

AWM

ASSOCIATION FOR WOMEN IN MATHEMATICS

Volume 31, Number 5

NEWSLETTER

September–October 2001

PRESIDENT'S REPORT

Hello to all AWM members!

We are delighted to announce that the National Security Agency has funded our Sonia Kovalevsky Mathematics High School Days program again this year. We appreciate the continuing support of the NSA. Congratulations to the PIs on this successful proposal, Genevieve Knight of Coppin State College and Renee Fister of Murray State University. This grant comes to AWM through Coppin State College, and we commend the efforts of Genevieve and of Walter Barwick in facilitating this cooperative effort with Coppin State College.

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The AWM workshop for female graduate students and recent Ph.D.'s at the SIAM Annual Meeting in San Diego, July 9–10, was quite successful. See the related article on pages 15–16 and the photographs on pages 28–32. Thanks to Elsa Schaefer of Marymount University for her help in organizing this workshop.

On July 4th, I attended the Opening Ceremony of the International Mathematical Olympiad (IMO) at George Mason University in Fairfax, Virginia. The "Parade of Nations" with the introduction of one team member from each of the 83 teams was quite inspiring. We were happy to be one of many sponsoring organizations of the IMO. We commend John Kenelly (President of IMO 2001 USA) of Clemson University and Walter Mientka (Executive Director of IMO 2001 USA) of the University of Nebraska for their excellent work in the leadership of the IMO. For more details on results of the IMO, see page 19.

Our Mentor Network is up and running under the direction of Rachel Kuske at the University of Minnesota. We would like to express our gratitude to Rachel and to both the Office of University Women and the Institute for Mathematics and its Applications at the University of Minnesota for staff, office and computer support for this program.

AWM
ASSOCIATION
FOR WOMEN IN
MATHEMATICS

The Association was founded in 1971 at the Joint Meetings in Atlantic City. The purpose of the association is to encourage women to study and to have active careers in the mathematical sciences. Equal opportunity and the equal treatment of women in the mathematical sciences are promoted.

The *Newsletter* is published bi-monthly. The Editor welcomes articles, letters, and announcements.

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I would like to call to your attention our Biographies Contest with its deadline of November 1st. Encourage your students to write a biographical essay on a contemporary woman working in the mathematical sciences. Victoria Howle of Sandia National Labs is the organizer of this contest. Thanks to Victoria for her efforts and to Sandia National Labs for assistance in funding this contest.

The days of the Joint Math Meetings are shifted this January, to Sunday through Wednesday, January 6–9, 2002. Thus, our workshop for women graduate students and recent Ph.D.'s will be held on Wednesday, January 9th. Our AWM panel discussion on "Mathematics after high school: How to promote success for more" will be held on Sunday afternoon. Cathy Kessel of UC Berkeley, Teri Jo Murphy of the University of Oklahoma and I are co-organizing this panel. Note that the 2002 Noether Lecture, given by Lenore Blum of Carnegie Mellon University on "Computing over the Reals: Where Turing meets Newton," will be on Monday morning.

Notice that several of our programs, including the Travel Grants, the Alice T. Schafer Prize, the Louise Hay Award, and nominations for the 2003 Emmy Noether Lecturer, have deadlines in October. Remember to check our web site www.awm-math.org for further information or see pages 9, 11, 12, and 25 in this issue. We encourage your participation in our programs.

I'd like to end with a piece of late-breaking good news. On July 27th we received a check for \$5000 from ExxonMobil Foundation in general support of our programs and activities for the year 2001. Thanks, ExxonMobil!

Suzanne Lenhart

Suzanne Lenhart
University of Tennessee
and Oak Ridge
National Laboratory
Knoxville, TN
July 25, 2001



AWM ESSAY CONTEST

Biographies of Contemporary Women in Mathematics

To increase awareness of women's ongoing contributions to the mathematical sciences, the Association for Women in Mathematics (AWM) is sponsoring an essay contest for biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers.

The essays will be based primarily on an interview with a woman currently working in a mathematical sciences career. This contest is open to students in the following categories: Middle School, High School, Undergraduate, and Graduate. At least one winning submission will be chosen from each category. Winners will receive a prize, and their essays will be published online at the AWM web site. Additionally, a grand prize winner will have his or her submission published in the *AWM Newsletter*.

A valid submission will contain the following information: 1. A biographical essay, based primarily on an interview, of approximately 500–1000 words in length, on a woman currently working in a mathematical career. 2. A short (approximately 100 words) biographical sketch of the student contestant. 3. Information about the student. 4. Information about the subject of the biography.

Detailed contest rules appear on the AWM website (www.awm-math.org) and were included in the July–August issue of this *Newsletter*.

Essays will be judged by a panel of mathematicians on content, grammar, and presentation. All submissions must be received by **November 1, 2001** and should be sent to Dr. Victoria E. Howle (contest organizer) in plain text format either by email (vehowle@sandia.gov) or to the following address: Dr. Victoria E. Howle, Sandia National Labs MS 9217, PO Box 969, Livermore, CA 94551.

All submissions become the property of AWM.

Seeking Volunteers to be Interviewed

We are currently seeking women mathematicians to volunteer as the subjects of these essays. For more information or to sign up as a volunteer, contact Dr. Howle by email at vehowle@sandia.gov.

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

Individual: \$50 Family (no newsletter): \$30

Contributing: \$100 Retired, part-time: \$25

Student, unemployed, developing nations: \$15

Friend: \$1000 Benefactor: \$2500

All foreign memberships: \$8 additional for postage

Dues in excess of \$15 and all contributions are deductible from federal taxable income.

Institutional Members:

Level 1: \$250

Level 2a: \$125

Level 2b: \$125

See <http://www.awm-math.org> for details on free ads, free student memberships, and ad discounts.

Affiliate Members: \$250

Institutional Sponsors:

Friend: \$1000+ Patron: \$2500+

Benefactor: \$5000+ Program Sponsor: \$10,000+

See the AWM website for details.

Subscriptions and back orders

All members except family members receive a subscription to the newsletter as a privilege of membership. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for \$50/year (\$58 foreign). Back orders are \$6/issue plus shipping/handling (\$5 minimum).

Payment

Payment is by check (drawn on a check with a U.S. branch), U.S. money order, or international postal order. Cash payment will be accepted if necessary, but only in U.S. currency.

Newsletter ad information

AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Director of Marketing, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the Newsletter must be Affirmative Action/Equal Opportunity designated.* Institutional members receive discounts on ads; see the AWM website for details. For non-members, the rate is \$100 for a basic four-line ad. Additional lines are \$6 each. See the AWM website for *Newsletter* display ad rates.

Newsletter deadlines

Editorial: 24th of January, March, May, July, September, November

Ad: 1st of February, April, June, August, October, December

Addresses

Send all *Newsletter* material **except ads and material for book review and education columns** to Anne Leggett, Math Dept., Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; email: leggett@math.luc.edu; phone: 773-508-3554; fax: 773-508-2123. Send all **book review** material to Marge Murray, Math Dept., 460 McBryde Hall, Virginia Tech, Blacksburg, VA 24061-0123; email: murray@calvin.math.vt.edu and all **education column** material to Ginger Warfield, Math Dept., University of Washington, Seattle, WA 98195; email: warfield@math.washington.edu. Send everything else, **including ads and address changes**, to Dawn V. Wheeler, 4114 CSS Building, University of Maryland, College Park, MD 20742-2461; phone: 301-405-7892; email: awm@math.umd.edu.

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Online Ads Info

Classified and job link ads may be placed at the AWM website. Detailed information may be found there.

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AWM-Net

Send mail to awm-net-request@cs.umd.edu and include your email address; AWM members only.

AWM DEADLINES

NSF-AWM Travel Grant: October 1, 2001
and February 1, 2002

Alice T. Schafer Prize for Undergraduate
Women: October 1, 2001

Louise Hay Award for Contributions to
Mathematics Education: October 1, 2001

2003 Noether Lecturer Nominations:
October 15, 2001

AWM Essay Contest: November 1, 2001

AWM Workshop, SIAM meetings,
Philadelphia, January 21, 2002

NSF-AWM Mentoring Travel Grant:
February 1, 2002

Sonia Kovalevsky High School Mathematics
Days: February 4, 2002

AWM CALENDAR

AWM at the Joint Mathematics Meetings,
Santa Diego: January 6-9, 2002

AWM CONTACT INFO

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AMS ELECTION

All persons standing for election for contested office in the American Mathematical Society (AMS) were asked to submit statements.

The Council nominated David Eisenbud and David A. Vogan, Jr. for President, one to be elected for a term of three years. The Council nominated Raymond L. Johnson and Hugo Rossi for Vice-President, one to be elected for a term of three years. The Council nominated Andy R. Magid and Carol S. Wood for Trustee, one to be elected for a term of five years. The Council nominated the following candidates for Member-at-Large of the Council: Colin C. Adams, Bruce E. Blackadar, Sylvia T. Bozeman, Percy A. Deift, Irene M. Gamba, Henri A. Gillet, David R. Morrison, Douglas C. Ravenel, Frank Sottile, and W. Stephen Wilson. Five will be elected to serve terms of three years. The President has nominated the following candidates for the Nominating Committee: Alejandro Adem, Sheldon Axler, Robert Fossum, Jane Hawkins, Michael Starbird, and Daniel W. Stroock. Three will be elected. The President has also nominated the following candidates for the Editorial Boards Committee: Clifford Earle, Benson S. Farb, Robert Friedman, and Svetlana Jitomirskaya. Two will be elected. Unless otherwise noted, the respondents are professors in departments of mathematics.

All statements received by press time appear below; late arrivals will appear in the next issue. See the AMS *Notices* for biographical data and additional information.

PRESIDENT**David Eisenbud, Director, Mathematical Sciences
Research Institute**

To begin, here is the list of the goals that will guide me if I become president of the AMS: More support for first-class fundamental research; increased contact between mathematics and its applications in other sciences and engineering; more effective encouragement of those with mathematical talents and interests, especially among women and minorities; and improvement of mathematical education to give students the tools they need and to bring the best back into mathematical careers.

The low representation of women and minorities in university math departments represents a significant loss for mathematics. For this reason and because I value equal opportunity, I am deeply committed to broadening participation in the mathematical sciences. The problems of women and minorities are somewhat different, and I will focus here on the situation of women.

I have been Director of the MSRI for the last four years, and this

has given me first-hand experience in promoting the participation of women in concrete ways such as these:

- * I have encouraged the organizers of MSRI's scientific programs to include women in their organizing committees. This is a priority on which the Institute's Scientific Advisory Committee spends substantial energy, and I have seen the positive effects that this has had.
- * I have raised money to enable MSRI to recruit additional women for its Summer Graduate Programs: the 61 university sponsors of MSRI can send two students each summer to these programs, but can send an additional student (at MSRI's expense) if at least one of the three is a woman or minority mathematician.

Since I got my degree in 1970, there has been a slow but real increase in the proportion of Math Ph.D.'s earned by women each year. Nevertheless, equal representation still seems a distant goal. In particular, the proportion of tenured women at the top 50 universities remains woefully low. Of all the math organizations in this country, the AMS is best positioned to influence these departments, so it has a particularly important role to play. Here are some specific strategies I would follow to help it fulfill that role:

- * I consider the AMS data-gathering activities very significant. Mathematicians are sensitive to clear data, and the AMS's surveys of employment and of Ph.D. production are effective as nothing else in increasing the community's awareness of the inequalities in our current situation. As president I would maintain and strengthen these activities.
- * The accomplishments of the AMS are largely the product of its many committees, most of them appointed by the president. At MSRI I have worked with a remarkable group of well-connected women mathematicians, including MSRI trustees Cathleen Morawetz, Dusa McDuff, Jill Mesirov and Carol Wood, and Scientific Advisory Committee members Margaret Wright and Susan Friedlander, to name some of the most recent. I would consult such colleagues in choosing candidates for AMS committees to make sure that women are well-represented, and that women who have not served before are brought into the committee structure. Such appointments can

far outlast the presidency.

I feel deeply honored to have been nominated for the AMS presidency. Should I be elected, I hope that my experience in nurturing mathematical activity and my commitment to the goals above will help me to guide the Society well.

David Vogan, Jr., Massachusetts Institute of Technology

I'm a candidate for the presidency of the American Mathematical Society. Like many of the roles that I've assumed in the past (those of spouse, grad student, teacher, and parent spring chronologically to mind), this office looks a bit frightening, and seems to demand many more qualifications than I've got. A large part of what it's about is asking other mathematicians to help the AMS do its job: "to further mathematical research and scholarship ... through programs that promote mathematical research, increase the awareness of the value of mathematics to society, and foster excellence in mathematics education."

An aspect of these goals that is very important to me is opening mathematics to everyone. The AWM has made wonderful contributions in that direction: the Sonia Kovalevsky High School Mathematics Days and the Alice Schafer Prizes are easy examples, but there are many more. What you have produced again and again are lots of people excited about mathematics, and fantastic mathematics. We need to value the former as highly as we do the latter.

One of my favorite aphorisms says that there are three kinds of people in the world: those who can count, and those who can't. I love it, but it isn't true. There are more ways to learn mathematics and to do mathematics than there are mathematicians. We need to value more of them. That should affect what we write on undergraduate problem sets, on thesis drafts, and on papers to be refereed. It should affect leave policies and the duration of jobs for young people. It should affect our choice of speakers at conferences and editors of journals.

The difficult roles that I've assumed in the past turned out to be possible because I didn't need to assume them without help. This one would require all the wisdom and strong arms I could borrow. The AWM is a great library for those resources, and I hope to make good use of it.

VICE-PRESIDENT

Raymond Johnson, University of Maryland

Ensuring the long-term vitality of mathematics as a subject and profession is the primary responsibility of the American Mathematical Society. The AMS works to promote research in the mathematical sciences, while individual mathematicians must assure that their departments are well respected in the University and convince University administrators of the centrality of mathematics to the university.

The AMS must work to convince Congress and the federal government of the increasing importance of mathematics as a discipline. This is made easier by applications of mathematics to other sciences. However, there are more resources devoted to mathematics in the budgets of universities than in all of the federal agencies combined. It is critical that the Society also help mathematicians and mathematics departments convince administrations of the increasing importance of mathematics as a discipline.

This will require cooperation from mathematicians themselves. Educating undergraduates, preparing future teachers, and increasing diversity is as important to the University as our scientific research is to the Federal government.

If mathematics is to thrive in the twenty-first century, special attention must be paid to increasing opportunities for women and minorities in our profession; students want to enter a vibrant, viable profession. This is an area in which I have had success. I would gladly work on an AMS effort to assist departments that choose to respond to this challenge.

Hugo Rossi, University of Utah

The AMS is the society for mathematicians with an interest in research; its mission is to satisfy that interest at all levels of intensity and to maintain the vitality of that interest. It is my belief that all mathematicians have an interest in what is happening at the frontiers of the discipline, at the minimum to be conversant with new developments. So, all mathematicians should be members of the Society. At the same time, the AMS must provide services for mathematicians at all levels: conferences and journals on that research for the practitioners, as well as conferences and journals where that new

research is presented in easily accessible form. Throughout my professional career I have been committed to this multi-leveled objective, be it as editor of the *Transactions* or *Bulletin*, or as editor of the *Notices*. I am anxious to continue this work for the AMS.

TRUSTEE

Andy Magid, University of Oklahoma

The American Mathematical Society is simultaneously a membership organization and an important publisher of mathematics. Both roles serve the Society's goals of advancing mathematics research. Its success as a publisher, including its MathSci services, generate revenues which allow the Society to advance mathematics through services to mathematicians and through public awareness far beyond what dues income alone would permit. It is always important for the Society to remember that the revenue so generated comes from sales to its members (individual and institutional) and to their libraries, and that responsible management means keeping those sales reasonably priced. As a Trustee, I would work to see that the Society continue to balance its financial goals as a publisher.

Carol Wood, Wesleyan University

As Trustee I would expect to participate in setting the direction of the AMS, as well as to ensure its continued health. I particularly enjoy problem solving in many venues. In serving as Trustee, I would try to build on my experiences within the research community in order to seek out what works best for mathematics now. I would support recognition of a broad range of mathematical research, with its rich interplay with other disciplines, and would seek ways to celebrate and communicate successes. I dream that the demographic profile of mathematicians will become indistinguishable from that of our society at large; this dream informs my priorities for our profession. The support of AWM has been very important over the years, including my times as new Ph.D. recipient and as AWM President. Advice from AWM members would be invaluable to me, so I cannot resist using this statement as an opportunity to request your help should I be elected.

MEMBER-AT-LARGE

Colin C. Adams, Williams College

Mathematics is misunderstood and underappreciated by much of the general public. Many people think of mathematics as a long dead subject, the primary purpose of which is to cause pain and self-doubt in school children.

It is essential for the mathematics community to change these attitudes. Through outreach and exposition, we need to allow others to see both the beauty and utility of what we do. We need to get across that mathematical research is vibrant and that major advances are occurring all the time. We need to make it clear that pure research forms the backbone upon which further advances and applications are built.

If we can successfully communicate this message, a broad spectrum of people will be attracted to mathematics, increasing the numbers of women and minorities in the field. Over time, we can hope to see the mathematical community reflect the make-up of society as a whole, and this will be to all of our benefit.

Bruce Blackadar, University of Nevada

The main function of the AMS is to promote the development of mathematics. One of the most important ways to do this is to try to insure that the profession of mathematician is an attractive and respected one. We have made some progress in bringing people from non-traditional backgrounds into the profession, but we have not been as successful as we should be at attracting (and retaining) exceptionally bright and talented people of all backgrounds. We are losing some of our best prospects to fields with more social prestige and higher salaries.

Part of the problem is public relations. Mathematicians have overall not done a very good job in conveying to the public the nature, importance, and excitement of mathematics. Even within many universities the ignorance and misunderstanding of what goes on in the math department is high. It is still fashionable, particularly in some segments of the society, to be mathematically illiterate; these attitudes are reinforced (usually unconsciously) by many teachers, especially at the elementary level.

The AMS can be a leader in advancing the social status of both the subject and the profession through most of its varied activities. While I do not advocate any

substantial change in the organization or activities of the AMS, many little things can be done throughout its operations to more effectively represent and promote mathematics. I would hope to help promote an attitude throughout the organization and within its membership that we are, at least in part, ambassadors from the mathematical world to the society at large.

Irene M. Gamba, Department of Mathematics and Texas Institute of Computational and Applied Mathematics, University of Texas

The American Mathematical Society has a fundamental role in promoting mathematical research and support in the whole international mathematical community.

At a time where new technologies are dramatically changing the mathematical landscape, it is essential that our community get engaged in interdisciplinary research by pursuing new ideas and developing new tools that will allow scientific breakthroughs. This applies particularly to the field of rigorous modeling of new phenomena and to the validation of these models. All disciplines within mathematics are going to be needed.

Henri A. Gillet, University of Illinois – Chicago

To quote from the “overview” that is posted on its web site, “the American Mathematical Society ... fulfills its mission through programs that promote mathematical research, increase the awareness of the value of mathematics to society, and foster excellence in mathematics education.” The mathematical community is currently faced with a remarkable combination of opportunities and challenges in all of those three areas. There is a strong market for mathematicians in many non-academic fields (e.g. finance, consulting, and cryptography), there have been best-selling books about mathematical topics, and considerable attention is being paid to K–12 mathematics education. As the former head of a broadly based mathematical sciences department, I am strongly aware of the benefits both of interdisciplinary activities and of a strong presence for the mathematical community in mathematics education, though I also believe that we should not be slaves to fashion. On the negative side we are faced with a major challenge: federal support for mathematical sciences is anemic, in particular by

comparison with the life sciences, and the new President's proposed budget, which is not favorable to basic science, does not augur well for the future (even though, through the efforts of leadership of the Division of Mathematical Sciences at NSF, the NSF is planning an increase in support for mathematical sciences). The AMS therefore has a critical role to play, in educating decision makers, the public, and potential students, of the value both of a mathematics education and of funding mathematical research.

The US has an increasingly diverse (both with respect to gender and ethnicity) student population and workforce; obviously, this is by no means reflected in the faculty bodies of mathematics departments, or in enrollment in mathematics, physical sciences, and engineering programs. Much has been done to encourage women and minority students to participate in mathematical sciences programs, but I feel that we are still fighting an uphill battle, in trying, first, to make the mathematical sciences an attractive and *exciting* prospect for girls and minorities, and second, when they come in

direct contact with the mathematical community, for them to find a welcoming culture. All three of the goals that are enunciated in the AMS statement are critically important in this effort, and, as a member of the council, I would do everything I can to help the AMS achieve them.

David R. Morrison, Duke University

The AMS has several key roles to play in today's society:

1) The AMS should be a major player in science policy discussions with legislators and government officials, ensuring that the collective voice of mathematicians is heard.

2) The AMS should play a leadership role in bringing together disparate segments of the mathematics community (pure and applied, researchers and educators, college and K-12), with the goal of promoting productive interaction among these groups.

