

# AWM

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## ASSOCIATION FOR WOMEN IN MATHEMATICS

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NEWSLETTER

March-April 1994

## PRESIDENT'S REPORT

### The Joint Mathematics Meetings

The meeting in Cincinnati was significant for the relevance of the invited lectures, the scientific sessions, and the professional gatherings and for the special celebration of the 100th annual meeting of the American Mathematical Society.

Bettye Anne Case, our Meetings Coordinator, was also the organizer of the most significant part of that celebration, the special session entitled "Meetings of Mathematicians." Among the participants in that session were Professors Alice T. Schafer (Marymount, AWM former President and founding mother), Dirk J. Struik (MIT, our dear friend who is 99 years young), Lee Lorch (York) and Saunders McLane (Chicago).

The Cincinnati meeting was very successful for AWM, and I am writing about it for the benefit of the many of us who were not there. To those who gave talks at lectures, workshops, sessions and panels, who helped out at our table, who attended our functions, our workshop, we extend our thanks. Getting together is a meaningful part of the Joint Meetings, a direct way to receive feedback, and a healthy reminder of how many of us are around.

### The Workshop

The first Workshop for Women Graduate Students and Post-doctoral Mathematicians was the highlight of our 20th anniversary celebration of AWM at the Joint Meetings in 1991. Since then, and thanks to grants from NSF and ONR, our Workshops have become major events at both the winter Joint Meetings of AMS, MAA, AWM and NAM and at the summer meeting of SIAM. We are working to ensure their continuation.

This January, we had another remarkable group of young women mathematicians who gave excellent general talks on their work. To those of us old enough to have faced the challenge of preparing a "general" talk many times, it is amazing that these new professionals succeed at reaching their audiences so well.

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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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And we had also a very good group of graduate students presenting posters on their thesis problems. Judging by the quality of what I saw, we can be assured that the pipeline is producing talented women mathematicians, prepared to tackle a variety of genuinely interesting subjects.

See page five for the names of the participants and the titles of their work.

This Workshop was organized by Ruth Charney (Ohio State) and co-chaired by Lenore Blum (MSRI and ICSI). Ruth also moderated the Workshop's panel on "Launching a Career in Mathematics." The panelists were Lynne Butler (Haverford), Ruth Williams (UCSD), and Susan Williams (South Alabama). These accomplished young mathematicians are at different stages of their careers and were able to provide real insights to their younger colleagues.

All participants mingled during lunch and, more festively, at the AWM dinner, where they were joined by many distinguished women mathematicians. The getting together was joyful and profitable: for many new friends, attending the Joint Meetings for the first time, it was a great occasion to meet people and make contacts — for the rest of the meeting, and, hopefully, for the rest of their careers.

This year Ruth had the participants fill out a questionnaire on the Workshop at its end. We have had much informal feedback from Workshop participants, but this initiative will provide more information for bettering our work. One issue that has not been resolved is the best timing for the workshops: should they occur before the Joint Meetings (as they have to date) or at the end (as it will, due to scheduling constraints, in January 1995)? The change in timing in 1995 will help us assess the pros and cons. I invite everyone, especially participants at past workshops, to make suggestions to improve this already valuable activity of ours.

These workshops prove that there is not, nor will there be, a lack of good women mathematicians for all types of jobs in mathematics. Those who fear that incorporating women and other underrepresented groups into mathematics will result in a lowering of "standards" should find those fears assuaged at our workshops!

### Invited Talks by Women Mathematicians

Georgia Benkart (Wisconsin) gave an AMS-MAA invited talk titled "A tale of two groups." It was magnificent. Similarly outstanding was the AMS invited talk Ruth Williams gave on "Reflecting Brownian motion."

Our special friend of many years, Professor Deborah Tepper Haimo (Missouri at St. Louis), gave the MAA Retiring Presidential Address on "Experimentation and conjecture are not enough."

The NAM Cox-Talbot Address was delivered by Etta Z. Falconer (Spelman) on "Challenges and opportunities for minorities in science and mathematics."

And we had the privilege of having Lesley M. Sibner (Brooklyn Polytechnic) as the Noether Lecturer for 1994. She spoke on

"Analysis in gauge theory" and was introduced by Cathleen Morawetz (Courant Institute, AMS President-Elect).

### Noether Booklet

And talking about the Noether Lecture, let me brag about our latest "resource in print!" Thanks to the efforts of several people, particularly of Dawn Wheeler, the revised booklet featuring the fifteen Noether Lecturers has appeared!

It contains a wonderful picture of Emmy Noether as a young woman, biographical sketches of her and of the Lecturers, and short summaries of their contributions. The impressive roster of the fifteen Noether Lecturers since 1980 includes such outstanding mathematicians as Olga Taussky-Todd and Julia Robinson. The list constitutes an asset in itself.

AWM will use this booklet in a variety of ways: from high schools at Sonja Kowalewsky Days, to campus recruiting centers for graduate students in mathematics, to campaigns to increase the number of women in the National Academy of Science.

### Celebrations

Lots of fun and camaraderie. Two well-attended dinner parties, one for the Workshop, the other to honor the Noether Lecturer. And ... The Party! As usual, an outstanding success. Too much for me, a miserable host too sick with a bad cold. We learned the lesson: for next year we need a bigger room! No friend of mathematics fails to be a friend of AWM!

### Hay Award Presentation

This year's AWM Hay Award recipient is Major Kaye A. de Ruiz, of the United States Air Force Academy, to whom we extend our warmest congratulations. The Award, our highest honor, was presented by Sylvia Bozeman (Spelman), chair of the Hay Award Committee.

For the first time, the Louise Hay Award for Contributions to Mathematics Education was presented at the Joint Prizes and Awards Session of AMS, MAA and AWM. (And a good thing it was that we were there. People still ask if there is a need to keep prizes exclusively for women: well, our winner was the only one of fifteen who was a woman this year.) We look forward to having this invitation extended to NAM. Then all awards at the meetings will be celebrated together.

### AWM Panel

The AWM Panel, with the intentionally provocative title "Are Women Getting All the Jobs?" had Lynne Billard (Georgia), Helen Grundman (Bryn Mawr), Mel Rothenberg (Chicago) and Mark Winstead (UCSD) as panelists, providing quite a varied field of experiences. Helen and Mark are young Ph.D.'s, the first holding a job already, the second still searching, both with these experiences vivid in their minds. They have faced firsthand the question "Is affirmative action hurting our chances to stay in mathematics?" Lynne, who is a respected statistician with much experience in matters pertaining to job discrimination, gave us a thoroughly studied picture of the situation across many decades. Mel is, to my knowledge, the first male professor of a leading mathematics department in America who has publicly discussed the importance of hiring senior women mathematicians to top positions in order to further the incorporation of women to mathematics. [See his Letter to the Editor, this *Newsletter*, November-December 1993.]

We are concerned about jobs, and we wanted to express our concern through this panel. We cannot provide solutions to the severe job crunch suffered throughout our community, but we should face it with clear minds. Many feel that everything would be much better if it were not for affirmative action, with all those women and minorities or all those foreigners who are taking all the jobs. We strongly believe that this is false and dangerous, that pitting one group of under/un-employed mathematicians against another is just the old tactic of dividing people with similar interests in order to exploit them all.

That our concerns are shared by many young people was obvious from the large attendance at the event. We hope to have a summary of the panelists' contributions in a future issue of the *Newsletter*.

### Young Mathematicians' Concerns

The Young Mathematicians Network (YMN), which communicates through the weekly electronic "Concerns of YMN Newsletter," asked the professional organizations to pass a resolution on the exploitation new Ph.D.'s are suffering under the hiring practices prevalent at some math departments, abetted by the current job crunch. AWM, as well as AMS, endorsed such a resolution.

Its full text appears on page six. The main points made are:



## MEMBERSHIP AND NEWSLETTER INFORMATION

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**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 information**

AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Executive Director, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the newsletter must be Affirmative Action/Equal Opportunity designated.* Institutional members receive 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.

**Deadlines**

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

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

**Addresses**

Send all **Newsletter material except ads and 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.

- departments need to prepare their Ph.D. students to face the job market with adequate skills;
- together with other employers, departments should devise better postdoctoral opportunities;
- part-time hiring at substandard salaries is a reprehensible form of exploitation.

**Federal Policy**

There was much discussion at the Cincinnati meeting — both at open forums and at the elected governing bodies of the professional organizations — on issues of federal policy. A Federal Agenda is being written by both AMS and MAA. Some of the issues I touched upon in my last report have been considered. But women and other underrepresented groups are still at the fringe, not only of the mainstream of the profession, but even of the policy statements. Only our active participation can change that!

There is a new Director at the National Science Foundation: Dr. Neal Lane, a physicist, formerly Provost at Rice University. After his Senate confirmation, I asked for a meeting to introduce AWM work, discuss some of the problems facing women in mathematics and offer our cooperation in seeking solutions. The meeting took place last December, and Dr. Lane expressed interest in learning more about our concerns. A channel of communication is open, and we will do our best to make the communication significant.

**Significant New Appointments**

SIAM elected its first female President-Elect, Margaret Wright (AT&T/Bell Labs), who will replace Avner Friedman at the helm of this professional society next year. Congratulations, both to our sister organization and to its deserving new officer!

A more unexpected job for a Ph.D. in mathematics is that of William J. Perry (DoD, Penn State Ph.D. '57), if he is confirmed by the Senate as the next U.S. Secretary of Defense. And then people say that you don't go places with a Ph.D. in math!

**Retention of Women in Mathematics**

As I began discussing in the last *Newsletter*, the issues of retaining women in the profession are again pressing on us. Gains have been made:



Women graduate students are present in graduate programs in more than token numbers, and women professors (mostly in junior positions) are less of a rarity than twenty years ago. But it is precisely at those levels where the crunch is felt more and more.

Women are leaving graduate programs after one or two years. No normal attrition here: we are talking about able, interested students that disappear out of the system.

