

AWM

ASSOCIATION

FOR WOMEN IN

MATHEMATICS

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NEWSLETTER

September-October 1994

PRESIDENT'S REPORT

AWM at the Summer Meetings

In the previous issue of the *Newsletter* we sketched our many Summer 1994 activities, in July at the SIAM meeting in San Diego and in August at the International Congress of Mathematicians in Zürich and the Mathfest in Minneapolis. I will report on the last two meetings in the next issue, and I expect to have many good things to tell you!

Comments on our activities in San Diego and on the SIAM meeting itself follow.

AWM Workshop and Schafer Prize

All AWM activities at SIAM took place on Sunday 24 July, immediately before the start of the annual meeting. And lasted all day up to the evening!

Dianne O'Leary (Maryland) organized and chaired the AWM Workshop for Women Graduate Students and Post-Doctoral Mathematicians, where talks and posters were presented by postdocs and grad students, respectively [see the report on page 22]. The quality of the presentations was outstanding.

Dianne opened and closed the workshop and also organized the two panel presentations. Ann Almgren (Lawrence Livermore National Lab), Mimi Celis (Silicon Graphics), Deborah Levinson (Colorado College), and Joyce MacLaughlin (Rensselaer Polytechnic) participated in the first, "Careers in Applied Mathematics." The panelists for the second, "Funding Mathematics Research," were our supportive friends Jagdish Chandra (ARO) and Deborah Lockhart (NSF). Thanks to them all. And thanks to Margaret Wright (Bell Labs, SIAM President-Elect), who gave a wonderful speech at the AWM dinner, and the many other colleagues who collaborated in the organizing.

We are also especially grateful to SIAM President Avner Friedman (Minnesota) and to the meeting chair, Barbara Keyfitz (Houston), for their hospitality, and to Diane Peirce from SIAM for all her help in facilitating our participation at the meeting and ensuring its success.

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AWM

ASSOCIATION FOR WOMEN IN MATHEMATICS

The Association was founded in 1971 in Boston, MA. 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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The 1994 Alice T. Schafer Prize honorees had the privilege of having their awards presented by Alice herself! They were also honored at the dinner. Jing Rebecca Li, the winner; Patricia Hersh, Julia J. Rehmeyer and Nina Zipser, the runners-up; and Jennifer M. Switkes and Yi Wang, the honorable mentions, are all outstanding students and wonderful young people. We are enormously proud of them!

These undergraduates, together with the graduate students and postdocs featured at the workshop, are the reason why we are so happy at these Summer activities, and why we vow to continue them.

SIAM 1994

The SIAM 1994 annual meeting was chaired by Barbara Keyfitz (Houston), and its program included a significant number of invited women speakers. They were Erica Jen (Nonlinear Studies Center, Los Alamos), Dianne O'Leary (Computer Science, Maryland), Tamar Schlick (Chemistry, CIMS, NYU) and Grace Wahba (Statistics, Wisconsin). This enhanced participation by women in such an important event is good for us all, and we congratulate the colleagues that through their work made it possible.

Mills Conference on Programs for Women

In connection with the Mills Summer Mathematics Institute (SMI), a conference entitled "Programs for Women in Mathematics" was held in Berkeley July 14-16.

Former AWM President Carol Wood (Wesleyan) was our delegate to this gathering aimed at discussing new programs to increase the flow of women into graduate study in the mathematical sciences.

The conference was organized by SMI's own Deborah Nolan (Berkeley), Steve Givant (Mills), Leon Henkin (Berkeley and Mills), and Ani Adhikari (Berkeley) with the assistance of Kathy Guarnieri. Over 30 participants from nearly as many institutions met to discuss present and future programs for undergraduate women in mathematics.

Mills is organizing a funding proposal involving a consortium of several schools and a variety of programs with the common goal of increasing the number of women in advanced degree programs in the mathematical sciences. For consortium participants this conference was an important opportunity to exchange suggestions for and criticisms of their proposed programs. New and sophisticated perspectives were offered.

For all the participants, it was an intense and exciting way to spend a few days, in concentrated discussions about the undergraduate careers of young women. Carol reports that it was a thrill to meet the students and the staff of both the Mills program and the parallel Berkeley SMI for minorities. She added: "On behalf of AWM I want to cheer these good folk along in their efforts to create new programs and sustain the good work already being done!"

We are sure we will be hearing more about these programs, and soon. One final note: there may be several opportunities for women from outside the consortium schools to participate in summer programs as faculty and as graduate assistants. The consortium members — Mills, Carleton and St. Olaf, George Washington, SUNY at Stony Brook, Chicago, and Michigan — may be looking for staff in some cases. Be ready to speak up if you are interested or know someone whom you wish to recommend.

AWM and the Kovalevskaia Fund in Peru

At the end of May I went to Lima with Ann Hibner Koblitz (History of Science, Hartwick) and Neal Koblitz (University of Washington), director and secretary of the Kovalevskaia Fund, to participate in their exciting Peruvian program.

(If you do not know about the Kovalevskaia Fund, a small private foundation dedicated to encourage women in science in the developing world, you should find out. It is by far one of the best endeavors I know of, and it does *much* with little money and no bureaucracy! For their *Newsletter* and information, write to Ann at Kovalevskaia Fund, 6547 17th Avenue, NE, Seattle, WA 98115.)

My first activity was to present the awards in the 1994 competition for the Kovalevskaia Prize in Peru, this year in the mathematical sciences. All the awardees are young people starting their careers at public universities. The winner was Virginia Vera Pomalaza (computer science), while Roxana Lopez (pde), Fatima Medina (statistics), Nancy Moya (applied mathematics), and Susana Petrick (statistics) were the runners-up. The prize ceremony culminated a daylong program on "Woman and Science." It consisted of presentations of the awardees' work, a panel discussion on women in science, and a very lively afternoon seminar, where fifty participants, both female and male, divided into five groups to discuss topics ranging from societal issues to concrete organizational questions.

We participated in more panel discussions and gave lectures at all levels and some press interviews — none more interesting than the one conducted by three high school student "reporters," writing for the children's weekly page of Lima's leading newspaper!

Maybe the best event was a visit to Colegio Gauss, a private school located in one of the poorest sectors of Lima, where (as its name indicates) the

teaching of mathematics is paramount. Their students have distinguished themselves at national and regional Math Olympiads.

We participated in a "demonstration class" conducted by Neal on statistics for fifth graders — very few times in my long teaching career have I encountered brighter students.

Impressed by the quality of the math teaching from K to 12 at the Colegio Gauss and dissatisfied by the female participation on the Olympiad teams, the Kovalevskaia Fund decided to create a scholarship there for outstanding high school girls. The award is called the "Ruth Struik Scholarship" in honor of mathematician Saly Ruth Ramier Struik (1894–1993). [We hope to publish an article on the life of Ruth Struik, written by her husband Dirk Struik (emeritus MIT) and her daughter Ruth Rebekka Struik (Colorado)]. I felt honored to present an award named for such an exemplary woman. The 1994 and 1995 recipients are two bright and delightful young girls, Cecilia Yshii Tamashiro and Lourdes Granda.

I found the encounter with the Peruvian students at all levels and with their professors very stimulating. And the Peruvian women in mathematics are very ready to organize themselves! I think we should strive to help them by continuing contacts.

Let me invite the Spanish-speaking mathematicians in AWM to consider cooperating with projects in Peru and other Latin American countries.

Nominations

You have read in this *Newsletter's* columns calls for nominations for our prizes and workshops. Please, don't wait for all of these to come from institutions. Make nominations yourselves!

If we want to have our best colleagues recognized and our best students promoted, we have to let the corresponding committees know about them. Write to AWM.

Participation in our affairs includes this (agreeable) task.

Good News on Continuing Support

The generous support of NSA was renewed for two years. Last year it was essential for the revamping of our computer capabilities and the overhaul of our database. This in turn enabled us to print the first edition of the *AWM Directory*.

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

Individual: \$40

Family (no newsletter): \$30

Retired, part-time: \$20

Student, unemployed: \$10

Contributing: \$100

All foreign memberships: \$10 additional for postage
Institutional:Level 1 (two free basic ads and up to ten student
memberships): \$120 (\$200 foreign)
additional student memberships: \$10 (\$18 foreign)
for next 15; \$6 (\$14 foreign) for remainderLevel 2 (two free basic ads and up to three student
memberships): \$80 (\$105 foreign)

Affiliate: \$250

Corporate: \$150

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 \$40/year (\$48 foreign). Back orders are \$6/issue plus shipping/handling (\$5 minimum per order).

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.

Ad informationAWM 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 Association Administrator, 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 two free basic ads as a privilege of membership. For non-members, the rate is \$60 for a basic ad (eight lines of type). Additional lines are \$6 each.

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

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

AddressesSend all *Newsletter* material except ads and book review material to Anne Leggett, Department of Mathematical Sciences, Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; phone: (312) 508-3554; email: leggett@math.luc.edu; FAX: (312) 508-3514. Send all material regarding book reviews to Cathy Kessel, 2520 Etna, Berkeley, CA 94704; email: kessel@soe.berkeley.edu. Send everything else, including ads and address changes, to Dawn V. Wheeler, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: (301) 405-7892; email: awm@math.umd.edu.

We are happy to express our gratitude for a grant that we intend to use efficiently in the service of women in mathematics.

Pay Attention to Renewal Notices!

Dawn and Angie worked hard this summer to make sure the membership renewals went out on time. If, by any chance, yours or your institution's has not arrived by the middle of September, please let us know!

And, please, pay attention when renewing, and fill in the information on your "fields of interest" (i.e., what your work is, not what movies you prefer or if you favor modern music!).

That information and your explicit willingness to be included in our 1995 *Directory* are important.

Why? Because the *AWM Directory*, a successor to the *Directory of Women in the Mathematical Sciences*, is an organizational tool. And, as such, the more we can say about each one of us, the more useful it will be to all.

Recognition of AWM Staff

The AWM office is working hard and very well indeed. But aside from other jobs done, the staff participation was absolutely essential to implement all our summer activities.

While I had to be elsewhere, Joanna Schot and Dawn Wheeler went to San Diego, and Dawn also to the Mathfest. Both of them, together with Angie Beach, had the extraordinary task of putting together our participation at *three* important meetings.

The new 1994 *AWM Directory* was Dawn's own project, and she did a great job at it.

We all appreciate their work for women in mathematics!

Have a Good Start of the New Academic Year

Once again I write this in the midst of Summer. But you are reading it at the beginning of Fall, when classes have already started for some of us.

Much has to be done in 1994-95. Let me wish you all a good start at a productive and fulfilling season!



Cora Sadosky, Washington, DC, 25 July 1994

1994 AMS ELECTION

As usual, we have requested all persons standing for election for contested office in the American Mathematical Society (AMS) to submit statements. The letter sent to them read in part:

Topics discussed in the past which you might wish to consider have included the following: the role of the AMS Council, promotion and tenure practices, the current academic job crisis, and how to attract more members of underrepresented groups into the mathematics pipeline.

A topic of special concern this year is the following: currently there is a funding crisis in the academic mathematical community. What do you think should be done? What should the NSF be doing? What do you think about the issue of decoupling grant size and salary? What can the AMS do to allow the membership to have a say in these important issues?

We used the same special topic this year as last, as the concern has certainly not disappeared. All statements received by press time appear below; others will appear in the next issue. See the AMS *Notices* for further information.

The Council nominated C. Herbert Clemens and Joseph B. Keller for Vice-President, and Gian-Carlo Rota was nominated by petition. One will be elected for a term of three years. The Council nominated the following candidates for Member-at-Large of the Council: Georgia M. Benkart, Carlos Castillo-Chavez, David B. A. Epstein, Cameron M. Gordon, James M. Hyman, Jerrold E. Marsden, Cora Sadosky, Alice Silverberg, and Mark W. Winstead; Benjamin A. Lotto was nominated by petition. Five will be elected to serve terms of three years. The Council nominated Frank C. Hoppensteadt and Donald E. McClure as candidates for Trustee, one to be elected for a term of five years. The President has nominated the following candidates for the Nominating Committee: Jerry L. Bona, Ingrid Daubechies, William James Lewis, Rogers J. Newman, Stephen D. Smith, and Susan Gayle Williams. Three will be elected. The President has also nominated the following candidates for the Editorial Boards Committee: Robert J. Blattner, Rhonda J. Hughes, Harold M. Stark, and Herbert S. Wilf. Two will be elected. Unless otherwise noted, the nominees are faculty members in departments of mathematics.

Vice-President

C. Herbert Clemens, University of Utah

The current job and funding crises in mathematics are part of a much larger societal change and cannot be understood or effectively dealt with without taking that change into account. It is still not clear how best to defend the long-term interests of the discipline and those who dedicate their professional lives to it. I feel that the American Mathematical Society must develop a more forward-looking stance which reflects not only the current professional interests of its members but responds creatively to the societal challenges which confront it.

