704
cbkessel@earthlink.net

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The BIRS report is a concise 18 pages, something that might be handed to a department chair or dean. In addition to being informed by the experience of its authors and reports from universities in the U.S. and Canada, it draws on the Interacademy Council report *Women for Science* and the National Academy of Sciences report *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*.

The “bias” of the latter refers to various forms of bias studied by psychologists, including stereotype threat and implicit, unconscious, or subtle bias. Stereotype threat involves the awareness of a negative group or personal reputation in a situation where it is relevant, for example, women taking mathematics tests or older people taking memory tests. Triggering of those stereotypes can be shown to affect performance. For example, in giving a mathematics test, remarks such as “This test shows gender differences” have been shown to produce gender differences in scores for difficult tests. (This is a discouraging finding; however, recent research suggests that “immunization” methods exist.) Other forms of bias involve judgments and associations. A well-known example is the tendency to judge heights of men as being greater than heights of women, even when the men and women are matched for height.

The “barriers” of *Beyond Bias and Barriers* include organizational issues studied by sociologists and often apparent to faculty members: policies on child care, family leave or departmental practices for hiring and promotion.

Beyond Bias and Barriers was the subject—or ostensibly the subject—of a meeting at the American Enterprise Institute in October. I write “ostensibly the subject” because the report itself—perhaps due to political spin—is rather loosely characterized in the meeting description as focused on “bias,” in particular, stereotype threat, but not on “barriers.”

The choice of speakers reflected this focus. They included four psychologists (Rosalind Chait Barnett, Elizabeth Spelke, Richard Haier, and Joshua Aronson), a philosopher (Christina Hoff Sommers, author of *The War on Boys*), a lawyer with an M.D. in neuroscience (Amy Wax), and a political scientist (Charles Murray, well known as a co-author of *The Bell Curve*). Mathematicians, biologists, chemists, physicists, and engineers were in the audience. The transcript of this meeting is available on the AEI Web site.

A particularly interesting aspect of the meeting is that discussions occurred between people from different disciplines. For example, an exchange between Amy Wax and Joshua Aronson explicitly displayed different assumptions. Wax thought that studies should be done to “tell us how much of the disparity is due to stereotype threat.” The following ensued (I’ve edited the transcript slightly).

JA: Could I ask you, what is the purpose of an experiment?

AW: To answer a question. And the question I have is ... how much disparity we see in standardized test performance, productivity as scientists, promotion rates between men and women in science and math, how much of that can we quantitatively attribute to stereotype threat, and how much is attributed to other? That's a very simple question.

JA: And it's a question totally inappropriate to laboratory experiments. They cannot give you that information.

Such exchanges were not long enough to reach consensus, but did serve to clarify different viewpoints.

A consensus of psychologists is, however, presented in the article "The Science of Sex Differences in Science and Mathematics," intended as a response to the well-publicized remarks of Lawrence Summers on the percentages of women in academic mathematics and science.

This article is unusual in several ways. It defines its terms. Its authors include psychologists who focus on gender differences (Camilla Benbow and David Geary) and another who focuses on gender similarities (Janet Hyde).

This is a remarkable effort. Parts of the article appear to have been written by different people and don't appear entirely consistent, suggesting that the article required unusual amounts of effort from its authors. Some parts of the article contain some obvious errors in wording and references—which is surprising in a psychology article written by experienced authors and again suggests the unusual nature of this endeavor.

Those who have followed the trajectory of Camilla Benbow's work will be pleased to note that recent "talent search" statistics are reported. (I believe that AWM can take some credit for this change.)

The *Psychological Science* article concludes:

[E]arly experience, biological factors, educational policy, and cultural context affect the number of women

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Editorial: 24th of January, March, May, July, September, November
 Ad: 1st of February, April, June, August, October, December

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Send all **Newsletter** material **except ads and book review material** to Anne Leggett, Department of Mathematics and Statistics, Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; e-mail: leggett@member.ams.org; phone: 773-508-3554; fax: 773-508-2123. Send all **book review** material to Marge Bayer, Department of Mathematics, University of Kansas, 405 Snow Hall, 1460 Jayhawk Boulevard, Lawrence, KS 66045-7523; e-mail: bayer@math.ku.edu; fax: 785-864-5255. Send everything else, **including ads and address changes**, to AWM, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030; phone: 703-934-0163; fax: 703-359-7562; e-mail: awm@awm-math.org.

AWM ONLINE

AWM Web Editor

Holly Gaff
 hgaff@odu.edu

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Editor: Dianne O'Leary
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AWM DEADLINES

SIAM Workshop: January 15, 2008

NSF-AWM Travel Grants:
 February 1 and May 1, 2008

NSF-AWM Mentoring Travel Grants:
 February 1, 2008

Kovalevsky High School Days:
 February 4, 2008

Louise Hay Award: April 1, 2008

AWM OFFICE

Jennifer Lewis, Managing Director
 DeeJay Garringo, Membership Director
 11240 Waples Mill Road, Suite 200
 Fairfax, VA 22030
 phone: 703-934-0163
 fax: 703-359-7562
awm@awm-math.org

and men who pursue advanced study in science and math and ... these effects add and interact in complex ways. There are no single or simple answers to the complex questions about sex differences in science and mathematics.

This article—and the AEI meeting, and many other discussions of women and mathematics—give short shrift to barriers associated with departmental and institutional practices.

Statistics show considerable variation among individual mathematics departments and changes over the years. For example, phds.org displays rankings of graduate schools in mathematics by various categories, including percentage of Ph.D.'s earned by women between 2000 and 2004. Below are a few examples accompanied by earlier statistics from Allyn Jackson's 1991 article in the *Notices of the American Mathematical Society*.

Mathematics department	% Ph.D.'s earned by women	
	2000–2004	1981–1990
Yale University	10	12.9
Harvard University	19	8.0
University of California at Berkeley	20	10.0
Massachusetts Institute of Technology	22	15.3
Brown University	27	14.6
Rutgers University (New Brunswick)	30	22.1
Darmouth College	53	28.6

Such differences in outcomes might be attributed to individual faculty members, but departmental practices may play a role. The sociologist Mary Frank Fox studied science departments that were successful and unsuccessful in graduating women Ph.D.'s. One of several differences in practices that helped to distinguish a successful from an unsuccessful department was the presence of written guidelines for graduate students on matters such as course of study, exams, and other expectations.

Presence or absence of explicit guidelines—for graduate students or for faculty members—is but one example of how departmental culture may make a difference. Discussion of such issues was almost absent from the AEI meeting and *Psychological Science* article, but is a major part of the recommendations of *Women for Science, Beyond Bias and Barriers*, and the BIRS report.

Differences in departmental and institutional culture may help to explain the considerable variation in the percentages of women on mathematics

department faculties—and in academic departments generally (for the latter, see the *American Association of University Professors Faculty Gender Equity Indicators 2006*). The Nelson Diversity surveys give demographic statistics for the faculty in the “top 50” departments in mathematics and other sciences. These again show that numbers and percentages of women vary by department.

These also vary by type of institution, again suggesting that institutional culture makes a difference. For example, the Conference Board of the Mathematical Sciences surveys for 2000 and 2005 give the numbers of women in tenured and tenure-track faculty positions in mathematics departments, as classified by highest degree granted. (Calculations of percentages are mine.)

Why are most of these numbers and percentages getting larger? I suspect that the American Enterprise Institute meeting or the *Psychological Science* article will suggest fewer answers than the BIRS report. See the references at right for details.



Cathy Kessel
Berkeley, CA
November 29, 2007



References

American Association of University Professors Faculty Gender Equity Indicators 2006, <http://www.aaup.org/AAUP/pubsres/research/geneq2006>

American Enterprise Institute event on women and science transcript (there is also a Webcast and audio recording), <http://www.aei.org/events/eventID.1536,filter.all/transcript.asp>

BIRS report, *Women Mathematicians in the Academic Ranks: A Call to Action. Report of the BIRS Workshop on Women in Mathematics*, <http://math.uh.edu/~blk/blkp.html>

Conference Board of the Mathematical Sciences 2005 and 2000 surveys, <http://www.ams.org/cbms/>

M. F. Fox, “Organizational Environments and Doctoral Degrees Awarded to Women in Science and Engineering Departments,” *Women’s Studies Quarterly*, 2000

D. Halpern, C. Benbow, D. Geary, R. Gur, J. S. Hyde, and M. Gernsbacher, “The Science of Sex Differences in Science and Mathematics,” *Psychological Science in the Public Interest*, 2007, https://www.psychologicalscience.org/journals/pspi/pspi_8_1_article.pdf

	Fall 1995	Fall 2000	Fall 2005
Tenured women (percentage of tenured faculty)			
Ph.D.-granting departments	317 (7%)	346 (7%)	427 (9%)
M.A.-granting departments	501 (15%)	608 (19%)	532 (21%)
B.A.-granting departments	994 (20%)	972 (20%)	1373 (24%)
Tenure-track women (percentage of tenure-track faculty)			
Ph.D.-granting departments	158 (20%)	177 (22%)	220 (24%)
M.A.-granting departments	235 (29%)	276 (32%)	337 (33%)
B.A.-granting departments	748 (43%)	517 (32%)	693 (28%)

Interacademy Council, *Women for Science*, 2006, <http://www.interacademycouncil.net/?id=11228>

National Academy of Sciences, *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering* (draft online in 2006, official publication date is 2007), http://www.nap.edu/catalog.php?record_id=11741

Nelson Diversity Surveys, http://cheminfo.ou.edu/~djn/Science_and_Society/index.html

Graduate school rankings, <http://graduate-school.phds.org/>



NSF-AWM Travel Grants for Women

The objective of the NSF-AWM Travel Grants program is to enable women researchers in mathematics or in mathematics education to attend research conferences in their fields, thereby providing a valuable opportunity to advance their research activities and their visibility in the research community. By having more women attend such meetings, we also increase the size of the pool from which speakers at subsequent meetings may be drawn and thus address the persistent problem of the absence of women speakers at some research conferences. All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians appointed by the AWM.