Women are not getting tenured. And, again, what matters is the women who have done a good job, who have been productive researchers, competent teachers, good colleagues. The situation of having significant numbers of women coming up for tenure is so new as to make it difficult to have reliable statistics on the problem. It is not our position that every woman up for tenure deserves it, nor that tenure be granted to undeserving applicants. But it is our distinct impression that at the tenure decision point a new wave of gender bias comes to life.

On the retention of students, I call on all our members at Ph.D.-granting schools to pay special attention to what happens at their own institutions. AWM is devising programs (and seeking funding for them) to act on the situation. We need volunteers to manage them.

On faculty, we need first to learn as much as possible about what is going on. Please let us know the circumstances of the cases you are aware of. The Joint Committee on Women, where we act in coordination with the other professional organizations, will work with the statistics.

The question matters. We need to keep the numbers up, if we are going to win the right of women to mathematics. Better understanding is needed.

New solutions. Smart initiatives. We have to reach all this together.

### New AWM Officers

On February 1, Chuu-Lian Terng (Northeastern) becomes President-Elect; and Rosemary Chang (Silicon Graphics), Naomi Fisher (Illinois at Chicago) and Carolyn Gordon (Dartmouth), new Members-at-Large of the Executive Committee.

We welcome them, while thanking once again Past President Carol Wood (Wesleyan) and outgoing Executive Committee members Ruth Charney (Ohio State), Eleanor Green Dawley Jones (Norfolk State), and Maria Klawe (UBC) for their excellent work.

As we announced last issue, Joanna Schot, who retired from the David Taylor Research Center, is our new Executive Director, while Dawn Wheeler continues to be AWM Administrator.

And I am still president.... So brace yourselves for more extra long prez reports to come!



*Cora Sadosky  
Washington, DC  
29 January, 1994*



## AWM IN CINCINNATI, JANUARY 1994

### Emmy Noether Lecture

The Fifteenth Annual Noether Lecture, "Analysis in Gauge Theory," was delivered by Lesley Sibner.

Sibner is a native New Yorker. After a brief career in the theater, she received her bachelor's degree in Fine Arts from the City College of New York in 1959. She came to mathematics quite late, only discovering her enthusiasm for it after taking a required calculus course designed for liberal arts majors. While at City College, she met her husband, Robert Sibner, who at the time was a graduate student in mathematics and was teaching as a lecturer in the Physics Department. She went on to study at the Courant Institute of Mathematical Sciences, receiving a Ph.D. in 1964 under the joint supervision of Lipman Bers and Cathleen Morawetz.

Sibner was an instructor at Stanford University (1964–1966), a Fulbright Scholar at the Institut Henri Poincaré in Paris (1966–1967), an awardee of the Visiting Professorships for Women Program of the National

Science Foundation (1986–1987), and a Bunting Science Scholar at Radcliffe College (1990–1991). Brooklyn Polytechnic University has been her home base since 1967.

Starting with her doctoral thesis on equations of mixed type, Sibner's love of analysis, especially partial differential equations, has remained constant throughout her career. A few years after her Ph.D., she and her husband were led to study nonlinear Hodge theory following an informal discussion with Bers, in which he conjectured the existence of compressible flows on a Riemann surface. This added a new ingredient, differential geometry, to her mathematical interests. While a member of the Institute for Advanced Study during 1971–1972, she met and was greatly influenced by Michael Atiyah and Raoul Bott. She then pursued geometric problems which could be solved using analysis and produced an "integral equations" proof of the Riemann-Roch Theorem during this period.

About this time, she met Karen Uhlenbeck, whose work on nonlinear variational problems had a significant effect on Sibner. Uhlenbeck suggested studying some of the analytic questions having to do with the Yang-Mills equations, which had just captured the interest of mathematicians and mathematical physicists. During a sabbatical at the Massachusetts Institute of Technology during 1979–1980, Sibner met Clifford Taubes, then a graduate student at Harvard, and learned from him a great deal about gauge field theory. Sibner went on to prove results about removing point singularities in the Yang-Mills and Yang-Mills-Higgs equations.

Her interest in singularities soon brought her deeper into geometry, leading to a classification of singular connections and to a condition for removing two-dimensional singularities. Realizing that instantons could under certain circumstances be viewed as monopoles, the Sibners and Uhlenbeck constructed nonminimal unstable critical points of the Yang-Mills functional over the four-sphere.

In her Noether Lecture, Lesley Sibner gave an overview of the way in which analytic techniques are used in gauge theory, with an emphasis on the Yang-Mills model and the Higgs model.

### Louise Hay Award

Major Kaye A. de Ruiz of the United States Air Force Academy is the fourth recipient of the Louise Hay Award for Outstanding Contributions to Mathematics Education. She received a Master of

Science in College Administration with a minor in statistics from Oregon State University and then attended Officer Training School for the United States Air Force. In 1990, she took time off from teaching and received her Ph.D. in applied statistics at the University of California, Riverside. De Ruiz is a skilled teacher, a respected researcher, a very capable administrator, and a wonderful role model.

De Ruiz has enjoyed a career filled with wide-ranging contributions to the mathematical education of extraordinarily diverse populations of students. She began her teaching career at Roseburg High School in Roseburg, Oregon, where she developed and implemented a team-teaching approach to geometry and also regularly invited local business professionals to discuss with her business math students the uses of mathematics in their daily work. After spending several years at Misawa Air Force Base in Japan establishing and teaching in adult education programs, de Ruiz, in 1982, began to teach full-time at the Air Force Academy where she acted as the course director for the Academy's differential calculus course. She developed instructor and cadet notes, based on a newly adopted textbook, that both encouraged students to understand the importance of calculus and challenged them to go beyond what was discussed in the classroom. In ensuing years, de Ruiz taught probability and statistics for the Academy; true to her roots, she continued to incorporate "real world" problems in her courses. As chief of the Statistics Division at the Academy, she adopted new texts, revised curricula, wrote a workbook that assisted professors in incorporating technology in their statistics courses, and contributed to a textbook on basic statistics. De Ruiz regularly acts as consultant to other departments and agencies outside the Air Force Academy and has become the department expert on objective-based education and criterion referenced grading. As her department head, Lt. Col. Steven C. Gordon, states, "In all of her endeavors as a teacher, Kaye has explored new methods of teaching so that her students can not only learn, but enjoy mathematics as she does."

Of her selection, de Ruiz said, "This honor was a great surprise since I had never considered myself to be outstanding in the area of math education.... The Lord has provided me with many unique opportunities to teach mathematics both in the United States and abroad and I have been fortunate to have a supportive family wherever my job has taken me." She continued, "I have always been a

teacher at heart, but being a military officer has not always allowed me to pursue this endeavor.... It amazes me that I have been selected since I have certainly not followed a traditional approach in being an educator. Perhaps my selection will encourage others to explore alternative approaches in teaching mathematics and statistics and pursue nontraditional methods to increase their own understanding of mathematics and statistics. I heartily thank the committee for selecting me for this award."

### Workshop for Women Graduate Students and Post-doctoral Fellows

The NSF-ONR Workshop was a full-day event on January 11 in Cincinnati, full of mathematical excitement and ending with a well-attended dinner.

The postdocs and their talks were:

Catherine Carroll, Université de Paris-Sud  
"Recurrent Flows and Lagrange's Theorem"

Galia D. Dafni, Princeton University  
"Hardy Spaces in Several Complex Variables"

Jill Dietz, University of Washington  
"Stable Splitting of Classifying Spaces of Groups"

Ellen Gethner, Swarthmore College  
"On Locating the Zeros of Rational Periodic Functions"

Donna J. Glassbrenner, University of Virginia  
"Ladder Rings"

Ayelet Lindenstrauss, University of Pennsylvania  
"K-Theory and Hochschild Homology"

Anne C. Morlet, Ohio State University  
"Sharp Fronts for Fourth Order Burgers' Equations are Localized"

Barbara E. Nimershiem, Franklin & Marshall University  
"Flat Manifolds Appearing as Cusps of Hyperbolic Manifolds"

Ami Radunskaya, Rice University  
"Detecting the Topology of Attractors"

Sandra Shields, University of Charleston  
"Branched Surfaces and Foliations of 3-Manifolds"

The graduate students and their poster presentations were:

Sherri L. Brugh, Vanderbilt University  
"The Balanced Projective Dimension of Torsion-Free Abelian K-Groups"

Anne M. Dougherty, University of Wisconsin  
"A Heavy Traffic Limit Theorem for a Controlled Multi-access Channel"

Mirjana Jovovic, Michigan State University  
"Compact Hankel Operators on Harmonic Bergman Spaces"

Semra Kiliç, University of New Hampshire  
"On the Berezin Symbol"

Natasa Kovacević, California Institute of Technology  
"Möbius-like Groups of Homeomorphisms of  $S^1$ "

Nadine Kowalsky, University of Chicago  
"Automorphism Groups of Non-Compact Lorentz Manifolds"

Susan Lee, Cornell University  
"Optimal Drift on  $[0, 1]$ "

Aihua Li, University of Nebraska-Lincoln  
"Prime Filtrations and Partially Ordered Sets of Prime Ideals"

Kathleen Madden, University of Maryland  
"The Existence and Consequences of Exotic Cocycles"

Judith R. Miller, University of Michigan  
"Asymptotic Stability of Solitary Waves for the Regularized Long Wave Equation"

Sheryl L. Wills, Northern Illinois University  
"Perturbation of Domain and Regularity of Solutions of Bipolar Fluid Flow Equations in Polygonal Domains"

### Resolution on Hiring Practices

The resolution was proposed by the AMS Committee on the Profession and presented to the AMS Council. The Council approved a modified form of the resolution. The Young Mathematicians Network asked the AWM Executive Committee also to support the resolution. We approved it in the same form as the AMS Council. The text appears on the next page.



## Supportive Practices and Ethics in the Employment of Young Mathematicians

1. For several years now, there have been substantially fewer Ph.D.-level positions available in mathematics than qualified applicants. (See, e.g., the report of the AMS Task Force on Employment reviewed in the *AMS Notices*, October 1992, pp. 820–821, and the 1993 survey of new doctorates, *AMS Notices*, November 1993, p. 1164). The disparity between supply and demand has caused severe difficulties for some recent Ph.D.'s. There is no indication that the situation will ease significantly in the near future.