Foremost among these challenges is that of making the discipline more inclusive, at every level from elementary school to research. Fears that inclusiveness will lead to the lowering of standards, be it in research or education, show that we still haven't given the problem enough thought.

For example, current educational theory advocates that students construct (or reconstruct) mathematical meanings for themselves. To me this is just an attempt to bring to a wider public a process that most good mathematicians instinctively accomplished on their own when they were in school. That it takes more time and resources to accomplish this on a large scale should come as no surprise. To equate the requisite slowing down and extra support with lowering standards seems to me just wrong.

Attempts to create a sense of shared purpose among mathematicians, teachers, and the users of mathematics is another case in point. Hardly useless distractions, these efforts at meaningful contact may well be the starting point for a renewal of support for mathematics and mathematicians.

Women mathematicians, despite their relatively small numbers, have shown exceptional leadership in guiding the profession toward an understanding of these issues. I think the profession as a whole needs a bit more work on them.

Gian-Carlo Rota, Massachusetts Institute of Technology

Mathematics is the greatest achievement of civilization, and mathematical education is the central subject of our culture. It is not enough to listen to politicians paying lip service to this message. We must make sure that they act upon it, and that they provide the mathematical community with the

means to prosper and to fully provide the educational and scientific services that are essential to the survival of our civilization.

At present, no amount of rational argument will achieve these objectives. One needs instead to organize and pursue an intensive campaign at all levels of public and private communication. We have to make sure that the message of the importance and the ubiquity of mathematics is constantly focussed upon by the media, and we have to firmly and loudly proclaim and reiterate the achievements of our civilization that would not have been possible without mathematical discovery at the very highest levels, nor without mathematical education at the very lowest levels.

The public has a shorter memory now than it ever has had in the past, and we cannot afford to rest on our past triumphs. Every technique of public relations, of lobbying, and of group pressure must be brought to bear to force the Washington establishment to listen to the message of the importance of mathematics, and to act upon this message.

For their own part, mathematicians have erred in making occasional public shows of their disagreements. We must make our fellow mathematicians realize the unity of the community of all mathematicians, what brings together the grade school teacher with the research mathematician, and we must give every mathematics teacher, at whatever level, a feeling of privilege and pride for belonging to this community.

Trustee

**Frank C. Hoppensteadt, Dean, Natural Sciences,
Michigan State University**

My statement for the election for the Board of Trustees is:

The AMS should continue to make the mathematical sciences accessible to all components of our society and to enhance its services to mathematical scientists. It should be a leader in addressing basic existential questions that challenge the mathematical sciences today, and it should continue to forge new working relationships with other professional societies including the AAAS, ACS, APS, IEEE, MAA, NCTM and SIAM and the Canadian and Mexican societies. It must enhance external fund raising for its important activities (meetings, recognition of accomplishments, conferences and publications) from governments, industries and private

sources. The AMS should continue its work in such a way that it represents the mathematical interests of all its constituents, and it should continue to be a primary source for answers to questions about the mathematical sciences. I would like to contribute to this important work and to the agenda for the AMS as a member of its Board of Trustees.

Regarding your query in particular:

In addition, the Society faces a number of important challenges over the next decade. Among them are the following: There are problems in funding research in the mathematical sciences. While more funds have appeared to support efforts in mathematics learning at levels K-16, there have been large cuts in funding in agencies that have traditionally been able to support mathematical research. This situation is not expected to improve in the foreseeable future. The results will be fewer people doing federally funded research. The AMS leadership and the agencies themselves must continue to aggressively pursue funding. At the same time, mathematicians must help shape public judgment for supporting mathematical research by being articulate spokespersons for the relevance of mathematics research in education and in our society and to participate in building bridges to businesses, industries and governments. Trustees should play important roles in these tasks.

The AMS must continue its emerging efforts in fund raising from non-traditional sources such as foundations and companies. This will become harder as more institutions come to rely on these alternate sources of funds.

The AMS must continue its work ensuring that suitable policies are in place so that all components of our society participate in the mathematical sciences. The Society has been successful in this, and it should build on these successes.

The AMS is a leader in electronic publications, and it should continue this activity. We must ensure that electronic publishing is affordable, convenient and fair to users, authors and to the AMS as a publisher. It should work closely with national libraries, other publishers and AMS membership to devise and implement suitable policies.

Donald E. McClure, Brown University

I focus my brief comments on issues of Federal funding for mathematics research, the topic of special concern suggested by AWM.

At the root of the problem are the limited amount and the allocation of resources for mathematics. The effects are more severe for pure mathematics than for applied mathematics. The greater impact in pure mathematics results in part from the nearly total reliance on a single funding agency, NSF. The funding problem is exacerbated in all of the mathematical sciences by the increased emphasis, even within the mission-oriented agencies, and by the increased political pressure to justify the relevance of sponsored research to immediate payoffs or to the national interest.

The AMS should maintain a leading role in representing the mathematics research community on funding issues. It should promote well-conceived policies, based on input from a well-informed membership. I do not believe that a simple and radical change by NSF to decouple grant size from investigators' salaries is a practical or appropriate remedy. It should be analyzed together with other innovative ideas for directly addressing critical aspects of the funding problem. More specifically, with the leadership of the Science Policy Committee (or other cognizant policy committee) and the Council, the AMS should in the near term prepare a report based on readily available NSF data concerning funding patterns in the mathematical sciences and in other science/engineering disciplines. The report should inform the community of alternative funding paradigms and should provide the basis for policy recommendations. In particular, the report should examine funding mechanisms, such as research initiation grants, commonly used in other Divisions and Directorates, and evaluate their potential for addressing perceived resource allocation problems in mathematics including the need to provide funding for mathematicians at the start of their independent research careers. At the same time, a wide array of suggestions for changes to the way grant budgets are structured should be analyzed in terms of their effects on the overall allocation of the limited resources and their impact on the supported research.

Rather than leading to revolutionary changes to a grant system that over the long term has served mathematics research well, I would expect the process I suggest to lead to substantive input from the community towards policy changes that can alleviate some major problems in a time of generally inadequate resources.

On the related issue of increased pressure from Congress to recast the role of NSF, I believe the

AMS should and will staunchly defend the role of NSF in supporting basic research. At the same time, let us not take too lightly the political reality of needing to justify NSF's role at appropriation time. We in mathematics need to work harder than colleagues in disciplines more easily understood by the public to help NSF make our case.

Member-at-Large

Georgia M. Benkart, University of Wisconsin

The American Mathematical Society's commitment to mathematical research today requires its commitment, above all, to mathematical researchers. From the entry level of graduate study to the conferring of awards for career achievements, mathematicians must be welcomed, supported, and acknowledged within a community that is global and inclusive.

Especially in the midst of the funding crisis, scarce resources must be distributed equitably and creatively to insure the openness and long-term viability of our community of scholars.

Carlos Castillo-Chavez, Biometrics Unit, Cornell University

A female former Cornell graduate student told me recently:

I remember taking a civil engineering course at Cornell and thinking that it was all about bridges and other "boy stuff." Mind you, I was not a kid. But I thought that if engineering had been about biological phenomena rather than erector sets, I would have been interested at a young age. Once I discovered biomechanics in grad school, I was hooked. You cannot tear me from it. There is no reason that introductory mechanics courses cannot talk about trees instead of skyscrapers....

I used this quote in my statement as a candidate for the AMS Council with several purposes in mind. At this stage in my life, I still do not see myself as an integral part of the mathematical community. There may be something intrinsic to mathematics that attracts me to it, but there is also an alien environment that makes it difficult to express myself as a minority mathematician. There have been strong efforts to improve the way we teach mathematics at all levels but no sustained efforts to experiment with bold new approaches. There will not be a large number of minority mathematicians — male and

female — unless we conduct long-term, large-scale innovative approaches.

We must change the way we do business at all levels. Decoupling grant size and salary will do wonders for the mathematical community as long as NSF supports a substantial number of small groups of investigators who are conducting joint research. Furthermore, NSF should increase funding for postdoctoral students as part of individual or small group grants. Funding for postdocs would not increase the number of unemployed Ph.D.'s (as would be the case if additional funding is provided for graduate students) but rather provide temporary positions. Furthermore, the funding should be given to permanent residents and U.S. nationals with emphasis on supporting underrepresented groups (white women, and men and women of color). At some point the U.S. mathematical community must take responsibility for employing U.S.-educated individuals.

David B. A. Epstein, University of Warwick

I am a mathematician who lives and works at the University of Warwick in England. I understand that my nomination to the AMS Council is due to the desire of some members of the AMS to take account of the many members who are not resident in North America. Because I do not participate in the life of a U.S. mathematics department, I am rather ignorant of many of the issues mentioned by Professor Leggett in her letter to candidates inviting them to make their views known. I hope to learn about these issues in future meetings of AMS Council; perhaps a foreign perspective will be useful. I do visit the U.S. frequently, usually in connection with the Geometry Center in Minneapolis.

One of the many issues raised by Professor Leggett was the question of NSF funding and summer salaries. Here my experience is limited to requests from the NSF for comments on research proposals. As far as I know, summer salaries are unique to the U.S. and even there is of fairly recent origin — substantial U.S. government support for research started only at the end of World War Two. The system I am more familiar with, and which I believe is healthier for the academic community, is one in which universities and colleges expect faculty to teach during term time and to do research during university vacations. Throughout the rest of the world, academic salaries are 12 month salaries, and one needs to obtain explicit permission from

one's university to earn other money over the summer. For the NSF to select some research stars and add a third to their already considerable salaries seems hard to justify. Furthermore it's divisive, leading to unnecessary bitterness and back-biting.

I support the use of NSF funds to support young researchers, particularly at a time when academic posts are so hard to find. One might argue that this only postpones the problem for the individual. However, two years down the line, the researcher is working independently, has already made contacts with others working in the field, and is therefore in much better shape to continue to flourish even under not very favorable employment conditions.

Professor Leggett asks what the AMS can do to allow its members to have a say on issues like this. I support moves to find out the opinions of members, and believe that strong and united expressions of opinion from the AMS would have an effect on the NSF. However, the NSF is not part of academia, and does not necessarily operate to maximize the happiness of academics. It is a branch of government, answerable to the U.S. Congress and taxpayers.

We are living in a time when research funding for science is under threat in all parts of the world. We need to understand this, and react to it. On the one hand we need to express our views on the importance of mathematics to society clearly and honestly, taking into account the needs of the community as a whole. Even more important in the long run than lobbying and position papers are activities undertaken by individuals which enable non-mathematicians to benefit from contact with research mathematicians. In this connection, I like the AMS National Policy Statement 94-95, whose sections on education and communication show the way forward. If professional and research mathematicians do a better job in these areas, society will, I believe, be more sympathetic to requests for research money. This is not only in our self-interest; it is also our moral responsibility. Our duty to maintain mathematics research in future generations requires us to spend time and energy displaying our wares to school children before they decide irrevocably against mathematics as a career. Moreover, as very many members of the AMS have discovered, outreach is rewarding and interesting, and can lead to good research ideas.

Presumably all candidates for AMS positions support the efforts of the AMS to increase the proportion of women and ethnic minorities in teaching

and research positions in mathematics. Similar problems are apparent in all parts of the world and in many different types of job; the roots lie deep in our culture and are comparatively intractable, at least in the short-term. This is an important issue and one to which all mathematicians should direct their attention.

J. Mac Hyman, Research Scientist, Los Alamos

As a member of the Council, my goal will be for the AMS to continue playing an important role in leading high quality education, research and applications of mathematics. I am troubled by the increased pressures to shift basic research funds toward proposals with short term applications. I would work to protect the existing funds for individual mathematicians and to increase the funding for long range research.

I strongly support the AMS increasing its role to foster interactions among mathematicians in academia, industry, and the national laboratories by soliciting more applied mathematicians to participate in our conferences through minisymposia and as invited speakers. We should aggressively pursue new initiatives to help lead the graduate and undergraduate educational programs in both pure and applied mathematics to prepare students for real world applications and the available jobs.

Benjamin A. Lotto, Vassar College

Many issues facing mathematics and mathematicians right now have grown into major problems in the last few years. These problems — including the horrible job market, diminished research funding, smaller departmental budgets, increased teaching loads, and so on — have had a particularly harsh effect on young mathematicians. (By “young” I mean young in career as opposed to young in age, so “young mathematicians” includes graduate students, postdocs and other recent Ph.D.’s, untenured faculty, etc.) Many have had to live year to year, unemployed or in temporary positions with low salaries and/or high teaching loads. Some have quit mathematics entirely. As a result, much of the energy that these people would have devoted to research and teaching has been wasted. I believe that our profession will feel this loss for many years.