Travel Grants. Two types of grants are available. 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. The Mathematics Education Research Travel grants provide full or partial support for travel and subsistence in math/math education research, for mathematicians attending a math education research conference or math education researchers attending a math conference. In either case, a maximum of \$1500 for domestic travel and of \$2000 for foreign travel will be applied. For foreign travel, US air carriers must be used (exceptions only per federal grants regulations; prior AWM approval required).

Eligibility. These travel funds are provided by the Division of Mathematical Sciences (DMS) and the Division of Research, Evaluation and Communication (REC) of the NSF. The conference or the applicant's research must be in an area supported by DMS. Applicants must be women holding a doctorate (or equivalent experience) and with a work address in the USA (or home address, in case of unemployed mathematicians). Anyone who has been awarded an AWM-NSF travel grant in the past two years is ineligible. Anyone receiving more than \$2000 yearly in external governmental funding for travel is ineligible. Partial travel support from the applicant's institution or from a non-governmental agency does not, however, make the applicant ineligible.

Applications. All applications must be submitted online via the web-based system which is available through a hotlink at <http://www.awm-math.org/travelgrants.html>. The application requirements and a complete step-by-step process are available at the online site. If you have not already done so you must first create a user account—this will be the first screen when you access the site. During the application process you will be asked to attach one .pdf file that includes your proposal, CV and current and pending funding information, as applicable. If you have a speaker confirmation letter or e-mail notification, scan the document as an electronic file and attach it as a .pdf. In addition, please complete the application pre-survey administered by an independent evaluator. You may contact Jennifer Lewis at 703-934-0163, ext. 213 for guidance. There are three award periods per year. The next two deadlines for receipt of applications are **February 1** and **May 1, 2008**.

Research and Families: A Personal Perspective

Petra Bonfert-Taylor, Wesleyan University

Dedicated to the memory of Juha Heinonen

I accepted the offer from Cathy Kessel to write a personal article on issues surrounding families and mathematical research partly because I relished the opportunity to recollect the time when I was surrounded by toddling children. My children are now nine and five years old, and I can easily summon nostalgia for their very early lives. But I think that nearly everyone would agree: the mixing of young children and a research career is at times a fine recipe for stress.

Despite my wonderful memories of this period, I think that the simple truth of the matter is that my survival as a research mathematician was in part good fortune. I was lucky in my circumstances: through the efforts of individuals many of the best practices that have been implemented today were made available to me in 1998 and 2001. At difficult times people didn't just refer to extant policy or rules, rather they tailored solutions to my set of circumstances. It was a great lesson for me: I've tried since, in a myriad of ways large and small, to do the same for others.

I'd like to illustrate certain "best practices" through my own experiences. I'm going to focus on three core principles that helped get me through those years when my children were very young. I don't know how generic my experiences are: I suspect that many female mathematicians have had a much harder time.

1. Employment Flexibility

I had my son while a postdoctoral faculty member at the University of Michigan, and I had my daughter while on the tenure track at Wesleyan University. Although the details of the two situations were quite different, the flexibility shown by both departments helped me incredibly.

When I had my son, the University of Michigan had a maternity leave policy for its faculty members, but that policy did not apply to postdoctoral faculty. However, our department chair Al Taylor (no relation) immediately offered me the option of going part time for the year following my son's birth. Further help arrived when Pat Shure, the director of the undergraduate calculus program at Michigan, selected me as the assistant course coordinator for the approximately 60 sections of reform-style calculus. This duty, substantial in extent, replaced my teaching duties.

Let me explain how these wonderful offers helped me greatly, both personally and professionally. First, my work schedule became a lot more flexible. Instead of a fixed teaching schedule, I was able to do many of my tasks from home, and or at night, and or at the odd times when Alex was asleep. Second, I learned a lot about teaching, about training instructors (part of my job was to help in the instructor training program), and about coordinating a class with a large number of sections. Since I was on the job market for a tenure-track position later that year, this was a valuable entry on my vita.

I had my second child while a couple of years into a tenure-track position at Wesleyan University. From my start at Wesleyan I have encountered strong female leadership in the mathematics department, in particular through people like Carol Wood, who was chair when I was hired. Their example made me comfortable and confident in availing myself of all of the resources that were available to me without fear of repercussions. Wesleyan has had a progressive parental leave policy on the books since the mid 1980s, and I took a parental leave the semester after my daughter's birth. Elaine arrived in mid-November, an inconvenient time in the academic calendar; the birth of a child cannot easily be planned to fall in between semesters. The chair at this time, Philip Scowcroft, made it possible for me to teach a graduate class at "double time"; that is, it met at the start of the fall semester three times a week instead of two, so that the class was to be finished by Elaine's due date. My second class (a multi-section calculus class which I coordinated in addition to teaching a section) could not be dealt with quite as easily, but again administrative flexibility

got me through. I prepared all of the coordinating documents, prepared most of the exams, and wrote all of the lesson plans well before my due date. I was then assisted in finding a substitute for my own section for the rest of the semester. Again, flexibility on all accounts made it possible for me to take my maternity leave during the semester following the birth of my daughter, which is when she needed me most.

2. Flexibility in Hiring

In my personal life I had an eventful three years in Michigan: I married, had a child, and came to feel at home in the United States (versus my home country of Germany). My research mentors at Michigan were Fred (and Lois!—see below) Gehring and Juha Heinonen and they, it seemed to me, exhibited a large amount of faith in my research potential.

At the time I was hired at Wesleyan, I had two papers in print and two more under submission. If the candidates for my position had been evaluated solely through a linear ranking in terms of the number of published papers, I most likely would not have won the competition for this job. I feel certain that my letter writers were sensitive to this problem and were careful in their description of me to fully illustrate my potential for research.

After Fred and Juha (and others too) helped me get my foot in the door, I received encouragement at crucial stages in the form of invitations to speak, ongoing National Science Foundation research support, and more broadly “opportunities to participate” (like this article). Research is a social endeavor that is not easily quantified. I’ve been fortunate to be mentored by people who understood this.

3. Availability of On-site Child Care

This is by far the most prosaic of these categories, and yet the quality of care that my children have received from the day care center at Wesleyan was absolutely crucial. I knew that my children were in a safe learning environment that was close to my office; this allowed me to work when I was at work. In a very real sense Diane Kischell, Betty Muir, and

all of the teachers at the Neighborhood Preschool are every bit as responsible for my attaining tenure as were any other group of people.

Simply put: It is an institutional failing if a university or college cannot provide meaningful help and resources to facilitate the care and learning of the children of its employees. It is hard to believe that an institution exhibiting such a failing could be mindful and successful at the education of young adults. This is only a problem, of course, in a country that doesn’t provide childcare in other ways.

I’d like to expand briefly on my reference above in section 2 to Lois Gehring. For the mathematical circles in which I travel, Fred and Lois Gehring’s house is an important stop. Frequent social and mathematical events were held, and I (and many other young people!) met many leading analysts making their annual treks through Ann Arbor. I grew to feel a strong attachment to this community and through this a stronger attachment to the subject of my research. I felt a part of a friendly and strong community. This helped immeasurably in developing my research career in ways practical and emotional. It was both Lois and Fred who mentored me while I was at Michigan, in ways too myriad and subtle to be fully described in this short article.

But even with all of this help, academic life with small children was at times difficult and always overly full. My husband Edward, also at Wesleyan, is a mathematician. Together we have equally shared (when biologically possible) our familial responsibilities. This has helped each of us individually, both in our careers and at home. However ... the logistics related to the care of children, to the care of a marriage, and to allowing for enjoyment are tough. I think that allowing for enjoyment is the hardest; there is always more work of all sorts that can be done, and there’s a (false) sense of security that comes from continually working and worrying. We use the usual tricks: a regular babysitter and a night out every week, frequent physical activity outside of the house (e.g., both kids began to learn to ski—whether they wanted to or not—at the age of three), and lots of academic travel. Much to our amazement, we found that travel with kids can be both mathematically enriching and

a lot of fun with enough juggling. We didn't always get the balance right, and we still don't, but we keep trying.