It is incumbent on Mathematics departments to make all their potential Ph.D.'s aware of the realities of the job market and to encourage them to prepare for a broad range of jobs in the mathematical sciences.

2. The early post-Ph.D. years are crucial in career development. Departments have a responsibility to promote such development. Employment practices should conform to this principle.

The systematic use of one-year appointments to fill regular teaching positions has the potential for exploitation of those holding such positions. Young mathematicians in one-year terminal positions with full teaching loads must, in addition to carrying out their duties and trying to establish their own scholarly program, begin again searching for a job almost immediately after settling in — a concentration of pressures which will almost certainly have adverse effects on professional growth and morale.

While some one-year positions are professionally beneficial, many others can be rationalized by institutions only on grounds of fiscal expediency or charity.

Employers should strenuously seek means to devise better situations for recent Ph.D.'s. Whenever possible, positions should be offered for at least two years.

3. Although many institutions are under severe financial pressure, this should not be used as an excuse for exploitation. In particular, the practice of hiring unemployed Ph.D.'s by the course, without integrating them into the scholarly life of the department, is seriously detrimental to the individuals and the profession.

The systematic hiring of unemployed Ph.D.'s part-time at substandard salaries is reprehensible and exploitative. It demeans the profession. Such practice undermines educational quality.

## Thanks

AWM is grateful to Meetings Department of the AMS for their efforts on behalf of the workshop and all AWM activities. AWM also wishes to thank all its members who volunteered their time and expertise and to thank the staffs of the Hyatt Regency Cincinnati and the Cincinnati Convention Center for all their efforts.

AWM also expresses gratitude to the National Science Foundation and the Office of Naval Research for funding the workshop.

## AWM TRAVEL GRANTS

AWM-NSF travel grants were awarded in October to: Helene Barcelo, Arizona State University, Sicily Conference for Dr. Garsia; Beverly Diamond, University of Charleston, Cincinnati Joint Meetings; Sylvia Hobart, University of Wyoming, algebraic combinatorics conference, Japan; Joan Hutchinson, University of Michigan, graph theory conference, Oberwolfach; Svetlana Jitomirskaya, University of California, Irvine, Jerusalem Winter School; Jennifer Key, Clemson University, Oberwolfach; Mary Parrott, University of South Florida, reaction diffusion conference, Texas A&M; and Mary Beth Ruskai, University of Massachusetts, Lowell, inverse problems conference, St. Petersburg.

The AWM-NSF travel grant program is a growing success. The applicants this fall were exceptionally strong, and many deserving applicants could not be funded.

As this fall's selection committee, we would like to indicate some of the factors which affected our decisions and to suggest items to include in the application for funding. Although the selection committee changes regularly, our suggestions may be helpful to future applicants.

The purpose of the travel grants is two-fold. They both give women the opportunity to travel to

conferences and confer with others in their area and result in a greater presence of women at mathematical gatherings. In evaluating the applications, we considered both the research program of the applicant and the benefits of the conference itself. In your application, you should give a clear description of your research and discuss the expected benefits of attending the conference. Research publications should be listed prominently and completely in the vita that accompanies your application.

Be as specific as you can in discussing the conference. Are there specific people you plan to confer with? How close is the conference to your research program? Who are the major speakers? Are you giving a talk? We generally looked more favorably on applicants giving talks. However, don't be discouraged from applying for a travel grant if you are not able to give a talk at the conference. Some very important conferences have only a small number of distinguished speakers and no contributed talks.

You should also be specific in your budget. State clearly any other sources of funding, including any grants that you now have, what they cover, and their amounts. Get information about the most economical plane fares, etc. Don't pad your budget under the assumption that it will be cut back. Our decisions on whether to fund an applicant fully or only partially were based both on budget constraints and on our evaluation of whether the requested level of funding was appropriate and economical.

## IPNET

I wish to announce the formation of IPNet, an electronic network for researchers working in the areas of Inverse and/or Ill-Posed Problems. The goal of IPNet is to promote communication between scientists interested in these research areas, to generate a regular newsletter called the "IPNet Digest" for announcements and scientific queries of general interest, and to provide a central site for obtaining current e-mail addresses and affiliations of those working in these areas.

For automated subscription to the IPNet, send a message to [ipnet-request@math.msu.edu](mailto:ipnet-request@math.msu.edu) with the following in the *body* of the message on separate lines: subscribe <e-mail address>, lastname <your lastname>, firstname <your firstname>, institution <your institution and department>. You should supply the information in the brackets without typing them. The subject line of your message is ignored.

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*Patricia K. Lamm, [lamm@math.msu.edu](mailto:lamm@math.msu.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.

## TREASURER'S REPORT

7/1/93 through 12/31/93

Category Description	AWM Operating Fund	Schafer Prize Fund	Grant Funds	TOTAL
BALANCE – 30 June 1993	18906	31177	14167	64250
INCOME/EXPENSE				
INCOME				
Advertising	2062	0	0	2062
Contributions	734	20042	0	20776
Dividends/Interest Earned	1091	353	0	1445
Dues	64086	4710	0	68796
Government Grants	0	0	25745	25745
Miscellaneous Income	269	0	0	269
Non-Government Grants	0	0	30000	30000
Publication Income	4519	0	0	4519
<b>TOTAL INCOME</b>	<b>72761</b>	<b>25105</b>	<b>55745</b>	<b>153612</b>
EXPENSES				
Dues & Fees	290	0	0	290
Equipment	196	0	1100	1296
Fund Transfers	-7834	300	7534	0
Honoraria	0	1800	200	2000
Insurance	196	0	0	196
Interest/Finance Charge	107	0	0	107
Materials & Supplies	8142	233	1062	9438
Meeting Expense	2	273	1304	1579
Miscellaneous	1998	10	547	2555
Participant Support	0	0	18931	18930
Payroll Transactions	15022	306	10096	25423
Professional Services	2084	0	0	2084
Publication Expenses	20465	0	0	20465
Travel (Non-Participants)	0	0	1227	1227
<b>TOTAL EXPENSES</b>	<b>40668</b>	<b>2923</b>	<b>42001</b>	<b>85591</b>
<b>TOTAL INCOME/EXPENSE</b>	<b>32093</b>	<b>22183</b>	<b>13745</b>	<b>68021</b>
BALANCE – 31 December 1993	50999	53360	27912	132271

*Respectfully submitted, Judy Green, Treasurer, Marymount University*



## BOOK REVIEW

**Science In Africa: Women Leading From Strength**, a forum organized by the AAAS Sub-Saharan Africa Program, Amy Auerbacher Gimbel, Director. 1993. Published by AAAS: 1333 H Street, NW, Washington DC 20005. Phone: 202-326-6730.

Before I started graduate school in mathematics at the University of California at Berkeley, I spent two years in Sierra Leone, West Africa teaching high school math as a Peace Corps Volunteer. You can imagine the challenges: teaching without texts or other supplies in a village without electricity or running water to students who frequently did not have enough to eat. How to make algebra relevant to them? My best student was a girl, Sarah Conteh. I often think about her and her prospects in a country recently disrupted by political violence. I also still think about the problems of how to teach math in Africa, and especially how to teach math to girls.

That is why I am so glad to see a book like *Science in Africa: Women Leading from Strength* published by the American Association for the Advancement of Science. The book is a collection of eight papers presented at a forum held in Washington, D.C. in May, 1993. The papers were written by eight outstanding female African scientists in various fields. Each gives a history of her research as well as her views on the importance of math and science education in Africa and the need to increase the number of African women entering these fields.

These women all seem to believe that science will play a key role in the long-term development of their countries. Lydia P. Makhubu, Professor of Chemistry and Vice Chancellor of the University of Swaziland, says in her keynote address that "priority must be given to the generation of human resources to direct the scientific endeavor towards a total socioeconomic transformation, not only in terms of industrialization, but also in terms of the provision of basic needs and the improvement of the quality of life of the majority of Africa's people," concluding that it is important not to "neglect ... 50% of the human potential, which the continent can ill afford [to do]."

The argument is also presented that women in Africa have a "special" role to play in African

society and that by becoming involved in science they will somehow make science more friendly for African citizenry, and also ensure that science is "humanized" in that it will be more concerned with nurturing issues like food production and medicine. I'm not sure what I think of this argument, since it is difficult to judge across cultures. If an American were making this argument I might suspect sexism.

Many of the reasons cited for the relative lack of women scientists in Africa are very similar to the problems cited in the U.S.: poor primary and secondary math and science education, gender-role stereotyping, almost no female role models, and the pressures of marriage and family. Some issues which seem to be more unique to Africa are that, as mentioned above, women seem to want to study disciplines which will help with the problems of Africa, such as food production and disease. Very few tend to go into physics or math. Also, marriage at a young age is seen to be more important in Africa, and many women are forced by family pressure to end their academic careers early.

The suggested ways to deal with these problems also have a familiar ring. It is first recommended that better data be collected on the phenomenon. A change in the academic regimen is put forth with the timetables relaxed for women in order to take their family pressures into account. Of course, all of these changes take money in a region which is chronically short on resources.

It is also suggested that governments or non-governmental agencies form or support special programs and organizations for women. Already the Third World Academy of Science has established (in January, 1993) The Third World Organization for Women in Science. Another problem specific to developing countries is that of "brain drain." Most talented African undergraduates go abroad for graduate studies. It is suggested that post-graduate programs be strengthened, especially in the areas in which women already clearly take an interest.

A paper of special interest to AWM members is by Grace Alele Williams, Professor of Mathematics Education at the University of Lagos, Nigeria. She writes about "Mathematics and Administration: A Curious Mix for Education Leadership." She tells of some of the difficulties she encountered serving as the first female Vice Chancellor in her nation. She spends some time on her involvement with the "Entebbe mathematics" program which revolutionized mathematics education in much of Africa in the sixties as "new math" did in the United States.