The AMS has recognized the importance of combatting this loss. For example, one of the major

points in their recent National Policy Statement 94–95 is that “[t]he talent of the nation’s young mathematicians is an important national asset. *We must find productive ways of using it.*” Several other points in the Statement address the above-mentioned issues, as well as other issues that are of particular concern to young mathematicians.

I believe that the opinions, perspectives, and input of young mathematicians are crucial ingredients in the AMS effort to develop strategies for dealing with these problems. More specifically, I think that it is vital for young mathematicians to participate actively in the process. This is my motivation in running for the AMS Council.

If I am elected, I will do my best to be a voice on the Council for young mathematicians. In addition, I will seek to encourage the AMS to nominate more young mathematicians for elected positions and ask more young mathematicians to serve on major committees. I will also try to encourage more young mathematicians to run for office and to serve on committees. Some other possible actions that I have considered include: encouraging the NSF to increase the number of young mathematician PI’s and to support more grant-funded postdocs, with funds coming from more progressive budgets in grants of more established mathematicians (e.g., by limiting summer salaries or by tying larger summer salary to larger postdoctoral funding); seeking an alternative to the Employment Register at the January AMS meeting; developing a uniform application that applicants can use in job searches; and investigating a matching system to match new Ph.D.’s with postdoctoral positions (such as the one used in the medical profession).

Jerrold E. Marsden, University of California, Berkeley

The funding crisis in mathematics is indeed very serious, and there is not going to be a simple solution. It is bad, but perhaps not as bad in other disciplines. One of the things that has helped in the past (which I saw as a member of the NSF Advisory panel) was the education of people at NSF trained in other subjects, as well as the educating of members of Congress. The current presence of mathematics in Washington (JPBM, etc.) partly grew out of such efforts. We must continue such efforts. One of the ways to achieve this is to be able to point to strong applied mathematics effort at Universities that interacts in a meaningful way with other

departments. This situation has also been in a state of crisis for many Universities for a long time and needs attention. I would also continue the effort to help in this area.

I certainly take the attitude that we need to do something about the funding crisis, and these are some constructive suggestions to that end.

Cora Sadosky, Howard University

Statement for AMS:

Our profession is facing a double crisis with the shortage of jobs and the shortage of federal funds for individual research. The Society has a duty to face these matters in the interest of *all* its membership. At the same time, it is indispensable to immediately recognize the right to mathematics of women and other underrepresented groups. Being President of AWM, and fourteen years of tenure at Howard University, have greatly increased my awareness on the matter. I know of the urgent need to pass from declarations to results.

Federal funding shapes research policies in mathematics, which affects all of us, irrespective of our being individually funded by NSF or not. Cuts in budgets can warp the vitality of entire research areas. It is important that AMS reflects the interest of the whole community in preserving research not only at the top institutions, but also everywhere it is demonstrably excellent. For achieving this, the involvement of all the mathematical community — including its young people — is crucial.

A persistent problem in AMS has been alienation of almost all its members from planning and running the Society's activities. During the last twenty years some of the power was wrested from the insiders, with more openness being achieved. Currently, control is slipping away into a few powerful committees selected without the participation of the membership. In defending members' role in the Society, the Council may be a key point: it is elected by the vote of the whole membership, and it has authority over many (not all!) of the Society's organs. I am dedicated to keeping the lines of power open.

Statement for AWM:

After a year and a half (already!) of president's reports, AWM members know what I stand for. The most pressing issues the AMS should address now include facing the job crisis in an open and truthful

manner, effectively incorporating all underrepresented groups into the profession, and struggling to maintain and increase federal support to the mathematical community as a whole.

Here I consider the problem of democratic participation essential. Most active mathematicians are not involved in the Society matters. This is often by choice, but it is also because the current structure only allows the participation of those "called" to it by AMS officers. The curtailment, in the name of efficiency, of the role of the (elected) Council in favor of the (appointed) "super" committees, aggravates the distancing.

In these difficult times it is important to impose, if necessary, our participation in the affairs of the Society. AMS represents us professionally, and it is up to us to make it sure that it takes our side.

That is why I accepted this candidacy. The last thing I was looking for was another stint in professional office! But I have been appealing to you too often to get involved in fighting for women's right to mathematics to be unwilling to accept this new challenge.

Alice Silverberg, Ohio State University

Thank you for giving me the opportunity to give some of my views. I was asked to address the issue of the current funding crisis. One approach to the problem is for us to communicate better the importance and excitement of mathematics, the need for a high level of mathematical sophistication in an increasingly technological world, and the importance of a strong and enduring mathematical research base to support and sustain this. We can also be more innovative in our funding requests and in our search for funding (universities, the business sector, and governments all have an interest in the health of the mathematical community). I support the idea of decoupling grant size and salary — the AMS could try to work with the NSF to see if this can be accomplished. A side of the funding crisis that should not be overlooked is escalating costs. For example, pressure can be put on publishers to keep costs reasonable. The AMS has many roles to play, as a publisher, as a forum for discussion, and as a catalyst for action.

Issues that have long been of particular concern for me are fairness and openness. There is a long history of women being denied access to the best educational resources. While the most obvious forms of discrimination have been eliminated, the

tradition continues in more subtle ways. It is important to find new ways to approach this issue, and creative solutions. If elected to the AMS Council this will be one of my major concerns, and I would like input and advice from the AWM and its membership.

Mark W. Winstead, University of California, San Diego

In my opinion, the role of the AMS Council is to oversee the AMS as it carries out its mission, which is to promote mathematical research, to promote an appreciation of and for mathematics, and to strengthen mathematical education. Currently, I see two primary threats to this mission: 1) The current job market crisis threatens to negatively affect mathematical research and education for a long time to come. There is no guarantee in this jungle that the fittest are the ones surviving, and many are giving up promising research careers in order to eat, while those with promising teaching careers are not being allowed to develop that promise because of the disruption of continuously searching for the next position and/or unreasonable teaching and service loads. 2) The federal deficit and the resulting budget non-growth and cuts threaten to undermine the development of younger mathematical talent. When cutbacks occur, whether in government or in the private sector, it seems that the powers that be usually protect the most senior people. The mathematical community should be looking out for the long-term health of mathematics.

I think that to deal with this, we should work to decouple grant size from salary and *consider* lobbying for grants only for travel, conferences and workshops, equipment (e.g., computer hardware and software), and postdoctoral support. We should continue the effort to create more postdoctoral opportunities. We should also be more active in developing our "customer" base, by working with other departments within our respective universities in order to protect and expand ties to other fields, by working to increase the number of industrial options for young mathematicians, and by doing a better job of informing deans, legislatures, Congress, and the general public of the beauty and importance of mathematics. We must work to increase opportunities for young mathematicians, but at the same time we should be honest about the current job situation and prospective future situations with potential mathematicians.

Nominating Committee

Jerry L. Bona, Pennsylvania State University

In addition to pursuing its primary goal of fostering and disseminating high quality research in mathematics and its applications, the American Mathematical Society should take a leadership role in a number of other important activities. These include mathematics education, the organization of further training for our recent Ph.D.'s, closer collaboration with other professional organizations, and participation in the formulation of science policy.

In addition to abetting the move to diversify our leadership, the Nominating Committee is well placed to ensure the development of some of the other prospects just mentioned. By nominating outstanding mathematicians noted for their taste, breadth and outlook to the major leadership positions, it assures continued focus on the intellectual health of our subject. As regards mathematics education, the Society has begun to take this issue seriously and at the same time to develop a more active relationship with the MAA. In particular, we provide much of the conduit through which some of our best research mathematicians can enter into the discussion of mathematics education. The issue of further training of our young colleagues is connected in part with the development of a broader range of post-doctoral experience. In this, the Society is also playing a catalytic role. One area where the Society cannot brag is in developing broadly-based working relationships with other professional societies. It should be natural for the AMS to have substantial relationships with the MAA, SIAM, AAAS, IMS, ASA, and perhaps even ACM and APS. In fact, our relations with these organizations are often superficial. It seems to me we miss opportunities in this direction.

The Society has also lately tried to enter into the conversation leading to the formulation of science policy. We have a long way to go, but at least the Division of Mathematical Sciences at the NSF takes us seriously. It has been disheartening to watch the number of mathematicians supported by NSF dwindle. The DMS leadership has been about as effective as they can in responding to the challenge presented by the lower levels of funding. Their current policy, which features a very considerable majority of grants basically decoupled from salary, seems to me to be well considered. The Society should continue its dialog with the DMS, and it should take a

leadership role in helping to place fine mathematicians in the rotating positions.

**William James (Jim) Lewis, Chair,
University of Nebraska**

The primary purpose of the AMS is to support mathematical research. Traditionally, the AMS has supported research through its support for publications, meetings and conferences, and these activities should continue to receive a substantial share of the Society's time, energy and resources. This support can best be provided if we can assure the overall health of the mathematical enterprise. This broader responsibility obligates substantial attention to three areas: i) influencing federal science policy, especially the financial support of mathematics research and education; ii) providing leadership for mathematics faculties in our colleges and universities as mathematics departments are challenged to accept a broader mission of research, education and outreach; and iii) supporting higher quality mathematics education for U.S. students at all levels from kindergarten through college with special attention to providing opportunities for women and minority students.

The issue of providing opportunities for women and minorities to study mathematics and to become mathematicians is and should be of special interest to members of AWM. In my day-to-day work, both as a Principal Investigator for one of the NSF funded Statewide Systemic Initiatives and as Chair of my own department, I have tried to make decisions and to influence policies that help provide such opportunities. An example of what I consider a success story is the fact that nearly 50% of the graduate students (31 of 63) that will be supported by my department this fall are women. If elected to the Nominating Committee of the AMS, I would consider it a priority to help provide opportunities for women members of the Society to become actively involved in the work of the Society.

Rogers J. Newman, Southern University

The AMS Council plays a crucial role in mathematics research and education in this country and abroad. As a member of the council, I would assist the AMS in continuing its research focus. I would also be a strong voice for opening wider the doors of opportunity for the participation of underrepresented groups, especially minorities and women.

In this regard, I believe that the AMS can use its influence and resources to 1) encourage individuals in these groups to get involved in AMS activities, including research and 2) suggest strongly to funding agencies, both public and private, to give more consideration to the needs of individuals and subgroups as they strive for greater participation.

**Stephen D. Smith, University of
Illinois at Chicago**

I was asked to stand for Nominating Committee, which I understand nominates others for policy-related offices. Consequently opinions of members of the NC only *indirectly* influence those eventual officers. I would of course use my own judgment to nominate individuals whose judgment I have confidence in, without special regard to their views on particular issues. Consequently my summary is: If elected, I will serve.

Editorial Boards Committee

**Robert J. Blattner, University of
California, Los Angeles**

The Editorial Boards Committee (EBC) is charged with monitoring the work of the editorial committees of the Society's journals and with nominating people to serve on those committees. By Council action, the EBC is required to increase the representation of women on the editorial committees. I strongly support this stand and believe the same must be done for minority representation. I also strongly believe that members of the editorial committees must be knowledgeable, thorough, dependable, and willing to work hard. I firmly believe that we can obtain broader representation on the editorial committees without sacrificing quality or standards in any way.

Professor Leggett suggested several topics that might be addressed by those in contested AMS elections. Most are not directly relevant to the work of the EBC, but some are indirectly relevant. AMS publications should be open to worthy papers by little known mathematicians, as well as to papers by the famous. The EBC can help in this regard by recommending for appointment editors who believe it is their duty to pay attention to the quality of the submitted papers and not just the stature of the authors.

Rhonda J. Hughes, Bryn Mawr College

I think the questions posed by the Editor are critical ones for the mathematics community. Although I have strong feelings about the issues raised, and would be happy to share them with AWM members, I do not feel that they should constitute part of my statement for election to the Editorial Boards Committee.

The publication program of the AMS provides the Society with its most effective means of communicating and disseminating mathematics to the community worldwide. It is important that editorial boards of AMS journals reflect the standards of excellence to which the AMS is committed, and at the same time provide broad representation of the mathematics community. I believe it is the responsibility of the Editorial Boards Committee to widely solicit suggestions and to nominate candidates for editorial boards to the Council with both these criteria in mind.

Herbert S. Wilf, University of Pennsylvania

Thanks for offering me the opportunity to make a statement to AWM members. One of the topics that you suggested seems particularly appropriate to me, namely "how to attract more members of underrepresented groups into the mathematics pipeline." My answer to that shows clearly in my own record: I have supervised twenty Ph.D. students' dissertations during my career, and of these nine have been women and eleven men.

So I think my answer is that the best way to attract such groups is to give evenhanded encouragement and support to all students, regardless of which "group" they belong to. If we all do that, the "mathematics pipeline" won't need any special tending. It will just happen.