The word "flexibility" has come up repeatedly in this story, and it is, I think, the key word. I've been fortunate to be at institutions with progressive policies and forward-leaning leaders. These have helped immeasurably, and there is no real replacement for them. It is important that we as a community continue to press for policy improvements. But policies cannot fully address every life situation; no two careers or family situations are the same. At important points I met

people with authority who were flexible in their approaches, and that resulted in real help to my family and to my career. And so here is my core point: each of us can exhibit this flexibility in small and large ways to help our colleagues—male and female—to balance family and career responsibilities. We needn't always wait for permission, in the form of policies, funds, and instructions from on high, to do so.

Ed. Note: This is the second in our new series of articles on Family and Career. We invite further submissions for this series.

Infinite Possibilities Conference: Women Gather for Inspiration and Mathematics

Lily Khadjavi, Loyola Marymount University

In early November, North Carolina State University hosted the second Infinite Possibilities Conference (IPC), a national conference designed to celebrate, promote, support and encourage underrepresented minority women mathematicians. The two-day conference for students and professionals brought together over 200 women in mathematics and statistics, primarily from underrepresented racial and ethnic groups, from all over the country.

When asked why this conference was needed, IPC creator and co-chair Dr. Tanya Moore said, "As the future generations of women see more positive and successful mathematician and scientist role models that look like them and as they gain greater access into quality educational programs, they will connect to their potential and talents and add value to the fields of science and mathematics."

A primary goal of the conference is to create inspiration that attendees can carry well into the future. According to the AMS Annual Survey of the Mathematical Sciences in the U.S., in 2006, only 10 doctorates were awarded to

female U.S. citizens who were African American, Latino, Native American, or Pacific Islander. This was less than seven percent of those degrees awarded to female citizens and less than one percent of all Ph.D.'s granted in the mathematical sciences. In fact, from 1997 to 2004 (a seven year period), over 3500 Ph.D.'s in mathematics were awarded to U.S. citizens or permanent residents, but only 79—a paltry 2.2%—went to underrepresented minority women. This conference serves to remind these women that while their numbers may be small, they're not alone. At the conference, Dr. Kimberly Weems, co-chair of IPC and member of the NC State Statistics Department, noted that the attendees represented all parts of the educational and professional pipeline, from high school students to government and industry professionals. "They say there is strength in numbers—we are 225 strong! We have surpassed our target number of 200 and grown from the 150 attendees at the 2005 IPC."

The first-ever IPC took place in April of 2005 at Spelman College in Atlanta. As one undergraduate participant put it, "While attending the IPC conference I was motivated to continue to give back to my community. The entire conference was memorable. Being able to be in the company of numerous mathematicians who were just like me was inspiring and truly a boost to my desire to continue in mathematics."

At this year's closing banquet, the Etta Z. Falconer Award for Mentoring and Commitment to Diversity was presented to Dr. Sylvia Bozeman, Professor of Mathematics and

Director of the Center for Scientific Applications of Mathematics (CSAM) at Spelman College. Honoring the late Dr. Falconer, who devoted 37 years to teaching mathematics at Spelman College and improving the quality of mathematics and science education for African-American women, this award was established to recognize individuals who have demonstrated a professional commitment to mentoring and increasing diversity in the sciences, and in particular the mathematical sciences. Among Dr. Bozeman's achievements is her work as co-director, with Dr. Rhonda Hughes, of the Enhancing Diversity in Graduate Education (EDGE) program.

The first Etta Z. Falconer Award winner, Dr. Janis Oldham, had the following to say about Bozeman. "I first met Sylvia at a NAM session at the Annual Joint Meetings around 1990 ... but she had been one of my personal heroes (along with Etta Falconer and Fern Hunt and others) due to an article by Pat Kenschaft about black women mathematicians. The article had been given to me by a black woman historian at Purdue around 1982, and I used to read the article over and over again, so I knew the women's stories. Sylvia was the second person I met from that article, but has been (and still is!) a mentor to me since I met her. How many people do you know who are friends with their heroes?"



Keynote speaker Freda Porter (center) with student participants



Concetta Gomez, of the University of Wisconsin, Madison, speaking in the panel "A woman's worth—self advocacy," with fellow panelists (from right to left) Jamye Carter, Alabama State University; Kelly-Ann Henry, Toyota Motor Sales; and Cleopatria Martinez, Phoenix College.

The Infinite Possibilities Conference also included a variety of keynote addresses, panel talks, research talks, student poster presentations, and panels on graduate studies and professional development. Participants came from every career stage, from undergraduates to teachers and professionals, with special events for high school students. Among the broad array of sessions were "Dialogues in Mathematics," informal roundtable discussions for participants to express their ideas and hear the ideas of others concerning the pre-college, college, and graduate school experiences, including fitting into the culture of graduate programs, improving the race and gender divide, and balancing career and family.

The opening speaker was Dr. Freda Porter, who earned her Ph.D. in applied mathematics from Duke University in 1991. A member of the Lumbee tribe, she is one of a small number of American Indian women who have earned Ph.D.'s in mathematics. Today she is President and CEO of Porter Scientific, Inc. and a founding member of the NC American Indian Chamber of Commerce. Other plenary speakers include Dr. Iris Mack, the second African-American woman to earn a Ph.D. in applied mathematics from Harvard University, and Dr. Alicia Carriquiry, professor of statistics at Iowa State University and editorial board member of several Latin American journals of statistics and mathematics.

“Our hope,” says Dr. Moore, is that Infinite Possibilities Conference will increase the participation of under-represented minority women in the mathematical sciences. One of the themes for this year’s conference was ‘connectivity’ because we recognize that many female and/or minority mathematicians feel isolated at their respective institutions, and we see IPC as helping to foster a greater sense of connectedness. After the experience of the conference this year, I think a more appropriate theme would be ‘transformation.’ ... In one of the discussions there were representatives from a research university and an HBCU [Historically Black College or University] that talked about possible ways to collaborate to create a stronger pipeline between their institutions. It was truly powerful to see minds open and transform in just a matter of a couple of days.”

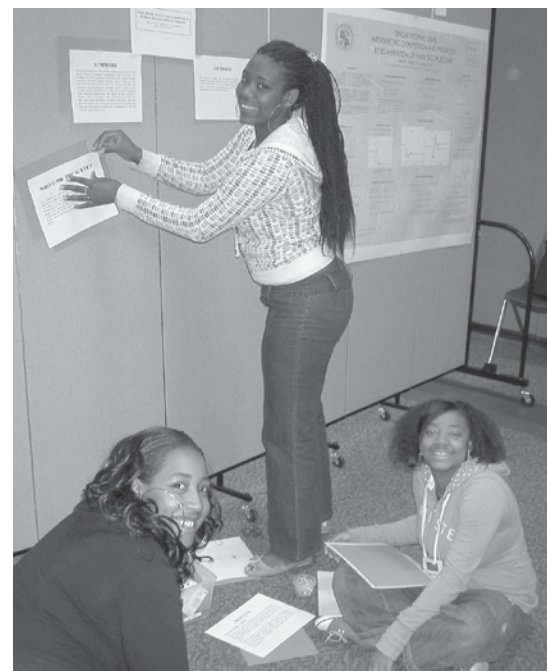
Building Diversity in Science (BDIS), North Carolina State University (NCSU), and The Statistical and Applied Mathematical Sciences Institute (SAMSI) were hosts to the 2007 Infinite Possibilities Conference. Along with SAMSI and NCSU, the National Security Agency, American Statistical Association, and Mathematical Association of America sponsored this event.



Participants share their experiences with one another during the Mentoring Circles



IPC Steering committee together at the Dr. Etta Z. Falconer Banquet (from left to right: Jamylle Carter, Camille Daniel, Rotunda Floyd, Erika Camacho, Kimberly Weems, Kim Sellers, Lily Khadjavi, Sonya Snedecor, Leona Harris, and Tanya Moore)



Students preparing for poster session

Infinite Possibilities Conference



Keynote speaker Alicia Carriquay



From left to right: conference co-chairs Kimberly Weems and Tanya Moore; winner of the Etta Z. Falconer Award, Sylvia Bozeman; previous Falconer Award winner Janis Oldham; and co-chair Leona Harris



North Carolina State Chair Sastry Pantula and Spelman College professor Nagambal Shah with students at the award banquet.



Panelists (from left to right) Dawn Lott, Sylvia Bozeman, and Andrea Hernandez, listen as Kim Barnette (not pictured) speaks on "Best practices for balancing your personal and professional lives."



Graduate student Jimena Davis speaks on her research, "A comparison of approximation methods for the estimation of probability distributions on parameters" in the research session on Probability and Statistics.



Conference attendees gather for a photo

Presidential Science Debate

ScienceDebate, December 2007

Eleven Nobel laureates, two dozen other eminent scientists, and the leaders of many of America's pre-eminent scientific organizations and universities have joined a coalition of business leaders, writers, and elected officials of both major political parties in a call for a science-based presidential debate in 2008.

The group, which calls itself ScienceDebate2008, says such a debate is critical. "Given the many urgent scientific and technological challenges facing America and the vital role scientific innovation plays in spurring economic growth, we view this as a critical part of our presidential selection process," the group said in a prepared announcement.