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*Susan Shepler is a graduate student at the University of California at Berkeley studying education and culture in Africa.*

Even the very basic concepts of numbers and operations introduced in the Entebbe Program were, for primary schools, revolutionary. The discovery approach to learning, the new ideas being introduced, and the link between these basic operations and higher mathematics topics were direct outcomes of the project. The content as well as the method of teaching introduced with Entebbe Mathematics was effective. The children in the experimental groups asked intelligent questions. They could explain what they were doing, and they did better in other school subjects. Rote memorization had characterized the teaching of arithmetic in African schools (and in many cases still does), but Entebbe mathematics challenged this approach for both teachers and students.

There are very nice biographies of the eight contributors at the end of the book. There are also extensive bibliographic references which are quite helpful to scholars in this field, since this type of work is fairly rare. Finally, there are quite a few well-placed tables and graphs. Come to think of it, I would have liked to have used this book to teach graphing in my Sierra Leone classroom.

## AWIS & MENTORING

The AWIS publication *A Hand Up: Women Mentoring Women in Science* has been mentioned in these pages before. A new related publication is *Mentoring Means Future Scientists: A Guide to Developing Mentoring Programs Based on the AWIS Mentoring Project*. This 160-page volume is AWIS's full report on its three-year Mentoring Project for undergraduate and graduate students. It identifies what was effective and what was not, based on the experience of participants in the program. In addition, it discusses the special needs and concerns of undergraduate and graduate populations, women of color, and students in different fields. Appendices include survey data, sample program materials, and an extensive bibliography listing resources on women in science and on mentoring. \$14.50 for AWIS members, \$17.50 for non-members. A 16-page Executive Summary is also available: \$7.95 for non-members, \$4.95 for members. Write: AWIS Publications, 1522 K St., NW, Suite 820, Washington, DC 20005.

## A STUDY IN COMPLEXITY: UNIVERSITIES AND THE TWO-BODY PROBLEM

Around the time I was finishing my Ph.D., I received a warmly encouraging letter from a senior faculty member at a major research university, urging me to apply. I did. Nothing happened. What had made my application look so bad? I had my answer a few months later. We met at a conference, and he said, "Sorry, we didn't interview you. We knew you were part of a two-body problem, and we only had one job."<sup>1</sup>

All my job-hunting since my Ph.D. has been complicated by the fact that I am married to a fellow computer scientist. A job for one is complicated; for two, the predicament exponentiates. Yet the reality is I am far from a singular point in being married to a scientist.

A recent article in *Science*<sup>2</sup> states that sixty-nine percent of women physicists are married to scientists, as are eighty percent of women mathematicians. So are one-third of all women chemists. This means that every time a department says, "We wanted to hire [a female scientist], but she was married to [a male scientist], and there wasn't a position for him," the department is not discussing an isolated phenomenon. They are making a comment which is true of a high percentage of women scientists.

I do not think universities are using this problem in bad faith as a way to avoid hiring women. I think departments, chairs and deans view each instance of the problem as an isolated phenomenon. But a recent report from the University of Michigan points out that "Female faculty seem to benefit from career services even more than men, because women, based on our experience and interviews, often have a spouse or partner in a position equal to or higher than their own ... almost all female faculty recruited by Engineering have a partner with a Ph.D."<sup>3</sup>

A number of universities and colleges across the country have begun to find imaginative institutional responses to the two-body problem. Some are internal, some involve networking with schools in the

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by Susan Landau, University of Massachusetts  
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area. Some involve only the relevant department, others go institution wide. They are instructive to describe, for they show ways to handle what seems to be viewed by many as an insoluble problem.

In limiting my discussion to university responses to dual career academic couples, I do not mean to diminish the difficulties faced by other types of dual career couples. I am focussing on this issue both because it affects a disproportionate number of women scientists, and because it is an issue upon which universities can actually act. Solving this one will not solve it all for women scientists, but it will help one important part of a complicated picture.

At the Madison campus of the University of Wisconsin, the Spousal Hire Program is run by the Provost's office and makes available funding of one-third of an FTE for up to three years. The criteria the spousal hire needs to meet are one or more of the following: (i) the department, as judged by the dean, is in need of expansion, (ii) a strong case can be made for continued employment after the initial three years, (iii) this will enhance faculty diversity, (iv) the spouse has a record of receiving research grants and thus providing a portion of their salary support.

Both Oregon State University and the University of Nebraska at Lincoln have spousal fellowship programs. The money in both cases is small — it is a fellowship of \$12 thousand (Oregon) and \$15 thousand (Nebraska) to enable the spouse to find employment in the area. The fellow has employment for one year in the appropriate department. In Oregon's case, the funding is one-third department, two-third's provost's office; in Nebraska's case, it is all from the provost's office. This year, Nebraska has fourteen such fellowships. This investment should be contrasted with the University of Michigan's estimate from its College of Engineering that "the cost per faculty position of ... recruiting efforts is about \$20,000."<sup>4</sup> Of course that number does not take into account the intangible costs when a top recruit leaves.

For a long time, the University of Michigan has been concerned with the issue of dual career couples, for the unhappiness of an underemployed spouse has a strong effect on faculty retention. Here the focus is on dual career, rather than dual career academic couples. The Office of the Assistant Vice President for Academic Affairs — Personnel has organized job search workshops for spouses and partners and aided these spouses/partners through arranging interviews and contacts, often *before* the

recruited faculty member has made a decision whether to accept an offer. There is no formal program in place for dual career academic couples, although in practice the University has aided several such through tenure-track, or tenured, appointments. The fact that there is a high-level administrator with official concerns for this problem makes it somewhat easier to effect solutions.

For several years now, Kenyon College, the College of Wooster, and Dennison College in Ohio have run joint job ads, listing all positions available at the three institutions. Whatever complications exist when the art department wants someone, but astronomy has the other member of the couple as second or third choice candidate, are exacerbated when the two members of the couple are applying to different institutions. But the Provost at Kenyon said that the colleges are deeply committed to doing this and will work it out. This year Otterbein College, in nearby Columbus, has joined the advertising. Recently Bates, Colby and Bowdoin College, all within one hour of each other in Maine, have begun similar advertising.

Then there are a number of arrangements which have happened as the result of an energetic chair, an imaginative dean, a thoughtful candidate. The following two occurred with couples where both are computer scientists.

Several years ago the Iowa State Computer Science Department had a first choice candidate, but she was married, and the department had authorization for a single slot. The chair went to the dean and the provost for an additional position; this was agreed to "because of the institution's commitment to Affirmative Action." But funding was tight, and it wasn't clear when the position would become available. So the department made an offer, *in writing*, to hiring the spouse to the *next* position available to the department. It committed to that position becoming available within three academic years. The chair urged the husband to accept the offer, saying he would do all he could to expedite matters. The husband signed a contract for a position which would begin within three years. In fact, he joined the faculty two years later.

Another pair of candidates approached the University of Waterloo. One of them was already there; the couple suggested that they would be delighted to be appointed to one and a half positions, three-quarters each. Because fractional load appointments were already part of Waterloo's faculty handbook, that part of the arrangement was easy to implement.



The additional half of a position was a much simpler situation to negotiate with the administration than a full position would have been.

There are many issues raised by the approaches suggested above. The most crucial is that it changes the criteria by which departments do their hiring. The biology department's hires are affected by computer science, physics by history. Right now, most departments believe that what they do is hire "the best candidate." That is not strictly true.

In fact, what departments do is look for the best candidate in a certain area, or the best candidate that several areas can agree upon, or even the best candidate in an area not planned to be filled that year, but a candidate who is sufficiently outstanding that a case can be made to the dean. The criteria by which candidates are judged are multi-dimensional. Rarely is one candidate best in all measures. The programs above add another dimension to the picture.

The solutions above will not work in all cases. They don't answer the question of what to do about the dual career couple when each one has a very narrow specialization. They certainly don't solve the problem for small, isolated colleges. They don't handle the problem for a highly trained, but non-academic, spouse of an academic scientist. What these ideas are meant to do is stimulate deans and chairs into searching for solutions.

Like many work situations, academia is designed from the point of view of single wage earners with perfect flexibility to change jobs several times: graduate school, post doc, assistant professor, tenured position. With rare exceptions, the problem of the two-career academic couple has been viewed as the problem of the individuals involved. That is a narrow view, as this complication affects a majority of women scientists.

Even in these times of stringent budgets, there are imaginative institutional responses available. The message we should be getting across to our women students — and their husbands — is that being a scientist does not mean forswearing a life. It may be complicated, and there will be compromises, but it is also rich and exciting. You do not have to choose between a career as a serious scientist and marriage. It is possible to have both.

#### Notes

1. In fact, discrimination on the basis of marital status is illegal, but that is *not* the point of this article.

2. Ann Gibbons, "Key Issue: Two-Career Science Marriage," *Science*, 13 March 1992, pp. 1380–1381.
3. The University of Michigan, The Dual Career Project.
4. The University of Michigan, *ibid*.

## REQUEST FOR FUNDS

In the last issue, we gave information about an International Congress of Women Mathematicians to be held from May 30 to June 3, 1994 in Moscow. The Russian Association of Women Mathematicians is organizing the conference together with the Center of Visiting Programs. They need help in funding the conference; their budget is about \$16,000 US. If you have or know of funds to help subsidize the conference, contact: Dr. G. Riznichenko, Chairwoman of the Organizing Committee of the Association of Women Mathematicians, Head of the Center of Visiting Programs, Center of Visiting Programs, Arch. Vlasova St., 51, Moscow, 117393, Russia; phone/fax: (095) 120-11-20; e-mail: yarosh@korgmath.msk.su.

## WOMEN IN SCIENCE

Rutgers University Press has reissued *A Convergence of Lives. Sofia Kovalevskaja: Scientist, Writer, Revolutionary* by Ann Hibner Koblitz as the first volume in their series "Lives of Women in Science." The paperback contains new introductory materials setting Kovalevskaja's story against the background of an analysis of feminist gender and science theory.