VPW PROGRAM

The National Science Foundation's mandate to ensure the vitality of the nation's scientific enterprise includes concern for the quality, distribution, and effectiveness of the human resource base in science and engineering. NSF seeks to encourage full utilization of all highly qualified scientists and

engineers. Since women are underrepresented in nearly all science and engineering disciplines, NSF supports efforts aimed at increasing the numbers of women fully participating in the mainstream of the nation's research enterprise. The Visiting Professorships for Women Program is one of these efforts.

The VPW program enables doctoral women scientists and engineers to undertake research and teaching at host institutions where they can advance their careers and provide guidance and encouragement to young women seeking to pursue research careers. NSF is particularly interested in increasing the participation of minority women and women with disabilities.

VPW addresses the need to develop full use of the nation's human resources for science and technology. The objectives of the program are: to provide opportunities for further career advancement and professional growth of outstanding women in engineering and in the disciplines of science supported by NSF; to encourage female students to pursue careers in science and engineering by providing greater visibility for women scientists and engineers in industry, government, and academic institutions; and to strengthen home institutions by providing professional development opportunities for science and engineering faculty and those in research positions.

The VPW program is targeted at women scientists and engineers who currently (1) hold non-tenured academic or industrial positions, (2) hold academic, tenured or tenure-track positions below full professor, or (3) are senior scientists or engineers with demonstrated teaching and research excellence.

The research proposed must be in a field supported by NSF and may be conducted independently or in collaboration with others. Approximately 70 percent of the award period must be spent on research activities. In keeping with program objectives, periods of time spent away from the campus for field research or similar activities should be limited.

Approximately 30 percent of the award period must be spent on teaching and other interactive activities designed to increase the visibility of women faculty in the sciences or engineering at either the graduate or undergraduate levels. A portion of these activities may also be directed to the community at large.

Interactive activities are critical to the success of a VPW proposal. They should promote professional

growth and be planned and developed in conjunction with the host institution. A wide range of imagination and initiative is encouraged to bring the potential VPW grantee into contact with both students and faculty in the science and/or engineering pipeline.

The VPW award support period may not be less than six months or more than 15 months. The

maximum award tenure of 15 months may provide support for one academic year and two summers. It is possible to include an international component, to be carried out during or in addition to the VPW award.

Applications are due October 15, 1994. For more information, contact: National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230.

CALL FOR NOMINATIONS: THE 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 given annually to a woman at the January Business Meeting. 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 awardee will be selected by a committee appointed by the President and will receive a citation at the AWM Business Meeting.

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

The letter(s) of nomination should outline the nominee's contributions and indicate both the quality and depth of these contributions. Letters of support from colleagues and/or students are encouraged. *Five* copies of nominations for this award should be sent by **October 15, 1994** to: The Hay Award Selection 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.

NSF-AWM TRAVEL GRANTS FOR WOMEN

The objective of the NSF-AWM Travel Grants 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. International travel must be on U.S. flag carriers.

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 many 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 U.S. (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 other sources of external funding, such as a regular NSF grant, is ineligible. Partial institutional support does not however make the applicant ineligible.

Target Dates. There will be three award periods per year, with applications due February 1, May 1 and October 1. An applicant should send *five copies* of 1) a description of her current research and of how the proposed travel would benefit her research program, 2) her curriculum vitae, 3) a budget for the proposed travel, and 4) 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; (301) 405-7892.

OUTREACH EFFORTS AT BALL STATE UNIVERSITY

For the last two years, the Department of Mathematical Sciences at Ball State University has sponsored a Mathematics Day for young women. The day has been organized by Bernadette H. Perham, Professor, and Rebecca L. Pierce, Assistant Professor, with assistance from Donald R. Whitaker, Professor and Department Chair.

In 1993 Drs. Perham and Pierce made arrangements for girls who were in their junior year of high school and currently enrolled in a mathematics class to participate in a Mathematics Day. Nine local high schools selected three girls and a school representative to attend a day of activities. A panel of three women talked about uses of mathematics in their careers as an actuary, a manager in a large corporation, and a high school teacher. Workshops on the topics of geometry, computer algebra systems, statistics, and the graphing calculator were led by professors from the department. Other activities engaged the girls in a tour of the campus, a complimentary luncheon, and scholarship and career information.

The response to our first effort was very positive from both the girls and the school representatives. We, too, thought the day was successful — largely because we limited the number of participants to a maximum of 30. This enabled us to achieve our main goal of fostering among the girls *confidence* in doing mathematics.

The success of our first effort laid the foundation for making this an annual event. In 1994 we broadened the participation to include junior high girls because the latest research information shows they need this type of encouragement. Our own experience has shown that this type of encouragement is needed by girls throughout their high school years. So we continued to invite high school girls. Mathematics Day 1994 was organized in morning and afternoon sessions by grade level. Local students and their advisors from eight middle schools and eight high schools participated. Both sessions highlighted a Writing to Learn Mathematics Workshop led by Joan Countryman of the Lincoln School in Providence, RI. In these workshops the girls wrote and talked about mathematics, worked in groups, and used mathematics to explore questions about

the world in which they live. Here are some comments from the girls:

Writing about math really was interesting and seemed to help me learn more.

It was neat! Now I know that a lot of other people feel the way I do about math.

The program was really enjoyable, especially because it was so interactive.

One of the school representatives had this to say:

... I think the girls are feeling more relaxed about math and science and know that mathematics problems don't have to be intimidating.

Another of the day's activities the girls enjoyed was viewing and discussing the film "Women in Math" produced by Daniel Pennington and Sascha Caudill. As in our 1993 program, the girls were given corsages, a complimentary luncheon, and scholarship and career information.

Both programs have been heavily supported by university administrators and service groups, and most importantly by our department chair. We especially appreciated that John E. Worthen, President of Ball State, gave a welcoming address that encouraged the girls to pursue studies in the sciences and mathematics.

Plans are currently under way to continue our outreach efforts during 1995. Our intention is to design another program with a personal touch that reaches a group of local girls who will share our message with their classmates.

AWARDS AND HONORS

CONGRATULATIONS to the women listed below for their meritorious achievements.

LISA MANTINI, an associate professor at Oklahoma State University, has won the top postdoctoral award, the Founder's Fellowship, from the AAUW; she was chosen from among 200 applicants. She will use the \$25,000 scholarship to supplement her sabbatical income next year.

Bernadette H. Perham and Rebecca L. Pierce, Ball State

Sloan Fellowships were awarded to several women in the fields of mathematics and computer science this year (1994 is the first year that computer science has been included in the program). The Fellows, selected on the basis of their exceptional promise to contribute to the advancement of knowledge in their fields, are: VERA SERGONOVA, mathematics, Berkeley; MARGO SELTZER, computer science, Harvard; BONNIE J. DORR, computer science, Maryland; EVE A. RISKIN, computer science,

Washington; and CLAUDIA NEUHAUSER, mathematics, Wisconsin.

JOAN S. BIRMAN, professor at Barnard College, Columbia University, has received a 1994 Guggenheim Fellowship for her work in progress, "An algorithmic solution to the knot problem."

NANCY FLOURNOY was elected a 1993 Fellow of the American Association for the Advancement of Science.

WORKSHOP FOR WOMEN GRADUATE STUDENTS AND POSTDOCTORAL MATHEMATICIANS

Over the past five years, the Association for Women in Mathematics, with funding from the National Science Foundation and the Office of Naval Research, has held a series of workshops for women graduate students and postdoctoral mathematicians (postdocs) in conjunction with major mathematics meetings. The next workshop in the series will be held in conjunction with the AMS-MAA Joint Mathematics Meetings in San Francisco, January 4–7, 1995. The workshop will be held on Saturday, January 7, 1995.

We invite graduate students to present posters on their thesis problems and postdocs to present talks on their research. AWM will offer funding for travel and two days subsistence for up to ten women graduate students and ten women postdocs to participate in the workshop. Participants will have the opportunity to present and discuss their research and to meet with other women mathematicians at all stages of their careers. The workshop will also include a panel discussion on issues of career development, a luncheon, and a dinner banquet.

All mathematicians (female and male) are invited to attend the entire program even though only twenty women will be funded. Departments are urged to help graduate students and postdocs obtain some institutional support to attend the workshop and the meetings.

To be eligible for funding, graduate students must have begun work on a thesis problem; postdocs must have received their Ph.D. within approximately the last five years. All non-citizens must have a current U.S. address. All applications should include a curriculum vitae and a concise description of research; graduate students should include a letter of recommendation from their thesis advisor. Nominations by other mathematicians (accompanied by the information described above) are also valuable to the selection committee. Please send **five** copies of the application materials to the address below. Applications must be received by **October 15, 1994**.

Workshop Selection 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

COMPUTATIONAL MEDICINE SESSIONS ON WOMEN

The First World Congress was a *great* success. It was the first conference of its type dedicated to promoting the work that is being done using mathematics to better understand biology and medicine. Plans are already underway to hold the next one in two or three years. Out of approximately 400 attendees, 50 were women. Two sessions in particular dealt specifically with women's issues, and I will relate what transpired.

The first session showcased four young female mathematicians from different areas of mathematical biology. Two are working on their degrees, and two are recent Ph.D.'s: Ramit Mehr-Grossman (Los Alamos National Lab), "Modeling T Cell Selection"; Professor Zhanqing Zhuo (University of Minnesota), "Modeling Heart Disease"; Professor Dava Newman (Massachusetts Institute of Technology), "Modeling Human Movement in Space"; and Christina Kendzioriski (Marquette University), "Modeling Chemotherapy of Tumors." The talks were well received and gave good exposure to the individuals as well as their important research contributions.

The second session was divided in two parts. In the first, I gave a brief overview lecture on the history and current trends of women in science, with particular focus on mathematics and mathematical biology. This was then followed by a panel discussion on the role of women in mathematical biology. The members of the panel, both junior and senior researchers, were Betty Tang, professor, Arizona State University; Carlos Castillo-Chavez, professor, Cornell University; Avidan Neumann, postdoctoral student, Santa Fe Institute; and Ramit Mehr-Grossman, Ph.D. candidate, Weizmann Institute and Los Alamos National Laboratory. The panel addressed several questions including the following: Why are so many women attracted to mathematical biology? Is it the encouragement of strong mentors? How can we encourage women to pursue degrees in mathematics and, in particular, biomathematics?

Quite a lively discussion ensued for an hour and a half. As is common the audience included mostly women, but, perhaps not surprisingly, men carried most of the discussion. The fact that the women in the audience were mostly junior scientists was

remarked on by Ramit Mehr-Grossman: "... this makes it less surprising I think — but defines the audience that will listen!"

Some of the issues raised by the audience dealt with the traditional role of women as sole child caretakers, the two-body problem, difficulties with funding, lack of role models/mentors, and finally, whether it is important or not that women reach parity in *all* scientific fields.

Terms coined by the male participants during the discussion were "theoretical feminist" (a male who knows and supports women's issues in theory) and "experimental feminist," the latter by A. Neumann. He defines it this way: "... since I can not be a real feminist 'in vivo' I am not really able to know and feel the problems that female feminists encounter. However, living with a person who is a female and whom I believe should have the same rights and possibilities as I do, I *experiment* with various ways of living in order to make feminism come true."

Problems exist, but few could think of feasible ways of addressing them. Some felt that serious changes were taking place while others felt change was stagnant. The difference between "leaks" and "blockages" in the "pipeline" were highlighted by a few. The glass ceiling is evident, and the old boy network seems quite resilient to change.

Education and dialog about women's issues need to be fostered at all professional meetings as a vehicle for promoting innovative ideas and leadership.

CALL FOR PAPERS

The 1997 Yearbook of the National Council of Teachers of Mathematics, *Multicultural and Gender Equity in the Mathematics Classroom: The Gift of Diversity*, will provide a vision of how research and practice can ensure a powerful mathematics program for all students regardless of their gender, race, ethnicity, or socioeconomic situation. To obtain a copy of the manuscript guidelines, contact: Margaret J. Kenney, Mathematics Institute, Boston College, Chestnut Hill, MA 02167; (617) 552-3775. Manuscripts are due by February 15, 1995.

Denise Kirschner, Department of Mathematics,
Vanderbilt University

BOOK REVIEW

Claudia Zaslavsky. **Fear of Math: How to Get Over It and Get On with Your Life.** Rutgers University Press. ISBN 0-8135-2090-8 (cloth); 0-8135-2099-1 (paper).

Math anxiety is a worrisome construct. For some, it appears to be a debilitating disease, to which people with two X chromosomes are peculiarly susceptible. Many think there's no cure, hence sufferers can't possibly learn mathematics.