NSF-AWM MENTORING TRAVEL GRANTS FOR WOMEN

(2002 awards are pending final funding approval.) 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 5-6 grants, in amounts of up to \$4000 each. Each grant will fund travel, subsistence, 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. Any unexpended funds may be used for further travel to work with the same individual during the following year. (Applicants for mentoring travel grants may in exceptional cases receive up to three such grants throughout their careers, possibly in successive years; each such grant would require a new proposal and would go through the usual competition.) For foreign travel, 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 which is funded by the Division of Mathematical Sciences of the National Science Foundation.

Each applicant should submit *five copies* of each of the following: 1) a cover letter; 2) a curriculum vita; 3) a research proposal, approximately five pages in length, which specifies why the proposed travel would be particularly beneficial; 4) a supporting letter from the proposed mentor (who must promise to be available at the time of the proposed travel and may be either a man or a woman), together with the curriculum vita of the proposed mentor; 5) an approximate budget; and 6) information about other sources of funding available to the applicant.

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.

Send *five* complete copies of the application materials (including the cover letter) to: Mentoring Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. If you have questions, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted. The deadline for receipt of applications is **February 1, 2002**.

3) The AMS should be a model publisher, publishing in a cost-effective manner, and helping to develop open standards such as TeX and Unicode which will smooth the transition from a paper literature to an electronic one.

Douglas C. Ravenel, University of Rochester

Our community is at an interesting point in its history. The importance of mathematics is being increasingly recognized in this technological age, and the NSF has made increased funding for our discipline its top priority. At the same time, mathematics, like higher education in general, is under increasing financial and curricular pressure. Careful attention to instructional issues appears to be our best response.

My experience with the Rochester crisis of 1995–96 brought these issues into stark relief. My department was initially targeted for severe cutbacks including the elimination of its graduate program, but with moral and tactical support from the AMS we were able to persuade our administration to modify its course. Improvements in our

undergraduate program since then have made us a source of institutional pride.

As a council member I would encourage the AMS to enhance its recent programs to increase awareness of these issues and to support the efforts of department chairs and other leaders to respond to them in constructive ways.

Frank Sottile, Assistant Professor, University of Massachusetts

I am pleased to write directly to the AWM membership about my candidacy for the AMS council, supplementing my statement in the *Notices* and the AMS election materials. I became a member of the AWM when my wife (a mathematician) pointed out to me that AWM abbreviates “Association **for** Women in Mathematics” — not “Association **of** Women in Mathematics.” I received my Ph.D. from the University of Chicago in 1994 and since then have held postdoctoral positions at the University of Toronto, the MSRI (twice), and the

NSF-AWM TRAVEL GRANTS FOR WOMEN

The objective of the NSF-AWM Travel Grants program is to enable women 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.

Travel Grants. These grants provide full or partial support for travel and subsistence for a meeting or conference in the applicant's field of specialization. A maximum of \$1000 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 of NSF, and the research conference must be in an area supported by DMS. For example, this includes certain areas of statistics, but excludes most areas of mathematics education and history of mathematics. Applicants must be women holding a doctorate (or equivalent experience) and having a work address in the US (or home address, in the case of unemployed mathematicians). Anyone who has been awarded an AWM-NSF travel grant in the past two years, or who has *any* sources of funding from a governmental agency (for example, NSF, NIH, ONR, DOD, or NSA), is ineligible. Partial travel support from the applicant's institution or from a non-governmental agency does not, however, make the applicant ineligible; the availability or possibility of such partial support should be indicated in the applicant's budget.

Target dates. There are three award periods per year (*2002 dates pending final funding approval*). An applicant should send *five* copies of 1) a cover letter, including the conference name, conference dates and location (city/state/country), and amount of support requested, 2) a description of her current research and of how the proposed travel would benefit her research program, 3) her curriculum vitae, 4) a budget for the proposed travel, and 5) information about all other sources of travel funding available to the applicant to: Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. If you have questions, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted. The next deadlines for receipt of applications are **October 1, 2001** and **February 1, 2002**.

University of Wisconsin–Madison. In 2000, I came to the University of Massachusetts at Amherst as an Assistant Professor. My professional experience has included serving on the editorial board of the *Concerns of Young Mathematicians* from 1994 to 1999.

The welcome ebbing of the job crisis of the 1990s and the current demographic renewal of the US Professoriate (40% of mathematics faculty will retire this decade) is creating new professional opportunities and challenges. We will see further lowering of the explicit barriers faced by the AWM pioneers in their careers, but this will expose more subtle barriers to the professional fulfillment of women. For example, I am keenly aware of the difficult compromises and foregone professional opportunities faced when accommodating two careers and raising children. These “two-body” or family problems disproportionately affect young women mathematicians.

While the AMS has limited power to effect change, it can provide leadership on issues affecting our profession. If elected to the AMS council, I will work to ensure that it continues to run well and represents its membership, with a particular sensitivity to issues of concern to the AWM and to younger mathematicians.

W. Stephen Wilson, Johns Hopkins University

A primary focus of the American Mathematical Society is, as it should be, mathematical research. The Society should also be involved with the broader spectrum of concerns of professional mathematicians. These include issues relating to mathematics education from K–12 through graduate school, jobs for mathematicians, research funds, attracting more graduate students, and diversifying our graduate programs and faculty. The American Mathematical Society must do its best to influence government policy on these and other issues. A corollary is the need for a strong Washington presence for the American Mathematical Society in constant contact with policymakers at the National Science Foundation and in the legislature.

NOMINATING COMMITTEE

Alexandro Adem, University of Wisconsin

As professor and chair in a large math department I am well aware of the importance of recruiting motivated

and qualified individuals for service to a department, university or indeed the mathematical profession. If elected to the nominating committee I will strive to identify suitable candidates for nomination from a wide and diverse pool, looking beyond the usual established networks. I will support efforts to increase the participation of women in all aspects of mathematics.

Sheldon Axler, Professor & Chair, University of San Francisco

The Nominating Committee finds candidates for key officers of the American Mathematical Society, including President-Elect (ultimately President), Vice President, Trustee, and Member-at-Large of the Council. As a member of the Nominating Committee, I would seek candidates who could effectively promote the missions of the American Mathematical Society: to support mathematical research, to increase the public’s understanding of the value of mathematics, and to foster excellence in the teaching of mathematics. To help meet the challenges currently facing the American Mathematical Society, the Nominating Committee should recommend outstanding candidates reflecting the diverse membership of the Society. As a long-time member of the Association for Women in Mathematics, I strongly support efforts to insure that women and other underrepresented groups meaningfully participate in all aspects of the mathematical community.

Robert Fossum, University of Illinois

The Nominating Committee identifies the leaders of the AMS by nominating candidates for member at large of the Council, vice president, president-elect, and trustee. It is vital that candidates selected will represent the broad cross-section of the general membership of the Society. The candidates who are elected are called upon to set policy for the Society, exercise fiduciary responsibilities, and represent the Society and mathematics in many and diverse settings. As a member of the Nominating Committee I hope to help identify and put forth candidates from all sections of the Society who we believe will excel as officers of the Society in the same manner as they have excelled as mathematicians and citizens of the mathematical community.

As a former Secretary of the Society, I know the duties of each position and will be able to help the

Nominating Committee in its task of identifying candidates who are suitable for the vacant positions.

Jane Hawkins, University of North Carolina

Officers of the American Mathematics Society represent the wide variety of interests of the membership. Professional mathematicians are located at colleges, universities, and industries of all sizes throughout North America, and their roles run the gamut from fundamental research to recruitment of capable undergraduates into the profession to the incorporation of technology into our curriculum. The Society's officers should be attuned to the trends in federal funding, interdisciplinary activities, and the training of the future mathematical and scientific work force. The role of the AMS Nominating Committee is to listen to its electors, perform a wide search, and present qualified officer candidates for election by the AMS membership. The AWM has a long history of connections with the AMS at every level, and this overlap in membership and officers should continue. The membership of the AWM provides a useful database for prospective AMS officers. Furthermore, the input of the AWM members should be solicited by the Nominating Committee, especially with regard to the high level AMS offices.

Michael Starbird, University of Texas

Mathematics is exciting, useful, and one of the ongoing, crowning achievements of human thought — an expanding adventure for all people. Our challenge as a profession is to develop ways of doing and presenting

mathematics that maximize its positive potential to individuals and the culture. Society has a great, unmet need for clear thinkers with analytical skills. Mathematics not only can supply specific, useful tools, but it is an ideal arena in which to help people develop potent ways of thinking that are exemplified by mathematical approaches to analyzing the unknown.

Unfortunately, several historical habits of the mathematics profession tend to diminish our profession's role in society rather than exploiting all its possibilities. Mathematics is seen as a rather forbidding, enigmatic, and fixed territory to be entered only with trepidation by an elite few. It is seen as a long thin trail, along which any slip leads to doom — usually in the form of a final impression of mathematics being one of failure and frustration rather than uplift and satisfaction. The great ideas of mathematics are absolutely accessible to people without huge investments in meaningless drudge. We mathematicians are good at many things, but marketing is not our strong suit. From the days of the Pythagoreans forward, we have traditionally postured to exclude rather than include. However, there are many people now actively promoting a more outward-looking, inclusive view. Mining the potential of traditionally underrepresented groups is a major opportunity for our profession. Making connections to other professional societies, the legislature, and the public is valuable. True highpoints of mathematics, not the first two rungs of a 100-rung ladder that students will never climb, can be an important element in the general education of all students at our colleges and universities. All these efforts will help make mathematics more broadly used and more favorably appreciated as a cornerstone of culture.

CALL FOR NOMINATIONS: 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 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, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. Nominations must be received by **October 1, 2001**. For more information, phone (301) 405-7892 or email awm@math.umd.edu. Nominations via email or fax will not be accepted.

The mathematics profession is in an enviable position to flourish, because we've got the goods — a subject that can empower anyone to think better and that can produce results that are at the heart of the deepest advances in the human understanding of our conceptual and physical worlds. Let's continue to invite many more people to view mathematics as the intriguing, useful, and culturally central subject that it is. The AMS can encourage this inclusive and welcoming attitude by developing, recognizing, and supporting projects aimed at expanding the accessibility and cultural connectivity of both established and research mathematics. This outward-looking perspective shapes ideas on funding of research and teaching, revisions of graduate and undergraduate curricula, outreach activities, inclusion of underrepresented populations, and building an infrastructure for systematically bringing mathematical research activity within the grasp of many. Members of AMS committees and boards can bring this philosophy of inclusion to bear on the workings of our profession.

Daniel Stroock, Massachusetts Institute of Technology

I believe that the research mathematics community of the United States must have a strong organization to represent it. Although mathematics has many fine organizations representing other aspects of subject, I see the AMS as the primary representative of the research

community. Thus, if elected to the nominations committee, the main criterion on which I will judge candidates will be their commitment (in so far as I can assess it) to strengthening the AMS as an advocate for mathematical research.

EDITORIAL BOARDS COMMITTEE

Clifford J. Earle, Cornell University

Producing high-quality journals is one of the most important activities of the AMS, and maintaining the quality of the journals requires continual recruiting of good editors. During my four years as Managing Editor of the *Proceedings* I found that the Editorial Boards Committee can provide very useful suggestions and advice in the recruiting process, helping to make sure that no good candidates are overlooked. If elected, I will work to maintain the high quality of the journals and their Editorial Committees.

Benson F. Farb, University of Chicago

The main task of the editorial boards committee is to select members of the editorial boards of the various AMS journals. I believe that the membership on such boards should reflect, both mathematically and otherwise, the broad diversity of the membership of the AMS.

CALL FOR NOMINATIONS: ALICE T. SCHAFER MATHEMATICS PRIZE

The Executive Committee of the Association for Women in Mathematics calls for nominations for the Alice T. Schafer Mathematics Prize to be awarded to an undergraduate woman for excellence in mathematics. All members of the mathematical community are invited to submit nominations for the Prize. The nominee may be at any level in her undergraduate career. She must either be a US citizen or have a school address in the US. The twelfth annual Schafer Prize will be awarded at the Joint Prize Session at the Joint Mathematics Meetings in San Diego, California, January 6–9, 2002.

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

With letter of nomination, please include a copy of transcripts and indicate undergraduate level. Any additional supporting materials (e.g., reports from summer work using math, copies of talks given by members of student chapters, recommendation letters from professors, colleagues, etc.) should be enclosed with the nomination. Send *five* complete copies of nominations for this award to: The Alice T. Schafer Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. Nominations must be received by **October 1, 2001**. If you have questions, phone 301-405-7892 or email awm@math.umd.edu. Nominations via email or fax will not be accepted.

WHAT I READ ON MY SUMMER VACATION

Dava Sobel. *Galileo's Daughter*, Penguin, New York, 2000. 420+ix. ISBN 0-14-028055-3 (paper), \$14.00.

Reviewed by: Marge Murray, Book Review Editor, Department of Mathematics, Virginia Tech, Blacksburg VA 24061-0123; murray@calvin.math.vt.edu.

In the year 1633, the astronomer Galileo was tried and convicted by the Inquisition of the Roman Catholic Church for the crime of having defended the idea that the sun is the center of the universe around which the earth and planets revolve. As punishment he was placed under house arrest, ordered to publicly affirm his belief in the earth-centered universe, and effectively barred from scholarly teaching and publication for the rest of his life.

In the four centuries since Galileo first promulgated his heresies, his story has become the stuff of legend, immortalized in histories and philosophies of science, plays, and — most recently — in a popular song by the Indigo Girls. Yet none of these popular renderings makes reference to the woman who, during his time of greatest trial, stood as his greatest supporter, rock, refuge, and friend: Suor Maria Celeste, a member of the order of Poor Clares in the Convent of San Matteo in Arcetri. The eldest of Galileo's three illegitimate children, Maria Celeste — born Virginia Galilei — lived in abject poverty and isolation within the cloistered walls of San Matteo from the age of thirteen until her untimely death just twenty years later. Her years of seclusion stand in striking counterpoint to Galileo's very public life of teaching, research, and invention.

In *Galileo's Daughter*, Dava Sobel skillfully interweaves the saga of Galileo with the even more fascinating tale of his eldest daughter, as revealed in her own startlingly literary letters to her father. From what was almost certainly a lively two-way correspondence, only Maria Celeste's letters remain, preserved among the profusion of Galileo's personal papers. Galileo's letters to Maria Celeste were probably destroyed upon her death, as it would have been far too dangerous for a Roman Catholic convent to preserve them. Thus, says Sobel, "the correspondence between father and daughter was long ago reduced to a monologue" (p. 10).

In these pages, Maria Celeste is revealed as lively, insightful, ingenious. In the convent, she served as an

apothecary, having learned the trade from "the nuns and visiting doctors who staffed the convent's infirmary" (p. 325). Sobel speculates, however, that she learned to read and write in Latin and Italian under her father's tutelage. Indeed, "no one at San Matteo surpassed her in language skills. Even the abbesses sought her out to write important letters of official business" (p. 325). In Sobel's view, it is Suor Maria Celeste — far more than her cloistered younger sister or her wayward, undisciplined brother — who met Galileo's match in intelligence, insight, devotion, and wit.

Sobel's book emphasizes the deep affection between father and daughter. From the seclusion of the cloister, Suor Maria Celeste served as helpmeet and sounding board to Galileo, who never married. For his many physical ills, she prepared pills and potions; she took in his mending and sewing, and at times cooked and baked for him behind the convent walls. In return Galileo was a most generous benefactor of the convent, providing alms, food, and supplies.

In reading about the warmth and intimacy of their relationship, it is easy to forget the tremendous physical barriers that separated them:

The Convent of San Matteo ... maintained a separate parlor where a sister's family members might properly be received. They could bring their own food, too, and share it with her. Thus the dishes themselves, whether cooked in the convent or carried in by the guests, could be eaten with impunity, so long as everyone ate in his or her proper place. A black iron grate, or grille, separated the parlor from the nun's quarters, and all exchanges passed through the lattice of its bars. (p. 116)

Moreover, conditions of life in the convent stand in stark contrast to Galileo's comparatively opulent lifestyle. In November of 1623, immediately following the publication of Galileo's book *The Assayer*, Maria Celeste writes to her father — in a letter apparently accompanied by newly-sewn linens and freshly baked cakes — about the circumstances of life at the convent:

Since I do not have a room where I can sleep through the night, Suor Diamanta, by her kindness, lets me stay in hers, depriving her own sister of that hospitality in order to take me in; but the room is terribly cold now, and with my head so

infected, I cannot see how I will be able to stand it there, Sire, unless you help me by lending me one of your bed hangings, one of the white ones that you will not need to use now while you are away.

Yet, despite her desperate pleas, she is quick to add: "And another thing I ask of you, please, is to send me your book, the one that has just been published, so that I may read it, as I am longing to see what it says." And finally, in a postscript, she directs him: "If you have collars to be bleached, Sire, you may send them to us" (pp. 120-121).

When we think of monastic or cloistered life nowadays, we tend to think of it as a noble calling, a life of poverty and prayer entered into willingly by a spiritual disciple. While Sobel makes clear that Maria Celeste entered cloistered life involuntarily, she tends to gloss over the circumstances under which Galileo's daughter came to live at the Convent of San Matteo.

In seventeenth century Italy, women were still largely viewed as commodities to be bought and sold in marriage — in the case of Suor Maria Celeste and her younger sister, Suor Arcangela, as Brides of Christ, with a dowry to be paid to the convent. Sobel makes clear that his daughters, being illegitimate, were considered by him to be unmarriageable. Viewed in this context, sending his daughters to a convent seems a reasonable way for Galileo to have secured their future, though one wonders why they could not simply have continued to live with him. As it happens, there is a far darker side to the story, which Sobel fails to fully reveal.

In the year 1611, while visiting in Rome, Galileo was invited to join the prestigious Lyncean Academy by one of its founders, Federico Cesi. Sobel describes the academy in admiring terms as one of the first serious scientific societies, devoted to open and unfettered inquiry into philosophy, science, and literature, and describes Galileo as one "who embodied the Lynceans' organizing principles" (p. 42). For a different perspective, however, one may turn to the work of David F. Noble, as recorded in his remarkable book, *A World Without Women: The Christian Clerical Culture of Western Science* (Oxford, 1992). Noble describes the Lyncean Academy as a scientific community modelled on monastic life and in direct competition with the culture of the Jesuits. The Lynceans, more than simply an all-male club, regarded women as an encumbrance, a danger to the scientific life. Quoting the Italian historian Ada Alessandrini, Noble writes, "Marriage was for [the Lynceans] a 'trap,'

a 'feminine bond' which deterred scientific activity and limited the liberty of the studiosus," and adds, in his own words,

the indelible imprint of a world without women, having been passed outward from the monasteries to the church, and then later from the cathedral schools to the universities, now manifested itself yet again in the nascent institutions of modern science (Noble, p. 215).

Just two years after Galileo's initiation into the Lyncean Academy, Galileo placed his daughters at San Matteo. He sought and obtained a special dispensation which made it possible for Livia (Maria Arcangela) and Virginia (Maria Celeste) to enter the cloister at the ages of twelve and thirteen, respectively — well before they turned sixteen, the "canonical age" for admission. In contrast to Sobel, Noble is outraged by Galileo's behavior and asserts baldly that "Virginia [Galilei] had been imprisoned for life by an ambition" — Galileo's scientific career — "that excluded the presence of women." Indeed, he characterizes the daughters as "innocent little victims of science" (Noble, p. 218).

It is therefore not surprising that, at times, Maria Celeste's letters include images of incarceration. Poignantly, in one of her last letters to her father, then in detention in Siena, Suor Maria Celeste writes: "had I been able to substitute myself in the rest of your punishment, most willingly would I elect a prison even straiter than this one in which I dwell, if by so doing I could set you at liberty" (p. 313). In reality, Galileo, even under detention by the Inquisition, never suffered the privation that Maria Celeste endured at San Matteo. The story of Galileo's daughter is, sadly, the tale of a repression still greater than the one that Galileo himself faced.

While Sobel is to be commended for her compassionate understanding of the Roman Catholic culture of Renaissance Italy, one comes away from her book with a sense of horror at the appalling sacrifice made by Suor Maria Celeste, not merely at the altar of religion, but at the altar of science as well. Furthermore, despite the promise of its title, Sobel's book leaves Maria Celeste in her father's shadow, as it is the life of Galileo which gives shape and substance to the narrative. Perhaps appropriately, the book concludes with the revelation that, although it has been known for over three centuries that the body of Suor Maria Celeste is buried with that of her father in his tomb, there is as yet no inscription which reveals that simple fact.

AWM WORKSHOP

Thanks to the support of the Office of Naval Research and the Air Force Office of Scientific Research, AWM hosted a workshop, Focus on Research and Career Advice, July 9–10, 2001 at the SIAM Annual Meeting in San Diego. Women graduate students and recent Ph.D.'s were given a showcase for their research of the participants and the opportunity to discuss issues involving how to succeed in their careers.