The hardcover (\$35.00) or paperback (\$13.95) may be ordered from: Rutgers University Press, P.O. Box 4869 Hampden, Baltimore, MD 21211-4869.

If any AWM members are thinking of writing an autobiography, they might consider Rutgers as a possible publisher. At the moment, Koblitz is acting editor of the "Lives of Women in Science" series and would be happy to look at a manuscript draft if anyone has one.

## EDUCATION COMMITTEE

### Report from West Virginia

#### **Expanding Your Horizons in Science and Mathematics (EYH)**

The West Virginia chapter of AWIS (the Association for Women in Science) has received a \$5000 grant from the Sex Equity Commission of the West Virginia Department of Education to hold two EYH workshops in West Virginia in 1994. The workshops will be held at Southwest Community College in Williamson on March 26th and at the University of Charleston on April 9th. Each event will feature day-long hands-on workshops and career panels for 100–125 junior high school girls, giving them the opportunity to meet with women scientists and engineers through career panels, hands-on experiments, demonstrations, and other activities.

#### **The Governor's School for Science and Mathematics**

In the summer of 1994, a Governor's School for Science and Mathematics will be held at West Virginia University in Morgantown. This project is largely funded by a generous donation from a WVU alumnus. Its purpose is to encourage development of rising high school and middle school students, to promote the expertise of public school faculty, and to develop a cadre of higher education faculty to serve as partners with public school faculty. It is expected that the program will become an annual event providing an extensive campus-based summer experience for high school and middle school students and teachers. Since many of the best high school and middle school students in our state are female, it is expected that girls will make up a large portion of the students attending the Governor's School.

#### **AAUW-WV Career Fair**

The Computer, Math and Science Career Fair for girls ages 11 to 14 organized by the AAUW was

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by Suda Kunyosing, Shepherd College, Shepherdstown, WV  
Any comments? Write to: AWM Education Committee, c/o Sally I. Lipsey, Chair, 70 E. 10th Street, #3A, New York, NY 10003-5102.

successfully held at the Morgantown Mall on May 1, 1993. Approximately 600 girls from West Virginia and Maryland attended the fair.

#### **Higher Education Programs: Dwight D. Eisenhower Math and Science Education Act**

For 1993–94, the West Virginia State System of Higher Education has received over \$440,000 from the Dwight Eisenhower Math and Science Education Act for higher education programs. The awards are distributed to institutions of higher education within the state on a competitive basis. The funds are intended for training programs of new secondary teachers, retraining of secondary teachers, or inservice training of elementary, secondary, and vocational teachers. Such funds may also be used for cooperative programs among institutions of higher education, private industry, and private nonprofit organizations for the development and dissemination of projects designed to improve student understanding and performance in science and mathematics.

#### Correction

Two footnotes to "Mathematical Education in the Life of Florence Nightingale" were inadvertently omitted in the July-August 1993 issue. We include them below.

8. Woodham-Smith, C., *Lonely Crusader*. New York: McGraw-Hill, 1951, p. 204.
9. Nightingale, F., *Notes on Nursing*. New York: D. Appleton, 1878, p. 76.

## YMN

At the meeting in Cincinnati, we learned that many young mathematicians did not notice the news about the Young Mathematicians' Network (young = early in career) in the November-December issue. [See that issue for more information.]

Anyone and everyone is invited to subscribe to YMN's electronic newsletter, "Concerns of Young Mathematicians." Simply send an e-mail note to Charles Yeomans at [cyemans@s.ms.uky.edu](mailto:cyemans@s.ms.uky.edu) with the subject "subscribe." Back issues and other information can be obtained via anonymous ftp from <ftp.ms.uky.edu> under `pub3/mailling.lists/ymn-list`.

## A CAUSE FOR CELEBRATION

Dr. Michael Smith, winner of the 1993 Nobel Prize in Chemistry and Director of the University of British Columbia Biotechnology Laboratory, has donated his entire award (\$500,000) to support science in Canada. In late 1993 \$1 million from the Provincial Government of British Columbia and \$1.2 million from the Federal Government of Canada were added to his contribution. These monies were used to establish the Michael Smith Endowment Funds which will support three areas: the Schizophrenic Alliance of Canada (to provide fellowships and scholarships for research in biochemistry and genetics); Science World BC (to support outreach science programs for small communities in British Columbia); and the Society for Canadian Women in Science and Technology (to support women in science).

SCWIST was established in Vancouver BC in 1981 by six women scientists and now has over 250 members. The society, with a mandate to promote and empower women in science and technology, sponsors a broad range of activities reaching out to women at all stages of their studies and careers. The combined recognition of SCWIST by Dr. Smith and the Federal and provincial governments has provided us with the guarantee of ongoing funding to support successful programs, a higher profile for the organization and an outflowing of public support for women in science. Recently CBC radio featured Michael Smith on a call-in show and it was wonderful to hear him speak for women in science and to hear women phone in with thanks.

We invite you to share our excitement and to glory with us in this magnificent recognition. Indeed a cause for celebration!!

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*Katherine Heinrich, Department of Mathematics and Statistics  
Simon Fraser University, Burnaby, BC V5A 1S6*

## FEMINIST TEACHER

*Feminist Teacher* seeks essays, articles, course descriptions, bibliographies, and letters-to-the-collective describing how educators address sexism, racism, homophobia, and other forms of oppression

in the classroom. The magazine also seeks reviews of books, periodicals, and videos that address pedagogical issues from a feminist perspective.

*Feminist Teacher* reaches educators in a variety of disciplines and in all grade levels — preschool through graduate school, in traditional as well as nontraditional classroom settings. We ask authors to keep the diversity of this audience in mind and to avoid technical or abstract language. To make syllabi as useful and accessible as possible to readers, we ask that contributors include full citations of all texts as well as a brief introduction to clarify the background, primary concerns, or other important aspects of the class or material.

For a copy of our Manuscript Guidelines, write: *Feminist Teacher*, Wheaton College, Norton, MA 02766. Subscription rates for U.S. addresses are \$18 individuals, \$32.50 institutions (please write for international, including Canadian, rates).

## SUMMER PROGRAMS

### PROMYS

PROMYS (Program in Mathematics for Young Scientists) will be held again this year at Boston University, July 3 to August 13, 1994. The program offers a lively mathematical environment in which ambitious high school students explore the creative world of mathematics. Through their intensive efforts to solve a large assortment of unusually challenging problems in number theory, the participants practice the art of mathematical discovery — numerical exploration, formulation and critique of conjectures, and techniques of proof and generalization. More experienced participants may also study abstract algebra, dynamical systems, and the Riemann zeta function. Problem sets are accompanied by daily lectures given by research mathematicians with extensive experience in Professor Arnold Ross's long-standing Summer Mathematics Program at Ohio State University. In addition, a highly competent staff of 18 college-age counselors lives in the dormitories and is always available to discuss mathematics with students. Each participant belongs to a problem-solving group which meets with a professional mathematician three times per week. Special lectures by outside speakers offer a broad view of mathematics and its role in the sciences.



PROMYS is a residential program for sixty high school students entering grades 10 through 12. Admission decisions will be based on applicants' solutions to a set of challenging problems included with the application packet, teacher recommendations, high school transcripts, and student essays explaining their interest in the program.

The estimated cost to participants is \$1,246 for room and board. Books may cost an additional \$100. Financial aid is available. PROMYS is dedicated to the principle that no student will be unable to attend because of financial need.

PROMYS is directed by Professor Glenn Stevens. Application materials may be obtained from PROMYS, Department of Mathematics, Boston University, 111 Cummington St., Boston, MA 02215, or by calling (617) 353-2563. Applications will be accepted from March 1 until June 1, 1994.

Women and minority students are encouraged to apply.

### Geometry and the Imagination: Chance

CHANCE is the 1994 Summer Course for Teachers given by The Geometry Center, The National Science & Technology Research Center for Computation & Visualization of Geometric Structures. The aim of the course is to make students better able to make informed and critical judgments about news reports of chance issues that affect their daily lives. CHANCE treats questions of probability and statistics such as: How prevalent is the HIV virus? Do electromagnetic fields cause cancer? How reliable are pre-election polls? Do basketball players score in streaks?

We begin a topic by reading a newspaper article. We go on to study the treatments in journals like *Chance*, *Science*, *Nature*, and *Scientific American*. These accounts are supplemented by readings on the basic probability and statistics concepts relating to the topic. We use computer simulations and statistical packages to better illustrate the relevant theoretical concepts.

The class meetings emphasize group discussions rather than lectures. Students keep journals to record their thoughts and questions.

At the end of the course students do a project, working individually or in small groups, on a statistical topic of their own choosing. For example, one group might tackle the question: Is pepperoni pizza really more popular than plain cheese pizza, or is it just that people who prefer pepperoni eat more

pizza than people who prefer cheese? Students in past CHANCE courses have cited the final projects as one of the most enjoyable and valuable aspects of the course.

The course will be held June 20–July 1, 1994, weekdays 9:00 A.M.–5:00 P.M. Evening and weekend activities will be scheduled. Classes will meet each morning. In the afternoons, students will work in the computer lab (no previous computer experience required) or talk with other students and with the teaching staff.

Course enrollment is limited to 50 students. Up to 30 senior high school teachers will be invited into the program. Applications from middle school teachers with a strong math background and interest are also welcome. The remaining places will be filled by the college students accepted into the program described below. Women and underrepresented minorities are encouraged to apply. Applications should be completed as soon as possible.

Tuition for the course has been waived. There are no prerequisites. Up to six credits for Math 5025 and 5025X through the Extension Division of the University of Minnesota will be granted on a pass/fail basis only. A \$35 registration fee will be due the first day of class if you wish to have credits officially recorded on a transcript. Cost of the transcript is additional.

Credit options are: three graduate credits [complete the assigned pre-course readings, participate in the weekday scheduled activities, and complete the assigned work during the two week period]; four graduate credits [complete the requirements above and participate in the evening and weekend activities]; and six graduate credits [complete requirements above and, after the two week period is completed, create a unit of study appropriate for your students, field test that unit and submit a written copy of the unit, the field test situation, and a written analysis of the success of the unit].