Even if you aren't a believer in math anxiety or you just wish that some other term were in use, the fact remains that a lot of people dislike, avoid, or aren't interested in mathematics. Many students in math courses seem to view them as experiences to be endured rather than enjoyed. In 1991 only about one percent of college-bound high school seniors expressed an interest in becoming math majors (the corresponding percentages for engineering, education, and social science were 10, 8, and 12).¹ A study of over 800,000 students who entered college in 1987 found that about 62 percent of those who had begun as math majors had switched to another major.²

If fear, dislike, and avoidance of math is a disease, it's not monitored by a Center of Disease Control, and research programs for its prevention are not well known. However, research exists which has implications for this condition. Many responsible individuals take care not to spread it, and some are even working on prevention and cure. And there are the sufferers, current and former. *Fear of Math* draws research and the views of educators, students and former students together to give an understanding of the ways in which dislike and fear of mathematics originate and the ways in which it can be cured or prevented.

Zaslavsky's approach is, as she says at the beginning of the book, to show to math fearers and avoiders that they are not to blame for their negative feelings about math. One of the unique features of this book are excerpts from "math autobiographies" written by people ranging in age from fourteen to sixty-eight, from many different racial, ethnic, and socioeconomic backgrounds, men as well as women, those who have overcome fear and dislike of math as well as those who haven't. One of

those people, Mary Jo Cittadino, found that mathematics affected many aspects of her life: her feelings, her education, her job, and her family. The first eight chapters of the book begin with excerpts from her math autobiography.

It may be hard to imagine just how much of an obstacle math can be. We all know about students who don't want to take more math or any math in college. But, like not being able to read, lacking confidence in one's mathematical ability can be a major problem in everyday life. Here is an excerpt from Cittadino's math autobiography:

[S]omething happened at the checkout counter of the grocery store. The bill seemed too high, but I was afraid to question for fear of being wrong and, therefore, humiliated. When I got home, I checked each item against the cash receipt and discovered I'd been charged \$12 for three quarts of milk. I had to make a special trip back to the grocery store. Enough was enough. I had to change.

Some people, especially mathematicians, may find this hard to understand. Why should it be humiliating to make an arithmetic mistake at the grocery store? I make arithmetic mistakes all the time and don't worry too much about it. Attitudes which underlie the idea that it's humiliating to make an arithmetic mistake—or any mathematical mistake—can be created and reinforced in a number of different ways.

Most people get much of their mathematical experience in elementary and high school—and many also begin the experience of avoiding math there. The reasons are complex and interwoven. Teacher interactions with students, teaching methods, tracking, placement practices, standardized testing, cultural differences, sexism and racism play important roles. Zaslavsky provides examples illuminating the research on these subjects. For instance, she gives an example of a dialogue between a Native American student and a teacher from another background which illustrates how different their assumptions about school are. Cittadino's educational experiences were also intertwined with her background.

It was characteristic of my parochial education to be discouraged—actively discouraged—from questioning. Starting with religion first thing in the morning, we were to accept what we were

Reviewed by Cathy Kessel, Book Review Editor, 2520 Etna, Berkeley, CA 94704

told. How did this affect math learning? There was one right way to do things, one right way to think....

Families can also play an important role. Zaslavsky recounts some wonderful stories of parents teaching and encouraging their children. When she was four and a half, the mathematician Patricia Kenschaft's father used dishes to demonstrate that the ratio of the circumference of a circle to its diameter was constant. By the time she was in second grade her mother had taught her, among other mathematical things, how to determine the area of a triangle. Families can also help to discourage their children. I once tutored a boy whose mother thought he didn't have a "math mind." It wasn't terribly surprising to me that he was having a hard time doing his homework.

Underlying notions like "math mind," the way math is taught, and how families view their children's mathematics education are beliefs about what mathematics is, how it is learned, and who is capable of learning it. These beliefs reinforce and are reinforced by standardized tests such as the SAT which many people view as a measure of mathematical ability. Some of the myths which the SAT helps to reinforce are: women and African Americans aren't good at math, Asians are good at math, there is always one right answer to a mathematics problem, it's important to answer a mathematics problem quickly. The SAT also has practical implications; it is used for college admissions and scholarship decisions. Zaslavsky discusses research on the SAT and what its impact has been (or sometimes unfortunately not been) in the media, on individuals, and on policy.

Though *Fear of Math* is directed to mathematics fearers, mathematicians might benefit from its discussion of current thinking and research on the sociocultural aspects of mathematics. It should also benefit students. Many of my students are not sanguine about their mathematical ability. Sometimes I loan them *Winning Women Into Mathematics*, *Relearning Mathematics*, or *They're Not Dumb, They're Different* or talk to them about some educational research which has a bearing on their particular worries. They gain confidence when they discover they are not unique in their responses to mathematics. Some find it helpful to reflect on their experiences of and ideas about math. Many of the wide variety of ingredients which I've found helpful to students are contained in *Fear of Math*.

In case you were wondering, Mary Jo Cittadino's math avoidance story has a happy ending.

... I finally had an opportunity to devote my time in a meaningful and productive way to learn the mathematics that I'd never studied in high school.... The experience of doing and thinking mathematically has provided me with skills which transcend the discipline of mathematics. It has also resulted in my seeking out and enjoying mathematical challenges. (Who would ever have thought I could or would say that?!) The more you do, the more you learn.

She is now a mathematics educator.

Notes

1. National Science Foundation. (1992). *Women and minorities in science and engineering: An update*. Washington, DC: National Science Foundation.
2. Seymour, Elaine & Hewitt, Nancy. (1994). *Talking about leaving: Factors contributing to high attrition rates among science, mathematics and engineering undergraduate majors*. Final report to the Alfred P. Sloan Foundation on an ethnographic inquiry at seven institutions.

THE ADA PROJECT

The Ada Project (TAP) is a WorldWideWeb (WWW) site designed to serve as a clearinghouse for information and resources relating to women in computing. The WWW is host to a wealth of scattered information on women in computing. The goal of TAP is to provide a central location through which these resources can be "tapped." TAP includes information on conferences, discussion groups and organizations, projects, fellowships and grants, notable women in computer science, and other electronically accessible information sites. TAP also maintains a bibliography of references.

TAP serves primarily as a collection of links to other online resources, rather than as an archive. We hope that you, the TAP user community, will help us keep TAP as up-to-date as possible. We also welcome your comments and feedback regarding use of the site. TAP pages include "submission" and "feedback" icons to aid in the sending of information and comments.

To access TAP, use Mosaic (or another WWW viewer) to open the URL: <http://www.cs.yale.edu/HTML/YALE/CS/HyPlans/tap/tap.html>.

STUDENT RATINGS OF PROFESSORS ARE NOT GENDER BLIND

Student ratings of professors may be biased against women in subtle but significant ways. This is not the result reported by most field research, however, as Peter Seldin has noted ("The Use and Abuse of Student Ratings of Professors," *Chronicle of Higher Education*, July 2, 1993). The typical study finds that the average rating of all male instructors does not differ significantly from the average of all female instructors at most colleges. This is a very reassuring finding; it is also deceptive because most studies ignore the gender of the students doing the evaluations, the disciplines involved, and the fact that female professors are often judged on a double standard.

Researchers who consider the gender of the rater find a more complex pattern. The ratings of male professors are unaffected by student gender, but female professors frequently receive lower ratings from their male students and higher ratings from their female students. Female professors also appear to be evaluated according to a heavier set of expectations than are male professors, and these expectations affect student ratings.

Research conducted at Lafayette College, a small liberal arts institution in Pennsylvania, demonstrates these complexities. In one study (Basow and Silberg, 1987), 16 female professors were matched with a male professor in the same division, at the same rank, and with the same number of years at the college. More than 1,000 students in classes taught by these 32 professors filled out two questionnaires. One was a standard student rating form consisting of 26 questions, summarized into five factor scores (scholarship, organization/clarity, instructor-group interaction, instructor-student interaction, and dynamism/enthusiasm) and an overall rating. The second (the Bem Sex Role Inventory) asked students to rate their professor on two sets of personality traits: instrumental (such as assertive or dominant), often viewed as "masculine," and expressive (such as warm or nurturant), often considered "feminine."

The results revealed a consistent pattern. On all five factor scores and the overall rating, male students rated female professors more negatively than they rated male professors — and generally more

negatively than did female students in the same class. This type of interaction between the gender of the student and the gender of the professor has been found in laboratory research, but less frequently in field studies, which typically neglect to ask the gender of the student rater or fail to match professors on important variables like rank and discipline.

More recent research conducted at Lafayette College confirms the effect of gender variables on these evaluations. A study of student ratings of all professors in all classes over four years reveals that male faculty were evaluated similarly by their female and male students on virtually all questions, but female faculty were evaluated differently by their male and female students — especially female faculty in the humanities and social sciences, and particularly on certain questions.

In general, female faculty received higher ratings on questions addressing interactions with students (for example, "treats students with respect"), but female students rated female faculty even higher than did male students. On questions tapping teaching style (such as, "speaks in an appropriate manner"), female faculty tended to be rated higher than their male counterparts by their female students but lower by their male students.

Few college promotion and tenure committees look at responses to specific questions, however. They usually just review the overall rating, which appears on the surface to be unaffected by teacher gender. However, when we examined student gender and course division (humanities, social sciences, natural sciences), we found that teacher gender affected student responses regarding overall effectiveness. Male students tended to rate female faculty lower, while female students tended to rate female faculty higher on this question, especially in the humanities and social sciences. Thus, certain women professors may indeed receive ratings affected by their gender.

How should we interpret these findings? First we must understand that in college teaching, males are the norm. Men are professors, women are women professors. Thus women are marked for gender in ways men are not. Indeed, students appear to respond to male professors in a uniform manner,

Susan A. Basow, Psychology Department, Lafayette College, Easton, PA 18042-1781, (610) 250-5294, BS#1@lafayacs.bitnet, BS#1@lafibm.lafayette.edu; © 1994 by Susan A. Basow.

regardless of their own gender. Students respond differently to female professors, however, perhaps because women faculty are still a minority (less than 30% of all full-time faculty are women).

Furthermore, stereotyped expectations of women (for example, to be nurturant and warm) overlap very little with expectations of professors (for example, to be knowledgeable and competent). However, stereotyped expectations of men coincide with what we expect of professors.

Research documents that people who violate expectations generally are rated more negatively than people who behave as expected. To receive good evaluations, male professors simply must demonstrate their competence and knowledge; that is, they need to fulfill their stereotypical gender role expectations. But female professors bear a double burden: they must fulfill both their gender role by being nurturant and warm, as well as their professional role by being competent and knowledgeable.

For example, separate studies led by Sheila Bennett and Anne Statham found that women professors are judged more negatively than males if they are not more interested in and available to students than male professors. But even when women professors are more available and more helpful, their overall ratings are no higher. In order to receive comparable ratings, female professors need to do more than their male counterparts. Thus, findings of no difference between male and female professors in overall ratings may mask the fact that different standards are being used to judge male and female faculty.

In the Basow and Silberg study, female faculty who received low ratings on instructor-student interaction also got low marks on gendered personality traits, suggesting that they may not have fulfilled the double set of expectations placed upon them. In the more recent research, the higher ratings of female faculty on several interpersonal questions did not always translate into better overall ratings, especially when the rater was male. Again it seems that in order to receive comparable overall ratings, women professors must be better interpersonally when compared to their male counterparts.

Why do male students tend to rate certain female faculty more poorly than male faculty? Male

students may be more influenced by gender stereotypes than are female students. Research documents that men, compared to women, hold more traditional attitudes toward gender roles and demonstrate more bias against gender-role violators. In the Basow and Silberg study, males majoring in business and economics or in engineering rated female faculty most negatively. We found that those students have the most traditional attitudes toward women and gender roles.

Ratings may also reflect gender differences in preferences regarding teaching style. Female students may appreciate a warmer and more involved interpersonal style, as perhaps found in their female teachers, whereas male students may appreciate a cooler interpersonal style but more displays of scholarship, as perhaps found in their male teachers.

The effects of gender on student ratings of professors are complex but real, and should not be dismissed with a general statement of "no effect." Although small on average, these effects may be quite marked for specific teachers. For instance, a female teacher whose direct teaching style lacks marked warmth or friendliness may find the cards stacked against her when teaching male students in a field where women are a rarity.

Studies at a wider range of institutions will help scholars better understand how and when gender factors affect student ratings, particularly teacher gender in interaction with both student gender and divisional affiliation. Until then, those of us who evaluate female faculty must be alert to the various and subtle ways in which gender bias can affect perceptions and evaluations.

Student ratings of professors may be biased against women in subtle but significant ways.