The AWM workshop opened Monday afternoon with a minisymposium on "Numerical Methods and Analysis of PDE and Linear Algebra Systems." Catherine Crawford (Ph.D., Northwestern University), who is currently an assistant professor at Elmhurst College, spoke on "Turnable Front Interaction and Localization of Periodically Forced Waves." She described localized traveling wave trains (pulses) observed in binary-fluid mixtures where convection occurs via a subcritical bifurcation to traveling waves. Her problem led to the study of a set of coupled Ginzburg-Landau equations and investigated the effect of time-periodic forcing on spatially localized waves. The second and third speakers are both currently postdocs at the Center for Subsurface Modeling directed by Mary Wheeler at the University of Texas at Austin. Eleanor Jenkins (Ph.D., North Carolina State University) spoke on "Use of Mixed Finite Elements for Acoustic Waves." Her partial differential equations model was applied to the Carolina trough and can be used for predicting patterns due to earthquakes. She discussed *a priori* estimates for her explicit time-stepping scheme. Béatrice Rivière (Ph.D., University of Texas at Austin) gave a talk entitled "Locally Conservative Methods for Subsurface Flow." She demonstrated that discontinuous Galerkin methods may yield highly resolved solution profiles even with coarse grids. Judith Vogel (Ph.D., Temple University), now an assistant professor at Virginia Commonwealth University, spoke on "Flexible Quasi-Minimal Residual and Other Variable Preconditioned Krylov Subspace Methods." Krylov subspace methods are iterative methods for solving matrix equations. Vogel introduced a flexible version of the quasi-minimal residual Krylov subspace method, in which the preconditioning matrix can change from one iteration to the next.

Elsa Schaefer and Suzanne Lenhart

This initial minisymposium was followed by our workshop dinner, held in a large gazebo overlooking one of the pools at our resort. After a pleasant dinner with many distinguished guests, the participants and several mentors broke into two career discussion groups.

The AWM activities resumed Tuesday morning with a minisymposium on "Planning for Your Professional Future."

Our first speaker was Lisa Fauci, who gave advice from her perspective as a tenured faculty member at Tulane University. She pointed out that because the sciences typically have small female representation, female faculty members are asked to participate in numerous committees. She advised that new faculty choose committee work carefully. She also pointed out that "there is never a good time to have children," and so advised the participants to have children whenever they want. As a new parent, you will learn to become focused and efficient in the time you have available. Continuing along these lines, Fauci encouraged the listeners to spend money to make life easier, specifically to pay for the best child care available and to hire house cleaners.

Our second speaker was Katie Gurski, a graduate of the University of Maryland who is currently serving in her second postdoctoral position. Gurski's advice for seeking non-academic positions follows this article.

Third to speak was Gary Green, who has enjoyed a long career at The Aerospace Corporation after beginning his career as a university professor. He explained that he no longer describes himself as a mathematician (except on his tax forms!), but rather as a systems engineer. He seeks holistic solutions; he solves problems that involve mathematics but many other skills as well. He described the qualities he seeks as a recruiter. He wants someone who is flexible, i.e., willing to depart from existing research specialties. He recruits candidates who can speak to "lawyers," meaning that he values the ability to explain technical concepts very clearly and concisely but respectfully to people who have no technical background. He hires people who show that they have a desire to learn new things and to work hard. In addition, Green cautioned that while a mathematics Ph.D. opens doors, once you are hired in industry you are judged on your performance and expected to work on equal ground with people from all backgrounds.

Our final speaker was Fern Hunt, now with the National Institute of Standards and Technology (NIST), whose career also began as a college professor. She gave

an interesting history and overview of NIST. As she described her own career, and the forces that helped her choose her career path, her biggest emphasis was on outside reading. It was through outside reading that she discovered her interest in mathematical biology, and outside reading greatly augmented her class preparations as a college professor. She believes her broad base of coursework at NYU, as well as its reputation, have served her well in finding positions in academia and in industry. She added that in particular her coursework in probability has been helpful to her in her career.

Immediately following this minisymposium on career planning was a well-attended poster session. Presenting posters were:

Grazyna Badowski, Wayne State University
"Optimal Controls of Discrete-time Dynamical Systems
Driven by Singularly Perturbed Markov Chains"

Meredith L. Greer, Vanderbilt University
"A Population Model of Prion Dynamics"

Monica C. Jackson, University of Maryland,
College Park
"Simulation and Comparison of Spatial Models for
Discrete Data on a Lattice"

Diane C. Jamrog, Rice University
"A New Global Optimization Strategy for the
6n-dimensional Molecular Replacement Problem
from X-ray Crystallography"

Erin E. Kammann, Harvard University
"Smoothing Methods in Biomedical and Health
Research"

Lilia Krivodonova, Rensselaer Polytechnic Institute
"A Posteriori Error Estimation for Discontinuous
Galerkin Solutions of Hyperbolic Problems"

Hyeona Lim, Michigan State University
"Transition Layer Dynamics of a Viscoelastic System
using the Time Discretization Method"

Shona D. Morgan, North Carolina State University
"Cluster Analysis in Electronics Manufacturing"

Jennifer Proft, University of Texas at Austin
"Coupling of Continuous and Discontinuous Finite
Element Methods in Transport Problems"

Svetlana Roudenko, Michigan State University
"Generalized Matrix-Weighted Function Spaces"

Kimberly F. Sellers, George Washington University
"System Reliability under Precise and Imprecise
Classification."

The workshop ended with a minisymposium on "Analysis and Applications of Models." Catherine Lebedzik (Ph.D., University of Virginia) spoke on "Boundary Stabilizability of a Nonlinear Structural Acoustic Model including Thermoelastic Effects." She discussed stability and estimates on a structural acoustic system with a nonlinear thermoelastic plate equation on one part of the boundary. Sherry Scott (Ph.D., University of Maryland, College Park), a visiting assistant professor at George Washington University, spoke on "Spectral Analysis of Fractal Noise." Her work, which has applications to biomedical, meteorological and economic data, uses a deterministic approach that extends the Wiener-Winter theorem to fractal noise. Mei-Hui Wang (Ph.D., University of Tennessee) spoke on "Speeds of Invasion in a Model with Strong or Weak Allee Effects." Most invasion models assume no Allee effect, i.e., that per capital growth rates do not decrease with density. For these models, the spread of invasion can be determined through linearization. Her work shows that linearization may still give the correct speed of invasion for sufficiently weak Allee effects. Kimberly Weems (Ph.D., University of Maryland), currently a researcher at the National Research Agency, gave a talk entitled "A Sensitivity Analysis of Estimates for Poisson Mixed Models." She examined estimation in the generalized linear mixed model that extends classical regression analysis to non-normal, correlated response data. Her work focuses on finding a method to analyze the robustness of parameter estimates when the distribution of random effects is misspecified.

Tuesday evening, many of us enjoyed a trip to the San Diego Supercomputing Center, where we received a friendly welcome, a tour of the facilities, and a glimpse of the problems being studied there. Thanks to Juan Meza of Sandia National Labs for arranging this trip.

The organizers of this workshop, Suzanne Lenhart and Elsa Schaefer, would like to thank the volunteer mentors, who were paired with the participants and gave feedback on their research presentations: Kathy Brenan, Anne Elster, Lisa Fauci, Renee Fister, Gary Green, Katie Gurski, Fern Hunt, Karen Kafadar, Barbara Keyfitz, Tamara Kolda, Rachel Kuske, and Linda Petzold. We also appreciate the excellent coordination work on the workshop done by Dawn Wheeler. (*see photos on pp 29-32*)

HINTS FOR FINDING NON-ACADEMIC RESEARCH POSITIONS (POSTDOCTORAL AND PERMANENT)

Non-academic research positions can be found at national laboratories, federal research centers, in industry, and even at universities (research scientist positions). This article is intended to help answer the question of how to go about finding such a position. Let me be the first to admit that I am not an expert on this subject; this is advice from a fellow mathematician in her second non-academic postdoctoral appointment who conducted a very extensive job search shortly before finishing graduate school. Some of the advice in this article is original, while much is distilled from a large number of advice talks, articles, stories, and personal experiences.

A good place to start, although generally no one believes it, is at your school's career center. Check out the career center's webpage to learn how to use the services. Most career centers will have a "Resumania" program where you can have your resume critiqued by people from various government laboratories and industry. This is a very useful feature since you will need a resume and not a curriculum vita. There are differences! Sign up for on-campus interviews. All the employers coming to campus understand that you are most likely a graduate student with little to no actual job experience. In fact, they are not expecting people with experience if they are looking for new employees on-campus. Take advantage of this opportunity. Make a list of companies that are interested in pure and applied mathematicians and your non-mathematical interests. Then use your career center's resources and the web to learn more about these companies. Go to the on-campus career fair. Practice your sales pitch on the recruiters. If you are expecting to graduate in May or during the summer, you will need to start this process in August or September. Do not worry about having to decide on offers from non-academia long before the academic process starts if you are conducting a dual search. Research jobs do not have to be filled instantly and the employers will wait on your decision.

What about your off-campus search? The first step in your search is to investigate the AWM, SIAM, ASA, and AMS job advertisements. Ask your advisor to inquire about job opportunities with his/her colleagues. At a minimum, ask your advisor for a list of people to contact. After you have applied for all these jobs, it is time to start your off-campus search in earnest. Set up a web page and create an "emailable" resume. Most of the non-academic world can not handle a postscript file, so you will need a nice-looking plain text version of your resume. Go ahead and register your webpage with a couple of web search engines. Do not forget to post your resume on the job webpage associated with your school's career center. Why post your resume online? You will be surprised by the number of emails from industry head hunters who find keywords on your resume and send you pertinent job information.

There are stories circulating that all mathematicians' resumes hit the circular file (trash can) as soon as they are received by the personnel office. So, how do you avoid failure in your off-campus job search? Clearly you should expect a very small but nonzero response rate to letters sent to email sorters and personnel offices. Therefore, you will need to make an additional approach through a "mathematical" employee. This is where the real work begins.

Perform a search using words from your specialty area. Make a list of the companies and people involved in your area of research that results from this search. Send these people and companies letters (with resumes attached). Go to the library. Search the journals in your field. Send letters and resumes to everyone in your area with a non-academic address. Send letters and resumes to people you have met at conferences. Look at the non-mathematical professional society most closely related to your application area and search its listings for job advertisements, plus company and people names. Send them letters and resumes. Getting the idea? One key point: take the time to state in your letter why you are

By Katharine Gurski, a National Research Council Postdoctoral Fellow at the National Institute for Standards and Technology. Her previous postdoctoral fellowship was at NASA Goddard Space Flight Center. She will soon be heeding her own advice in a search for a permanent (non-postdoctoral) job.

interested in this person/company/position. Explain how your skills would be useful to them. And most importantly, respond only to advertisements that are at least somewhat applicable to you. The name of the game is selective resume submission.

What about postdoctoral fellowships? The fellowships from the National Science Foundation and the National Research Council have a competitive grant application process. The NSF postdoctoral fellows are typically located at a university, the NRC fellows are associated with the national laboratories and federally funded research centers. What is the best way to obtain one of these postdoctoral (NSF, NRC, or other) fellowships? First you need to find a potential postdoctoral advisor in your field of interest (either your current area or a related area). Contact him/her and ask if there is mutual interest in working together; also ask about the application process. You will also find that many large companies with research departments hire postdoctoral researchers. The best approach (over a blind application) is to make someone interested enough in you that they will create a postdoctoral position for you. (For web addresses for additional information on these postdoctoral fellowships and others, please see my job advice page, address listed at the end of this article.) The previous advice on how to find people and companies in your research area also works well for finding a postdoctoral advisor.

You will be writing a number of letters and speaking to a number of people, trying to convince them to hire you. How do you sell yourself? More importantly, how do you sell yourself convincingly and stay true to yourself? This is the topic that I found missing in all the advice I received before my job search. Therefore, the following is mostly advice based on my personal experience (your mileage may vary). You will need to explain how your research skills can be applicable to more problems than just your thesis problem and some trivial extensions. If you have taught, emphasize your teaching skills, for example, the organizational and management skills you have learned. Do not worry about knowing one particular skill or a specific computer language. Instead focus on your willingness to learn and on your proven learning track record (after all — you must have been able to learn something if you survived graduate school). If an employer does not want to hire you because you do not already have all the skills for the job, you do not want the job anyway. You are looking for a

job that allows you to learn and grow. Discuss your willingness to work with non-mathematicians or in groups. Be truthful here, otherwise you can end up working in the wrong environment for you. Learn the “buzz words” in your application area used by non-mathematicians. Be able to describe your work and interests with respect to these “buzz words”. (Do not get bit though; be sure you properly understand the “buzz words”.) And last but not least, do not apologize for your lack of job or application experience. Be confident that your mathematical skills will be valuable to your employer.

Okay, you finally have an interview. Here are some tips on how to survive the interview. Practice interviewing beforehand. You do not need to rehearse, but you do need to give thoughtful answers. Get the interviewer to tell you about the group and the job. Be cautious though, non-practiced interviewers might consume all the time in the interview and not allow enough time for you. Ask thoughtful questions. Find out the interviewer’s technical background so you can explain yourself appropriately. You will be speaking with personnel office representatives, non-mathematicians, and mathematicians. Be able to state concisely what your research involves at the appropriate technical level. You do not want to confuse or speak “down” to anyone. This is a professional technical discussion. Explain how your skills would be useful to the employer. Talk about what kind of environment you work best in and your expectations. Be able to say succinctly why you want a non-academic job. Be truthful, be honest, be polite, be open-minded, show enthusiasm and respect for the interviewer. Dress appropriately. Do not be rude even if you find you hate the job or interviewer. Often you will interview with multiple groups to “fill” your day and these fillers will not know what to do with a mathematician. It is possible one of the other groups is a perfect match. Do not destroy your chances of getting that one job by being someone who cannot get along with others. Also if you name-drop, be sure the “name” you drop knows you and will indeed recommend you.

If you are asked to give a research talk at the interview: prepare, prepare, prepare. This is a make-or-break occasion. Practice your talk with your advisor, with your peers, with anyone and everyone at all. Make sure your talk is technically correct (especially if you are using “buzz words”) and at the appropriate level. Ask ahead of time about the technical level of the audience and

whether the talk should be just a high-level overview or a full technical description of your research problem. Be prepared to shift the technical difficulty up or down during the talk. You want to fill the allotted time and not run too short and especially not too long. Point at the screen, not at the projector. Speak clearly and to the audience; this is not the time to read directly off your slides. Show off your computer prowess by using non-handwritten, legible, slides. Use a spell checker. Point out your contributions, make it clear to the audience that your research produced results.

If you get to an interview you are nearly there. Let the interviewer see that you are someone they would like to work with. Your research talk will showcase your technical and communication skills. So relax and be yourself. At the same time, keep it professional.

Not yet ready to apply for a job? Great, you have time to plan ahead and test the waters. Go to conferences. Give a talk and/or poster. This gives you practice presenting your research and will help you meet people in your area. Network at the conferences. If you find it difficult to introduce yourself to strangers and start a conversation, work the crowd with a "buddy" and meet your buddy's connections. Apply for industrial mathematics workshops. Both the Institute for Mathematics and Its Applications and North Carolina State University offer ten-day workshops for graduate students. The IMA workshop is biannual, the NCSU workshop is annual, both in the summer. You will get a chance to work on an industrial math problem and meet industrial mathematicians and similarly minded graduate students. Rensselaer Polytechnic Institute holds a more advanced annual workshop for professors and post-graduates. Do an internship. Go to industrial math seminars. Participate in a group research project. The benefits are twofold. First you will have something to talk about on your resume and second, you will know whether you enjoy group work. Sign up with a mentor with AWM (and if you have finished school, share your wisdom, sign up to be a mentor).

Now you have been successful and you have an offer or two. How do you negotiate? Here again your career center folks can help you learn how to diplomatically negotiate your best terms and how to turn down offers. Remember, diplomacy and good manners with the right degree of firmness will help you through this step. Remember, the job you are accepting is probably not going to be the only job you will ever have, so be as

courteous to the extenders of the job offers you decline as you wish your first-choice prom date had been when declining your invitation.

Best of luck in your job search! Want more information? Try these web pages:

<http://csmr.ca.sandia.gov/~meza/outreach.html>

Interviewing suggestions from Juan Meza of Sandia National Laboratory.

<http://www.mathspace.com/Essays/IndustrialMathForYou.htm>

An article entitled "Is Industrial Mathematics Right For You?" by Marcus Pendergrass.

<http://math.nist.gov/~KGurski/jobadvice>

My partial list of links for companies, math industry workshops, fellowships, other miscellaneous job information.

<http://www.awm-math.org/workshops/summer2001/>

Slides from this talk at the AWM July 2001 Workshop.

IMO 2001 USA RESULTS

Teams from eighty-three countries participated in the 42nd International Mathematical Olympiad held in the Washington, DC area on July 4–13. Each team consisted of six participants, and the competition was held on two days, with three questions given each day.

China took first place overall in the competition, while USA tied with Russia for second. The China team repeated its outstanding performance of last year, with all team members winning gold medals. The USA team received four gold and two silver medals. Reid Barton from the USA team became the first contestant ever to win a fourth gold medal in his four years of competing in the IMO. Barton, along with his teammate Gabriel Carroll, received a perfect score on this year's exam. There were 33 female participants out of the 498 total in this competition.

The official website for the results is imo.wolfram.com. It was the first time in 20 years that the competition was held in the USA. The two main sponsors of this IMO were the Akamai Foundation and the Clay Mathematics Institute.

Suzanne Lenhart

AWM WORKSHOP FOR WOMEN GRADUATE STUDENTS AND RECENT PH.D.'S

supported by the Air Force Office of Scientific Research, the Office of Naval Research, and the Association for Women in Mathematics

Over the past thirteen 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 July 8–10, 2002, with an introductory dinner. This workshop is to be held in conjunction with the 50th Anniversary of the Society for Industrial and Applied Mathematics (SIAM) and the SIAM Annual Meeting (July 8–12, 2002) at the Philadelphia Marriott Hotel, Philadelphia, PA

FORMAT: The workshop will consist of a poster session by graduate students and two or three minisymposia featuring selected 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 minisymposium will have a definite focus, to be selected from the research areas of Mathematical Biology, Modeling, Control, Optimization, Scientific Computing, and PDEs and Applications. All mathematicians (female and male) are invited to attend the program. Departments are urged to help graduate students and recent Ph.D.'s to obtain some supplementary institutional support to attend the Workshop and the associated meeting.

DISCUSSION GROUP LEADERS: 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 a thesis problem. Her application should include a cover letter, a one to two page summary of her work, the title of the proposed poster, a curriculum vitae, and a supporting letter of recommendation from a faculty member or research mathematician who knows her research. To be eligible for selection and funding, a *recent Ph.D.* will have received her Ph.D. within approximately the last five years (whether or not she currently holds a postdoctoral or other academic position). Her application should include a cover letter, a title and abstract (75 words or less) of the talk (to be given if accepted), a one to two page summary of her work, and a curriculum vitae; it is recommended but not required to include a supporting letter of recommendation from a faculty member or research mathematician who knows her research. All non-US citizens must have a current US. address. 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 title and abstract (75 words or less) with name, affiliation, address, etc. by mid-February to SIAM for the meeting program; AWM will provide instructions when notified.

Send **five** complete copies of the application materials (including the cover letter) to:

Workshop Selection Committee
Association for Women in Mathematics
4114 Computer & Space Sciences Building
University of Maryland
College Park, Maryland 20742-2461

Phone: 301-405-7892

Email: awm@math.umd.edu URL: www.awm-math.org

APPLICATION DEADLINE: Applications must be received by **January 21, 2002**. Applications via email or fax will not be accepted.

CONFERENCE IN CELEBRATION OF SMITH COLLEGE ALUMNAE MATHEMATICIANS

In Memory of Ellen Borie '66 and Laura Mayer '79

April 21–22, 2001 marks the date of a first for Smith College. It was the first-ever conference of professional talks by Smith B.A.'s who had gone on to achieve Ph.D.'s in mathematics or related fields. The speakers spanned six decades of Smith alumnae. Smith, a women's college, has always been a leader in women's education. For instance, the college has recently initiated the Picker Engineering Program in order to increase the number of women engineers. The Conference in Celebration of Smith College Alumnae Mathematicians provided unique leadership and direction to professional women working in mathematics. See the conference archive (with pictures!) at the website run by ELLEN GETHNER: www.cs.ubc.ca/~egethner/announcement.html. She also maintains a database of Smith College Alumnae mathematicians, www.cs.ubc.ca/~egethner/smith.html.