It just may be an idea whose time has come, says Donald Kennedy, editor-in-chief of *Science* magazine. "Climate change, the space station, and stem cells are just a few of the many scientific issues that have become central in national policy. It's about time we hear from the candidates on science issues."

"When you think about it, nearly every major

challenge the next President will face has a science or technological component," said Lawrence M. Krauss, an astrophysicist at Case Western Reserve University and a member of the ScienceDebate2008 steering committee. "We owe it to the next generation to address these challenges responsibly."

The group's impressive signatory list may be seen at <http://www.sciencedebate2008.com>.

The debate location and venue have not yet been chosen. The group is in talks with several major organizations, said Matthew Chapman, a writer and spokesman for the group's steering committee, and he says at least one major presidential campaign has already indicated support for the idea. "The strangest thing about this debate is that it hasn't already happened. It is so clearly essential."

John Rennie, Editor-in-Chief of *Scientific American*, is also a member of the steering committee. "Matters of science and technology underpin every important issue affecting the future of the United States," said Rennie. "It's crucial for the nation's welfare that our next president be someone with an understanding of vital science, a willingness to listen to scientific counsel, and a capacity for solid, critical thinking. A debate would be the ideal opportunity for America and the candidates to explore our national priorities on these issues."

Mahoney Receives Ralph S. Brown Award

AAUP, June 2007

The American Association of University Professors honored Dr. Carolyn R. Mahoney, president of Lincoln University of Missouri, at its Ninety-second Annual Meeting in Washington, D.C., on Saturday, June 9. President Mahoney was presented with the AAUP's Ralph S. Brown Award for Shared Governance.

The award is given to American college or university administrators or trustees "in recognition of an outstanding contribution to shared governance." It was established in 1998 in memory of Ralph S. Brown, who served as AAUP president and general counsel and headed many AAUP committees during his forty-four years of service to the Association. The selection committee consists of the president of the Association, the general secretary, and the current chair and a former chair of the AAUP's Committee on College and University Governance. Criteria for the award include demonstration of a strong commitment to shared governance; the ability to work with faculty and

staff to bring about effective change; and the capacity to communicate to multiple constituencies about the importance of shared governance.

Shared governance, which is the cooperative and consultative process for academic decision making on college and university campuses, is highly valued by the academic community. In its widely respected 1966 Statement on Government of Colleges and Universities, the AAUP notes that "the variety and complexity of the tasks performed by institutions of higher education produce an inescapable interdependence among governing board, administration, faculty, students, and others."

In presenting the award on behalf of the selection committee, Professor Gregory Scholtz, chair of the AAUP's governance committee, spoke of the "eloquent letters sent by Lincoln faculty and staff, who expressed their heartfelt gratitude for the steps that President Mahoney has taken to involve them in joint decision-making—and particularly in restoring equity to faculty and staff compensation, improving internal communications, and revising university regulations." During her tenure as president, the university has made significant progress in all these areas, and faculty morale has reached new heights. Scholtz noted also that, while praising the president's governance accomplishments,

Call for Nominations: 2009 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. *Five* complete copies of nomination materials for this award should be sent to: The Hay Award Selection Committee, Association for Women in Mathematics, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030. Nominations must be received by **April 30, 2008** and will be kept active for three years. For more information, phone (703) 934-0163, e-mail awm@awm-math.org or visit www.awm-math.org. Nominations via e-mail or fax will not be accepted.

faculty and staff expressed an even greater appreciation and regard for President Mahoney herself. In the words of one nominator: "As I thought of what to say about Dr. Mahoney's impact on this campus that would illustrate the extent to which she has changed our campus culture, I realized that in its most basic form, shared governance is simply a reflection of good character and the qualities that allow us to trust each other, to treat each other with courtesy and respect, and to share in the responsibility of making our institution better for all its constituents. It is who Dr. Mahoney is that has changed us." Another faculty member observed, "Some presidents talk about shared governance; this president exemplifies it."

Lincoln University was founded in 1866 by two African-American Civil War infantry units interested in continuing their education. According to the university's Web site, "Today, Lincoln University serves a diverse clientele, both residential and non-residential, engages in a variety of research projects, and offers numerous public service programs in addition to providing an array of academic programs."

Ed. note: Mahoney is a mathematics Ph.D. Before rising to the presidency of Lincoln, she was involved in AWM's Sonia Kovalevsky High School Mathematics Days program in a variety of ways. Congratulations from all of us, Carolyn!

Sonia Kovalevsky High School Mathematics Days

Through grants from Elizabeth City State University and the National Security Agency, the Association for Women in Mathematics will support Sonia Kovalevsky High 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 high school women 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 transition 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 high schools in their area.

An additional selection cycle will be held in February 2008 for Spring 2008 using funds remaining after the August 2007 selection cycle. AWM anticipates awarding up to six additional grants ranging on average from \$1500 to \$2200 each (\$3000 maximum per school) 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) a cover letter including the proposed date of the SK Day, expected number of attendees (with 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; b) plans for activities, including specific speakers to the extent known; c) qualifications of the person(s) to be in charge; d) plans for recruitment, including the securing of diversity among participants; e) detailed itemized budget (i.e., food, room rental, advertising, copying, supplies, student giveaways, etc. 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. This grant does not permit reimbursement for indirect costs or fringe benefits. Please itemize direct costs in budget.); f) local resources in support of the project, if any; and g) tentative follow-up and evaluation plans.

The decision on funding will be made in late February for high school days to be held in Spring 2008. If selected, 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, 2008, whichever comes first. Reimbursements will be made in one disbursement; no funds will be disbursed prior to the event date.

Send five complete copies of the application materials to: Sonia Kovalevsky Days Selection Committee, Association for Women in Mathematics, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030. For further information: phone 703-934-0163, e-mail awm@awm-math.org, or visit www.awm-math.org. Applications must be received by **February 4, 2008**; applications via e-mail or fax will not be accepted.

Book Review

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

Out of the Shadows: Contributions of Twentieth-Century Women to Physics, Nina Byers and Gary Williams, eds., Cambridge University Press, 2006

Reviewer: Alice Bean, Department of Physics & Astronomy, University of Kansas, Lawrence, KS 66045

It was a treat to read *Out of the Shadows: Contributions of Twentieth-Century Women to Physics*, which profiles 40 women who made outstanding contributions for the advancement of physics between 1876 and 1976. For each woman, the book contains an essay written by a notable

scientist summarizing the significant contributions to their field as well as a short biography. The level of description of the essays is at least that of an undergraduate science (or math) major, and some include mathematical formulas. For the book, the editors culled a list of more than a few hundred prominent women in physics to choose notables such as the obvious Nobel prize winners—Marie Curie, Irene Joliot-Curie, Dorothy Crowfoot Hodgkin, Rosalyn Yalow, and Maria Goeppert-Mayer—to other giants in the field who could have or should have won Nobel prizes such as Emmy Noether, Lise Meitner, and Chien-Shiung Wu. A variety of scientific fields were represented from mathematical physicists Bertha Swirles Jeffreys and Cecile DeWitt-Morette, to solid state physicists Helen Dick Megaw and Kathleen Yardley Lonsdale, to astronomers Cecilia Payne-Gaposchkin and Eleanor Margaret Burbidge. The archive may be found at <http://cwp.library.ucla.edu>.

NSF-AWM Mentoring Travel Grants for Women

The objective of the NSF-AWM 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. AWM expects to award up to seven grants, in amounts up to \$5000 each. Each grant will fund 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. 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 1st to the selection committee, or the funds will be released for reallocation. (Applicants for mentoring travel grants may in exceptional cases receive two such grants throughout their careers, possibly in successive years; the second such grant would require a new proposal and would go through the usual competition.) For foreign travel, US air carriers must be used (exceptions only per federal grant regulations; prior AWM approval required).

Eligibility. Applicants must be women holding a doctorate or equivalent experience and with a work address in the US (or home address if unemployed). The applicant's research may be in any field that is supported by the Division of Mathematical Sciences of the National Science Foundation. (See <http://www.nsf.gov/od/lpa/news/publicat/nsf03009/mps/dms.htm#1> for the list of supported areas.)

All applications must be submitted online via the web-based system which is available through a hotlink at <http://www.awm-math.org/travelgrants.html>. The application requirements and a complete step-by-step process are available at the online site. If you have not already done so you must first create a user account—this will be the first screen when you access the site. During the application process you will be asked to attach one .pdf file that includes your research proposal (approximately five pages in length, specifying why the proposed travel would be particularly beneficial), CV, proposed budget and information on current and pending funding, if applicable. In a second step you will be asked to attach one .pdf file that includes the proposed mentor's letter of support (indicating his/her availability at the proposed travel time) and CV. You may contact Jennifer Lewis at 703-934-0163, ext. 213 for guidance. A final report will be required from each awardee. All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians appointed by the AWM. The deadline for receipt of applications is **February 1, 2008**.

This archive contains more scientists and links to many interesting documents, but is missing the fascinating essays on significant contributions found in the book.