References

- Basow, Susan A. (1994). "Student evaluations of college professors: When gender matters." Manuscript in preparation.
- Basow, Susan A., and Silberg, Nancy T. (1987). "Student evaluation of college professors: Are female and male professors rated differently?" *Journal of Educational Psychology*, 79 (3), 308-314.
- Bennett, Sheila. (1982). "Student perceptions of and expectations for male and female instructors." *Journal of Educational Psychology*, 74, 170-179.
- Statham, Anne, Richardson, Laurel, and Cook, Judith. (1991). *Gender and University Teaching: A Negotiated Difference*. SUNY Press.

WORKSHOP PARTICIPANTS

The NSF-ONR Workshop was a full-day event on July 24 in San Diego, full of mathematical excitement and ending with a well-attended dinner.

The postdocs and their talks were:

Ditza Auerbach, University of Maryland
"Controlling Chaos in Spatially
Extended Systems"

Suncica Canić, Iowa State University
"Multidimensional Wave Interactions"

Regina B. Cohen, Villanova University
"A Chacon R^2 Action and Minimal Self Joining"

Cristina L. Draghicescu, University of Houston
"Numerical Evaluation of the Fractal
Dimension for Vortex Sheets"

Mary Ann Horn, University of Minnesota
"Boundary Control of a Schrödinger
Equation with Nonconstant Principal Part"

Marianne Huebner, Tufts University
"Parameter Estimation for Stochastic
Partial Differential Equations"

Mary Catherine A. Kropinski, Courant Institute
"A Hybrid Asymptotic - Numerical Method for
Calculating Low Reynolds Number Flow Past
Symmetric Cylindrical Bodies"

Tong Lee, University of Hawaii
"Small Sample Condition Estimator for
Rank-1 Modifications"

Erding Luo, UCLA
"Multigrid Methods for Partial Differential
Equations with Oscillatory Coefficients"

Xiaobai Sun, Argonne National Laboratory
"A Basis-Kernel Representation of Orthogonal
Matrices"

The graduate students and their poster presentations were:

Alessandra Chiareli, Northwestern University
"The Modeling of Compositional Stratification
during a Solidification Process Such As
Casting"

Silvia Crivelli, University of Colorado
"A Programming Paradigm for
Distributed-Memory Computers"

Zhilan Feng, Arizona State University
"Multi-annual Outbreak of Childhood Diseases
Revisited: The Possible Effect of Isolation"

Christina Kendzioriski, Marquette University
"Mathematical Optimization of Ovarian
Cancer Therapy"

Sandra Kingan, Louisiana State University
"Structural Results for Matroids"

Yi Li, Pennsylvania State University
"Analyticity of Solitary-wave Solutions of the
Full Euler Equations and Model Equations for
Long Waves"

Ramit Mehr, Los Alamos National Laboratory
"Nonlinear Interactions in T Cell Development"

Perla Myers, University of California-San Diego
"Walks on the Heisenberg Group"

Gowri Ramanathan, Oregon State University
"Fault-tolerance of Multiprocessor Systems"

Rebekah Valdivia, Washington State University
"A Nonlinear Diffusion - Elimination Model of
Transdermal Drug Delivery"

FAMILY MATH NEWSLETTER

Family Math is a popular program run by EQUALS, Lawrence Hall of Science, University of California, Berkeley. FM was designed to encourage more girls and minority students to enter fields that use math and science. The idea is to show parents how they can have fun doing math games and activities with their children. There are now about 500,000 people doing FM around the world, with sites in most states and in many other countries where people can learn how to become FM leaders.

We have just started an electronic newsletter for people involved in *Family Math*. To subscribe, either send a note to LISTSERV@UICVM with contents Sub fam-math <yourname> or send a note to editor Steve Jordan (Department of Mathematics, Statistics, & Computer Science, 851 S. Morgan, m/c 249, University of Illinois at Chicago, Chicago, IL 60607; email: jordan@uic.edu; phone: (312) 996-2439; fax: (312) 996-1491) requesting that you be registered as a subscriber. If you would like a copy of issue 1 of fam-math, please ask.

Co-editors are Laurie Braga and George Yanos.

THE WOMEN AND GENDER IN SCIENCE QUESTION

The connections between research on women and science and research on science and gender will be explored at a conference to be held May 12–14, 1995 at the University of Minnesota. The conference will bring together historians, philosophers, sociologists, scientists, teachers, and others interested in current research on women and gender in science. Presenters will include scholars who recognize that women have engaged in science and technology throughout history and seek to understand how women's participation has been undertaken and understood, promoted and discouraged, and envisioned and realized. It will also involve researchers who explore how women's absence and the dominance of men in science has had an impact on the processes and outcomes of scientific experimentation and theorizing.

Conference themes will include women's contributions to the advancement of the sciences; the personal and external factors that empowered them or inhibited their achievements and satisfaction in science; the interactions of race, gender, and social class in shaping women's experiences in the sciences; characteristics and processes of scientific activities that have been influenced by ideas about sexual identity, sexual difference, and the language and culture of science; the representation of males, females, and sexuality in scientific theory; the role of gendered images and metaphors in scientific theorizing; and the relationship between gender and conceptions of knowledge.

Conference commentators and respondents will include eminent scholars in these areas. The conference is supported in part by the Science and Technology Studies Program, the Women in Science and Engineering Initiative of the Commission on Women, the Center for Advanced Feminist Studies, and other parts of the University of Minnesota.

Proposals must include two copies of a two-page abstract and a short curriculum vitae. Proposals may be submitted jointly to be presented as a panel. An abstract and vitae are required for each panel member. Proposals are due by **September 10, 1994**. If you have any questions or would like to be put on the mailing list to receive the conference brochure, please contact Lori Graven: phone: 612-625-9023, email: lgraven@maroon.tc.umn.edu, fax: 612-626-

1632. Conference materials will be available after January 1, 1995.

Send proposals to: Women and Gender in Science Conference, Professional Development and Conference Services, University of Minnesota, 216 Nolte Center, 315 Pillsbury Drive SE, Minneapolis, MN 55455-0139.

MWIS NETWORK

The National Network for Minority Women in Science (MWIS) is a communication and support system for minority women in science and engineering as well as others who share an interest in promoting the participation of this underrepresented group in science and engineering professions. The mission of MWIS is to provide minority female students with full access to career information and educational opportunities and to promote the professional advancement of minority women scientists and engineers. A secondary aim of the Network is to use the scientific and technical knowledge of its members to enhance the understanding of science and the educational policymaking capacity of minority communities.

MWIS has a national chairperson, a national coordinator, local chapters in five cities, and an advisory panel that consists of the chapter presidents. Local and regional networks provide the most viable mechanism for influencing public policy and affecting the lives of the students. Through research and writing, public speaking, local intervention, and service programs, the members of MWIS work individually and through the local chapters to accomplish its mission. The National Network of MWIS maintains membership records, produces a quarterly newsletter and an annual report for its members, and convenes an annual meeting in conjunction with AAAS. The Network also provides a means through which a variety of organizations and numerous universities may reach MWIS members and involve them in special activities or inform them of professional opportunities.

For more information about MWIS membership, or to renew ties with the MWIS National Office, contact Gloria Gilbert, MWIS National Coordinator, 1333 H Street, NW, Box SEN, Washington, DC 20005; (202) 326-6670.

HOLIDAY SYMPOSIUM

The Mathematical Sciences Department at New Mexico State University will host its Twenty-First Holiday Symposium, December 27–31, 1994. The subject of this symposium is Grobner Bases and Convex Polytopes, and the main speaker will be Professor Bernd Sturmfels, Cornell University.

Professor Sturmfels's ten lectures will give an introduction to Grobner bases and their relationship to toric varieties and convex polytopes. Considerable emphasis will be placed on recent applications in integer programming and computational statistics.

The lectures will be at a level suitable for graduate students wishing to learn this subject. In addition to the ten lectures by Professor Sturmfels, there will be a contributed paper session.

We hope to be able to provide partial financial support to some participants. Graduate students, women and members of ethnic groups underrepresented in U.S. mathematics are especially encouraged to apply.

Direct inquiries to: Reinhard Laubenbacher, Department of Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003; (505) 646-3901; e-mail: holiday@math.nmsu.edu.

BUNTING FELLOWSHIPS

The Mary Ingraham Bunting Institute of Radcliffe College is a multidisciplinary research center for women scholars, scientists, artists, and writers and is one of the major centers for advanced study in the United States. Various fellowships are available. Residence in the Boston area and participation in the Institute community are required during the fellowship appointment. Fellows are expected to present their works-in-progress at public colloquia or in exhibitions.

Funded fellowships are awarded in the Bunting Fellowship Program (\$33,000; six to ten awarded; about 600 applicants), the Science Scholars Fellowship Program (\$34,200 plus \$3,000 in research expenses; eight awarded), and the Biomedical Research Fellowship Program (\$34,200 plus \$3,000 in research expenses; two awarded). Unfunded

fellowships are also available (ten to twenty awarded; about 100 applicants). Funded fellowships are for one year, September 15, 1995 through August 15, 1996; applications must be postmarked by October 15, 1994. Unfunded fellowships run for either the full year or for one semester; applications must be postmarked by January 15, 1995.

More information and application forms are available from: The Mary Ingraham Bunting Institute, Radcliffe Research and Study Center, 34 Concord Ave., Cambridge, MA 02138; (617) 495-8212.

CORRECTION

In the correction in the March–April 1994 issue, the name should be Richard Varga, not Vargas. Also, in the article on Olga Taussky Todd in the September–October issue, her birthplace should be given as in Moravia, not Bohemia.

BRIEF NOTES

Family Math inservice prepares parents and professional educators to establish and conduct *Family Math* classes in their communities. A session in English will be held January 24–25, 1995 (application deadline: December 2, 1994); a session in Spanish will be held October 11–12, 1994 (application deadline: September 12, 1994). Both sessions will be held 8:45 A.M. to 3:00 P.M. at Lawrence Hall of Science. For more information and application forms, contact: *Family Math*, Lawrence Hall of Science, University of California, Berkeley, CA 94720; phone: (510) 642-1823; fax: (510) 643-5757.

MO1FEM is short for "Mouvement international pour les femmes et l'enseignement des mathématiques." It is the Quebec section of IOWME (International Organization for Women and Mathematics Education). For more information, write: MO1FEM, Case postale 1443, succursale B, Montréal, Québec, H3B 3K9.

AMS CENTENNIAL CELEBRATION



Alice T. Schafer and Bettye Anne Case



Jean E. Taylor and Dirk J. Struik



Lee Lorch and Bettye Anne Case

KOVALEVSKAIA FUND IN PERU



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Cora with student reporters



School principal Ruth Nareda, Lourdes Granda, Ann Hibner Koblitz, schoolboy, Neil Koblitz
Cora Sadosky, Cecilia Yshii Tamashiro, schoolgirl, incoming president of the
Peruvian Mathematics Society, school Managing Director Felix Maldonado

ADVERTISEMENTS

BROWN UNIVERSITY - MATHEMATICS DEPARTMENT - J.D. Tamarkin Assistant Professorship. Three-year appointment, beginning July 1, 1995. Competitive salary. Applicants (regardless of age) should have received the Ph.D. degree before the start of the appointment, but no earlier than January 1, 1993, have a strong research potential, and have a commitment to teaching. Field of research interest will be taken into account. A curriculum vitae, a completed application form, and three letters of recommendation should be received by December 31, 1994. Requests for application forms and all other inquiries should be addressed to: **Tamarkin Search Committee, Department of Mathematics, Brown University, Box 1917, Providence, RI 02912.** Brown University is an Equal Opportunity/Affirmative Action employer.

COLBY COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Carter Professor of Mathematics and Computer Science - Colby invites nominations and applications for Carter Professor of Mathematics and Computer Science, effective September 1, 1995. Necessary qualifications include: a Ph.D. in mathematics or computer science; a distinguished career as scholar and teacher; commitment to liberal arts, undergraduate mathematics and computer science education. The Carter Professorship is an endowed position for a nationally recognized scholar and teacher. The Carter Professor is expected to maintain a distinguished research program and provide research leadership for the department and the science division of the college, as well as teach undergraduate mathematics, statistics, and/or computer science classes and participate in the departmental programs. The Professorship includes funds for research and travel. Colby is a highly selective college of 1,700 students and 165 faculty. Its Department of Mathematics and Computer Science has 9 full-time and 2 part-time faculty members who are active researchers and teach courses in mathematics, computer science, and statistics. Normal annual teaching load is five courses, one of which may be during the January Program. Colby is an AA/EO employer and encourages applications from women and minorities. The campus of 700 acres is on the outskirts of Waterville, a city of 20,000. Waterville is located on the Kennebec River in an area of lakes, forests, and farms. Mountains (including Saddleback and Sugarloaf ski areas) and seacoast (including Acadia National Park) are within a two-hour drive. Boston is approximately a three-hour drive. Send nominations or applications in hard copy to: **Dale Skrien, Chair, Department of Mathematics and Computer Science, Colby College, Waterville, ME 04901 (djskrien@colby.edu).** Review of applications will begin on October 15, 1994, and will continue until the position is filled.