The first and featured speaker of the meeting was Smith alumna EVELYN BOYD GRANVILLE, professor emerita of California State University at Los Angeles, who was awarded an honorary degree by Yale University on May 21, 2001 (see the Yale website elsinore.cis.yale.edu/opa/v29.n31/story103.html.) She is the first African-American woman to achieve a Ph.D. in mathematics in the United States. She has also been honored by the National Academy of Sciences, by Smith College and by Lincoln University. After retiring from Cal State, she accepted the chairmanship of the mathematics department at Texas College, in Tyler, Texas. The title of her talk was "Mathematics Education in the 21st Century." See the biographical article of her life at the Agnes Scott College website: <http://www.agnesscott.edu/lriddle/women/granvill.htm>.

Twenty-one invited twenty-minute addresses aimed at the level of first or second year graduate students followed. Speakers were organized by year of graduation from Smith, and Smith mathematics faculty chaired each session. The conference attracted an audience composed of Smith undergraduates, alumnae, faculty, and faculty from nearby colleges. There was a panel discussion on

Careers in Computer Science, with panelists HELENE STEINMAN KULSRUD (Center for Communications Research), SUSAN EPSTEIN (Hunter College and Graduate School of CUNY), MARTHA STEENSTRUP (Stow Research L.L.C.), BARBARA BOOTHMAN PFARR (NASA), and STACIA WYMAN (University of Texas at Austin). A roundtable discussion, "On Being a Woman in Mathematics," was led by DEBRA BOUTIN. Comments from participants at the end of the conference ranged from "A new community has formed!" to "It was impossible to skip any talks, because they are all too good!" All the talks were well presented and contained interesting mathematics; most unusually, all the speakers stopped on time. This fact alone would be enough to make the conference unique.

The mathematical program included: MARJORIE BATCHELOR (University of Cambridge), "The Point of the Matter: Measuring Coalgebras"; VICTORIA BOOTH (NJ Institute of Technology), "Modeling Pyramidal Neuron Firing in the Hippocampus"; EDITH BORIE (Forsch. Karlsruhe), "Numerical Simulation of Physical Processes"; DEBRA BOUTIN (Hamilton College), "Geometric Group Theory — From Geometry to Groups and Back Again"; PRISCILLA BREMSER (Middlebury College), "Some Special Polynomials Over Finite Fields"; AGNES HUI CHAN (Northeastern University), "Authentication and Data Security over Wireless Networks"; JANE PURCELL COFFEE (College of Staten Island), "Algebraic Coding Theory: A Topic in a Web-based Algebra Course"; KAREN L. COLLINS (Wesleyan University), "Graph Homomorphisms and Coloring"; GWYNNETH HARDESTY COOGAN (University of Wisconsin), "A Modest q-Series Identity with a Surprising Story"; SUSAN D'AGOSTINO (Dartmouth College), "The Leap from Modular Forms to Siegel Modular Forms"; JULIE GLASS (Cal State Hayward), "From Lie Algebras to Vertex Operator Algebras"; NANCY KING HARRISON (Mercy College), "Teaching Mathematics Online"; MAKO HARUTA (University of Hartford), "Rethinking Precalculus: Three Strategies for Improving Student Comprehension and Retention"; JOAN HUTCHINSON (Macalester College), "Coloring Maps and Graphs in the Plane and on Surfaces"; KIRA HYLTON (Keene State College), "How Many Real Numbers are There?" DIANE

Karen L. Collins, Wesleyan University

JAMROG (Rice University), "A New Global Optimization Strategy for the Molecular Replacement Problem"; ERIKA COX KING (Vanderbilt University), "Characterizing Well-Dominated Graphs"; JOAN WICK PELLETIER (York University), "Locales and Quantales"; COLLEEN ROBLES (University of Houston and University of British Columbia), "Poincaré Unbalanced by a Form"; MARGO KEENEY SCHAEFER (College of William and Mary), "Network Optimization"; and KATHERINE ST. JOHN (Lehman College, Graduate School of CUNY and University of Texas), "Computational Biology."

The conference organizers were Debra Boutin (Hamilton College), Karen Collins (Wesleyan University), and Ellen Gethner (University of British Columbia). The conference was made possible by funding support from Smith College and anonymous alumnae donors. Smith has also set up an electronic discussion board, Math Alumnae Discussion, which is being used by the participants for networking; see www.science.smith.edu/resources/discus/messages/111/.

AWM AWARDS

CONGRATULATIONS to all listed below for their meritorious achievements!

NSF-AWM Travel Grant Awards for the May 2001 Cycle went to: CANAN CELIK, Michigan State University (\$800); VYJAYANTHI CHARI, University of California, Riverside (\$1500); JEAN DUNBAR, Converse College (\$625); ANNA KAMINSKA, University of Memphis (\$1200); ANNA L. MAZZUCATO, Yale University (\$900); BEATA RANDRIANANTOANINA, Miami University (\$1300); and RITA SOLOMYAK, University of Washington (\$900).

The four schools listed below will be funded through the new Sonia Kovalevsky High School Days grant from Coppin State College and NSA: NASSAU COMMUNITY COLLEGE, October 5, 2001; NEW COLLEGE OF THE UNIVERSITY OF SOUTH FLORIDA, October 27, 2001; THE SAGE COLLEGES, October 19, 2001; and UNIVERSITY OF WISCONSIN – WHITEWATER, September 29, 2001. These SKHS Days will be reported on in future newsletters.

AWM MENTOR NETWORK

This spring the AWM Mentor Network officially got off the ground. At the time that this article is being written, there have been approximately 90 requests for mentors, and about 80 mentors, nearly all of whom have been assigned to a "mentor pair," have volunteered. The growth of the network has been occurred for a variety of reasons — some targeted advertising through university contacts, advisor referrals, notices on the AWM web site and in the AWM newsletter, and word of mouth.

To give you some idea of the breadth of mentor requests, I'll summarize some of the demographics. These requests have been received from high school students through recent Ph.D.'s, with the bulk of the requests coming from undergraduate and graduate students. Matching has been based on general math interests, career goals, balance of career and outside life, academic or industrial math goals, etc. Some of the requests have come from other countries, including Canada, Romania, Argentina, South Africa, India, and Australia. Very often requests for mentors are accompanied by additional comments to help with the matching. Some requests are very specific, looking for a mentor on a particular topic, such as "How do I get my thesis in shape for publication?" or "What types of non-academic careers are available to someone with a statistics degree?" Others are more general, such as "I love math and want to share that with someone!" and "What should I expect as I start a tenure track job?" Recently we've been increasing our contact with high school groups, so the range of requests has continued to grow. We are always looking for additional mentor volunteers, both men and women!

The different mentoring styles have also "shaped" the network. In at least one case, two mentors have combined their pairs to form a joint mentor group. Some mentors with more than one mentee communicate with them both jointly and separately. Frequency of contact differs among mentor pairs, but we do encourage regular contact to keep the communication lines open, even if sometimes it is just a quick "Hello! How's it going?" We're always open for suggestions and comments for improving the network. As we increase the publicity for the network, we expect it to grow and develop.

Rachel Kuske, University of Minnesota

Future plans for expansion include a cooperative effort with the Institute for Mathematics and its Applications (IMA) to set up mentoring and discussion forums directed toward specific research topics at the IMA Research Communities website: <http://www.ima.umn.edu/research/AWM.html>. See the related article that follows.

With the growth of the network, we have a new office assistant to help in setting up a database and work on publicity. We would like to thank the Office of University Women at the University of Minnesota for financial support of the office assistant and the IMA for providing office and computer support. Thanks also to the School of Mathematics, the Program for Women in IT (Institute of Technology), and IT Center for Educational Programs at the University of Minnesota for financial and office support of mailings to high school educators. And of course, thanks to all who have volunteered to participate in the network, especially as mentors.

To volunteer to mentor or to request a mentor, please visit the AWM Mentor Network web page, www.awm-math.org/mentornetwork.html.

IMA MENTORING FORUMS

There is a new component of the Research Communities Web page at the IMA (Institute for Mathematics and Its Applications). Through cooperation with AWM, the IMA will provide mentoring and discussion forums that are directed towards specific research areas in applied mathematics. The AWM will recruit mentors for the specific subject areas, who will check the forum discussions regularly. The goal is to provide a resource for students and new researchers who need additional direction as they pursue their work. This site can also be used for discussion forums for those interested in certain research areas, potentially benefiting both junior and senior researchers. This research-related mentoring opportunity is complementary to the existing AWM Mentor Network, which focuses on mentoring based on career issues and general mathematical interests.

We are currently recruiting mentors from all areas of applied mathematics, both men and women, who will

commit to checking their subject forum approximately once a week in order to address questions that may be posted. Of course, mentors may not know the answers to all questions, but they may be able to give a reference to someone or someplace that can help. The subjects covered by the forums will be determined by the interests of the users and the areas of the mentors who volunteer. To volunteer or suggest a forum topic, please visit the Research Communities page at the IMA Website, or contact the coordinator: Professor Rachel Kuske, School of Mathematics, University of Minnesota, 127 Vincent Hall, 206 Church Street SE, Minneapolis, MN 55455; phone: 612-624-5541; fax: 612-624-2333; email: rachel@math.umn.edu

AWARDS AND HONORS

CONGRATULATIONS to the women below for their meritorious achievements!

Twenty-three women were honored for their achievements in government and defense at the First Women of Color Government and Defense Technology Awards Conference, held in Washington, DC in July.

This year's Women of Color honorees come from corporations and government agencies that are doing something meaningful about the "glass ceiling" that has limited women to three to five percent of the executive force of the Fortune 500 and the "digital divide," which threatens to marginalize talented minorities. These companies are taking seriously the challenge of increasing the number of women in their top ranks.

Technologist of the Year in Government and Defense is DR. CHINATSU AONE, Vice President and Director of Natural Language Technologies, SRA International, Arlington, VA. Chinatsu Aone spends her time getting computers to do things that seem to be intrinsically human — like reading and understanding a written language or translating from one language to another. Internationally recognized and a leading authority on information extraction, Aone has spearheaded the research, design and development of advanced Natural Language Processing (NLP) systems. Her areas of expertise include multilingual information extraction as

Rachel Kuske, University of Minnesota

well as application of various statistical and machine learning techniques to complex NLP domains. Aone has published extensively in her field and has received the distinction of having produced some of the highest-quality information extraction systems in existence. Before joining SRA, Aone spent four years in the Artificial Intelligence and Human Interface laboratories at Microelectronics and Computer Technology Corporation (MCC) in Austin, Texas. She received her Ph.D. in Computational Linguistics from the University of Texas.

The other honorees were: NINA M. BERRY, Senior Member of Technical Staff, Sandia National Laboratories, Livermore, CA; VANESSA F. BRADY, Executive Assistant to the Deputy Administrator, Chief Engineer for Operations, Maryland State Highway Administration, Baltimore, MD; DR. JULIA V. CLARK, Program Director, Teacher Enhancement Program and Student Research Program, National Science Foundation, Arlington, VA; SONYA M. CORK, Senior Manager of Business Operations, WorldCom Government Markets, McLean, VA; GLENNCA A. FAISON, Senior Vice President, Division Group Manager, CACI International, Inc., Arlington, VA; JACKQUELYN E. FLETCHER, Associate Director/Chief Information Officer, United States Mint, Washington, DC; WYLLSTYNE D. HILL, Senior Director, Information Technology, Raytheon Missile Systems, Tucson, AZ; URMILA C. HIREMATH, Principal, Software Systems Engineer, The MITRE Corporation, McLean, VA; CAROLYN JONES, Technical Information Specialist, Defense Information Systems Agency, Ft. Belvoir, VA; LISSA HENDERSON LUCHT, Systems Engineer, CACI International, Inc., Chantilly, VA; SHIRL L. MACK, Vice President, Director of Human Resource Operations, SRA International, Inc., Fairfax, VA; JOANN OGBURN, Engineering Director, Flight Systems Design & Analysis, Boeing Satellite Systems, Huntington Beach, CA; MARLA E. PEREZ-DAVIS, Chief, Electrochemistry Branch, NASA John H. Glenn Research Center, Cleveland, OH; VIVIAN W. PINN, M.D., Associate Director for Women's Health, National Institutes of Health, Bethesda, MD; CYNTHIA T. SMALL, Business Area Manager, The MITRE Corporation, McLean, VA; MARIA E. STROPKY, Project Manager II, CACI International, Inc., Arlington, VA; GAYNELLE P. SWANN, Senior Systems Engineer II, Raytheon Missile Systems, Tucson, AZ; DR. PATRICIA A. TATEM, Head, Combustion Modeling/Scaling Section, Naval Research Laboratory, Washington, DC; BRENDA J. Taylor, Chief,

Production Support Branch, Operations, Defense Information Systems Agency, Greenwood Village, CO; MARIA V. THORPE, Program Manager, Naval Air Warfare Center, Patuxent River, MD; DR. MARGARET E.M. TOLBERT, Director, New Brunswick Laboratory, US Department of Energy, Argonne, IL; and BETTIE L. WHITE, Director, Minority University Research and Education, Programs, Office of Equal Opportunity Programs, NASA Headquarters, Washington, DC.

The NSF has awarded its Graduate Research Fellowships for fiscal year 2001. The program provides a stipend of \$18,000 per year for three years of full-time graduate study. Awardees are listed by name, undergraduate institution (in parentheses), and the institution where graduate study was planned (at the time of application): SAMI H. ASSAF (University of Notre Dame), University of California, Berkeley; ANDREA K. BARREIRO (Rensselaer Polytechnic Institute), New York University; MICHELLE C. DUNN (Harvard University), Carnegie Mellon University; JOHANNA N. Y. FRANKLIN (Carnegie Mellon University), University of California, Berkeley; SARAH C. KOCH (Rensselaer Polytechnic Institute), Brown University; FUMEI LAM (University of California, Berkeley), Massachusetts Institute of Technology; and SUZANNE S. SINDI (California State University, Fullerton).

North Carolina A&T State University was recently honored by the IRS Volunteer Income Tax Assistance (VITA) program for 35 years of community service in providing income tax assistance to taxpayers. The program at NCA&TSU predates the VITA program, which was established in 1970. The department received a plaque, and THELMA BRADFORD, a mathematics professor at NCA&TSU, received a trophy for her years of providing assistance to the elderly and to persons of low to moderate income. Bradford has received other honors for her work:

For Bradford's vision, she has received numerous certificates from the IRS.... An article was published in the *Chronicle of Higher Education* in 1969 about the community service offered through NCA&TSU. More recently in 1990, while attending an IRS volunteer recognition ceremony in Washington, DC, Bradford received a plaque from President Bush and wife Barbara....

[*Carolina Peacemaker*, June 14, 2001]

SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAY

St. John's University

On Tuesday, May 1, 2001, 182 high school women and 35 teachers and guidance counselors from 29 city high schools of the greater New York area met at St. John's University for its tenth annual Sonia Kovalevsky Day. Dr. Julia A. Upton, University Provost, welcomed the visitors.

The program began with four panelists. Althea Bartley, Assistant Treasurer at J.P. Morgan Chase, spoke about the math she uses in her work involving credit, such as Set Theory (when joining tables on the databases), Logic (if conditions P and Q are satisfied, then Applicant A qualifies for Product B), and Descriptive Statistics (frequencies and means aid in determining whether dramatic changes indicate errors or changes in the population).

She then gave the girls these "words of wisdom": 1) participate in competitions; 2) participate in summer research programs; 3) tutor; and 4) join AWM, ASA, etc. to learn what is going on in the math world — get involved. She said:

What I appreciate most about my decision to study math is that the analytical skills I acquired put me on a level playing field with all my peers in regard to some of the more complex processes that are involved in the work that we do. In addition, it was the best tool to have when I decided to pursue a minor in computer science that I rely heavily on today. It is not easy juggling family and work responsibilities, but the rewards

of both are immeasurable. What I try to impart to the student that I tutor is you should focus less on choosing a career and more on finding the one thing you are good at and love to do more than anything else. Pursue that to the fullest, after which you can let the career choose you.

Madonna Chernesky, a mathematician with the National Security Agency, warmly encouraged the girls and noted that she uses the math she studied in college everyday:

Knowledge of abstract and linear algebra, probability, and statistics helps me analyze data and produce significant results. In addition, the problem-solving skills I acquired through studying mathematics have been invaluable. I have an enjoyable, challenging and successful career, thanks to the education I received as a mathematics major.

Nicole Napolitano, a lawyer who was a math major as an undergraduate, spoke enthusiastically about the many benefits of the major for the legal profession. In preparing a case, it was necessary to consider all possibilities and their consequences, and eventually to come up with the right one — exactly what she has been doing in her math courses. Her logic courses helped her test the validity of her arguments. Whether taking exams for entrance to law school or preparing law briefs, her training in mathematics made such undertakings seem like familiar homework assignments. Without such a background, it would not have been so easy.

CALL FOR NOMINATIONS: THE 2003 NOETHER LECTURE

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

The mathematicians who have given the Noether lectures in the past are: Jessie MacWilliams, Olga Taussky Todd, Julia Robinson, Cathleen Morawetz, Mary Ellen Rudin, Jane Cronin Scanlon, Yvonne Choquet-Bruhat, Joan Birman, Karen Uhlenbeck, Mary Wheeler, Bhama Srinivasan, Alexandra Bellow, Nancy Kopell, Linda Keen, Lesley Sibner, Ol'ga Ladyzhenskaya, Judith Sally, Olga Oleinik, Linda Rothschild, Dusa McDuff, Krystyna Kuperberg, Margaret Wright and Sun-Yung Alice Chang.

The letter of nomination should include a one-page outline of the nominee's contribution to mathematics, giving four of her most important papers and other relevant information. *Five* copies of nominations should be sent by **October 15, 2001** to: The Noether Lecture Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: 301-405-7892; email: awm@math.umd.edu.

After the panel, the girls were able to speak with the panelists individually, who gave generously of their time and encouragement. The teachers were delighted with the variety of careers and the age span of the speakers. As one said, "There is someone for everyone to look up to." Indeed, the discussion on choices in careers was a living extension of a ruler called "Women Rulers in Science" that had been given to the students and teachers.

Students then attended two 45-minute workshops of their choice while teachers had the option of attending a 90-minute workshop on the use of the TI-83 calculator given by a representative of Texas Instruments. During lunch, a poster display of the important people and events in Sonia Kovalevsky's life was on view.

The afternoon program began with the day's guest speaker, Ms. Sara Simmons, a forensic scientist who works in the office of the Chief Medical Examiner of NYC. She spoke on "Probability and Statistics in DNA testing." Her talk built on the students' knowledge of the

probability of independent events and captured their attention with the significance of the mathematical result:

From writing reports to testifying as an expert witness in court, it is imperative that a forensic scientist also be a mathematician and statistician, because without this knowledge, the scientist may not be providing accurate information. One must always keep in mind, too, that a forensic scientist's job can often tip the scales of criminal justice. Those who have mastered it are often quite popular with juries in a courtroom and can make many attorneys think very hard about their next cross-examination on that expert witness. It can be quite fun once you have made math part of your life.

As in the past the day ended with the increasingly popular math bowls, one for freshmen and sophomores and two for juniors and seniors. All participants received a variation on the Rubik's Cube as a prize.

SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

Through grants from Coppin State College and the National Security Agency (NSA), the Association for Women in Mathematics expects to 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.

AWM anticipates awarding approximately 10 grants of up to \$3000 each to universities and colleges; more grants may be awarded if additional funds become available. Historically Black Institutions and women's colleges are particularly encouraged to apply. Programs targeted towards inner city or rural high schools are especially welcomed. If selected, institutions will receive an information packet consisting of model schedules of activities, a check list for the sorts of arrangements that need to be made, suggestions for securing additional funding and for obtaining prizes to be awarded to contest winners, recruitment and publicity material to be adapted for local use, lists of possible workshop topics for students and teachers, model problem solving contest material, and guidelines for follow-up activities and evaluation.

Applications, not to exceed five pages, should include: a) tentative plans for activities, including specific speakers to the extent known; b) qualifications of the persons to be in charge; c) plans for recruitment, including the securing of diversity among participants; d) itemized budget; e) local resources in support of the project, if any; and f) tentative follow-up and evaluation plans. The decision on funding will be made late February to early March. The high school days are to be held in Spring 2002 or Fall 2002. 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 December 1, 2002, whichever comes first. Reimbursements will be made in one disbursement; no funds can 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, 4114 Computer & Space Sciences Building, University of Maryland, College Park, Maryland 20742-2461. For further information: phone, 301-405-7892; email, awm@math.umd.edu; URL: <http://www.awm-math.org>. Applications must be received by **February 4, 2002**; applications via email or fax will not be accepted.