As a mid-career female experimental particle physicist, I probably should have known more about the prominent female scientists than I did before reading this book. I knew that Meitner discovered the nuclear fission process with Frisch, that she was an unpaid researcher for a major part of her research career, and that probably she didn't receive the Nobel prize for her work because she was a Jew and lived in Nazi Germany. Noether's proof of symmetry transformations implying conservation laws which provided a basis for Einstein's discoveries is also now described in elementary textbooks. However, I realized that I have missed some of the other seminal contributions, and I believe that most scientists and mathematicians will gain valuable insights into the process and history of scientific discovery by reading even portions of this book. I have now pondered the history of my field in a different light. One can read the excerpts on the early 20th century scientists and become incensed that we haven't been learning about these women throughout our studies. I found it interesting that I know some of the women personally who are profiled later in the book, and my perceptions are definitely colored by this. Are my contemporaries great scientists? The answer should be yes, but one can see why some of the earlier contributions of women were ignored due to stereotypical stigmas placed on women. It has definitely made me ponder how history is disseminated.

The tone and level of the essays vary, and I found myself more interested in some than others. Many of the essays are written by relatives or spouses, and those I found very personal. Some were even quite emotional. One can learn both about the scientific climate as well as the social climate from these. For instance, many of the women working in the 1950s and 1960s could not have full time

positions at their universities due to nepotism rules which denied them employment if their spouse was already employed. One can also learn about the contributions of many women who either volunteered, or were paid very little, at the Harvard College Observatory. Henrietta Swan Leavitt discovered the period-luminosity relation for Cepheid variable stars, but her work and that of others at the observatory was reported formally as an Observatory contribution by the Director, so they received little credit.

After reading this, I've had some interesting dialogs. My father was a surface chemist and used what I thought he called a Langmuir trough to study monolayers. Agnes Pockels is profiled in the book, which suggests that she was the inventor of this apparatus. When I asked my Dad if he knew about Pockels, he said, "You mean from the Langmuir-Pockels trough?" Apparently some of these women have now been credited with some of their contributions, but I believe it is imperative to start talking more about their contributions, as this book seeks to do. I noticed later when reading Katharine Burr Blodgett's contributions that she also worked with Langmuir. I think that Langmuir owes a lot to his female colleagues. In a conversation with a theoretical physicist colleague, we discussed the contributions of Bertha Swirles Jeffreys who was known for her many-body calculations in mathematical physics. He knew of the book Jeffreys wrote with her husband, known as "J&J" by the community, but didn't know of her seminal contribution to what we call the Hartree-Fock theory. Maybe students should be required to read some of these essays to learn more about the history of science.

There are now many books and sources discussing the contributions of women to science. This is a very positive development, and dissemination of these works should be encouraged. I believe that this book is written for scientists and mathematicians and will help them learn about giants in their fields. It also would be good reading for students who want to major in science.

For information about classified advertising in *AWM News*, visit us at:

www.awm-math.org

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

supported by the Office of Naval Research, the National Security Agency,
and the Association for Women in Mathematics

For many years, the Association for Women in Mathematics has held a series of workshops for women graduate students and recent Ph.D.'s in conjunction with major mathematics meetings.

WHEN: An AWM Workshop is scheduled to be held in conjunction with the SIAM Annual Meeting, San Diego, CA, July 7–11, 2008.

FORMAT: The workshop will consist of a poster session by graduate students and two or three minisymposia featuring recent Ph.D.'s, plus an informational minisymposium directed at starting a career. The graduate student poster sessions will include all areas of research, but each research minisymposium will have a definite focus selected from the areas of Mathematical Biology, Modeling, Control, Optimization, Scientific Computing, and PDEs and Applications. AWM will offer funding for travel and two days subsistence for as many as twenty participants. Departments are urged to help graduate students and recent Ph.D.'s obtain supplementary institutional support to attend the workshop presentations and the associated meetings. All mathematicians (female and male) are invited to attend the program.

MENTORS: We also seek volunteers to lead discussion groups and to act as mentors for workshop participants. If you are interested in volunteering, please contact the AWM office.

ELIGIBILITY: To be eligible for selection and funding, a graduate student must have begun work on her thesis problem, and a recent Ph.D. must have received her degree within approximately the last five years, whether or not she currently holds a postdoctoral or other academic or non-academic position. All non-US citizens must have a current US address. All applications should include a cover letter, a summary of research work (one or two pages), a title and abstract (75 words or less) of the proposed poster or talk, and a curriculum vitae. A supporting letter of recommendation from a faculty member or research mathematician who knows their research is required for graduate student applicants and recommended but not required for recent Ph.D.'s. Additional letters of support are encouraged. All selected and funded participants are invited and strongly encouraged to attend the full AWM two-day program. Those individuals selected will be notified by the AWM Office and will need to submit a final title and abstract with name, affiliation, address, etc. by mid-February to SIAM for the meeting program; AWM will provide instructions with the notification. For some advice on the application process from some of the conference organizers see the AWM Web site. Send **five** complete copies of the application materials (including the cover letter) to:

Workshop Selection Committee
11240 Waples Mill Road, Suite 200
Fairfax, VA 22030

Phone: 703-934-0163

E-mail: awm@awm-math.org

URL: www.awm-math.org

APPLICATION DEADLINE

Applications must be received by **January 15, 2008**. Applications via e-mail or fax will not be accepted.

AAAS Meeting in Boston Features Mathematical Modeling Symposia

Edward Aboufadel, Secretary of Section A of the AAAS,
aboufade@gvsu.edu

The 2008 Annual Meeting of the American Association for the Advancement of Science will be held February 14–18 in Boston, MA. This year's program features many outstanding expository talks by prominent mathematicians, along with a topical lecture focusing on the Poincaré Conjecture, "The Geometry of 3-Manifolds" by Curtis T. McMullen. The theme of this year's meeting is "Science and Technology from a Global Perspective," and many of the symposia sponsored by Section A (Mathematics) are interdisciplinary sessions that fit this theme.

The five symposia sponsored by Section A this year are:

- Mathematics and the Brain (organized by Jack Cowan, Chicago)
- Design of Mechanical Puzzles (organized by Peter Winkler, Dartmouth)
- Modeling the Dynamics of the Drug-Resistant Killers of the 21st Century (organized by Sally Blower, UCLA)
- Quantum Information Theory (organized by Mary Beth Ruskai, Tufts)
- New Techniques in the Evaluation and Prediction of Baseball Performance (organized by Edward Aboufadel, Grand Valley State)

Other symposia that will be of interest to the mathematical community include:

- Biometrics in Border Management: Grand Challenges for Security, Identity, and Privacy
- Atomic Detectives: Nuclear Forensics and Combating Illicit Trafficking
- Ethical Issues in Scientific Publishing
- Enhancing Science Globally through High-Performance Computing and Simulation
- Information, Computing, and Communications: Keys to Sustainable Global Development
- Collaboratively Developing Student Mathematical Thinking Among APEC Member Economies
- Promoting the Success of Minority Graduate Students
- Inside the Double Bind: Women of Color in Science, Technology, Engineering, and Mathematics

The above symposia are only a few of the nearly 200 AAAS program offerings in the physical, life, social, and biological sciences. For further information, including the schedule of talks, go to <http://www.aaasmeeting.org>.

AAAS annual meetings are the showcases of American science, and they encourage participation by mathematicians and mathematics educators. (AAAS acknowledges the generous contributions of AMS and MAA for travel support and SIAM for support of media awareness.) The AAAS Program Committee is genuinely interested in offering symposia on pure and applied mathematical topics of current interest, and in previous years there have been symposia on subjects such as the changing nature of mathematical proof, mathematical ecology, and recent results in prime number research.

The 2009 meeting will be held February 12–16 in Chicago. The Steering Committee for Section A seeks organizers and speakers who can present substantial new material in an accessible manner to a large scientific audience. All are invited to attend the Section A Committee business meeting in Boston on Friday, February 15, 2008, at 7:45 p.m., where we will brainstorm ideas for symposia. In addition, I invite you to send me, and encourage your colleagues to send me, proposals for future AAAS annual meetings.

The members of the Steering Committee for Section A from February 2007 to February 2008 are: Chair, Carl Pomerance (Dartmouth College); Chair-Elect, William Jaco (Oklahoma State University); Retiring Chair, Jack Cowan (University of Chicago); Secretary, Edward Aboufadel (Grand Valley State University); and Members at Large, Walter Craig (McMaster University), Mary Beth Ruskai (Tufts University), David Isaacson (Rensselaer Polytechnic Institute), and Claudia Neuhauser (University of Minnesota).

House Panel on Barriers to Women in Science

House Science and Technology Committee, October 2007

Although women are increasingly earning degrees in science and engineering, they are significantly underrepresented at the faculty level in almost all science and engineering fields. Members of the Science & Technology Committee's Research and Science Education Subcommittee examined institutional and cultural barriers that exist for women seeking science and engineering faculty positions at U.S. colleges and universities.

"Women are increasingly obtaining advanced degrees in math, science and engineering, yet many face obstacles when looking to advance their careers or obtain faculty positions at our country's colleges and universities," said Chairman Baird. "It is critical at this time, when our country is looking for ways to maintain its competitiveness, that all scientists and engineers have a seat at the table at our academic institutions."