COLBY COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - We have two tenure-track openings at the assistant professor level, commencing September 1, 1995. Ph.D. required. The salary is competitive, and based on experience. Colby is a small, private, highly selective liberal arts college located in central Maine. The student body numbers some 1,700, the faculty 165. The Department of Mathematics and Computer Science currently numbers nine full time and two part time, all of whom have the Ph.D. We have major and minor programs in mathematics and computer science. We are a young, active department, which places a high value on both teaching and research. The annual teaching load is 5 courses. The largest class size is 30. For one of the openings, we prefer someone with a pure mathematics background. For the other position we prefer someone with a strong computer science and mathematics background. Candidates who are able to demonstrate excellence in teaching are likely to be ranked higher in our selection process. Colby actively encourages applications from women and minority candidates. We are an EO/AA employer. Review of applications will begin on December 10, 1994, and will continue until the positions are filled. Send a letter of application and a current curriculum vita in hard copy to: **Dale Skrien, Chair, Department of Mathematics and Computer Science, Colby College, Waterville, ME 04901 (djskrien@colby.edu).** Also, arrange for three letters of reference to be sent to the same address. These letters should deal with both your research and your teaching abilities.

COLGATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Colgate University invites applications for one and possibly two assistant professorships in mathematics, at least one of which will be tenure-track. A Ph.D. is required, and all fields of specialization are welcome. Colgate is a highly selective liberal arts college with 2,700 students. Faculty members normally teach 5 semester-courses per year, and are expected to maintain an active program of original research. Applicants should send vita and three letters of recommendation by January 2, 1995 to: **The Hiring Committee, Department of Mathematics, Colgate University, Hamilton, NY 13346.** Colgate is an equal opportunity, affirmative action employer. Applications from women and minorities are encouraged.

CONCORDIA UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The department invites applications for a tenure-track appointment in Mathematics Education. The appointment is to support its Master in the Teaching of Mathematics, a programme aimed at increasing the professionalism of teachers. Applicants must have a doctorate in Mathematics or in Mathematics Education with a strong mathematics background. A proven record of research in Mathematics Education with preference given to research dealing with epistemological issues and conceptual difficulties at the university or upper-secondary level is also essential. The position requires: (1) Teaching graduate courses in mathematics education and undergraduate courses in mathematics, (2) Direction of graduate students in mathematics education, (3) Continued scholarly research activity in mathematics education. The appointment commences on August 15, 1995. Candidates should send a curriculum vitae and arrange for three letters of recommendation to be sent prior to December 1, 1994 to: **Dr. M. Belinsky, Chair, Department of Mathematics and Statistics, Concordia University, 7141 Sherbrooke St. W., Montreal, Quebec, Canada, H4B 1R6.** Concordia University is committed to Employment Equity and encourages applications from women, aboriginal peoples, visible minorities and disabled persons. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.

THE GEOMETRY CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS - Postdoctoral Research and Training Fellowships - The Geometry Center is the NSF Science and Technology Research Center for Computation and Visualization of Geometric Structures. The Center has created a unified mathematics computing environment supporting math and computer science research, mathematical visualization, software and tool development, application development, video animation production, and K-16 math education and outreach. Up to three fellowships will be awarded for the academic year 1995-96. They are for one year with the possibility of a one-year renewal by mutual agreement. Remuneration will be \$40,000/twelve months if there is not other support. Applicants are expected to demonstrate a high level of research accomplishment in mathematics or computer science, and to be at home in a computing environment. Postdocs are expected to maintain a vigorous program of independent research. They are also expected to participate fully in the life of the Center, that is, to participate in activities in a combination of research, technology development, education and outreach. To apply: send a vita; a summary of research accomplishments; documentation of computing experience; a research plan, indicating plans to make use of computing and graphics resources; and three references who are familiar with your work and whom you have asked to send letters of recommendation. Applications from underrepresented groups are specifically encouraged. Application materials should be sent by December 31, 1994, preferably by e-mail to: **postdoc_appl@geom.umn.edu** or by surface mail to: **Postdoc Applications, The Geometry Center, University of Minnesota, Suite 500, 1300 South Second Street, Minneapolis, MN 55454.** The University of Minnesota is an Equal Opportunity Educator and Employer.

***Profiles of Women in Mathematics:
The Emmy Noether Lecturers booklet
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ADVERTISEMENTS

HARVEY MUDD COLLEGE - DEPARTMENT OF MATHEMATICS - Senior Position in Applied Mathematics - The department invites qualified candidates who can provide leadership in applied mathematics to apply for a senior position, which will begin July 1, 1995. The successful candidate will be eligible for appointment to the rank of associate or full professor, and is expected to assume a term as department chair in the near future. The anticipated hiring of several new faculty members over the next five years will give the successful candidate a unique opportunity to have a strong hand in shaping the department. Applicants should have an earned doctorate or equivalent, strong administrative skills, an established record in research, and a commitment to excellence in teaching, research, and other scholarly activities. Candidates in all areas of applied mathematics will be considered. Salary will be commensurate with experience and qualifications. Harvey Mudd College is a small, highly selective, privately supported institution with major programs in physics, chemistry, engineering, mathematics, biology, and computer science. About one-third of incoming students are National Merit Scholars. The curriculum emphasizes breadth in science and engineering with a commitment to studies in the humanities and social sciences. The program is rigorous and designed to prepare students for industry as well as graduate study. Change magazine reports that HMC was the first in the country in the percentage of its alumni who earn Ph.D.s. The college has an enrollment of 630 and is associated with four other undergraduate colleges and a graduate school in Claremont, forming an academic community of about 5,000 students. Faculty at HMC may also have an appointment to the graduate school faculty and can advise doctoral students in research. HMC has 11 mathematics and five computer science faculty and the Claremont Colleges combined have a total of 48 mathematics and computer science faculty. The department has an excellent network of both office and laboratory computer workstations. Harvey Mudd College is an affirmative action, equal opportunity employer. Minority and women candidates are especially encouraged to apply. Preference will be given to applications received by December 1, 1994. Applicants should be prepared to have three letters of reference sent upon request and send a curriculum vitae, a description of their research, teaching, and administrative experience, to: **Professor Robert Borrelli, Search Committee Chair, Department of Mathematics, Harvey Mudd College, Claremont, CA 91711.**

Haverford College - DEPARTMENT OF MATHEMATICS - Haverford College announces a continuing non-tenure track position at the assistant (or possibly associate) professor level in mathematics, beginning in Fall 1995. Teaching is concentrated on mathematics courses at the introductory and intermediate levels (calculus, linear algebra, differential equations, discrete mathematics, statistics). Other duties include the coordination of labs and support activities for those courses. Although the position is nominally 5/6-time, opportunities for additional teaching in related departments (such as computer science) may make it effectively full-time. Candidates should have substantial teaching experience at the college level, and professional involvement in areas such as curriculum development and mathematical pedagogy. The position is renewable on a 3-year term. Benefits are excellent. Applications should include a CV, statement of professional and pedagogical interests and experience, and three letters of recommendation. Send to: **Chair, Department of Mathematics, Haverford College, Haverford, PA 19041-1392.** The deadline is November 23, 1994. Late applications may be considered, but this cannot be guaranteed. Haverford College is an Equal Opportunity/Affirmative Action Employer, and women and minority candidates are strongly encouraged to apply.

INSTITUTE FOR MATHEMATICS AND ITS APPLICATIONS, UNIVERSITY OF MINNESOTA, MINNEAPOLIS - Program on Mathematical Methods in Materials Science. This is a one-year program with three parts: (1) FALL: September - December, 1995, Phase Transitions, Optimal Microstructures and Disordered Materials; (2) WINTER: January - March, 1996, Thin Films, Particulate Flows and Nonlinear Optical Materials; (3) SPRING: April-June, 1996, Numerical Methods and Topological Geometric Properties in Polymers. **POSTDOCTORAL MEMBERSHIPS:** All requirements for a doctorate should be completed by September 1, 1995. Applicants must show evidence of mathematical excellence, but they do not need to be specialists in the field. The following materials must be submitted (all material should arrive by January 13, 1995): (1) Personal statement of scientific interests, research plans, and reasons for wishing to participate in the Mathematical Methods in Materials Science program. (This is an essential part of the application.) (2) Curriculum vitae and a list of publications. (3) Three letters of recommendation, to be sent directly to the IMA. **SENIOR MEMBERSHIPS:** Preference will be given to supplementary support for persons with sabbatical leaves, fellowships, or other stipends. **POSTDOCTORATES IN INDUSTRIAL MATHEMATICS:** IMA announces at least 4 one-to-two year positions in Industrial Mathematics, effective September 1, 1995. 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 or Applied Mathematics by September 1, 1995. Familiarity with pde and/or numerical analysis and/or statistics is desired, but no knowledge in engineering is required. Postdoctorates will spend 50% effort working with industrial scientists on one of the following or related topics: (1) Signal processing and computational ocean acoustics; (2) Diffractive and nonlinear optics; Maxwell equations in periodic structure; (3) Computational fluid mechanics; (4) Scattering of electromagnetic waves from complex objects; (5) Magneto-optic recording media; the writing process; (6) Semiconductors; (7) Solid state physics & computational chemical physics; (8) Problems in mathematical photography; (9) Air quality modeling; (10) Control theory; (11) Imaging analysis; (12) Micromagnetics; (13) Near-infrared imaging; (14) Applied statistical information theory and data fusion; and 50% effort in the regular IMA program. Requirements and application procedure are the same as for the postdoctoral memberships listed above. The University of Minnesota is an equal opportunity educator and employer. The application forms are available via ima.umn.edu, goopher.ima.edu, <http://wwwiima.umn.edu> or call (612) 624-6066. All correspondence should be sent to either: **VISITING MEMBERSHIP COMMITTEE** or **INDUSTRIAL MATHEMATICS POSTDOCTORATE MEMBERSHIP COMMITTEE, Institute for Mathematics and its Applications, University of Minnesota, 514 Vincent Hall, 206 Church St., S.E., Minneapolis, MN 55455-0436.**

JOHNS HOPKINS UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - The Department of Mathematical Sciences at the Johns Hopkins University invites applications for an anticipated faculty position to begin in Fall 1995. The core areas of the Department are Discrete Mathematics, Matrix and Numerical Analysis, Operations Research and Optimization, and Probability and Statistics. Candidates with a strong background in one of these areas or in the area of numerical mathematics are encouraged to apply. We especially welcome applicants who can interact effectively with faculty and students in the School of Engineering, particularly in such thrust areas as information, biomedical, environmental, and materials sciences. A broad and outstanding mathematical background is essential. Applicants at all levels will be considered. Selection will reflect demonstration (for senior applicants) and promise (for junior applicants) of excellence in research, teaching and innovative applications. A Ph.D. degree is required. Applications in the areas of algebra, analysis, geometry, number theory, and topology will not be accepted by the Mathematical Sciences Department, which is distinct from the Mathematics Department. Minority and women candidates are encouraged to apply. The Johns Hopkins University is an affirmative action/equal opportunity employer. Applicants are requested to send initially only a curriculum vita with a cover letter describing professional interests and aspirations. Recommendation letters, transcripts, preprints and reprints are to be furnished only upon request. Please address applications to: **Faculty Search Committee, Dept. of Mathematical Sciences, The Johns Hopkins University, 220 Maryland Hall, Baltimore, MD 21218-2689.** Applications are requested by January 15, 1995.

MICHIGAN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department is seeking applicants for several tenure track positions; openings are available at various levels. Excellence in research and teaching is essential and two or more years beyond the Ph.D. is expected. Please send a resume and arrange to have three letters of recommendation sent to: **The Hiring Committee, Department of Mathematics, Michigan State University, East Lansing, MI 48824-1027.** E-mail: hiring@math.msu.edu. It would be helpful if resume included (if possible) electronic address. Applications received by December 1, 1994 will be given more attention. Women and minorities are strongly encouraged to apply. MSU is an Affirmative Action/Equal Opportunity Institution.

The **1994-95 MEMBERSHIP RENEWAL NOTICES** were mailed out in August to all institutional and individual members. The 1994-95 membership year is from OCTOBER 1, 1994 to SEPTEMBER 30, 1995. If you haven't received your renewal notice by mid-September, please contact us: 301-405-7892, awm@math.umd.edu

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MICHIGAN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - One or more postdoctoral fellowships in Mathematics. The appointment is for two years. Duties include teaching at most four (3 credit) semester courses each year with the expectation that the fellow will devote remaining time to research. These fellowships are normally offered to persons (regardless of age) who have had their doctorate less than two years. There will also be some instructor positions available. Please send a resume, a brief statement of research interests and arrange to have three letters of recommendation sent to: **The Hiring Committee, Department of Mathematics, Michigan State University, East Lansing, MI 48824-1027**. E-mail: hiring@math.msu.edu. Applications received by December 1, 1994 will be given more attention. MSU is an Affirmative Action/Equal Opportunity Institution.