EDUCATION COLUMN

Summer seems to have sapped my creativity. I'm not reduced to re-runs, but this column consists entirely of follow-ups to two previous ones. I'll start with the more recent: in this year's March/April newsletter, inspired by the panel discussion on K-12 education at the Joint Meetings, I challenged people to go and promote the radical notion that mathematicians are real people who happen to love mathematics by offering to spend some time (possibly even quite a small amount of time) with a K-12 class or two. I wanted to write up some examples, so I asked folks to drop me a note if they managed to do such a thing. The first such note has duly arrived. It came from Minde Artman, a graduate student at Penn State, who is planning to do tilings and kaleidocycles with a batch of kids at Vacation Bible School this summer. Splendid idea, say I! I also, to no credit of my own, had a relevant experience I heartily recommend duplicating if you have a chance. A friend asked my permission to bring his class of fourth graders, for many of whom the university was completely foreign turf, to see me during a visit to campus. My enthusiastic "yes!" resulted in a two-stage event: first I filled my office to the brim with kids asking quite cogent questions about mathematics and the life of a mathematician, and telling me some of their mathematical adventures. Then I took the whole bunch to our Math Lounge, where I taught half to make origami cubes while the other half completely filled a circular table with a pattern made of my Escher-type puzzle pieces. It was one of those lovely occasions when I got to have fun doing something and feel virtuous into the bargain.

The other follow-up delves into the deeper past, so I had better describe its origin a little more thoroughly: in the January/February, 1999 *Newsletter* I produced a column whose heart was a loose translation of a Dutch article by Francis Meester, entitled "For Math you have to go to your Dad." In it she described how as a child she had bought into her mother's self-description as mathematically incompetent, only to realize as a mathematics-teaching adult how many of her mother's routine activities had demonstrated an acute sense of both number and space, put to continuous and highly competent

use. She wished she had caught on earlier, so as to disabuse her mother of her mistaken opinion of herself. In my column I drew a somewhat involved moral: Most of us regularly decry society's attitude towards our field, and most of us have a considerable repertoire of methods for avoiding responding to "Oh, you're a mathematician! I've always been terrible at math!" I suggested that we might at least have a smidgeon of impact on that attitude if we were to stop ducking and try instead to get the makers of such a statement to recognize how much mathematical thinking they do without noticing it. Barbara Victor, of Benedictine University, came up with a far better application and kindly asked my permission to use it. Not only did I grant the permission, but I gleefully adapted her idea to my own context, and have so thoroughly enjoyed the results that I am offering my version here so that anyone who would like to can either use it as is or further adapt it. What I do is to give students in my Mathematics for Elementary School Teachers class a copy of the article, with the following instructions:

- 1) Read the attached article from the *Newsletter* of the Association for Women in Mathematics.
- 2) Find someone in your acquaintance who is convinced that he or she is incapable of doing any mathematics.
- 3) Interview that person and find at least five ways *other than balancing the checkbook* in which he or she does use mathematics in everyday life.
- 4) Turn in a typed or word-processed report on the interview. It should tell me why you chose the person you did, what uses of mathematics you found and what the person's reaction was.

Students' expressions when they receive the assignment run the gamut from amused to skeptical to terrified, but with amazing consistency the reports are turned in with a grin and a "That was fun!" And many have made highly entertaining reading.

If you would like to try this one, but have not treasured up your 2+ year-old newsletters, drop me a note (warfield@math.washington.edu) and I will happily zap you a copy of the original article.

by Column Editor Ginger Warfield, Department of Mathematics, University of Washington, Seattle, WA 98195;
warfield@math.washington.edu

FELLOWSHIP

Postdoctoral fellowships for US scientists or engineers to undertake research at British universities or research institutes are available under the Marshall Sherfield Fellowship Program. These fellowships are available for up to one year starting during the academic year 2001–2002. The closing date for applications is **October 9, 2001**. To qualify candidates should be citizens of, and normally resident in, the US and hold a doctorate in a science or an engineering subject by 2002.

More information on the Fellowships and applications are available from: The British Council International Exchanges Office, The British Embassy, 3100 Massachusetts Avenue, NW, Washington, DC 20008; 202-588-7854; www.marshallscholarship.org.

PUBLICATIONS OF INTEREST

Women of Color Executives

Personal resilience, mentors, and a knack for creating opportunity are just three of the tools used by women of color executives to break down the “concrete ceiling,” according to a study by Catalyst, the leading organization working to advance women in business. In *Women of Color Executives: Their Voices, Their Journeys*, women of color describe exclusionary and risk-averse organizational cultures as key elements that lead to the “concrete ceiling” — a term used to denote a denser, harder-to-shatter barrier than the glass ceiling. The latest in a series of Catalyst reports about women of color in corporate America, this research features six women’s stories and includes an analysis of 35 in-depth interviews. The women interviewed say that cultures where leaders take risks by mentoring women of color and providing them with high-visibility assignments will greatly improve their opportunities to advance. “Lack of mentors was cited by women of color as the biggest barrier to success in Catalyst’s large-scale survey,” said Sheila Wellington, president of Catalyst. “Despite exclusionary cultures, these women found and developed mentoring relationships with influential people in their

organizations. They knew how critical to their success it was and they figured out a way to make it happen.” Women of color who hold top jobs in their organizations are few and far between. Currently, women of color comprise a mere 1.3 percent of corporate officers in 400 of the Fortune 500, according to the 2000 Catalyst Census of Women Corporate Officers and Top Earners. “These are the stories behind the numbers,” said Katherine Giscombe, senior director of research at Catalyst. “These are talented and resourceful women who have had to be extraordinarily resilient and strategic in working their way through difficult barriers. And as they tell us, the barriers are still there. Companies need to make their cultures more inclusive and really level the playing field.” Catalyst recommends that companies aim to dismantle cultures of exclusion by taking risks on women of color with high-visibility assignments and by improving accountability measures. In addition, encourage and support networking and recruit women senior women of color. This study was sponsored by AT&T; BP p.l.c.; The Coca-Cola Company; DuPont; IBM; Kellogg Company; Motorola Foundation; Nestlé USA, Inc.

For more information, see www.catalystwomen.org.

Gender Discrimination Action against Lawrence Livermore

Trial Lawyers for Public Justice (TLPJ) has joined in prosecuting a gender discrimination class action against Lawrence Livermore National Laboratory for depriving thousands of female current and former employees of equal pay and promotions. The suit charges that the Lab, managed by the Regents of the University of California, has documented but failed to correct its discrimination for over a decade. “A glass ceiling has limited the progress and pay of women at Lawrence Livermore National Laboratory for far too long,” said TLPJ Executive Director Arthur H. Bryant.

TLPJ’s initial focus in the case will be challenging the Lab’s efforts to keep secret its gender equity studies, conducted at the urging of women employees complaining of discrimination. The studies reportedly show that women there received fewer promotions and less pay than their male counterparts across a variety of job classifications and salary scales. The Lab has refused to produce the studies on the basis that they are allegedly protected by the attorney-client privilege.

AWM WORKSHOP, JULY 2001 SIAM ANNUAL MEETING, SAN DIEGO



Minisymposium on Numerical Methods and Analysis of PDE and Linear Algebra Systems: Judith Vogel, Virginia Commonwealth University; Eleanor Jenkins, University of Texas at Austin; Catherine Crawford, Elmhurst College; and Béatrice Rivière, University of Texas at Austin



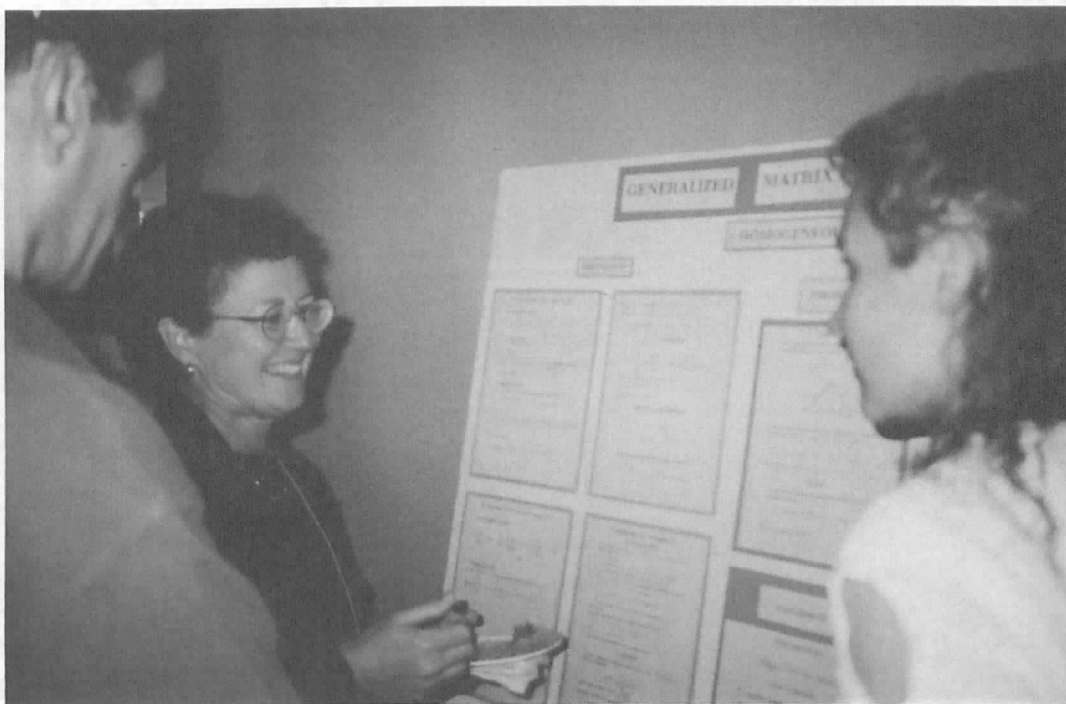
Minisymposium on Analysis and Applications of Models: Sherry Scott, George Washington University; Catherine Lebedzik, University of Virginia; Mei-Hui Wang, University of Tennessee; and Kimberly Weems, National Security Agency



Minisymposium on Planning for Your Professional Future: Katharine Gurski, National Institute of Standards and Technology; Gary Green, The Aerospace Corporation; Fern Hunt, National Institute of Standards and Technology; and Lisa Fauci, Tulane University



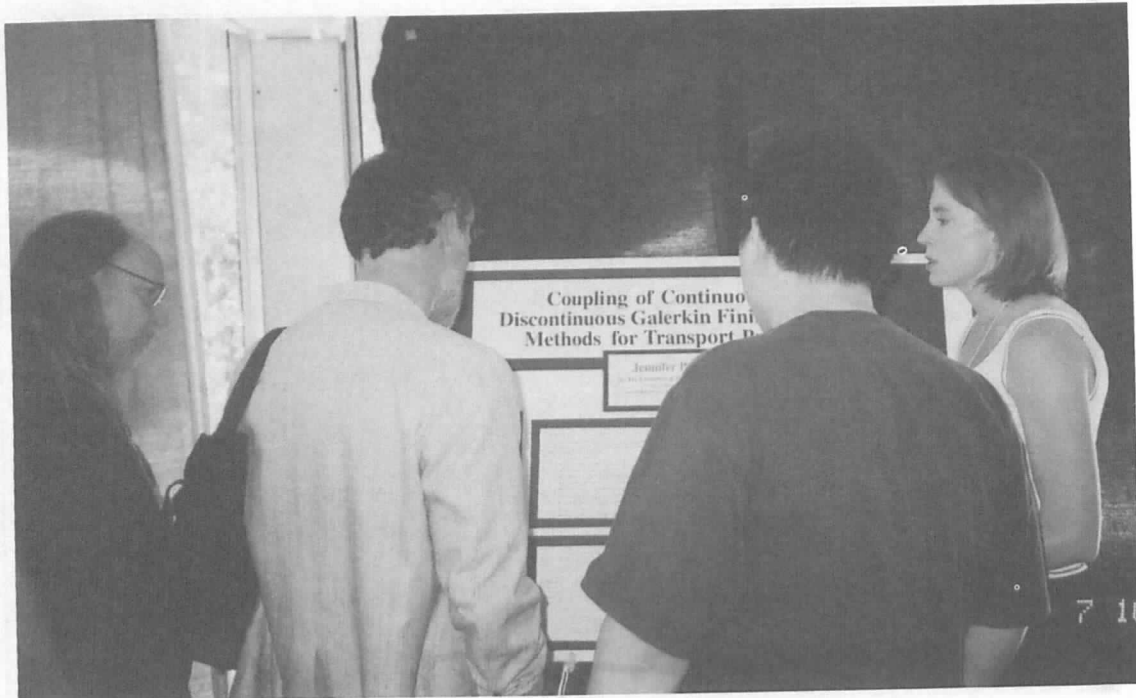
At the AWM Workshop Dinner: Joyce McLaughlin, Rensselaer Polytechnic Institute; Margaret Cheney, Rensselaer Polytechnic Institute; and Deborah Lockhart, National Science Foundation



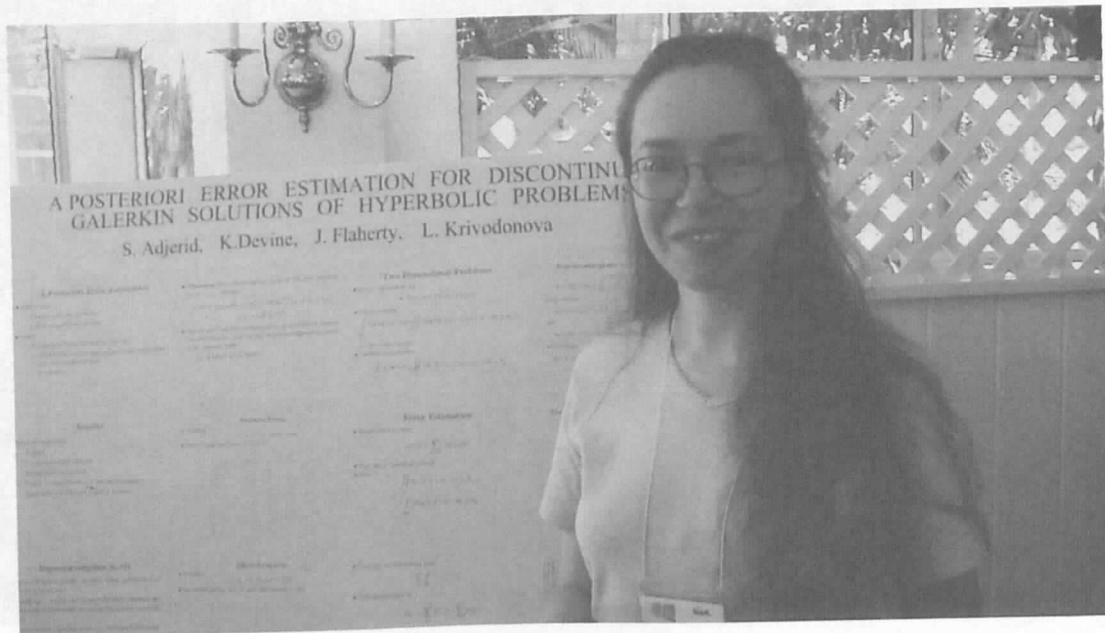
Svetlana Roudenko, Michigan State University (on right) explaining her poster entitled "Generalized Matrix-Weighted Function Spaces" to AWM President Suzanne Lenhart



Monica C. Jackson, University of Maryland, College Park (on left) explaining her poster entitled "Simulation and Comparison of Spatial Models for Discrete Data on a Lattice"



Jennifer Proft, University of Texas at Austin (far right) explaining her poster entitled "Coupling of Continuous and Discontinuous Finite Element Methods in Transport Problems"



Lilia Krivodonova, Rensselaer Polytechnic Institute, at her poster entitled "A Posteriori Error Estimation for Discontinuous Galerkin Solutions of Hyperbolic Problems"

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Project NExT/Young Mathematician's Network *POSTER SESSION*

Project NExT and the Young Mathematician's Network invite submissions of abstracts for a **POSTER SESSION** to be held on **Monday, January 7, 2002 from 2:00 to 4:00 p.m.** at the Joint Mathematics Meetings in San Diego. Room location: to be announced. The poster size will be 48" by 36"; it is best to have the posters 36" high. Posters and materials for posting pages on the posters will be available on-site. We expect to accept **30 posters** from different areas within the mathematical sciences. Should you have a special requirement involving a computer hook-up, please let us know and we'll check to see if it may be accommodated. If you are interested in participating, submit **copies of your abstract** to:

Professor Ken Ross
 Department of Mathematics
 University of Oregon
 Eugene, OR 97403-1222

Telephone: (541) 346-4721

Fax: (541) 346-0987

(label fax clearly for "Ken Ross")

Email: ross@math.uoregon.edu

Professor Kevin Charwood
 Dept. of Math & Statistics, Morgan Hall
 Washburn University
 Topeka, KS 66621

Telephone: (785) 231-1010 ext. 1499

Fax: (785) 231-1089

(label fax clearly for "Kevin Charwood")

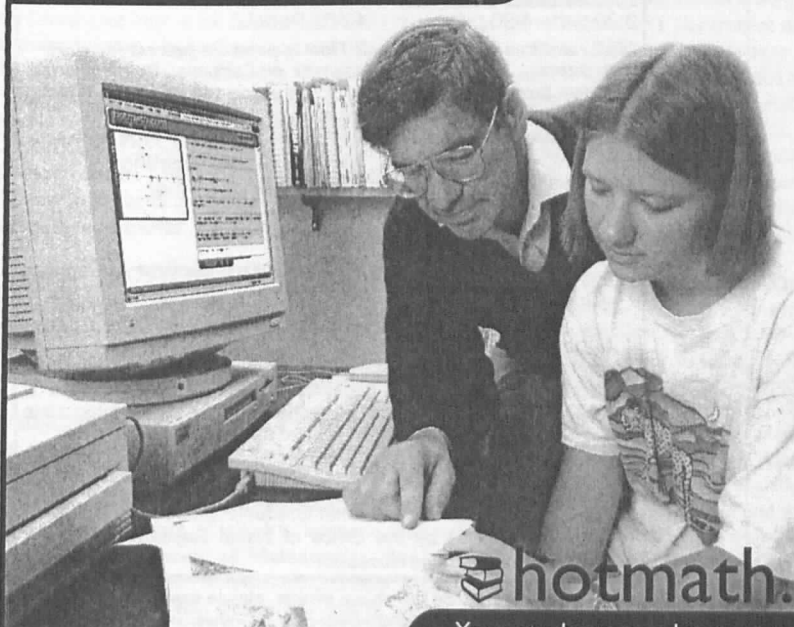
Email: zzcharlw@washburn.edu

Our poster sessions the past five years were a great success. Visitors to the session each year were numerous, and included prospective employers. This session provides an excellent way to showcase one's work in a relaxed, informal environment.

The deadline for final consideration is December 11, 2001. Preference will be given to those who did not earn a Ph.D. prior to 1996; please include with your submission when and where you received your Ph.D., or indicate when you expect to receive it. Please submit your abstract via email, not an attachment. If it includes mathematical formulas, please submit it in basic LaTeX or TeX format. Submissions will be acknowledged quickly by email.

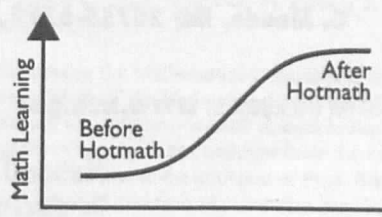
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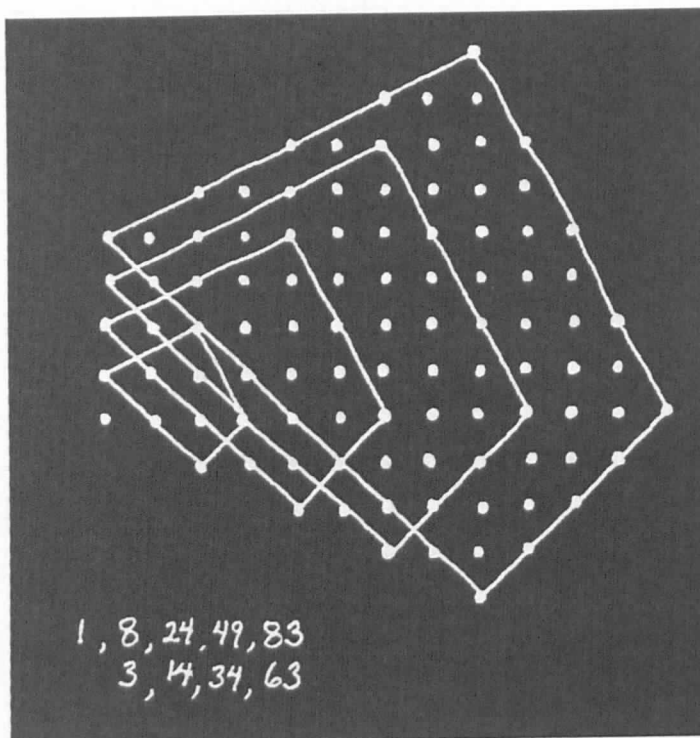
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MATHEMATICAL SCIENCES RESEARCH INSTITUTE (MSRI)

The Mathematical Sciences Research Institute in Berkeley, California, solicits applications for membership during the 2002-03 year, which will feature three programs: **COMMUTATIVE ALGEBRA** (Aug. 19, 2002 - May 16, 2003); **QUANTUM COMPUTATION** (Aug. 19 - Dec. 20, 2002); **SEMI-CLASSICAL ANALYSIS** (Jan. 2 - May 16, 2003).