The book suggested for pre-CHANCE reading is *Two Hundred Percent of Nothing*, by A. K. Dewdney (Wiley, 1993). This lively book explores common fallacies of mathematical thinking.

It is highly recommended that all participants stay in the dorms on campus. Past experience and evaluations from former participants show that this is invaluable. From Sunday, June 19, through Friday, July 1, air-conditioned housing in double rooms with full meal service will be provided at no charge for all participants who request it.

No travel allowance will be provided.

Teachers will be invited back to the Center at least once during the course of the academic year to exchange information on study units and how the course affected their teaching/students.

For further information: The Geometry Center, 1300 South Second St., Suite 500, Minneapolis, MN 55454; phone: 612-626-0888; fax: 612-626-7131; e-mail: admin@geom.umn.edu.

The Geometry Center is funded by NSF, the Department of Energy, Minnesota Technology, Inc. and the University of Minnesota.

### Summer Institute

The 1994 Summer Institute Research & Training in Computation, Visualization & Mathematics for Undergraduates will be held June 13–August 19, 1994, also at The Geometry Center. The Center is looking for students who have a strong and demonstrated interest in mathematics and computing and would enjoy working in an intense environment with other students and researchers.

The program will be organized as follows.

**Week 1:** Students will learn about The Geometry Center computing environment and decide on a project in an area of mathematics or computer graphics. Many past projects involved Mathematica and/or interactive graphics programs on Silicon Graphics Iris workstations. Project areas included hyperbolic, Euclidean and spherical geometries; fractals, chaos and dynamical systems; differential geometry; group theory; mathematical exposition via visualization; and pure computer graphics.

**Weeks 2–3:** Students may attend lectures of the course described above. The instructors are Professors Peter Doyle (UCSD), Joan Garfield (University of Minnesota), and J. Laurie Snell (Dartmouth). They will be vigorously interacting with the summer students as well.

**Weeks 4–10:** Students will continue work on their summer projects. Before leaving, they will be required to write a report on their accomplishments. These reports will be assembled and published as an official Center research report. Students will also be involved in making a video illustrating their work.

Professor Tony Phillips of SUNY at Stony Brook, returning for the third summer, will be in overall charge of the program. He is a topologist, one of the original sphere everters, who works on topological problems in quantum field theory. He has taught two math/art courses and is interested in discovering visual and musical manifestations of

mathematics. As head coach Tony ensures that each student has an interesting and stimulating project. Participants are welcome to bring their own project ideas or projects as well.

Applications from students currently enrolled in college with a strong and demonstrated interest in mathematics and computing are welcomed. Exceptionally strong applications from graduating high school seniors and graduating college seniors may be considered for acceptance into the Institute. However, the program is open only to U.S. citizens and permanent residents.

A transcript and a letter of recommendation are required. The letter of recommendation is especially important; it should be from a teacher or employer familiar with your work. There is no single requirement which is essential for involvement; it is your interest in mathematics and computing and your drive to succeed that are the most important attributes for a successful experience. If you will bring these attributes, the Center will supply Unix workstations, a gifted and dedicated summer staff to work with you, and a work environment in which some of the best mathematics research and software development in the world is being carried out. The summer program can accommodate up to 20 participants. Women and underrepresented minorities are especially encouraged to apply. Complete applications should be submitted as soon as possible.

The total scholarship paid will be \$2000–2500 depending on background, experience and year in college. Air conditioned, double dorm rooms with full board will be provided for each participant during the 10 weeks (June 13–August 19) of the Institute. (No additional funding is available for those who do not live in the dorms.)

No funds are available for travel costs to Minneapolis.

For additional information or application forms, contact the Geometry Center as listed above.

**CORRECTION:** Last issue, the byline for the article on the Taussky-Todd lecture program was incomplete. The section on Taussky and Todd was written by Richard Vargas; the section on Shapiro was written by Pam Coxson.

## MEETINGS

### Women in Probability

The Mathematical Sciences Institute (MSI) at Cornell University is sponsoring a workshop titled "Women in Probability" to be held at Cornell, October 16–18, 1994. Molly Hahn and Ruth Williams are the organizers of this workshop, which will run for 2.5 days (Sunday, Monday and half of Tuesday).

The core of the workshop will be talks on their research given by women probabilists. The following eminent probabilists will give invited talks: Carol Bezuidenhout (Rochester), Jennifer Chayes (UCLA), Alison Etheridge (Edinburgh), Raya Feldman (UCSB), Antonia Foldes (CUNY, Staten Island), Cindy Greenwood (UBC), Molly Hahn (Tufts), Claudia Neuhauser (Wisconsin), Vien Nguyen (MIT), Magda Peligrad (Cincinnati), Marta Sanz (Barcelona), and Ruth Williams (UCSD). In addition, anyone attending the workshop may present a contributed talk. Recent Ph.D.'s and finishing graduate students are especially encouraged to prepare a short presentation for this part of the workshop. Other activities will include lunch time discussions and one or two panels on issues of interest to all participants (the subjects of the panel discussions will be announced at a later date). On Sunday evening there will be a dinner for workshop participants at which Alexandra Bellow will be the guest speaker. It is hoped that as many women in probability as possible will attend the workshop. Of course, the conference will also be open to all others who wish to attend.

Some aims of the workshop are to publicize good research by women in probability, to provide a forum for networking (in particular for younger women to meet more established probabilists), and to provide a forum for discussion of both the needs and potential for further contributions of women in probability.

There is funding from MSI for some modest travel grants to assist women probabilists to attend the workshop. Since it is unlikely that these grants will cover the full cost of attendance at the workshop, participants are encouraged also to seek funding from other sources, such as their home institutions.

Participants should note that the workshop will start promptly on Sunday morning, so a Saturday arrival (which takes advantage of super-saver airfares) is highly desirable.

Those wishing to attend the Cornell workshop should send a request for registration materials to [dld8@cornell.edu](mailto:dld8@cornell.edu) or Diana Drake, Mathematical Sciences Institute, 409 College Avenue, Ithaca, New York, 14850, phone: (607) 255-8005. Information on how to register, how to submit an abstract for a contributed presentation, and how to apply for a travel grant will be sent by return email or return regular mail, as appropriate. The deadline for application for a travel grant is June 10, 1994. The deadline for submission of abstracts is July 1, 1994. Other questions may be directed to the organizers at [womprob@math.ucsd.edu](mailto:womprob@math.ucsd.edu).

### CoProf Forum

The AMS Committee on the Profession (CoProf) will sponsor an open forum at the AMS Eastern Sectional Meeting at Polytechnic University, Brooklyn, NY, on April 9, 1994, on issues related to the employment of mathematicians.

The main purpose of the forum is to foster dialog and seek input from the community of mathematical scientists on the role that the AMS can take to improve employment opportunities in the mathematical sciences. Meeting participants will be given the opportunity to speak and are welcome to provide written and oral testimony to support CoProf's efforts in this area.

All members of the mathematics community, including those making oral presentations at the forum, are encouraged to contribute written statements to CoProf.

CoProf is currently reviewing actions that can be taken to extend the implementation of recommendations made in 1992 by the AMS Task Force on Employment. Contributors to the forum and others providing written statements are encouraged to consider those recommendations. The full text of "Employment and the U.S. Mathematics Doctorate: Report of the AMS Task Force on Employment, July 1992" is available on e-MATH GOPHER in the category "General Information of Interest to Mathematicians."

Any member of the mathematics community who wishes to make an oral presentation is asked to notify James W. Maxwell at the AMS (e-mail: [jwm@math.ams.org](mailto:jwm@math.ams.org)) before March 30, 1994. Oral presentations should be limited to five minutes in order to afford opportunities for broad participation. Priority for oral presentations will be given to meeting participants who register in advance,



though all participants will be accommodated as time permits.

Written contributions should be submitted by March 30, 1994. Earlier contributions will facilitate the committee's review of the Employment Task Force's recommendations. Written statements can be sent by e-mail to [emp-forum@math.ams.org](mailto:emp-forum@math.ams.org) or mailed to CoProf Subcommittee on Employment Issues, Attn: Diane Mack, American Mathematical Society, P.O. Box 6248, Providence, RI 02940.

CoProf anticipates sponsoring forums at other regional meetings as the need and opportunity arise.

### ICMP

The XI<sup>th</sup> ICMP (International Congress of Mathematical Physics) of the IAMP will be held in Paris from 18–23 July 1994 followed by several satellite conferences. NSF is expected to provide some funds for travel expenses of U.S. scientists and mathematicians, with priority given to young scientists and invited speakers in topical sessions who have no other travel funds. Although there is no guarantee that the grant will be funded, applications must be submitted before April 1 so that they can be processed in a timely fashion.

For further information about travel grants, contact the selection committee chair M.B. Ruskai by e-mail at [bruskai@cs.uml.edu](mailto:bruskai@cs.uml.edu). For information about the ICMP itself and satellite conferences, contact D. Iagolnitzer at ICMP-Paris, Service de Physique Théorique, CE-Saclay, F-91191 Gif-sur-Yvette Cedex, France; Fax: (33 1) 69 08 81 20.

### AWIS-GWIS 1st Western Regional Conference

The Association for Women in Science and Graduate Women in Science are hosting a conference "Leadership Development For Women In Science," March 18–20, 1994 at the University of California-Davis. This conference is intended to identify and define skills and experience needed to achieve a leadership role in a science career and to provide guides to acquiring that experience and developing leadership skills. In plenary sessions and discipline specific workshops, successful women scientists from academia, industry, government, and private laboratories representing all scientific disciplines will discuss leadership and success from their personal experience. Attention will also be given to mentoring those at junior levels as a responsibility incumbent on all of us at every career stage.

Women at all levels will benefit from understanding what it takes to become an effective leader.