Witnesses at the hearing included: Dr. Donna Shalala, President, University of Miami; Dr. Kathie Olsen, Deputy Director, National Science Foundation; Dr. Freeman Hrabowski, President, University of Maryland, Baltimore County; Dr. Myron Campbell, Chair of Physics, University of Michigan; and Dr. Gretchen Ritter, Professor of Government, University of Texas at Austin.

According to data compiled by the NSF, in 2003 women held only 28 percent of all full-time science and engineering faculty positions. Specifically, they constituted 18 percent of full professors, 31 percent of associate professors and 40 percent of assistant professors.

"Today's hearing provided subcommittee members with a unique opportunity to interact directly with Dr. Shalala and other experts to better understand why women continue to be underrepresented in careers in the physical sciences. Federal policy makers must be more proactive in stopping the leaky pipeline that results in women departing at every major transition point while pursuing careers in engineering, physics, technology and related fields," added Rep. Eddie Bernice Johnson (D-TX) in a statement.

In 2006, the National Academies produced a report entitled "Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering," which concluded that there is a need to fix institutional, social and cultural bias and barriers. They recommended that colleges and universities provide clear leadership in changing the culture and structure of their institutions to recruit, retain and promote women into faculty and leadership positions. They also recommended that the federal government vigorously enforce current federal anti-discrimination laws and coordinate workshops to minimize gender bias in academic science and engineering.

The National Academies panel also argues that changes in institutional policies are necessary but not sufficient— even

many policies that appear on the surface to be equitable in fact disadvantage women. For example, many women who want children struggle with the intersection of the tenure clock and their biological clock. In order to attract top faculty candidates (men and women) who want both career and family, most universities now offer the possibility of an extension of the time to tenure. But in most cases young faculty feel pressure not to request this extension for fear that they will be judged differently in the tenure review process. In this case, cultural norms undermine a well-intentioned policy and disproportionately disadvantage women, who remain the primary caregivers for young children.

“Overcoming these cultural barriers is much more difficult than just enforcing anti-discrimination laws or making university policies more family friendly,” continued

Baird. “This is one in a series of hearings examining how we can break down barriers and increase opportunities for women seeking careers in math, science and engineering fields.”

Chairman Baird noted that NSF has played an important role in increasing the representation of and advancement of women in academic science and engineering careers. In particular, the ADVANCE grant program aims to tackle the institutional and cultural barriers to all women in science and engineering. These grants have enabled institutions to experiment with innovative recruitment and retention policies, as well as targeted mentoring, workshops, and other activities to raise awareness among departmental chairs and faculty about the existence of real barriers to women scientists and engineers.

Summer Mathematics Program for Women

The mathematics department of Carleton College will offer our month-long summer mathematics program to eighteen mathematically-talented first- and second-year undergraduate women in 2008. 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 education.

At the heart of the program are two demanding, intense courses under the supervision of female faculty who are accomplished researchers and extraordinary teachers. In summer 2008 those teachers (and courses) will be Professor Erica Flapan of Pomona College (Topology

and Chemistry) and Professor Karen Brucks of The University of Wisconsin Milwaukee (Low-Dimensional Dynamical Systems). 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 optional weekend events including canoeing, hiking, picnics, and tubing.

Past participants (through program evaluations and the list server set up for their correspondence) report increased facility with mathematics, bolstered self-confidence, and new or renewed excitement toward mathematics.

If you have first- or second-year women students whom you think would benefit from a demanding, invigorating month-long exposure to mathematics next summer (June 22–July 20), please refer them to our web page at <http://www.mathcs.carleton.edu/smp> or have them contact Deanna Haunsperger at Department of Math/CS, Carleton College, Northfield, MN 55057 (dhaunspe@carleton.edu). The application deadline is **February 22, 2008**.

VCU

Virginia Commonwealth University

FACULTY POSITIONS

Department of Mathematics

Applications are invited for two tenure eligible faculty positions (9-month) as Assistant or Associate Professor of Mathematics in the Department of Mathematics and Applied Mathematics, commencing in August 2008, subject to the availability of funding. Ph.D. in Mathematics or Applied Mathematics, or a Ph.D. in Mathematics Education and a Master's degree in Mathematics is required at the time of the appointment. Preference will be given to candidates with expertise in analysis, numerical analysis, graph theory and combinatorics, mathematical applications to medicine and the biological sciences, dynamical systems, and math education.

VCU, the largest university in the State of Virginia, with over 30,000 students, is a major research university, with growing strength in the Life Sciences. The mission of the Department of Mathematics and Applied Mathematics is to offer a strong undergraduate and graduate education, with an increasing focus on the development of cross-disciplinary efforts that will prepare our students for real-world applications and stimulating employment and career opportunities. Key current objectives of the department include the development of a Ph.D. program emphasizing the applications of mathematics to the medical and biological sciences; the improvement of student outcomes in our lower level courses; and the continued strengthening of our department's track in secondary education preparation, including the administration of about \$9 million in grants which fund research and development of Math Specialists for Virginia's elementary schools. We have significant opportunities for ambitious faculty members to participate in the expanding teaching, research, and grant activity. We are excited about the opportunities and challenges in these areas, and are particularly interested in mathematicians with similar interest.

A job description can be found at:

http://www.math.vcu.edu/open_positions/

The Department's Web page is : <http://www.math.vcu.edu/>
and the University's Web page is: <http://www.vcu.edu>.

Evaluation of applications will begin immediately and continue through March 1, or until both positions are filled. Please submit a letter of application (which includes a description of your professional goals and which specifically addresses your qualifications and experiences as they relate to the responsibilities of this position, as well as the AMS Standard Cover Sheet, available at: <http://www.ams.org/coverSheet/>), vita, and three letters of reference. Electronic applications are preferred, in PDF or Word format.

Dr. Andrew Lewis

Chair, Dept. of Mathematics and Applied Mathematics

P.O. Box 842014

Virginia Commonwealth University

Richmond, VA 23284-2014

mlewis2@vcu.edu

Virginia Commonwealth University is an Equal Opportunity, Affirmative Action Employer. Women, minorities and persons with disabilities are encouraged to apply.

MEMORIAL UNIVERSITY
OF NEWFOUNDLAND
DEPARTMENT OF MATHEMATICS
AND STATISTICS



Tenure-Track Position in Computational Fluid Dynamics

The Department of Mathematics and Statistics at Memorial University of Newfoundland is undergoing a process of faculty renewal and is making a number of tenure-track appointments.

The Department invites applications for a tenure-track Assistant Professor position in Computational Fluid Dynamics

Applicants must have an earned doctorate and an excellent publication record with research covering the development of mathematical/numerical models for flow and transport processes relevant to ocean engineering or geosciences. Candidates should have some teaching experience and the skills required to become an excellent teacher.

Duties for the position include the development of a vigorous research program, graduate supervision and teaching; and undergraduate teaching. Teaching will include courses in the areas of numerical methods and fluid mechanics.

The **closing date** for applications will be February 15, 2008. Candidates should submit a Curriculum Vitae, a description of research and teaching interests; and the names and addresses (include e-mail) of at least **three** referees. Applications should be sent to:

Head of Department

VPA-MAST-2007-007

Department of Mathematics & Statistics

Memorial University of Newfoundland

St. John's, NL, A1C 5S7 Canada

E-mail: mathstat@math.mun.ca

Internet: www.math.mun.ca

**You MUST use the code VPA-MAST-2007-007
on all correspondence.**

Memorial University is the largest university in Atlantic Canada. As the province's only university, Memorial plays an integral role in the educational and cultural life of Newfoundland and Labrador. Offering diverse undergraduate and graduate programs to almost 18,000 students, Memorial provides a distinctive and stimulating environment for learning in St. John's, a very safe, friendly city with great historic charm, a vibrant cultural life, and easy access to a wide range of outdoor activities.

Memorial University is committed to employment equity and encourages applications from qualified women and men, visible minorities, aboriginal people and persons with disabilities. All qualified candidates are encouraged to apply; however Canadian citizens and permanent residents will be given priority. Partners of candidates for positions are invited to include their resume for possible matching with other job opportunities.

MEMORIAL UNIVERSITY
OF NEWFOUNDLAND
DEPARTMENT OF MATHEMATICS
AND STATISTICS



Tenure-Track Position in Analysis

The Department of Mathematics and Statistics at Memorial University of Newfoundland is undergoing a process of faculty renewal and is making a number of tenure-track appointments. The Department invites applications for a tenure-track *Assistant Professor position in Analysis*. While outstanding applications from all areas of analysis are welcome, preference may be given to applicants with publications in the area of analysis on manifolds or geometric analysis.

Applicants must have an earned doctorate and an excellent publication record in Analysis. Candidates should have some teaching experience and the skills required to become an excellent teacher. Duties for the position include graduate teaching and supervision; undergraduate teaching and the development of a vigorous research program.