In addition, MSRI continues the **COMPLEMENTARY PROGRAM**, in which applications from candidates working in any field of mathematics are welcome. Award categories: Research Professorships (partial salary support for a minimum 3-month visit, intended for mathematicians with PhDs awarded 1996 or earlier), application deadline Sept. 28, 2001. Postdoctoral Fellowships (support for 5 or 10 months, intended for mathematicians with PhDs awarded 1997 or later), application deadline Nov. 16, 2001. General Memberships (partial support toward travel and living expenses for 1 to 4 months) application deadline: **Nov. 16, 2001.**

Information and application form available from <http://www.msri.org> or write to Applications, MSRI, 1000 Centennial Dr., Berkeley, CA 94720-5070

AWM Events

Joint Mathematics Meetings, San Diego, 1/6 -9/02

Preliminary Schedule of AWM Events as of August 1, 2001

Sunday, January 6th

3:20 p.m. - 4:20 p.m.

AWM Panel

Mathematics after high school: How to promote success for more
Organizers: Cathy Kessel, University of California, Berkeley, AWM President **Suzanne Lenhart**, Univ. of Tennessee and Oak Ridge National Laboratory and Teri Jo Murphy, University of Oklahoma. **Panelists:** TBA [At conclusion of panel, AWM will recognize the Schafer Prize honorees]

4:20 p.m. - 4:50 p.m.

AWM Business Meeting

6:00 p.m. - 8:15 p.m.

AWM Noether Dinner

9:30 p.m.

AWM Reception

Monday, January 7th

9:00 a.m.

AWM Noether Lecture

Computing over the Reals: Where Turing meets Newton.
presented by Lenore Blum, Carnegie Mellon University

4:25 p.m. - 7:00 p.m.

Joint Prize Session

Presentation to the winners of the 12th Annual Louise Hay Award for Contributions to Mathematics Education and the 12th Annual Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman

Wednesday, January 9th

8:20 a.m. - 4:40 p.m.

AWM Workshop

featuring presentations by Women Graduate Students and Recent Ph.D.'s. Supported by the Office of Naval Research & the Air Force Office of Scientific Research

For more details on the above events, please see the following websites: www.ams.org/meetings or www.awm-math.org

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BARUCH COLLEGE - DEPARTMENT OF MATHEMATICS - The department invites applications for an anticipated tenure-track Assistant/Associate Professor position, depending upon qualifications, beginning September 2002. Duties include research, teaching, and service. The department is beginning an M.S. Program in Applied Mathematics for Finance and highest priority will be given to applicants with expertise in areas of mathematics related to this specialty, including stochastic processes, partial differential equations, probability theory, numerical methods, and operations research. Ideally, candidates should have some experience applying their education and research to finance. Strong undergraduate teaching skills are essential. A Ph.D. is required for the appointment. Baruch College is a senior college of the City University of New York located in the historic, beautiful Gramercy Park area of Manhattan, with an enrollment of approximately 15,000 undergraduate and graduate students in its three schools. An AA/EO/IRCA/ADA employer. Send curriculum vitae, the names of three references, and copies of publications by November 30, 2001, to: **Mathematics Department-Search Committee, Baruch College-CUNY, 17 Lexington Avenue, New York, NY 10010.**

BOWLING GREEN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department of Mathematics and Statistics invites applications for tenure-track positions in Mathematics Education (Assistant or Associate Professor) and Analysis (Assistant Professor) starting August 2002. PhD is required. Preference given to candidates who have demonstrated the ability to conduct research, obtain external funding, and can contribute to the undergraduate and graduate teaching mission of the department. Applications must be postmarked by December 31, 2001. For further details, see www.bgsu.edu/departments/math/. BGSU is an AA/EO employer and encourages applications from women, minorities, veterans, and persons with disabilities.

BOWLING GREEN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department of Mathematics and Statistics invites applications for a tenure-track Associate Professor or tenured Professor position starting August 2002. PhD in Statistics or closely related area required. Preference given to candidates who have demonstrated the ability to conduct research, obtain external funding, and can contribute to the undergraduate and graduate teaching mission of the department. Applications must be postmarked by November 1, 2001. For further details, see www.bgsu.edu/departments/math/. BGSU is an AA/EO employer and encourages applications from women, minorities, veterans, and persons with disabilities.

BROWN UNIVERSITY - DEPARTMENT OF MATHEMATICS - J.D. Tamarkin Assistant Professorship - One or two three-year non-tenured non-renewable appointments, beginning July 1, 2002. Teaching load: one to two courses per semester (3-6 hours per week). Candidates are required to have received a Ph.D. degree or equivalent by the start of this appointment, and they may have up to three years of academic and/or postdoctoral research experience by then. **VIGRE Postdoctoral Fellow:** One three-year non-tenured non-renewal appointment, beginning July 1, 2002. Teaching load: one course per semester (3 hours per week). The fellowship includes summer support and \$2,500/year research fund. Candidates are required to have received a Ph.D. degree by the start of this appointment, and they may have up to 18 months of academic and/or postdoctoral research experience by then. Candidates must be U.S. citizens, nationals, or permanent residents to qualify for the VIGRE fellowships which are NSF supported positions. Applicants should have strong research potential and a commitment to teaching in field of research should be consistent with the current research interests of the department. For full consideration, a curriculum vitae, and AMS Standard Cover Sheet, and three letters of recommendation must be received by December 1, 2002. All inquires and materials should be addressed to: **Junior Search Committee, Department of Mathematics, Brown University, Providence, RI 02912.** To access the AMS Standard Cover Sheet, visit our website: <http://www.math.brown.edu/juniorsearch.shtml>. Email inquiries can be addressed to juniorsearch@math.brown.edu. Brown University is an Equal Opportunity/Affirmative Action Employer and encourages applications from women minorities.

CORNELL UNIVERSITY - DEPARTMENT OF MATHEMATICS - We anticipate hiring for the following positions: Tenure/tenure-track Assistant Professor or higher rank (**Nov 1, 2001 deadline**); one HC Wang Assistant Professor & three VIGRE Postdoctoral Associates (both 3-yr term positions, Dec 1 deadline). All start July 1, 2002. Visiting positions, all ranks, starting August 16, 2002 or January 1, 2003. See <http://www.math.cornell.edu/Positions/positions.html> for detailed information on positions and application requirements. Affirmative Action/Equal Opportunity Employer.

DARTMOUTH COLLEGE - DEPARTMENT OF MATHEMATICS - Dartmouth College is the recent recipient of an NSF/NIMH award to establish an fMRI Data Center (see <http://www.fmridc.org>). This is a joint effort of Dartmouth's Department of Mathematics, Center for Cognitive Neuroscience and Department of Computer Science. In conjunction with the center the Department of Mathematics is now accepting applications for a two year Postdoctoral Fellow in Applied Mathematics, initial appointment in the 2002-2003 academic year. Fellows will be expected to teach one graduate seminar each year (in their specialty), and to help in the implementation and development of novel post-processing tools for the Center. Fellows will interact with all of the cooperating departments. The ideal applicant will have strong interdisciplinary interests and have a background in informatics, image or signal processing, or medical imaging, but applicants with strong mathematical backgrounds who are looking to become more applied and learn about data mining, medical imaging or image processing may also be excellent candidates. Send a letter of application, résumé, graduate transcript, thesis abstract (and description of other research activities and interests if appropriate), and 3 or preferably 4 letters of recommendation (at least one should discuss teaching) to: **Betty Harrington, Dartmouth College, Department of Mathematics, 6188 Bradley Hall, Hanover, NH 03755-3551.** Dartmouth College is committed to affirmative action and strongly encourages applications from minorities and women.

DARTMOUTH COLLEGE - DEPARTMENT OF MATHEMATICS - John Wesley Young Research Instructorship - 2-years, new or recent Ph.D.'s whose research overlaps department member's. Teach 4 ten-week courses spread over 2 or 3 quarters. \$43,000 for nine months; \$9,555 summer research stipend. Send application letter, resume, research/thesis description, graduate transcript, and 3 or preferably 4 letters of recommendation (at least one should discuss teaching) to: **Betty Harrington, Department of Mathematics, Dartmouth College, 6188 Bradley Hall, Hanover, NH 03755-3551.** Files completed by January 5, 2002 considered first. Dartmouth is committed to affirmative action and strongly encourages minorities and women to apply.

DAVIDSON COLLEGE - DEPARTMENT OF MATHEMATICS - Applications are invited for a regular appointment in the Mathematics Department, with an initial two-year appointment at the Assistant Professor level to begin August 1, 2002. Completion or imminent completion of the Ph.D. is required. Candidates must be committed to outstanding teaching and continuing scholarly activity. The teaching load is 5 semester courses per year. Some computer science background is desirable. A completed application consists of a statement of professional aspirations and goals, resume, (photocopies of) graduate and undergraduate transcripts, and 3 letters of reference, of which at least one must specifically address the applicant's teaching. These materials should be sent to the attention of **Prof. Stephen Davis, Chair, Department of Mathematics, Box 6931, Davidson College, Davidson, NC 28036-6931.** (Email: [stdavis@davidson.edu](mailto:stdavis@ davidson.edu); see also the "Faculty Position" link at <http://www.davidson.edu/math/>.) Applications received by November 30, 2001, will receive fullest consideration. Davidson is a highly selective, nationally ranked four-year liberal arts college with a Presbyterian heritage. Davidson College is an Equal Opportunity Employer; women and minorities are encouraged to apply.

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GRAND VALLEY STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Grand Valley State University, in Allendale, Michigan, is accepting applications for the position of Assistant or Associate Professor in Mathematics, with employment to begin in August 2002. Required qualifications include a Ph.D. in Mathematics; demonstrated excellence in teaching undergraduate mathematics; strong teaching recommendations; commitment to continued scholarly and professional growth. For more information, including responsibilities of the position, and important details on how to apply, see our position description at www.gvsu.edu/mathstat. Completed applications must be received by December 7, 2001.

INSTITUTE FOR ADVANCED STUDY - SCHOOL OF MATHEMATICS - The School of Mathematics has a limited number of memberships, some with financial support for research in mathematics at the Institute during the 2002-03 academic year. Candidates must have given evidence of ability in research comparable at least with that expected for the Ph.D. degree. The special program for the year will focus on stochastic PDE and models of turbulence, and both Weinan E and John Ball will be in residence. For a brief description of the program and information about application materials and deadline, please consult "Activities" and "How To Apply" on our homepage at: <http://www.math.ias.edu>.

INSTITUTE FOR MATHEMATICS AND ITS APPLICATIONS - UNIVERSITY OF MINNESOTA -- IMA announces a program on **Optimization (2002-2003) - ORGANIZING COMMITTEE:** William Pulleyblank (Chair) (IBM Research), John Birge (Northwestern Univ.), Bill Cook (Rice Univ.), Brenda Dietrich (IBM Research), Donald Goldfarb (Columbia University), Prabhakar Raghavan (Verity), Thomas Coleman (Advisor) (Cornell Univ.) **A ONE-YEAR PROGRAM WITH THREE PARTS:** (1) Fall: September - December 2002, Supply Chain and Logistics Optimization; (2) Winter: January - March 2003, New Optimization Paradigms and Approaches; (3) Spring: April - June 2003, Information Technology and Optimization. **TWO-YEAR POSTDOCTORAL MEMBERSHIPS** (effective September 3, 2002): The second year of the appointment will provide a variety of options to enhance career development, including participation in the 2003-2004. **ANNUAL PROGRAM: Probability and Statistics in Complex Systems: Genomics, Networks, and Financial Engineering.** All requirements for a doctorate should be completed by September 3, 2002. Applicants must show evidence of mathematical excellence and an interest in the program, however, they do not need to be specialists in the field. The following materials must be submitted (all materials should arrive by January 15, 2002): (1) Personal statement of scientific interests, research plans, and reasons for wishing to participate in the Optimization Program. (2) Curriculum vitae and a list of publications. (3) Three letters of recommendation to be sent directly to the IMA. (4) Submit the official IMA application form located at <http://www.ima.umn.edu/docs/genapp.html>. **SENIOR MEMBERSHIPS:** Preference will be given to supplementary support for persons with sabbatical leaves, fellowships, or other stipends. **POSTDOCTORATES IN INDUSTRIAL MATHEMATICS:** IMA announces two-year positions in Industrial Mathematics, effective September 3, 2002. These appointments are in addition to the regular program and are funded jointly by the NSF and participating industries. They are designed to prepare mathematicians for research careers involving industrial interaction. Applicants should have fulfilled all requirements for a Ph.D. in Mathematics, Applied Mathematics or Statistics by September 3, 2002. Postdoctorates will spend 50% effort working with industrial scientists and 50% effort in the regular IMA program. Requirements and application procedures are the same as for the postdoctoral memberships listed above plus include a personal statement on why you would like to participate in the Industrial Postdoctorate Program. The University of Minnesota is an equal opportunity educator and employer. Questions: email: staff@ima.umn.edu, or call (612) 624-6066. All correspondence should be sent to either: **POSTDOC/VISITING MEMBERSHIP COMMITTEE**, or **INDUSTRIAL MATHEMATICS POSTDOCTORATE MEMBERSHIP COMMITTEE**, Institute for Mathematics and its Applications, University of Minnesota, 400 Lind Hall, 207 Church St. SE, Minneapolis, MN 55455-0436.

NORTHWESTERN UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for anticipated tenure-track or tenured positions starting September 2002, pending final approval. Priority will be given to exceptionally promising research mathematicians. Fields of interest within the department include Algebra, Algebraic Geometry, Analysis, Dynamical Systems, Mathematical Physics, Probability, Partial Differential Equations, and Topology. Application material should be sent to **Personnel Committee, Department of Mathematics, 2033 Sheridan Road, Evanston, IL 60208-2730** and include: (1) the American Mathematical Society's Application Cover Sheet for Academic Employment, (2) a curriculum vitae, and (3) at least four letters of recommendation including one which discusses in some detail the candidate's teaching qualifications. Inquiries may be sent via e-mail to: hiring@math.nwu.edu. Applications are welcome at any time, but the review process starts in October 2001. Northwestern University is an affirmative action, equal opportunity employer committed to fostering a diverse faculty; women and minority candidates are especially encouraged to apply.

NORTHWESTERN UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are solicited from people whose research is related to Nonlinear Partial Differential Equations and related analysis for two Ralph Boas assistant professorships of three years each starting in September 2002. These positions are non-tenure track and are part of the Emphasis Year in Nonlinear Partial Differential Equations which the department will be sponsoring in 2002-2003. Applications should be sent to the **Emphasis Year Committee, Department of Mathematics, 2033 Sheridan Road, Evanston, IL 60208-2730** include: (1) the American Mathematical Society's Application Cover Sheet for Academic Employment, (2) a curriculum vitae, and (3) three letters of recommendation including one which discusses in some detail the candidate's teaching qualifications. Inquiries may be sent via e-mail to: hiring@math.nwu.edu. Applications are welcomed at any time, but the review process starts December 1, 2001. Northwestern University is an affirmative action, equal opportunity employer committed to fostering a diverse faculty; women and minority candidates are especially encouraged to apply.

PURDUE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for tenure-track Assistant Professor or three-year Research Assistant Professor appointments beginning August 2002. Ph.D. by August 2002, exceptional research promise, and strong teaching record required. Applications will also be accepted for possible appointments at the Associate Professor/Professor level. Ph.D. and excellence in research and teaching required. Outstanding applicants from all mathematical research areas will be considered. Because the department has several openings in applied mathematics, candidates who have significant research accomplishments in applied mathematics or computational applied mathematics are especially encouraged to apply. Several positions may be available for terms ranging from one semester to two years beginning August 2002. All applicants should have research interests in common with Purdue faculty. Send vita, summary of research interests/plans, and arrange for three letters of recommendation (one addressing teaching) to be sent to: **Carl Cowen, Head, Department of Mathematics, Purdue University, West Lafayette, IN 47907-1395**. Review of applications will begin November 15, 2001 and continue until available positions are filled. Offers for tenure-track positions may be made at any time; some offers for RAP and visiting positions will be made before the end of January 2002. Purdue is an Affirmative Action/Equal Opportunity Employer.

ADVERTISING DEADLINE for the November/December 2001 issue is: OCTOBER 1, 2001

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RICE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Griffith Conrad Evans Instructorships - Postdoctoral appointments for two to three years for promising research mathematicians with research interests in common with the active research areas at Rice, particularly geometric topology, geometric analysis, differential geometry, wavelets, combinatorics, and ergodic theory. Duties will include research and classroom teaching. Applications received by December 31, 2001 will receive full consideration. Rice University is an Equal Opportunity Affirmative Action Employer and strongly encourages applications from women and minority group members. Inquiries and applications should be addressed to: **Chair, Evans Committee, Department of Mathematics, Rice University, P.O. Box 1892, Houston, TX 77251-1892.**

STANFORD UNIVERSITY - DEPARTMENT OF MATHEMATICS - The department expects to make several Szego assistant professor appointments and one or two tenure track assistant professor appointments beginning in September 2002, among the following fields: (1) analysis, (2) geometry or topology, (3) algebra, number theory or logic, (4) applied mathematics or probability. Applicants for a Szego assistant professor position should not be more than 2 years from the PhD. Candidates should send a letter of application and a curriculum vitae, including a list of publications, and a cover sheet clearly stating the following: name, area of specialization, institution, (expected) date of PhD, and PhD advisor. Also the candidate should arrange to have three letters of recommendation and some evidence of commitment to excellence in teaching sent to: **Professor Richard Schoen, Department of Mathematics, Stanford University, Stanford CA 94305** by January 1, 2002. Stanford is an Equal Opportunity, Affirmative Action Employer, and welcomes applications from women and minorities.

UNIVERSITY OF BUFFALO, SUNY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics anticipates the appointment of several tenure-track assistant professors, effective August 2002. Salary will be competitive. We seek candidates from all fields, particularly Applied Mathematics and Geometry/Topology. Applicants should have excellent research accomplishments and potential, a Ph.D. in the mathematical sciences and a strong commitment to teaching. A completed application consists of curriculum vitae, a statement of research interests and four letters of recommendation. These materials should be sent to: **Search Committee, Department of Mathematics, University of Buffalo, SUNY, Mathematics Building 244, Buffalo, NY 14260-2900.** The deadline for applications is November 1, 2001. Late applications will be considered until positions are filled. No electronic applications will be accepted. The University of Buffalo is an Equal Opportunity/Affirmative Action Employer/Recruiter. We are interested in identifying prospective minority and women candidates. No person, in whatever relationship with the University at Buffalo, should be subject to discrimination on the basis of age, color, creed, handicap, marital status, national origin, race, religion, sex, sexual orientation or veteran status.

UNIVERSITY OF CALIFORNIA AT BERKELEY - DEPARTMENT OF MATHEMATICS - Tenured or Tenured Track Position - Pending budget approval, we invite applications for one or more positions effective July 1, 2002 at either the tenure-track (Assistant Professor) or tenured (Associate or Full Professor) level, in the general areas of pure or applied mathematics. **Tenure track applicants** are expected to have demonstrated outstanding research potential, normally including major contributions beyond the doctoral dissertation. Such applicants should send a resume, and reprint or preprints, and/or dissertation abstract, and ask three people to send letters of evaluation to **The Vice Chair for Faculty Affairs, Department of Mathematics, University of California at Berkeley, Berkeley, CA 94720.** It is the responsibility of the tenure track applicants to make sure that letters of evaluation are sent. All letters of evaluation are subject to Berkeley campus policies on confidentiality of letters of evaluation, a summary of which can be found on our home page (<http://math.berkeley.edu> by clicking on available teaching positions). **Tenure applicants** are expected to demonstrate leadership in research and should send a curriculum vitae, list of publications, a few selected reprints or preprints, and the names and addresses of three references to **The Vice Chair for Faculty Affairs, Department of Mathematics, University of California at Berkeley, Berkeley, CA 94720.** Applicants should indicate whether they are applying for an Associate Professor or a Full Professor position. The department will assume responsibility to solicit letters of evaluation and will provide evaluators with a copy of the summary of policies on confidentiality of letters of evaluation. All applicants are requested to use the AMS standardized application form and to indicate their subject area using the AMS subject classification numbers. The form is the Academic Employment in Mathematics, Application Cover Sheet, it is available courtesy of the American Mathematical Society. Applications for both Tenure track and Tenure applications must be postmarked by November 15, 2001. Applications postmarked after the deadline will not be considered. The University of California is an Equal Opportunity, Affirmative Action Employer.