Registration is limited to the first 200 respondents. The fee for attending is \$125 for AWIS or GWIS members and \$160 for non-members. Registration fee includes the program, the program book, all meals from Friday supper through Sunday lunch and a souvenir thermal mug.

If you'd like a complete conference brochure, with schedule, registration forms, etc., call Conference Events and Services (916) 757-3331.

Featured speakers include M.R.C. Greenwood, Associate Director for Science, Office of Science and Technology Policy, Executive Office of the President; Mary Clutter, Acting Director, National Science Foundation; Carol Tomlinson-Keasey, Vice Provost-Faculty Relations, University of California, Davis; and Rose Sargeant, Program Coordinator for Education and Outreach, Center for Particle Astrophysics.

### BMS Symposium

The BMS Symposium "Motion, Control, and Geometry" will be held April 12, 1994, 2–5:15 P.M. in the Lecture Room at the National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, DC (there is no registration fee, but people who wish to attend are requested to register in advance due to limited seating). The 1994 Science and Technology Symposium focuses on control theory as a fundamental aspect of motion generation in many emerging areas. Those areas include microsurgery (for example, involving microrobots or "snakes" capable of locomotion in confined spaces such as an intestinal tract), spacecraft positioning, biological and robotic movement, motor miniaturization, and motion engineering (for instance, via coupled-oscillator pattern generation). Traditional control theory methods have been supplemented by the growing body of techniques associated with dynamical systems and geometric mechanics. This symposium addresses the interdisciplinary synergy that is developing on the basis of theoretical insight and technological inventiveness. Opening Remarks: Shmuel Winograd (IBM). Moderator: Avner Friedman (IMA). Speakers: Roger Brockett (Harvard), P. S. Krishnaprasad (Maryland), Jerrold E. Marsden (Berkeley), and Richard Murray (CalTech).

For more information, contact: Board on Mathematical Sciences, National Research Council, NAS 315, 2101 Constitution Ave., NW, Washington, DC

20418-0001; Phone: 202-334-2421; FAX: 202-334-1597; INTERNET: bms@nas.edu.

### Department Chairs Colloquium

The 1994 Mathematical Sciences Department Chairs Colloquium will be held October 28–29 in Arlington, VA. The theme of the 1994 Colloquium is "Shaping a New Contract with the University and with Society." The keynote address will be given by Neal F. Lane, Director of the National Science Foundation. The Colloquium will include three workshop sessions on Friday morning, including the popular workshop for new and future chairs. On Friday afternoon and all day Saturday, there will be sessions on enhanced productivity in mid-career, the JPBM Project on Professional Recognition and Rewards, federal research and education programs, the current employment situation, and many more topics in research and education management of bottom-line interest to department chairs. For the fifth year in a row, the registration fee has been kept at \$160. Brochures with a preliminary program will be sent to department chairs in spring 1994. Further information on the colloquium and registration forms may be requested from bms@nas.edu. Also, you may contact BMS as above.

### NTA National Conference

The 66th Annual Conference of the National Technical Association (NTA) will be held July 20–23, 1994. NTA is committed to improving the human condition in America. As America's oldest technical professional association of minority scientists and engineers, NTA uses a multidisciplinary approach to ensure that science and technology serve the needs of the minority community. Since 1926, NTA has provided grass roots leadership to effect positive change in America's scientific process. NTA believes that pursuing excellence in education is the country's greatest tool for sustaining its technological leadership. Our uniqueness makes NTA a catalyst for change for the betterment of all society. To promote this change, NTA is bringing its annual conference to the nation's capital with the theme "Re-Inventing America through Science, Technology, and Education."

The four-day event will showcase NTA national programs and our vision for a better America. Our theme is consistent with President Clinton's goals for improving America's quality of life and eco-

nomonic strength through science and technology initiatives that stimulate economic growth, create high-quality jobs, and protect our environment. Our conference will focus on the following areas, with special emphasis on their relationship to the minority community: National Information Infrastructure: What it is, What it Means, and What Opportunities Exist for African-American Involvement; Energy: Energy Production, Renewable Resources, Waste Management, and Energy Issues Facing Urban America; Technology Education Issues: Online Schools, Multi-media, Information Sciences, and their Impact on the Reshaping of Educational Systems; Advances in Science and Technology: Aerospace Research and Development, Advanced Computing, Telecommunications, Bioengineering, Computer Technology, and the Need for Big Science; and The Human Resource Crisis: What Role Must African-Americans Play in Meeting the Technology Challenge.

Re-Inventing America Through Science, Technology, and Education will feature invited speakers, workshops, technical sessions, student activities, and panel discussions designed to directly address change as it affects our technology infrastructure. The conference will spotlight new technology issues, minority business enterprise, workplace diversity, and the utilization of *all* of America's human resources to remain globally competitive.

The National Technical Achiever of the Year Awards will be presented at the conference. These awards will showcase African-Americans who have demonstrated excellence and distinguished themselves as scientists, technologists, and educators.

At the two-day Technical Career Opportunity Fair, come and explore thousands of employment opportunities for students, recent graduates, and seasoned professionals with some of America's fastest growing technology companies. Industry and government representatives will be there.

For information, please call or write: 66th Annual Conference, National Technical Association, Inc., P. O. Box 7045, Washington, DC 20032-7045; 202-829-6100 (voice); 703-684-3952 (fax); or 614-341-7795 (automated NTA Information and FAXBACK Line).

You are invited to submit abstracts of papers for presentation at the conference. Papers on topics directly related to the theme are especially invited. However, papers in all areas of science and technology, including education and public policy related to these areas, will be considered.

Our conference is structured for multi-faceted participation by all. Thus NTA is seeking papers from professionals, educators, and college and high school students.

Abstract submissions must contain the following: 1. name, mailing address, and daytime telephone number; 2. academic or occupational position, including the name of your company or institution; 3. NTA affiliation; 4. title of presentation (15 words or less); 5. abstract of the presentation (150–300 words in length). If you are a student, you must indicate clearly whether you are a high school, undergraduate, or graduate student. Please keep in mind that conference presentations are typically limited to 15 minutes, with five additional minutes for questions/discussion.

The abstract submission deadline is April 15, 1994. Send copies of your abstract to Robert B. Lee, III, NASA Langley Research Center, Mail Stop 420, Hampton, VA 23681; (804) 864-5679 (voice), (804) 864-7996 (fax), r.b.lee@larc.nasa.gov and Dr. George R. Carruthers, Naval Research Laboratory, Code 7609, Washington, DC 20375, (202) 767-2764 (voice), (202) 404-7296 (fax), carruthers@11341.dnet.nasa.gov.

### **Hands on, Hands Across: Doing Women's Studies**

The 1994 South Central Women's Studies Association Conference, sponsored by the Women's Studies Consortium of Louisiana and Newcomb College Center for Research on Women, will be held March 11–12, 1994 at Tulane University, New Orleans, LA. "Hands On, Hands Across: Doing Women's Studies" is an interactive conference designed for all — academics and community people involved in feminist/women's studies and activism — to come together and share creative ideas and expertise on the practical aspects of research, teaching, writing and working. Workshops will present "how to" information on topics of concern to us in our communities. Roundtables will bring together participants who share similar research and praxis interests. Rather than paper presentations, participants will exchange applied and theoretical knowledge about their areas of involvement.

Featured all-conference events include a Friday lunch publishers panel, "How to Get Your Manuscript Published"; a dramatic presentation, "The Underside of Logos," directed by Tommye

Myrick; and the Saturday night keynote address, "Live Connections: Ecosystems as a Model for Feminist Praxis," given by acclaimed author and activist, Susan Griffin.

For more information and to receive a conference brochure and registration form, contact Anne Daniell at (504) 865-5238.

### **Workshop on Combinatorial Games**

This summer MSRI will host a special two-week workshop on Combinatorial Games, July 11–22, 1994. The workshop is being organized by Elwyn Berlekamp (chair), John Conway, Noam Elkies, Avi Fraenkel, Richard Guy, Richard Nowakowski, Jim Propp, and Ken Thompson.

The mathematical study of two-player perfect-information games seeks precise, provable assertions about various positions and strategies, rather than heuristics which hope to be good enough to compete with strong human players in real time. Combinatorial game theory now encompasses a substantial collection of general theorems, constructive algorithms, complexity proofs, and extensive databases of endgame solutions for classical games such as chess. Conway's theory of partisan games has provided a framework for analyzing games whose positions split into disjoint sums. This theory and its variations have been very successful in analyzing intricate endgame problems in a wide range of games, including such popular games as Go and Dots-and-Boxes as well as a much longer list of "mathematical" games such as Domineering, Hackenbush, *et al.* Engineers are also beginning to show some interest in this subject because the problem of decomposing a game position into simpler games can be somewhat analogous to the problem of decomposing a large hardware-software system into tractable modules.

The mathematical community is warmly invited to attend. There are no fees or application forms. A limited amount of funding is available for partial support of people wishing to attend. Students, recent Ph.D.'s, women, and minorities are encouraged to apply. Requests for financial support should be received by April 11, 1994 and should be accompanied by some information (such as a vita and/or bibliography); it is suggested that students solicit a letter from a faculty advisor. Shortly after April 11 there will be a mailing which will include hotel information, whatever program information is available at that time, and replies to requests for funding.



Requests to receive this mailing and requests for funding should be addressed to: Workshop on Combinatorial Games, Mathematical Sciences Research Institute, 1000 Centennial Drive, Berkeley, CA 94720 or by email to [cg@msri.org](mailto:cg@msri.org). Funding for the workshop is provided by the National Science Foundation through MSRI.

### WKU Women's Studies Conference

The Eighth Annual WKU Women's Studies Conference, "Women in the Arts and Sciences," will be held September 23–24, 1994, at Western Kentucky University. Anne Fausto-Sterling, author of *Myths of Gender: Biological Theories about Women and Men*, and Pat Carr, award-winning fiction writer and scholar, will be guest speakers.

Papers and panels are invited in all areas of women's studies. The application deadline for abstracts is April 15, 1994 (submission of an abstract will be considered agreement by the author to attend the conference if the paper is accepted). Volunteers to moderate sessions are also needed.