The *closing date* for applications will be February 15, 2008. Candidates should submit a Curriculum Vitae, a description of research and teaching interests; and the names and addresses (include e-mail) of at least **three** referees. Applications should be sent to:

Head of Department
VPA-MAST-2007-005
Department of Mathematics & Statistics
Memorial University of Newfoundland
St. John's, NL, A1C 5S7 Canada

E-mail: mathstat@math.mun.ca
Internet: www.math.mun.ca

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Memorial University is committed to employment equity and encourages applications from qualified women and men, visible minorities, aboriginal people and persons with disabilities. All qualified candidates are encouraged to apply; however Canadian citizens and permanent residents will be given priority. Partners of candidates for positions are invited to include their resume for possible matching with other job opportunities.

MEMORIAL UNIVERSITY
OF NEWFOUNDLAND
DEPARTMENT OF MATHEMATICS
AND STATISTICS



**Tenure-Track Position in
Applied Dynamical Systems**

The Department of Mathematics and Statistics at Memorial University of Newfoundland is undergoing a process of faculty renewal and is making a number of tenure-track appointments.

The Department invites applications for a tenure-track Assistant Professor position in Applied Dynamical Systems.

Applicants must have an earned doctorate and an excellent publication record in Applied Dynamical Systems. Candidates should have some teaching experience and the skills required to become an excellent teacher.

Duties for the position include graduate teaching and supervision; undergraduate teaching and the development of a vigorous research program.

The *closing date* for applications will be February 15, 2008. Candidates should submit a Curriculum Vitae, a description of research and teaching interests; and the names and addresses (include e-mail) of at least **three** referees. Applications should be sent to:

Head of Department
VPA-MAST-2007-006
Department of Mathematics & Statistics
Memorial University of Newfoundland
St. John's, NL, A1C 5S7 Canada

E-mail: mathstat@math.mun.ca
Internet: www.math.mun.ca

**You MUST use the code VPA-MAST-2007-006
on all correspondence.**

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Memorial University is committed to employment equity and encourages applications from qualified women and men, visible minorities, aboriginal people and persons with disabilities. All qualified candidates are encouraged to apply; however Canadian citizens and permanent residents will be given priority. Partners of candidates for positions are invited to include their resume for possible matching with other job opportunities.

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CATEGORY 2a (includes 3 student memberships; 1 free ad; 10% off additional Newsletter & online ads)	\$175
CATEGORY 2b (includes 6 student membership; 10% off Newsletter & online ads)	\$150

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



New Directions Short Course

Mathematical Neuroscience

June 16-27, 2008

Instructors:

G. Bard Ermentrout (University of Pittsburgh)

Jonathan E. Rubin (University of Pittsburgh)

From June 16-27, 2008 the IMA will host an intensive short course designed to efficiently provide researchers in the mathematical sciences and related disciplines the basic knowledge prerequisite to undertake research in mathematical neuroscience. The course will be taught by G. Bard Ermentrout, Professor of Computational Biology and Mathematics at the University of Pittsburgh and Jonathan E. Rubin, Associate Professor of Mathematics at the University of Pittsburgh. The primary audience for the course is mathematics faculty. No prior background in mathematical neuroscience is expected. Participants will receive full travel and lodging support during the workshop.

For more information and to apply:
www.ima.umn.edu/2007-2008/ND6.16-27.08

Application deadline: April 1, 2008



women in math

A Celebration

Conference co-chairs:

Professor Gigliola Staffilani, MIT and
Dr. Susan Landau, Sun Microsystems

For information see:

math.mit.edu/womeninmath

or contact: Claire Wallace, 617-253-7948

Supported by a grant from the NSF

The weekend of April 12-13, 2008 Massachusetts Institute of Technology

A one and a half day celebration

Showcasing women in mathematics: recognizing the great number and quality of women who graduated from MIT in mathematics.

Speakers:

Bonnie Berger, MIT

Lenore Blum, CMU

Ioana Dumitriu, University
of Washington

Tara Holm, Cornell

Margaret Murray, University
of Iowa and ACT, Inc.

Linda Rothschild, UCSD

Brooke Shipley, UIC

Lauren Williams, Harvard

and panels on becoming and being a mathematician

*Including a special
guest appearance
by MIT President
Susan Hockfield*

**Limited travel funding will be available for young women post-docs, and graduate and advanced undergraduate students.
See: math.mit.edu/womeninmath**

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BARD COLLEGE AT SIMON'S ROCK — Director of Quantitative Literacy — Bard College at Simon's Rock invites applications for a Director of Quantitative Literacy. The Director works closely with academic advisors and the Office of Academic Affairs in supporting students in quantitative subjects, supervises peer and adult tutors in mathematics, the sciences, and quantitative social sciences, and teaches courses in mathematics as well as the general education Science Seminar. The Director makes traditional faculty contributions to the institution, including research, curriculum development, and committee service. A Ph.D. in mathematics, science, or mathematics/science education is required. The successful candidate will possess exceptional interpersonal, organizational, and leadership skills; relevant work experience tutoring students in quantitative subjects; and the ability to develop innovative strategies for supporting students with math anxiety and learning disabilities and for teaching mathematics as an essential component of the liberal arts. In all hires, the College seeks to increase the diverse perspectives of its faculty and encourages applications from members of underrepresented groups. This is a twelve-month permanent position with excellent employee benefits beginning Fall 2008 (or earlier at the mutual agreement of the College and the successful candidate). Please send cover letter, CV, and names and contact information for three to five references to Quantitative Literacy Search Committee, c/o Anne Martin, Win Commons Coordinator, Bard College at Simon's Rock, 84 Alford Road, Great Barrington, MA 01230. Electronic submissions may be sent to amartin@simons-rock.edu with Quantitative Literacy Search in the subject line. Consideration of applications will begin **December 1, 2007**, and continue until the position is filled. The full advertisement is at www.simons-rock.edu/jobs. AA/EOE.

GEORGIA COLLEGE & STATE UNIVERSITY — The Mathematics Department at Georgia College & State University invites applications for a tenure-track position in mathematics education at the rank of Assistant Professor. Requirements for the position include a doctorate in mathematics education or closely related field and a minimum of 18 semester hours of graduate-level mathematics. The successful candidate will play a key role as liaison with the School of Education and provide leadership in the state-wide STEM initiative to increase the number of majors and prospective teachers in STEM areas. Promotion and tenure require excellence in teaching, scholarly activity, and service. Employment will begin **August 1, 2008**. For more information and application instructions, see <http://www.gcsu.edu/facultyjobs>. Georgia is an Open Records state. The finalist will be required to submit to a background investigation. GCSU is an Equal Opportunity, Affirmative-Action Institution.

INDIANA UNIVERSITY OF PENNSYLVANIA — Mathematics Faculty Positions — Indiana University of Pennsylvania Mathematics Department invites applications for a tenure track faculty position in Statistics to begin in fall 2008. A Ph. D. in the appropriate field is required. Review of applications begins **December 1, 2007** and continues until the position is filled or closed. All applicants must be work eligible. For job description, requirements, and application procedures, log on to <http://www.math.iup.edu/jobs>, e-mail Thomas.Short@iup.edu, or call 724-357-2608. IUP is an equal opportunity employer M/F/H/V.

INSTITUTE FOR PURE AND APPLIED MATHEMATICS, UCLA — The Institute for Pure and Applied Mathematics (IPAM) at UCLA is seeking a second Associate Director (AD), to begin a two-year appointment on July 1, 2008. The AD is expected to be an active and established research mathematician or scientist in a related field, with experience in conference organization. The primary responsibility of the AD will be running programs in coordination with the organizing committees. For a detailed job description and application instructions, go to www.ipam.ucla.edu/jobopenings/assocdirector.aspx. Applications will receive fullest consideration if received by February 15, 2008. UCLA is an equal opportunity/affirmative action employer.

MICHIGAN STATE UNIVERSITY — The Department of Statistics and Probability at Michigan State University invites applications for three tenure track positions to start August 16, 2008. The department is strongly committed to building research strength in applied and interdisciplinary areas. Hence, exceptional applicants in these areas will receive special attention. The first position is at the Associate or Full Professor level, with tenure. Applicants must provide evidence of research excellence and leadership skills. The second and third positions, at the Assistant Professor level, seek promising researchers who are excellent teachers. One of these positions requires a genuine interest and applicable skills in undergraduate education, curriculum development, and Quantitative Literacy. All candidates must have a Ph.D. with a concentration in statistics and/or probability, and strong research and teaching credentials. Please supply your curriculum vitae, summary of scholarly interests, and evidence of teaching success, as well as having three letters of recommendation (senior applicants may list three references who agree to provide letters upon request) sent directly to: Search Committee, Department of Statistics and Probability, A415 Wells Hall, Michigan State University, East Lansing, MI 48824-1027. Applicants must clearly specify which position they seek. Electronic applications may be sent via email to (sparks@stt.msu.edu). The selection process will begin **December 15, 2007** and continue until each position is filled.