UNIVERSITY OF CALIFORNIA AT BERKELEY - DEPARTMENT OF MATHEMATICS - Charles B. Morrey Jr. Assistant Professorships - We invite applications for these special (nontenure-track) positions effective July 1, 2002. The terms of these appointments may range from two to three years. Applicants should have a recent Ph.D., or the equivalent, in an area of pure or applied mathematics. Applicants should send a resume, reprints, preprints and/or dissertation abstract, and ask three people to send letters of evaluation to: **The Vice Chair for Faculty Affairs, Department of Mathematics, University of California at Berkeley, Berkeley, CA 94720.** All letters of evaluation are subject to Berkeley campus policies on confidentiality of letters of evaluation, a summary of which can be found on our home page (<http://math.berkeley.edu> by clicking on available teaching position, and then confidentiality policy). We request that applicants use the AMS standardized application form and indicate their subject area using the AMS subject classification numbers. The form is the Academic Employment in Mathematics, Application Cover Sheet, it is available courtesy of the American Mathematical Society. Applications must be postmarked by December 1, 2001. Applications postmarked after the deadline will not be considered. The University of California is an Equal Opportunity, Affirmative Action Employer.

UNIVERSITY OF CALIFORNIA AT BERKELEY - DEPARTMENT OF MATHEMATICS - Temporary Postdoctoral Positions - Several temporary positions beginning in Fall 2002 are anticipated for new and recent Ph.D.'s of any age, in any area of pure or applied mathematics. The terms of these appointments may range from one to three years. Applicants for NSF or other postdoctoral fellowships are encouraged to apply for these positions. Mathematicians whose research interests are close to those of regular department members will be given some preference. Applicants should send a resume and reprints, preprints, and/or dissertation abstract, and ask three people to send letters of evaluation to **The Vice Chair for Faculty Affairs, Department of Mathematics, University of California at Berkeley, Berkeley, CA 94720.** All letters of evaluation are subject to Berkeley campus policies on confidentiality of letters of evaluation, a summary of which can be found on our home page (<http://math.berkeley.edu> by clicking on available teaching position, and then confidentiality policy). We request that applicants use the AMS standardized application form and indicate their subject area using the AMS subject classification numbers. The form is the Academic Employment in Mathematics, Application Cover Sheet, it is available courtesy of the American Mathematical Society. Applications must be postmarked by December 1, 2001. Applications postmarked after the deadline will not be considered. The University of California is an Equal Opportunity, Affirmative Action Employer.

NEW ADDRESS? Please inform us of any changes, so we can keep our database up-to-date. Mail in changes using the **form on the BACK COVER** or drop us an **email, awm@math.umd.edu**. THANKS.

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UNIVERSITY OF CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - Subject to availability of resources and administrative approval, the following positions are available: (1) **Several tenure-track and senior positions in all areas of mathematics.** (2) **Several E.R. Hedrick Assistant Professorships.** Salary is \$52,900. Three year appointment. Teaching load: four quarter courses per year, which may include one advanced course in the candidate's field. (3) **Several Research Assistant Professorships in Computational and Applied Mathematics (CAM).** Salary is \$52,900. Three year appointment. Teaching load: normally is reduced to two or three quarter courses per year by research funding as available; may include one advanced course in the candidate's field. (4) **Several Adjunct Assistant Professorships or Lectureships in the Program in Computing (PIC).** Applicants for the Adjunct position must show very strong promise in teaching and research in an area related to computing. Teaching load: four one-quarter programming courses each year and one seminar every two years. One-year initial appointment, with the option of applying for renewal for a second year and possible longer, up to a maximum service of four years. Salary is \$56,600. Applicants for the Lectureship must show very strong promise in the teaching of programming. An M.S. in Computer Science or equivalent degree is preferred. Teaching load: six one-quarter programming courses per year. One-year appointment, probably renewable one or more times, depending on the needs of the program. Salary is \$43,152 or more, depending on experience. (5) **Several VIGRE Assistant Professorships.** Hedrick, CAM, or PIC applicants, who are U.S. citizens or permanent residents, may also apply for a VIGRE Assistant Professor position. Three-year appointment. Salary is \$52,900. The successful recipient will receive a summer stipend of \$6,500 for two summers and \$2,500 per year for travel, equipment, and supplies for three years. Teaching load: 3 courses per year. (6) **Several Adjunct Assistant Professorships and Research Postdocs.** Up to one year appointment, with the possibility of renewal. Strong research and teaching background required. Salary \$48,700-\$52,900. Teaching load for Adjuncts: five quarter courses per year. (7) **Several visiting instructorships.** For more details, see <http://www.math.ucla.edu/~search>. To apply, complete the application on the website, or send e-mail to search@math.ucla.edu or write to: **Staff Search, Department of Mathematics, University of California, Los Angeles, CA 90095-1555.** Preference will be given to applications completed by January 7, 2002. UCLA is an Equal Opportunity/Affirmative Action Employer. Under Federal law, the University of California may employ only individuals who are legally authorized to work in the United States as established by providing documents specified in the Immigration Reform and Control Act of 1986.

UNIVERSITY OF CALIFORNIA, SANTA CRUZ - DEPARTMENT OF MATHEMATICS - 1) **Contingent on administrative approval, one tenure track or tenured position for Assistant Professor to Associate Professor in the area of Quantum Mathematics,** the mathematics surrounding String Theory, e.g. C^* algebras, knot theory, quantum topology, conformal field theory, mirror symmetry, Hopf algebras, category theory and infinite dimensional Lie algebras. The position will begin Fall 2002. The teaching load is four one-quarter courses per year. Appointees will be expected to teach, pursue their research and perform some department and university service. Minimum qualifications: Assistant Professor: Ph.D. or equivalent by 6/30/02 in Mathematics or Physics; demonstrated achievements or potential for excellence in research, teaching and professional service. Associate Professor: Ph.D. or equivalent in Mathematics or Physics and record of excellence in research, teaching and service. The campus is especially interested in candidates who can contribute to the diversity and excellence of the academic community through their research, teaching and/or service. Salary: \$46,100-\$57,100 (step and salary commensurate with experience.) Deadline: November 19, 2001. Applicants should send a Curriculum Vitae, a summary of research and teaching experience and four letters of recommendation with at least one letter addressing teaching experience and ability (all letters will be treated as confidential documents). Please refer to position #039-02 (Assistant) or #039T-02 (Associate) in your reply. 2) **Contingent on administrative approval, one tenure track or tenured position for Assistant Professor to Associate Professor in the area of Analysis with an emphasis on, but not limited to, Partial Differential Equations.** The position will begin Fall 2002. The teaching load is four one-quarter courses per year. Appointees will be expected to teach, pursue their research and perform some department and university service. Minimum qualifications: Assistant Professor: Ph.D. or equivalent by 6/30/02 in Mathematics or Physics; demonstrated achievements or potential for excellence in research, teaching, and professional service. Associate Professor: Ph.D. or equivalent in Mathematics or Physics and record of excellence in research, teaching, and service. The campus is especially interested in candidates who can contribute to the diversity and excellence of the academic community through their research, teaching and/or service. Salary: \$46,100-\$57,100 (step and salary commensurate with experience.) Deadline: November 19, 2001. Applicants should send a Curriculum Vitae, a summary of research and teaching experience and four letters of recommendation with at least one letter addressing teaching experience and ability (all letters will be treated as confidential documents). Please refer to position #570-02 (Assistant) or #570T-02 (Associate) in your reply. 3) **One or more Youngs Visiting Assistant Professorships effective Summer or Fall 2002.** We invite applications from qualified mathematicians in all fields. Appointees are expected to teach and pursue their research. Available for periods of two years, with a possible extension to a third year. Minimum qualifications: Ph.D. (or equivalent by 6/30/02) in Mathematics or a closely related field. Demonstrated excellence in research and teaching. Salary Range: \$46,100 - 51,400. Deadline: January 14, 2002. Applicants should send curriculum vitae, a summary of research and teaching experience and three letters of recommendation with at least one letter addressing teaching experience and ability (all letters will be treated as confidential documents). Please refer to provision #T02-06 in your reply. All applications should be sent to: **Recruitment Committee, Mathematics Department, University of California, 1156 High Street, Santa Cruz, CA 95064.** Inquiries[not applications] can be sent to mather@cats.ucsc.edu. UCSC is an EEO/AA employer.

UNIVERSITY OF DELAWARE - DEPARTMENT OF MATHEMATICAL SCIENCES - The Department of Mathematical Sciences at the University of Delaware invites applications for a tenure track position in Applied Mathematics at the Assistant or beginning Associate Professor level to begin September 1, 2002. The successful candidate will show excellent promise in research in one or more of the following areas: Electromagnetic Wave Propagation; Fluid Dynamics; Materials Science; Scientific Computation; Inverse Problems. An interest in participating in our active industrial mathematics program or collaborating with researchers in other departments will weigh in the candidate's favor. Evidence of effective teaching is essential. Applicants should visit the Applied Mathematics Search page on the departmental Web site at www.math.udel.edu/applied_math_search and follow the instructions found there (the Web site also contains useful information about the department). Applications must be received by November 16, 2001. The University of Delaware is an Equal Opportunity Employer that encourages applications from Minority Group Members and Women.

UNIVERSITY OF GEORGIA - DEPARTMENT OF MATHEMATICS - Assistant Professor Position - Applications are invited for a tenure-track position at the rank of assistant professor, designated to support teacher preparation. This position will begin August 2002, but is subject to the availability of funds. The teaching duties will include mathematics content courses designed to prepare elementary and middle school teachers in addition to other mathematics courses. Candidates should have a Ph.D. in pure or applied mathematics and should exhibit an outstanding research potential in mathematics. Candidates should also exhibit a commitment to excellence in teaching and show evidence of an interest in and aptitude for teaching prospective teachers. Applicants should send a completed AMS Standard Cover Sheet, a curriculum vitae, a statement about their current and future research plans, and a statement about teaching philosophy and experiences to: **Search Committee Chair, Department of Mathematics, University of Georgia, Athens, GA 30602.** They should also arrange to have three letters of recommendation concerning research and two concerning teaching sent directly to the above address. Email can be directed to search@math.uga.edu. The University of Georgia is an Affirmative Action/Equal Opportunity Employer that is committed to increasing the diversity of its faculty. We especially encourage applications from women, minorities and under represented groups. To assure full consideration, applications must be received by December 3, 2001.

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UNIVERSITY OF ILLINOIS - DEPARTMENT OF MATHEMATICS - The Department of Mathematics, University of Illinois at Urbana-Champaign, invites applications for several open tenure-track and tenured faculty positions, as well as 3-year non-tenured postdoctoral appointments. Deadline for applications: November 16, 2001. For details, please see the department's website at (<http://www.math.uiuc.edu/Positions/>).

UNIVERSITY OF ILLINOIS AT CHICAGO - DEPARTMENT OF MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE - The Department has active research programs in all areas of pure mathematics, computational and applied mathematics, combinatorics and computer science, statistics, and mathematics education. See <http://www.math.uic.edu> for more information. Applications are invited for the following positions, effective August 21, 2002. **At least one Tenure track or tenured position.** Candidates in all areas of interest to the Department will be considered. The position is initially budgeted at the Assistant Professor level, but candidates with a sufficiently outstanding research record may be considered at higher levels. Applicants must have a Ph.D. or equivalent degree in mathematics, computer science, statistics, mathematics education or related field, an outstanding research record, and evidence of strong teaching ability. Salary negotiable. **Research Assistant Professorship/VIGRE Postdoctoral Fellowship.** This is a non-tenure track position, normally renewable annually to a maximum of three years. This position is partially funded by a VIGRE grant from the NSF and is open only to U.S. citizens, nationals or permanent residents. The position carries a teaching load of one course per semester, with the requirement that the incumbent play a significant role in the research life of the Department. The salary for AY 2001-2002 for this position is \$45,000; the salary for AY 2002-2003 may be higher; in each of the first two years the VIGRE grant provides an additional \$6,000 for summer support. Applicants must have a Ph.D. or equivalent degree in mathematics, computer science, statistics, mathematics education or related field, and evidence of outstanding research potential. There may also, subject to availability of funds, be one or more "non-VIGRE" Research Assistant Professorships available, which would not be subject to these nationality requirements. Send vita and direct 3 letters of recommendation, clearly indicating the position being applied for, and whether you are eligible for a VIGRE fellowship, to: **Appointments Committee; Dept. of Mathematics, Statistics, & Computer Science; University of Illinois at Chicago; 851 S. Morgan (M/C 249); Chicago, IL 60607.** No email applications will be accepted. To ensure full consideration, materials must be received by November 9, 2001, for the tenure/tenure track positions, and December 30, 2001 for the postdoctoral fellowships. However, we will continue considering candidates until all positions have been filled. Minorities, persons with disabilities, and women are particularly encouraged to apply. UIC is an AA/EOE.

UNIVERSITY OF LOUISVILLE - DEPARTMENT OF MATHEMATICS - Assistant Professor - The University of Louisville invites applications for one tenure track Assistant Professor position in actuarial science and applied mathematics, to begin July 1, 2002. Preference will be given to candidates whose research interests lie in actuarial science, financial mathematics, or applied analysis, who have passed at least one actuarial exam, and are interested in continuing the development of an existing actuarial science program. A Ph.D. in mathematics or a related area is required. Candidates must show strong potential in research and teaching and have effective communications skills. Applications should include: (1) the American Mathematical Society's standard cover sheet, (2) curriculum vitae, (3) summary of research interests, (4) statement of teaching qualifications, and (5) at least four letters of recommendation, including letters which discuss, in some detail, the candidate's teaching qualifications and interest in actuarial science. Applications should be sent to: **Search Committee, Department of Mathematics, University of Louisville, Louisville, KY 40292.** Review of applications will begin January 14, 2002 and continue until the position is filled. Email questions to math@louisville.edu. The University of Louisville is an Affirmative Action/Equal Opportunity Employer and encourages women and underrepresented minorities to apply. Applicants must comply with the provisions of the Immigration Reform and Control Act.

UNIVERSITY OF MARYLAND, COLLEGE PARK - CENTER FOR BIOINFORMATICS AND COMPUTATIONAL BIOLOGY - Director - Nine Faculty - The University of Maryland invites faculty applications at all levels for the newly established Center for Bioinformatics and Computational Biology. The campus has committed substantial resources to the Center, including funds for the recruitment of **nine new faculty** including a **Director**. It is anticipated that the primary specialization areas of the new faculty will collectively span the fields of computer science, mathematics and statistics, molecular biology, molecular evolution/phylogeny, and biochemistry. The primary responsibility of the new faculty will be to lead a nationally visible research program in selected areas of computational genomics, proteomics and molecular evolution, complementing existing strengths at the University of Maryland. Candidates for the Director position are expected to be senior researchers with prominent recognition in these areas. All the new faculty will be housed in contiguous space set aside for the Center, and will have access to significant high-end computing infrastructure through the University of Maryland Institute for Advanced Computer Studies. Each will also be affiliated with at least one other campus academic unit appropriate to her/his interests. There is ample potential for collaboration with other outstanding bioinformatics research groups nearby, in organizations such as NIH, Celera, TIGR, the Maryland Biotechnology Institute, and the Smithsonian Institution. To apply, send a letter of application, curriculum vitae, and URL for additional information to cecilia@umiacs.umd.edu, and have at least 3 letters of recommendation sent to: **Cecilia Kullman, Center for Bioinformatics and Computational Biology, Institute for Advanced Computer Studies, 2131 A.V. Williams Bldg, University of Maryland, College Park, MD 20742.** The University of Maryland is an affirmative action, equal opportunity employer. Women and minorities are encouraged to apply. Applications will be accepted until the positions are filled.

UNIVERSITY OF MARYLAND, COLLEGE PARK - DEPARTMENT OF MATHEMATICS - University of Maryland Statistics Program seeks candidates for tenured/tenure track positions (all levels), with strong preference for persons working in applied or computational statistics. Appointments begin Fall 2002. Priority will be given to persons whose applications are completed by December 1, 2001. Send CV, AMS Standard Cover Sheet, 3 recommendation letters to: **Hiring Committee, Department of Mathematics, University of Maryland, College Park, MD 20742.** Affirmative Action/Equal Opportunity Employer. Female and minority candidates are encouraged to apply.

UNIVERSITY OF MARYLAND, COLLEGE PARK - DEPARTMENT OF MATHEMATICS - Computational Nonlinear Dynamics - Faculty Position - A nonlinear dynamicist with strong interest in computation is sought for a tenured or tenure-track appointment in the Department of Mathematics, possibly joint with the Institute for Physical Science and Technology. An outstanding record of research accomplishments and a proven ability to attract research support are important for a senior position. Good teaching is a priority of the university. Applications should be sent to: **Chair's Office, Computational Nonlinear Dynamics, Department of Mathematics, University of Maryland, College Park, MD, 20742-4015.** Priority will be given to applications received by December 1, 2001. Appointments will commence in Fall 2002. The University of Maryland is an Equal Opportunity/Affirmative Action employer.

UNIVERSITY OF MARYLAND, COLLEGE PARK - DEPARTMENT OF MATHEMATICS - Applications are invited for tenured and tenure-track positions in the Department of Mathematics. Strong preference will be given to candidates in (1) Applied statistics, (2) Algebraic geometry, (3) Dynamics, and (4) Geometry, but candidates from all areas will be considered. Priority will be given to applications received by December 1, 2001. Appointments will commence in Fall 2002. The University of Maryland is an Equal Opportunity and Affirmative Action employer that strongly encourages applications from female and minority candidates. Please send a curriculum vitae and AMS Standard Cover Sheet, and arrange for three letters of recommendation to be sent to: **The Hiring Committee, Department of Mathematics, University of Maryland, College Park, Maryland 20742.**

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UNIVERSITY OF MARYLAND, COLLEGE PARK - DEPARTMENT OF MATHEMATICS - Lectureships - Applications are invited for Avron Douglis Lectureships, starting in Fall 2002. These positions are for recent Ph.D. recipients, with a preference for those not more than one year past the Ph.D. degree. The Lectureship is for two years and is non-renewable. Candidates must have superior research potential and a strong commitment to teaching. The Department of Mathematics provides an excellent scientific environment to foster the professional development of junior mathematicians. The teaching duties consist of three courses per year. The salary is \$47,000 per academic year, supplemented by a \$1,000 research stipend. Priority will be given to applications completed by December 15, 2001. The University of Maryland is an Equal Opportunity and Affirmative Action employer that strongly encourages applications from female and minority candidates. Please send a curriculum vitae and AMS Standard Cover Sheet, and arrange for three or more letters of recommendation, at least one of which speaks to the applicant's teaching credentials, to be sent to: **Douglis Lectureship Committee, Department of Mathematics, University of Maryland, College Park, Maryland 20742.**

UNIVERSITY OF MICHIGAN - DEPARTMENT OF MATHEMATICS - The Department has several openings at the tenure-track or tenure level. Candidates should hold the Ph.D. in mathematics or a related field, and should show outstanding promise and/or accomplishments in both research and teaching. Areas of special interest are: analysis, geometry/topology, applied and interdisciplinary mathematics, including mathematical biology, computational science, probability, and actuarial or financial mathematics. However, we encourage applications from any area of pure or applied mathematics. Salaries are competitive, based on credentials. Applicants should send a CV, bibliography, descriptions of research and teaching experience, and have three or four letters of recommendation, at least one of which addresses the candidate's teaching experience and capabilities, sent to: **Personnel Committee, University of Michigan, Department of Mathematics, 2074 East Hall, Ann Arbor MI 48109-1109.** Applications are considered on a continuing basis but candidates are urged to apply by November 1, 2001. More detailed information regarding available positions may be found on our webpage: <http://www.math.lsa.umich.edu>. Inquiries may be made by e-mail to math.chair@math.lsa.umich.edu. The University of Michigan is an equal opportunity, affirmative action employer.

UNIVERSITY OF MICHIGAN - DEPARTMENT OF MATHEMATICS - Assistant Professorships, VIGRE Assistant Professorships, and T.H. Hildebrandt Research Assistant Professorships - These positions for up to three years are designed to provide mathematicians with favorable circumstances for academic career development in research and teaching. Assistant Professorships have a teaching responsibility of two courses per semester; the VIGRE and T.H. Hildebrandt positions have a responsibility of one course per semester. These positions may be combined with other postdoctoral fellowships giving additional reductions in teaching responsibility. Preference is given to candidates who receive the Ph.D. degree in 2000 or later and who submit a completed application by December 19, 2001. Salary is competitive and there are opportunities for supplemental summer salary. Application forms and further important information are available at <http://www.math.lsa.umich.edu/information/positions.shtml>, by Email at math.chair@math.lsa.umich.edu, or by mail from: **Hiring Committee, Department of Mathematics, University of Michigan, 2074 East Hall, 525 E. University, Ann Arbor, MI 48109-1109.** The University of Michigan is an equal opportunity, affirmative action employer.