NEW MEXICO STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - The department invites applications for tenure-track and visiting positions in pure and applied mathematics and statistics for academic year 1995-1996. The department has 32 tenure-track positions, and offers B.S., M.S. and Ph.D. degrees. New tenure-track appointments are expected to be at the assistant professor level. Applicants should demonstrate strong potential for success in both teaching and research. A complete application consists of an introductory letter from the applicant, a curriculum vita, and three or more letters of recommendation. The applicant's letter should identify research area and interest in tenure-track or visiting positions; letters of recommendation should address abilities in both research and teaching. For tenure-track positions, an applicant's letter and vita must be received by December 15, 1994 and other supporting materials must be received by January 9, 1995. Tenure-track appointments are made during the spring semester; visiting appointments are made as vacancies occur. Application materials should be sent to: **Hiring Committee, Department of Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003-8001**. NMSU is an Equal Opportunity/Affirmative Action Employer.

NORTHWESTERN UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for a newly created position of Lecturer in Mathematics starting in September 1995. This position carries a two course teaching responsibility in each of the three quarters of the academic year. The term of appointment will be for one year and will be renewable twice upon evidence of excellence in teaching. Candidates must present solid evidence of effective teaching and quality research. Teaching experience of at least two courses is expected, and teaching performance should be substantiated, if possible, by tabulated student evaluations. Send applications and three letters of reference to: **Chairperson, Personnel Committee, Department of Mathematics, Northwestern University, 2033 Sheridan Road, Evanston, IL 60208-2730**. Initial inquiries may be sent via e-mail to: hiring@math.nwu.edu. In order to receive full consideration, applications should be received by December 15, 1994. Northwestern University is an equal opportunity/affirmative action employer and encourages applications from minority and women candidates.

NORTHWESTERN UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Mathematics Department will sponsor an Emphasis Year in analysis/applied analysis. This program will include two two-year assistant professorship positions starting September 1995 and possible visiting positions for more senior mathematicians for part of the academic year 1995-96, contingent upon availability of funds. Applications should include a curriculum vitae and three letters of recommendation, and be sent to: **The Emphasis Year Secretary, Department of Mathematics, Northwestern University, 2033 Sheridan Road, Evanston, IL 60208-2730**. In order to ensure full consideration, an application should be received by January 15, 1995. 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 invited for an anticipated tenure-track assistant professor position starting September 1995. Priority will be given to exceptional research mathematicians. Fields of interest within the department include Algebra, Analysis, Dynamical Systems, Probability, Partial Differential Equations, and Topology. Northwestern is an affirmative action/equal opportunity employer committed to fostering a diverse faculty; women and minority candidates are especially encouraged to apply. Candidates should arrange that at least three letters of recommendation be sent to: **Prof. J. Sally, Chair, Personnel Committee, Department of Mathematics, Northwestern University, 2033 Sheridan Road, Evanston, IL 60208-2730**. Initial inquiries may be sent via e-mail to: hiring@math.nwu.edu. In order to receive full consideration, applications should be received by December 15, 1994. Hiring is contingent upon eligibility to work in the United States.

PURDUE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Purdue University invites applications for several tenure-track or two-year research assistant professorships beginning August 1995. Ph.D. by August 1995, exceptional research promise, and excellence in teaching required. Possible positions at the Associate Professor/Professor level beginning August 1995. Ph.D. and excellent research and teaching credentials required. Applicants should mention at least one Purdue faculty member with whom they expect to have common research interests. Preference will be given to completed applications received by December 15, 1994. Send resume and three letters of recommendation (for assistant professorships, at least one letter should discuss teaching) to: **Leonard Lipshitz, Head, Department of Mathematics, Purdue University, West Lafayette, IN 47907-1395**. Purdue University is an Affirmative Action/Equal Opportunity Employer.

STATE UNIVERSITY OF NEW YORK AT BUFFALO - DEPARTMENT OF MATHEMATICS - The Department of Mathematics anticipates the appointment of tenured or tenure-track faculty members beginning September 1, 1995. Salary will be competitive. We seek applicants in all areas with excellent research accomplishments/potential and a strong commitment to teaching. Applicants should send supporting information, including a C.V. with a list of research interests, and have four letters of recommendation sent to: **Search Committee Chairman, Department of Mathematics, SUNY at Buffalo, 106 Diefendorf Hall, 3435 Main Street, Buffalo, NY 14214-3093**. The deadline for applications is November 1, 1994. Late applications will be considered until positions are filled. SUNY at Buffalo is an Equal Opportunity/ Affirmative Action Employer. We are interested in identifying prospective minority and women candidates. No person, in whatever relationship with the State University of New York at Buffalo shall be subject to discrimination on the basis of age, creed, color, handicap, national origin, race, religion, sex, marital or veteran status.

UNIVERSITY OF CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - The UCLA Department of Mathematics invites applications for three or more tenure track positions in pure or applied mathematics. Exceptional promise in research and teaching is required. Positions are initially budgeted at the assistant professor level, but sufficiently outstanding candidates will be considered at higher levels. Specific search areas are: statistics; applied and computational mathematics; logic; geometry, topology and dynamical systems; analysis and differential equations; algebra, number theory and combinatorics; mathematical developments arising from physics. Teaching load is an average of 4.5 quarter courses per year. Positions subject to availability of resources and administrative approval. To apply, send electronic mail to: search@math.ucla.edu or write to: **John Garnett, Chair, Department of Mathematics, University of California, Los Angeles, CA 90024-1555, Attention: Staff Search**. UCLA is an Equal Opportunity/Affirmative Action Employer.

AWM ADVERTISING GUIDELINES

AWM will accept advertisement for the *Newsletter* for positions available, programs in mathematical sciences, and opportunities of interest to AWM membership and other appropriate subjects. All institutions and programs advertising in the *Newsletter* must be Affirmative Action/Equal Opportunity designated. The Association Administrator, in consultation with the Executive Director, President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. **RATES & DEADLINES** (Classified) - Ads are \$60 for the first eight lines. On ads over eight lines there is a \$6 charge for each additional line. Institutional members receive TWO free ads (up to 8 lines) for the membership year October 1st through September 30th. The *AWM Newsletter* is published 6 times a year with ad deadlines on the 1ST of every **EVEN** month. Please send ad copy to: **Dawn V. Wheeler, Association Administrator AWM, 4114 Computer & Space Sciences, Bldg. University of Maryland, College Park, MD 20742-2461 301-405-7892, awm@math.umd.edu** (For display ad rates, please contact the AWM Office.)

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UNIVERSITY OF PITTSBURGH - DEPARTMENT OF MATHEMATICS - The Department of Mathematics of the University of Pittsburgh invites applications for the position of Department Chairperson, beginning Fall 1995. Located in urban Pittsburgh, the University of Pittsburgh is a research university with approximately 10,000 graduate and 18,000 undergraduate students. The Department currently has 35 faculty members with research specialties including algebra, analysis, differential equations, differential geometry, discrete mathematics, foundations, mathematical biology, numerical analysis, scientific computing, and topology. Candidates should have research and teaching credentials consistent with a tenured appointment at the rank of full professor, as well as a commitment to aggressive promotion of excellence in research and teaching at all levels. Administrative experience is also desirable. Interested parties should contact: **Professor Charles Hall, Chairperson Search Committee, Department of Mathematics, University of Pittsburgh, Pittsburgh, PA 15260; hall@vms.cis.pitt.edu; (412) 624-8379.** Complete applications should include a curriculum vitae and the names and addresses of three references. For full consideration, inquiries should be received by October 15, 1994. Women and minorities are especially encouraged to apply. The University of Pittsburgh is an EO/AA employer.

UNIVERSITY OF TEXAS AT ARLINGTON - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for possibly two to three anticipated tenure-track positions beginning with the Fall Semester of 1995. We seek candidates in various areas of Mathematics which are complimentary to those of the current faculty and would enhance and support the goals of the Department. Application deadline is December 31, 1994, or until positions are filled. Salary and rank are commensurate with qualifications which must include the Ph.D. degree (in hand or expected by September 1995). Assistant Professor candidates must show strong potential or excellence on teaching and research. For an Associate or Full Professorial appointment the candidate must have excellent teaching credentials and a nationally established research record; some success in attracting outside funding is preferred. The University of Texas at Arlington does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veteran status in provision of educational opportunities or employment opportunities and benefits. The University of Texas at Arlington is an Affirmative Action/Equal Opportunity Employer. Please send a resume and three letters of recommendation to: **The University of Texas at Arlington, Department of Mathematics, Chairman, Recruiting Committee, Box 19408, Arlington, TX 76019-0408.**

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS - Williams College anticipates tenure-eligible position in mathematics or applied mathematics, beginning Fall 1995, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in both teaching and research is essential; a doctorate is required. Please have a vita and three letters of recommendation on teaching and research sent to: **Hiring Committee, Williams College, Department of Mathematics, Williamstown, MA 01267.** Evaluation of applications will begin November 15, 1994 and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS - Williams College anticipates visiting position for the 1995-96 year, probably full-time, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research, and doctorate expected. Please have a vita and three letters of recommendation on teaching and research sent to: **Visitor Hiring Committee, Williams College, Department of Mathematics, Williamstown, MA 01267.** Evaluation of applications will begin November 15, 1994 and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

YALE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications accepted for Gibbs Instructorships/Assistant Professorships for Ph.D.'s with outstanding promise in research. Two-year appointments starting July 1, 1995. Light teaching load. Applications and supporting materials must be received by January 1, 1995. Offers will be made during February. Salary at least \$39,500. Request applications from: **Ms. Teresa Bowen, Administrative Assistant, Gibbs Committee, Department of Mathematics, Yale University, P.O. Box 208283, New Haven, CT 06520-8283.**

1994 Membership Directory

Now Available!

The 1994 AWM Membership Directory is now available. The individuals and institutions included in the Directory are current members of the association who have agreed to be listed in the directory as of June 30, 1994.

Out of our 4,000 members the listing contains approximately 2,200 of those members (1,500 students, all institutional nominees, are not included.) The Directory is for the personal use of members only. It is designed to serve as a means of helping individuals to network with fellow mathematicians. Use for any other purpose(s) by or for others requires written permission from AWM.

How to Order: Single copies of this publication are available to MEMBERS for \$3.00 each (to cover postal charges). Available to NON-MEMBERS for \$8.00 each; multiple copies (five or more) are \$5.00 each.

Send to: Directory Orders, Association for Women in Mathematics, 4114 Computer & Space Sciences Bldg., University of Maryland, College Park, MD 20742-2461

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Program Officer

The Board on Mathematical Sciences of the National Research Council (NRC) seeks a dynamic individual as a full-time Program Officer to carry out strategic studies in disciplinary areas of the mathematical sciences, in interdisciplinary areas, and in education. Responsible for organizing and managing projects, assisting in identifying prospective committee members, establishing and maintaining liaison with researchers, policy makers, sponsors, etc., writing background papers, technical summaries, and interim/final reports, contributing to deliberations, preparing and revising report drafts, and developing proposals for future projects. Activities will include, among others, the Committee on Applied and Theoretical Statistics, and projects on Statistics Research for Massive Data Sets and Statistics in the 21st Century.

The successful candidate will be an innovative, entrepreneurial individual with a PhD in Statistics (preferred), or in Probability, Applied Mathematics, Operations Research, Scientific Computing, or Pure Mathematics, and at least two years of relevant experience. Must possess strong background and interests in statistics and in the entire spectrum of the mathematical sciences community, and have demonstrated effectiveness in written and oral communication, especially in preparing scientific and technical reports, research writing, briefing technical experts, and coordination with research sponsors. Prior experience in relevant administrative areas desirable, as is experience in or with federal agencies. Application review will begin immediately. Please send applications to: **NRC/CPSMA/BMS, NAS 315 (JT), 2101 Constitution Avenue, NW, Washington, DC 20418. TEL: 202-334-2421, FAX: 202-334-1597, Email: jtucker@nas.edu.**

The NRC is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.



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ASSOCIATION FOR WOMEN IN MATHEMATICS

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The AWM Newsletter is published six times a year and is part of your membership. Questions? (301) 405-7892, or awm@math.umd.edu

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If student, GRADUATE OR UNDERGRADUATE (circle one)

Position:
 Institution/Company:
 City, State, Zip:

DEGREES EARNED:

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

Doctorate:
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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**.

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