PURDUE UNIVERSITY — Faculty Positions in Statistics — The Department of Statistics at Purdue University invites applications in all areas of statistics and probability for tenure-track positions beginning August 2008. A number of positions are available at the Assistant Professor level; senior positions will be considered for highly qualified applicants. Additional positions are available for candidates also in applications areas designated in COALESCE II, a College of Science-wide multidisciplinary hiring effort. Two separate COALESCE II positions in Statistics are available, one with applications in the social sciences, and one with applications in applied mathematics. The Department of Statistics offers a stimulating and nurturing academic environment. More than thirty tenured and tenure-track faculty members direct research programs in a broad range of areas. Further information about the department is available at: <http://www.stat.purdue.edu>. All applicants should hold a PhD in Statistics, or a related field, be committed to excellence in teaching, and have demonstrated strong potential for excellence in research. Salary and benefits are highly competitive. Applicants matching one search may be considered in other relevant searches when appropriate. Review of applications will begin on **December 1, 2007**, and will continue until the positions are filled. For all positions in Statistics, please visit <http://www.stat.purdue.edu/hiring/> to apply. Purdue University is an Equal Opportunity/Equal Access/Affirmative Action employer fully committed to achieving a diverse workforce.

SUNY COLLEGE AT PLATTSBURGH — Assistant Professor, Mathematics — The Mathematics Department of SUNY College at Plattsburgh invites applications for a tenure track position at the Assistant Professor level beginning August 2008. SUNY Plattsburgh is a comprehensive, coeducational, public institution of nearly 6,000 undergraduate and graduate students. Located on the shore of Lake Champlain, the College is the intellectual and educational center for the Lake Champlain/Adirondack region of New York State. The small city character of Plattsburgh and neighboring Burlington, VT provides a quality of life unsurpassed for the whole family. Outdoor activities abound along Lake Champlain, in the Adirondack High Peaks and nearby Olympic resort village of Lake Placid while the urban, multicultural lifestyle is rich in neighboring Montreal, Canada, one hour's drive from campus. Plattsburgh is easily accessible to New York City and Boston via air, bus, train and Interstate 87. Responsibilities include: Teaching a

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wide variety of courses within the department. The normal teaching load for active scholars is 9-10 hours. Qualifications: A Ph.D. in mathematics or mathematical statistics is required by the time of appointment. The successful candidate will possess a strong commitment to quality undergraduate teaching in a liberal arts setting and to continuing professional growth. SUNY Plattsburgh is an equal opportunity employer committed to excellence through diversity. Salary: will be commensurate with qualifications, with excellent benefits. Review of applications begins immediately and continues until the position is filled. Materials received by **January 31, 2008** will be guaranteed full consideration. Please submit letter of application, curriculum vitae, statement of teaching philosophy, and three letters of recommendation (at least one of which addresses teaching) to: Chair, Search Committee (PJ#4883-AWM), c/o Human Resource Services, SUNY Plattsburgh, 101 Broad Street, Plattsburgh, NY 12901-2681. E-mail: hr.apply@plattsburgh.edu. www.plattsburgh.edu.

UNITED STATES NAVAL ACADEMY, Mathematics Department — The USNA Mathematics Department anticipates at least one tenure-track position (subject to approval and funding) at the Assistant Professor level to start in August 2008. See web site <http://www.usna.edu/MathDept/website/Hire.htm> for full information. Tel: 410-293-6701; Fax: 410-293-4883; Email: chm@usna.edu. The United States Naval Academy is an Affirmative Action/Equal Employment Opportunity Employer and provides reasonable accommodations to applicants with disabilities.

UNIVERSITY OF CONNECTICUT, Department of Mathematics — Assistant Professor — The Department of Mathematics anticipates openings for three to four tenure-track positions at the Assistant Professor level starting Fall 2008. Highly qualified candidates in all mathematical disciplines are encouraged to apply: probability, algebra, number theory, geometry and topology are areas of particular, but not exclusive, focus of the search. For more information about the position, the department or the University, please visit our website at <http://www.math.uconn.edu>. Qualifications: Candidates must have a completed Ph.D. and demonstrate evidence of excellent teaching ability and outstanding research potential. Review of applications will begin **November 15, 2007** and continue until the positions are filled. We prefer that applications be submitted online at <http://www.mathjobs.org/jobs>. Applicants may also choose to send resume and at least three letters of recommendation to: Hiring Committee, University of Connecticut, Department of Mathematics, U-3009, 196 Auditorium Road Storrs, CT 06269-3009. The University of Connecticut is an Equal Opportunity and Affirmative Action Employer. We enthusiastically encourage applications from underrepresented groups, including minorities, women and people with disabilities.

UNIVERSITY OF NEW HAMPSHIRE — Applied Mathematics Faculty Position in the Department of Mathematics and Statistics — The Department of Mathematics & Statistics at the University of New Hampshire invites applications for a tenure track position in Applied Mathematics at the rank of Assistant Professor. (Exceptional candidates at a higher rank may also be considered.) The Department is positioned in the College of Engineering and Physical Sciences (CEPS). We are building a graduate Integrated Applied Mathematics (IAM) program, and seek faculty who will thrive in the multidisciplinary environment of the College and who will contribute substantially to the development of the program. Successful applicants will have strong, independent research records or, for junior applicants, strong potential in research, teaching, graduate mentoring and external funding. Candidates will be expected to develop externally funded research programs and strengthen interdisciplinary research activities in the College. Preference will be given to candidates who complement existing strengths or augment expertise in areas consistent with the goals and directions of the Department and the College. These include numerical analysis, nonlinear dynamics, partial differential equations, asymptotic and spectral analysis, and fluid flow. Information regarding research and educational interests and programs in the Department may be found at www.math.unh.edu. The Department has 25 tenure-track faculty members and offers programs leading to the BS, BA, MS and Ph.D. degrees. The University is a Land Grant, Sea Grant and Space Grant institution with approximately 13,000 undergraduate and graduate students. It is located near the New Hampshire seacoast and is within sixty miles of Boston, MA, Portland, ME and the lakes and mountains of New Hampshire. There are numerous departments and research institutes that provide excellent opportunities for interdisciplinary research. See www.ceps.unh.edu, www.cicart.unh.edu and www.eos.unh.edu for more information. Review of applications will begin in **December 2007** and will continue until the position is filled. Applicants should send a CV together with a statement of research accomplishments and plans and a statement on teaching and arrange for at least three letters of recommendation to be sent directly to the Department. Applications may be filed electronically at www.mathjobs.org (this is preferred) or mailed to: Applied Mathematics Search Committee Chair, Department of Mathematics & Statistics, University of New Hampshire, Durham, New Hampshire 03824. The University seeks excellence through diversity among its administrators, faculty, staff, and students. The university prohibits discrimination on the basis of race, color, religion, sex, age, national origin, sexual orientation, gender identity or expression, disability, veteran status, or marital status. Application by members of all underrepresented groups is encouraged.

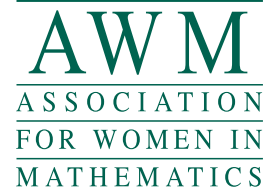
UNIVERSITY OF SOUTH CAROLINA — Asst. Prof. of Math, USC Sumter, tenure-track, begin Fall 2008. Ph.D. in Math. 12 hrs./sem. all undergrad.; expectations incl. excellence in teaching & commitment to research/scholarship. Ability to teach intro. stats. Submit vita, 3 current ltrs. of rec., copies of all undergrad. & grad. transcripts, & sum. of teaching evals., or other evidence of excellence in teaching. App. ltr. should incl. phil. of teaching & prof. goals & interests. Send materials to: Dr. James Privett, Div. of Sci., Math, & Engr., USC Sumter, 200 Miller Road, Sumter, SC 29150-2498. Review of credentials will begin immed. & cont. until position filled. Foreign nationals indicate current US immigration status. AA/EOE.

UNIVERSITY OF WISCONSIN-MADISON — UW-Madison, Department of Biostatistics and Medical Informatics has two tenured or tenure-track faculty openings for summer/fall of 2008 requiring a PhD in Biostatistics or Statistics. One position (PVL #57534) is at the Assistant or Associate level. The other Associate of full Professor level (PVL #57452). Joint appointment with Statistics is possible. Submit c.v., research objectives statement, sample publications and 3 reference letters to: Hiring Committee listing specific position and PVL # at dburnett@biostat.wisc.edu (prefer electronic submission) or more info: <http://www.biostat.wisc.edu> under employment. Deadline **2/29/08**. UW-Madison is an AA/EOE.

WIN: Women in Numbers — We solicit applications from female number theorists for the workshop WIN: Women in Numbers, scheduled November 2-7, 2008 at the Banff International Research Station. The goals of the workshop are to highlight women's research and to train female graduate students in number theory. The conference will emphasize collaboration on open research problems. Preference for the 20 openings will be given to advanced graduate students and junior faculty with an algebraic or arithmetic focus. More information, including the application procedure, is available at <http://research.microsoft.com/~klauter/WINwebfile.pdf>.

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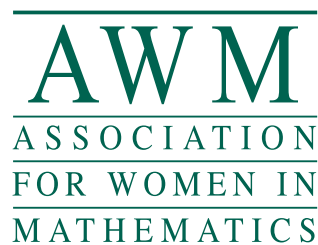
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