UNIVERSITY OF MINNESOTA, MINNEAPOLIS - SCHOOL OF MATHEMATICS - Post-doctoral Position (Assistant Professor) with Emphasis in Math Education - The School of Mathematics will have available a temporary position (Assistant Professor) starting fall semester, 2002. Ph.D. or equivalent degree in mathematics, teaching and some related education experiences at the undergraduate level are required. This position will emphasize: excellence in teaching, including some experiences with mathematically talented high school students; involvement with creative academic programs, curriculum development, and educational scholarship/professional activities (i.e., new curricula and curricula supplements, professional development materials, and relevant statistical/evaluative studies and publications). Experience working with K-12 mathematics coursework and preservice/in-service teacher education is desirable. Preference will be given to applicants within 4 years of their Ph.D. degree whose background and experience are compatible with the above stated objectives. The position can be structured to allow sufficient opportunities to work on mathematical research and related activities. This position will initially be a 2-year appointment, with the possibility of an additional 2-year appointment, contingent on satisfactory performance and funding. Salary will be commensurate with background and experience. Consideration of applicants will begin December 1, 2001 and will continue until the position is filled. Send cover letter of interest, a current curriculum vitae, including a complete description of related experience and research to this position, and 3 letters of recommendation, at least one of which comments on teaching ability and educational experience, to: **Professor Harvey Keynes, School of Mathematics, University of Minnesota, 127 Vincent Hall, 206 Church Street S.E., Minneapolis, MN 55455.** The University of Minnesota is an equal opportunity educator and employer. See also our web page at <http://www.math.umn.edu>

UNIVERSITY OF MINNESOTA, MINNEAPOLIS - SCHOOL OF MATHEMATICS - Tenure-Track Position with Emphasis in Math Education - The School of Mathematics will have available a tenure-track position (Assistant Professor or higher) starting fall semester, 2002. Ph.D. or equivalent degree in mathematics, teaching and related education experiences at the undergraduate level and research are required. This position will emphasize: * excellence in teaching, including experience with mathematically talented high school students; involvement with creative academic programs, curriculum development, and educational scholarship/professional activities (i.e., new curricula and curricula supplements, professional development materials, and relevant statistical/evaluative studies and publications); developing capabilities for educational leadership, and the ability to constructively work with management and public relations aspects of educational programs and projects. Experience working with K-12 mathematics coursework and preservice/in-service teacher education is desirable. Preference will be given to applicants at any level whose background and experience are compatible with the above stated objectives. The position can be structured to allow sufficient opportunities to work on mathematics research and related activities. Salary will be commensurate with background and experience. Consideration of applicants will begin December 1, 2001 and will continue until the position is filled. Send cover letter of interest, current curriculum vitae, including a complete description of related experience and research to this position, and 4 letters of recommendation, at least one of which comments on teaching ability and educational experience, to: **Professor Harvey Keynes, School of Mathematics, University of Minnesota, 127 Vincent Hall, 206 Church Street S.E., Minneapolis, MN 55455.** The University of Minnesota is an equal opportunity educator and employer. See also our web page at <http://www.math.umn.edu>

UNIVERSITY OF MINNESOTA, MINNEAPOLIS - SCHOOL OF MATHEMATICS - Dunham Jackson Assistant Professor - This is a three-year appointment from fall semester, 2002 through spring semester, 2005 with a teaching load of 3 one-semester courses per academic year. Outstanding research and teaching abilities required. Preference will be given to applicants whose research interests are compatible with those of the School. Applicants should have received a Ph.D. or equivalent degree in mathematics no earlier than Jan. 1, 2001 and no later than August 25, 2002. Summer School teaching may be available during the summer of 2003 and 2004 to supplement regular stipend. Salary competitive. Consideration of applications will begin December 1, 2001 and continue until available positions are filled. Send letter of application, current curriculum vitae, minimum 4 letters of recommendation, one of which should address teaching ability, and description of research to: **Naresh Jain, Head, School of Mathematics, University of Minnesota, 206 Church Street S.E., 127 Vincent Hall, Minneapolis, MN 55455.** The University of Minnesota is an equal opportunity educator and employer. See also <http://www.math.umn.edu>

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UNIVERSITY OF MINNESOTA, MINNEAPOLIS - SCHOOL OF MATHEMATICS - Tenured or Tenure Track Positions - The School of Mathematics may have available several tenure track Assistant Professor or tenured Associate or Full Professor positions starting fall semester, 2002. Ph.D. or equivalent degree in mathematics by the beginning date of appointment, outstanding research and teaching abilities are required. Applications at all levels are invited; preference will be given to applicants whose research interests are compatible with those of the School. Consideration of applications will begin November 1, 2001 and will continue until available positions are filled. Send letter of application, current curriculum vitae, at least 4 letters of recommendation, one of which should address teaching ability, and description of research to: **Naresh Jain, Head, School of Mathematics, University of Minnesota, 127 Vincent Hall, 206 Church Street S.E., Minneapolis, MN 55455.** The University of Minnesota is an equal opportunity educator and employer. See also <http://www.math.umn.edu>

UNIVERSITY OF MINNESOTA, MINNEAPOLIS - SCHOOL OF MATHEMATICS - Several Temporary or Visiting Positions - at all levels (Instructor, Assistant, Associate or Full Professor) may be available for terms ranging from one semester to two years beginning fall semester, 2002. Ph.D. or equivalent degree in mathematics by beginning date of appointment, strong research and teaching abilities are required. Preference will be given to applicants whose research interests are compatible with those of the School. Salary competitive. Consideration of applications will begin December 1, 2001 and continue until available positions are filled. Send letter of application, current curriculum vitae, at least 4 letters of recommendation, one of which should address teaching ability, and description of research to: **Naresh Jain, Head, School of Mathematics, University of Minnesota, 206 Church Street S.E., 127 Vincent Hall, Minneapolis, MN 55455.** The University of Minnesota is an equal opportunity educator and employer. See also <http://www.math.umn.edu>

UNIVERSITY OF NOTRE DAME - DEPARTMENT OF MATHEMATICS - Regular Position in Stochastic Analysis - The Department of Mathematics of the University of Notre Dame invites applications for a position in the field of Applied Stochastic Analysis to start on August 24, 2001. The position is at the tenure track level, but a tenured appointment may be possible for an exceptional candidate. The teaching load is one course one semester and two courses the other semester. The salary is competitive. Applications, including a curriculum vitae, a letter of application, and a completed AMS standard cover sheet, should be sent to: **Steven A. Buechler, Chair, Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556.** Applicants should also arrange for at least three letters of recommendation to be sent to the chair. These letters should address the applicant's research accomplishments and supply evidence that the applicant has the ability to communicate articulately and teach effectively. Notre Dame is an equal opportunity employer. Women and minorities are urged to apply. The evaluation of candidates will begin December 1. Information about the department is available at <http://www.math.nd.edu/math>

UNIVERSITY OF NOTRE DAME - DEPARTMENT OF MATHEMATICS - Regular Position in Mathematics - The Department of Mathematics of the University of Notre Dame invites applications for the John P. McAndrews Assistant Professorship in Mathematics starting August 24, 2001. Outstanding candidates in any field of pure or applied mathematics are encouraged to apply. The position is at the tenure track level, though a tenured associate professor appointment may be possible for an exceptional candidate. The teaching load is one course one semester and two courses the other semester. Salaries are competitive and a research fund is included. Applications, including a curriculum vitae, a letter of application, and a completed AMS standard cover sheet, should be sent to: **Steven A. Buechler, Chair, Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556.** Applicants should also arrange for at least three letters of recommendation to be sent to the chair. These letters should address the applicant's research accomplishments and supply evidence that the applicant can communicate articulately and teach effectively. Notre Dame is an equal opportunity employer. Women and minorities are urged to apply. The evaluation of candidates will begin December 1. Information about the department is available at <http://www.math.nd.edu/math>

THE UNIVERSITY OF OKLAHOMA - DEPARTMENT OF MATHEMATICS - Applications are invited for one or more full-time, tenured track position(s) beginning 16 August 2002. The position is initially budgeted at the assistant professor level, but an appointment at the associate professor level may be possible for an exceptional candidate with qualifications and experience appropriate to that rank. Normal duties consist of teaching two courses per semester, conducting research, and rendering service to the Department, University, and profession at a level appropriate to the faculty member's experience. The position(s) requires an earned doctorate and research interests that are compatible with those of the existing faculty; preference will be given to applicants with potential or demonstrated excellence in research and prior successful undergraduate teaching experience. Salary and benefits are competitive. For full consideration, applicants should send a completed AMS cover sheet, curriculum vitae, a description of current and planned research, and have three letters of recommendation (at least one of which must address the applicant's teaching experience and proficiency) sent to: **Search Committee, Department of Mathematics, University of Oklahoma, 601 Elm, PHSC 423, Norman, OK 73019-0315,** Telephone: 405-325-6711, FAX: 405-325-7484, Email: search@math.ou.edu. Screening of applications will begin on December 15, 2001 and will continue until the position is filled. The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer. Women and Minorities are Encouraged to Apply. OU has a policy of being responsive to the needs of dual-career couples.

UNIVERSITY OF OREGON - DEPARTMENT OF MATHEMATICS - Applications are invited for **one tenure-track Assistant Professor position** and one tenure-track Associate or Assistant Professor position in mathematics beginning in September 2002. Qualifications are a Ph.D. in the mathematical sciences, an excellent record of research accomplishment, and evidence of teaching ability. All applicants from pure mathematics, applied mathematics and statistics will be considered. We particularly encourage applications in analysis, PDE's, applied mathematics, and numerical analysis, but we will not limit our search to these areas. Competitive salary with good fringe benefits. Send complete resume and at least three letters of recommendation to: **Search Committee, 1222 Department of Mathematics, University of Oregon, Eugene, OR 97403-1222.** Closing date is January 7, 2002. Women and minorities are encouraged to apply. An EO/AA/ADA Institution committed to diversity.

UNIVERSITY OF OREGON - DEPARTMENT OF MATHEMATICS - Applications are being accepted for a **two year postdoctoral position** in mathematics or mathematical statistics beginning September 2002. This is a research position with a reduced teaching load. Qualifications are a Ph.D. in the mathematical sciences, research accomplishment, and evidence of teaching ability. Preference will be given to candidates with research interests that complement those currently represented. Competitive salary and excellent fringe benefits. Send complete resume and three letters of recommendation to: **Hiring Committee, Mathematics Department, 1222 University of Oregon, Eugene, OR 97403-1222.** Closing date is Jan.7, 2002. Women and minorities are encouraged to apply. An EO/AA/ADA Institution committed to cultural diversity.

UNIVERSITY OF WATERLOO - DEPARTMENT OF PURE MATHEMATICS - Tenure-Track Position - The Department of Pure Mathematics at the University of Waterloo invites applications for an anticipated tenure-track position starting July 1, 2002. The Department is particularly interested in candidates with research interests in algebra, number theory, geometry or topology, though outstanding candidates in any area of Pure Mathematics will be considered. In order to be considered for a position, a Ph.D. is required. Postdoctoral experience is preferred. An appointment will be offered only to someone with very strong research []

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[←] and teaching qualifications. The closing date for receipt for applications is December 1, 2001. Applicants should submit their curriculum vitae, together with the names of at least three referees, and should arrange for letters of reference to be sent directly from the referees. The University of Waterloo encourages applications from all qualified individuals, including women, members of visible minorities, native people, and persons with disabilities. This appointment is subject to the availability of funds. Please send applications to: **Dr. B. Forrest, Chair, Department of Pure Mathematics, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.** The department's Web page is <http://math.uwaterloo.ca/PM_Dept/>

UNIVERSITY OF WISCONSIN, MADISON - DEPARTMENT OF MATHEMATICS AND PHYSICS - Mathematical Physics/String Theory Cluster Hiring - The Departments of Mathematics and Physics anticipate openings for three positions to begin August 26, 2002 at either the tenure track (assistant professor) or tenured (associate/full professor) level. This cluster hiring is a part of the Madison Initiative and is intended to establish a prominent research group connecting the existing groups in particle physics phenomenology in the Physics Department and topology/geometry in the Mathematics Department. Applications are especially encouraged from theorists pursuing innovative research in string theory, quantum gravity, physics with extra dimensions, quantum field theory, supersymmetry, and unification theories; as well as from mathematicians working on aspects of string theory or related topics. Successful candidates will be encouraged to participate in interdisciplinary research which will strengthen ties between the two departments. Joint appointments in the Mathematics and Physics Departments are contemplated. Candidates should exhibit evidence of outstanding research records, normally including achievements significantly beyond the doctoral dissertation. A strong commitment to excellence in instruction at both undergraduate and graduate levels is also expected. Applicants should send a curriculum vitae which includes a publication list, and brief descriptions of research and teaching accomplishments and goals to: **Math/Physics Cluster Hiring Committee, Dept. of Mathematics, Van Vleck Hall, University of Wisconsin-Madison, 480 Lincoln Drive, Madison, WI 53706-1388.** Applicants should also arrange to send to the above address, three letters of recommendation, which should address the applicant's research potential and teaching experiences. Review of applications will begin on November 1, 2001. Applications will be accepted until the positions are filled. Additional letters will be solicited by the hiring committee for senior appointments. The Departments of Mathematics and Physics are committed to increasing the number of women and minority faculty. The University of Wisconsin is an Affirmative Action, Equal Opportunity Employer and encourages applications from women and minorities. Unless confidentiality is requested in writing, information regarding the applicants must be released upon request. Finalists cannot be guaranteed confidentiality. Additional departmental information is available on the websites <<http://www.math.wisc.edu/>>; <<http://www.physics.wisc.edu/>>. Information about the cluster hiring initiative is available at: <http://wiscinfo.doit.wisc.edu/cluster/>

WAYNE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for a possible tenure-track position at the rank of Assistant/Associate Professor in any area of specialization. Applications from female and minority candidates are particularly encouraged. There is also the possibility of visiting positions for 2002-2003 in any area of mathematics. Ph.D. in mathematics and a strong interest in research and teaching are required for all positions. Applications should include a signed, detailed vita, description of current research interests, and four letters of recommendation, including one addressing teaching. Solid evidence of excellence in teaching at the undergraduate level is preferred over a statement of teaching philosophy. Applications received by January 1, 2002 will be given priority. Wayne State University is an equal opportunity/affirmative action employer. Wayne State University - People working together to provide quality service. All buildings, structures and vehicles at WSU are smoke-free. **Lowell J. Hansen, Chair, Wayne State University, College of Science, Department of Mathematics, Detroit, Michigan 48202.** (313) 577-2479; (313) 577-7596 FAX

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS AND STATISTICS - Tenure-track position in statistics, beginning fall 2002, at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research and a Ph.D. at the time of appointment are required. Please send a vita and have three letters of recommendation on teaching and research sent to the **Statistics Hiring Committee, Department of Mathematics and Statistics, Williams College, Williamstown MA 01267.** Evaluation of applications will begin on or after December 10. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS AND STATISTICS - Tenure-track position in mathematics or statistics, beginning fall 2002, at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research and a Ph.D. by time of appointment are required. Please send a vita and have three letters of recommendation on teaching and research sent to the **Hiring Committee, Department of Mathematics and Statistics, Williams College, Williamstown, MA 01267.** Evaluation of applications will begin on or after December 10. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

YORK UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applied Mathematics - Applications are invited for a tenure-track appointment at the Assistant Professor level in the Department of Mathematics and Statistics to commence July 1, 2002. Applications in the areas of Operations Research or Applied Discrete Mathematics will be considered. The successful candidate must have a PhD and is expected to have a proven record of research and superior teaching ability. Candidates will be expected to provide leadership to the undergrad OR program, and to make a solid contribution to the mathematics graduate programme. The selection process will begin on January 7, 2002. Applicants should send resumes and arrange for three letters of recommendation (one of which should address teaching) to be sent directly to: **Applied Mathematics Search Committee, Department of Mathematics and Statistics, York University, 4700 Keele Street, Toronto, Ontario, Canada, M3J 1P3.** Fax: (416) 736-5757. E-mail: appld.recruit@mathstat.yorku.ca, www.math.yorku.ca/Hiring/ In accordance with Canadian immigration requirements, Canadian citizens and permanent residents will be considered first for this position. All positions at York are subject to budgetary approval. For many years, York University has had a policy of employment equity including affirmative action for women faculty and librarians. Recently, York has included racial/visible minorities, persons with disabilities and aboriginal peoples in its affirmative action program. Persons who are members of one or more of these three groups are encouraged to self identify during the selection process. Please note that candidates from these three groups will be considered within the priorities of the affirmative action program only if they self identify. The Department of Mathematics and Statistics welcomes applications from women, racial/visible minorities, persons with disabilities and aboriginal peoples. The affirmative action program can be found on York's website at www.yorku.ca or a copy can be obtained by calling the affirmative action office at 416-736-5713.

2001/2002 AWM MEMBERSHIP: Renewal Notices for the 2001/2002 AWM Membership year were mailed out in late August and should be received by the end of September. If you have not received your membership renewal notice in the mail by October 1, 2001, please **RENEW** using the new membership form on **PAGE 43 (→)**

Association for Women in Mathematics

2000/2001 MEMBERSHIP FORM

LAST NAME _____ FIRST NAME _____ M.I. _____
 ADDRESS _____

AWM's membership year is from October 1st to September 30th. Please fill-in this information and return it along with your DUES to:
AWM Membership
 4114 Computer & Space Sciences Building
 University of Maryland
 College Park, MD 20742-2461
 The AWM Newsletter is published six times a year and is part of your membership. Any questions, contact AWM at awm@math.umd.edu; (301) 405-7892 or refer to our website at: <http://www.awm-math.org>

I **DO NOT** wish for my AWM membership information to be released for the **Combined Membership List**.
 Email: _____ Home Phone: _____ Work Phone: _____
 do not publish home number do not publish work number
 Date of Birth (optional): _____ (MMDDYYYY) [the date of birth field is to strictly help prevent duplicate entries]

PROFESSIONAL INFORMATION: If student, GRADUATE or UNDERGRADUATE (circle one)
 If not employed, leave position & institution blank

Position: _____
 Institution/Company: _____
 City, State, Zip: _____
DEGREES EARNED:

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

INDIVIDUAL DUES SCHEDULE

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

REGULAR INDIVIDUAL MEMBERSHIP.....	\$ 50	_____
2ND FAMILY MEMBERSHIP..... (NO newsletter) Please indicate regular family member: _____	\$ 30	_____
CONTRIBUTING MEMBERSHIP.....	\$100	_____
RETIRED or PART-TIME EMPLOYED MEMBERSHIP (circle one).....	\$ 25	_____
STUDENT or UNEMPLOYED MEMBERSHIP (circle one).....	\$ 15	_____
ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO).... FOR ADDITIONAL POSTAGE ADD All payments must be in U.S. Funds using cash, U.S. Postal orders, or checks drawn on U.S. Banks.	\$ 8	_____
BENEFACTOR [\$2,500] or FRIEND [\$1,000] (circle one).....	\$	_____
<input type="checkbox"/> I am enclosing a DONATION to the "AWM GENERAL FUND".....	\$	_____
<input type="checkbox"/> I am enclosing a DONATION to the "AWM ALICE T. SCHAFFER PRIZE".....	\$	_____
<input type="checkbox"/> I am also enclosing a DONATION to the "AWM ANNIVERSARY ENDOWMENT FUND"..... Indicate if you wish for your contribution(s)/donation(s) to remain ANONYMOUS ⇨ <input type="checkbox"/>	\$	_____

Dues in excess of \$15 and all cash contributions/donations are deductible from federal taxable income.

INSTITUTIONAL DUES SCHEDULE

<input type="checkbox"/> CATEGORY 1 (includes 10 student memberships; 1 free ad; 25% off additional Newsletter & online ads*)..	\$250	_____
<input type="checkbox"/> CATEGORY 2A (includes 3 student memberships; 1 free ad; 10% off additional Newsletter & online ads*)....	\$125	_____
<input type="checkbox"/> CATEGORY 2B (includes 6 student memberships; 10% off Newsletter & online ads*).....	\$125	_____

ADVERTISING: Institutional members on Categories 1 and 2a receive ONE FREE job link ad or ONE FREE Newsletter ad (up to 4 lines) for the membership year Oct. 1st to Sept. 30th. All institutional members receive discounts on other eligible* advertisements (25% off for Category 1 and 10% off for Categories 2a and 2b). *Eligible advertisements: The institutional discount applies to both classified and job link online ads as well as classified *Newsletter* ads, but it does not apply to *Newsletter* display ads. If institutional dues have not been received by the invoice date, the full advertising rate will be charged. *Newsletter* advertising deadlines are the 1st of every EVEN month. All institutions advertising are Affirmative Action/Equal Opportunity Employers. **STUDENT NOMINEES:** Institutions have the option to nominate students to receive the newsletter as part of their membership. List names and addresses of student nominees on opposite side or attach a separate page. [ADD \$15 (\$23 for foreign members) to the listed institutional rate for each student add-on over the initial 10 students for Category 1; over the initial 3 students for Category 2a & over the initial 6 students for Category 2b]. For more info see www.awm-math.org

Indicate if GIFT membership FROM: _____ **TOTAL ENCLOSED \$** _____

ADDRESS CORRECTION FORM

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

(Please Print)

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Address _____

City _____ State _____ Zip _____ - _____

Country (if applicable) _____ E-mail Address _____

Position _____ Institution/Org. _____

Telephone: Home _____ Work _____

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

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