Address inquiries and requests for application guidelines to: Program Committee, WKU Women's Studies Conference, 200 Ivan Wilson Center for Fine Arts, Western Kentucky University, Bowling Green, KY 42101; phone: (502) 745-6477; fax: (502) 745-5387.

### National WEPAN Conference

WEPAN, Women in Engineering Program Advocates Network, presents its fifth annual conference, June 5–7, 1994, at the Washington Marriott in Washington, DC. Representatives of colleges and universities, professional societies, industry and government will gather to share and investigate approaches to increase the number of women in

engineering. The 1994 Women in Engineering Conference will address academic and corporate climate issues, current strategies, proven methods, new research findings and innovative curricula to improve women's access to careers in engineering.

Address inquiries to: Karan Watson, Secretary, WEPAN, 204 Zachry Engineering Center, Texas A&M University, College Station, TX 77843; phone: (409) 862-4367; fax: (409) 847-8654.

## RESOURCE DIRECTORY

The American Association for the Advancement of Science Project on Science, Technology, and Disability invites scientists and engineers with disabilities to be included in the third edition of the *Resource Directory of Scientists and Engineers with Disabilities*. Potential candidates for the directory must hold, or be working toward, a degree in a scientific, engineering, or medical discipline, or currently be employed in a scientific field. Funded by the NSF, this publication has assisted hundreds of individuals enter and advance in scientific disciplines. The directory helps to connect persons with disabilities and their families with professors, teachers and counselors who can serve as role models and mentors. Persons listed in the directory may be asked to consult or serve on peer review panels.

To be included in the directory, or for more information, contact: Laureen Summers, Program Associate or Patricia A. Thompson, Editorial Specialist, AAAS Project on Science, Technology, and Disability, AAAS, 1333 H St., NW, Washington, DC 20005; phone: (202) 326-6645 (V/TDD); fax: (202) 371-9849.

### CALL FOR NOMINATIONS: ALICE T. SCHAFER MATHEMATICS PRIZE

The Association for Women in Mathematics calls for nominations for the Alice T. Schafer Mathematics Prize in the amount of \$1000 to be awarded to an undergraduate woman for excellence in mathematics. All members of the mathematical community are invited to submit nominations for the Prize. An institution may have more than one nominee.

The nominee may be at any level in her undergraduate career. The letter of nomination should include, but not be limited to, an evaluation of the nominee on the following criteria: quality of performance in mathematics, exhibition of real interest in mathematics, ability for independent work, and performance in mathematical competitions at the local or national level, if any.

Supporting materials should be enclosed with the nominations. Please send *five copies* of the letter and other materials. Nominations are due by **April 1, 1994** and should be sent to the Alice T. Schafer Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; (301) 405-7892.

## PHOTO-BIOGRAPHIES

*Science is Women's Work: Photos and Biographies of American Women in the Sciences* is the latest in the series of multicultural classroom materials from the National Women's History Project. The twenty-six women featured in this booklet successfully overcame the social biases of their times to become renowned for their contributions in eighteen fields of science or mathematics.

Written for grades 4 through 8, each full-page biography is accompanied by a full-page photograph, many of which place the women in their actual work settings. The lives of women like

mathematician Anna Pell Wheeler, (1883–1966), biochemist Constance Tom Noguchi (b. 1948), astronomer and educator Maria Mitchell (1818–1889), pharmacologist Gertrude B. Elion (b. 1918) or nuclear physicist Chien-Shiung Wu (b. 1912), will be inspiring to young readers, who might imagine themselves doing similar work in their own adult lives.

*Science is Women's Work*, a 56-page booklet, is one of dozens of resources about women in math and science available from the National Women's History Project. It may be ordered for \$8.50 plus \$3.50 s/h from the National Women's History Project, 7738 Bell Road, Dept. P, Windsor, CA 95492; phone: (707) 838-6000.

## WORKSHOP FOR WOMEN GRADUATE STUDENTS AND POSTDOCS

Over the past four 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 postdocs in conjunction with major mathematics meetings. The next workshop in the series is scheduled to be held on Sunday, July 24, 1994, immediately preceding the SIAM Annual Meeting in San Diego, CA.

AWM will offer funding for travel and 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 which follow.

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 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 welcome. Please send **five** copies of the application materials to the address below. Applications must be received by **April 15, 1994**.

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

For more information contact the AWM office.

(301) 405-7892  
awm@math.umd.edu

## SCHOLARLY OPPORTUNITIES

### Fulbright Scholar Awards

Fulbright opportunities are available for university lecturing or advanced research in nearly 140 countries. Funding for the Fulbright Program is provided by the United States Information Agency, on behalf of the U.S. government, and cooperating governments and host institutions abroad.

Awards range from two months to a full academic year. Virtually all disciplines participate. Applications are encouraged from professionals outside academe, as well as from faculty at all types of institutions.

The basic eligibility requirements for a Fulbright Scholar award are U.S. citizenship and the Ph.D. or the equivalent. For lecturing awards, college-level teaching experience is expected. Language skills are needed for some countries, but most lecturing assignments are in English.

A single deadline of August 1, 1994 exists for research or lecturing grants to all world areas. Other deadlines are in place for special programs.

For further information and application materials, contact the Council for International Exchange of Scholars, 3007 Tilden St., NW, Suite 5M, Box GNEWS, Washington, DC 20008-3009; phone: (202) 686-7877; e-mail (application requests only): [cies1@gwuvvm.gwu.edu](mailto:cies1@gwuvvm.gwu.edu).

### NRC Associateships

The National Research Council announces the 1994 Resident, Cooperative, and Postdoctoral Research Associateship Programs to be conducted on behalf of federal agencies or research institutions whose 140 participating research laboratories are located throughout the U.S. The programs provide opportunities for Ph.D. scientists and engineers of unusual promise and ability to perform research on problems largely of their own choosing yet compatible with the research interests of the sponsoring laboratory.

Awards are made for one or two years, renewable to a maximum of three years; senior applicants who have held the doctorate at least five years may request a shorter period. Annual stipends for recent Ph.D.'s for the 1994 program year range from \$30,000 to \$45,500 depending upon the sponsoring laboratory and will be appropriately higher for senior Associates.

Applications postmarked by April 15 will be reviewed in June and by August 15, in October. Initial awards will be made in July and November, followed by awards to alternate candidates later.

For information and application materials, contact: Associateship Programs (TJ 2094/D2), National Research Council, 2101 Constitution Ave., NW, Washington, DC 20418; fax: (202) 334-2759.

### U.S.-CEE Joint Initiatives

The Office for Central Europe and Eurasia of the National Academy of Sciences/National Research Council offers grants to individual American specialists who wish to collaborate with their colleagues from Central/Eastern Europe (CEE) and the former Soviet Union (FSU). Short-term project development grants support American specialists who wish to host or visit their CEE or FSU colleagues for a two-week period in order to prepare a collaborative research proposal for submission to the NSF or other funding organizations; grant levels are \$2000 to \$2200. Long-term grants support American specialists who wish to host or visit their CEE or FSU colleagues for familiarization with research for a period of one to six months; grant levels are \$3600 to \$12,100. Significant publications jointly authored by program participants as a result of their long-term visits are strongly encouraged. Deadlines are June 24, 1994 for project development and long-term grants and December 9, 1994 for project development only.

Address inquiries to: Office for Central Europe and Eurasia, National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418; phone: (202) 334-3680; fax: (202) 334-2614; e-mail: [occe@nas.edu](mailto:occe@nas.edu).

### NSA Sabbaticals

NSA's Mathematical Sabbatical Program offers an opportunity to work on a short-term basis with the leading employer of mathematicians in the United States. The sabbaticals primarily involve cryptanalysis; they run from 9 to 24 months. The NSA will supplement university stipends to at least equal the regular monthly salary. The application deadline is August 1 or until positions are filled. Write: Dr. Charles F. Osgood, Director, NSA Mathematical Sabbatical Program, Attn: R51A, National Security Agency, Fort George G. Meade, MD 20755; phone: (301) 688-0400.



## AWM IN CINCINNATI:



Post-docs: Back: Donna Glassbrenner, Anne Morlet, Ayelet Lindenstrauss, Catherine Carroll, Jill Dietz, Ruth Charney (Chair)  
Front: Cora Sadosky (AWM President), Ami Radunskaya, Galia Dafni, Barbara Nimershiem, Sandra Shields, Ellen Gethner



Workshop Panel: Lynne Butler, Susan Williams, Ruth Williams, Ruth Charney (Chair)

# THE WORKSHOP



Graduate Student: Front: Susan Lee, Nadine Kowalsky, Sherri L. Brugh, Anne M. Dougherty  
Back: Lenore Blum (Co-chair), Aihua Li, Kathleen Madden Judith Miller, Mirjana Jovovic', Sheryl L. Wills, Semra Kiliç



Ruth Charney, Kathleen Madden



Front: Ayelet Lindenstrauss, Nadine Kowalsky,  
Galia D. Dafni; Back: Natasa Kovacevic',

## ADVERTISEMENT

**BATES COLLEGE - MATHEMATICS DEPARTMENT** - The Mathematics Department at Bates College announces TWO full time temporary positions, beginning Fall 1994. The first position is for two years and the second is for one. Desire to teach applied math, computer science, or a seminar with a strong writing component for first year students is a plus, as is an interest in Calculus reform --- mention any such experiences. Located in central Maine, Bates College is a liberal arts college of 1,500 students. The mathematics department has eight faculty members, and we graduate about 15 majors per year. Department members take teaching very seriously, while supporting a wide range of professional activities including research and publishing. Bates College values a diverse college community and seeks to assure Equal Opportunity through a continuing and effective Affirmative Action program. We welcome applications from women and minorities. The qualified applicant will have or be near completion of a Ph.D. in mathematics. Interested persons should send a letter of application and current vita. Include e-mail address. Forward three letters of reference. One letter should specifically address the candidate's teaching abilities. Send materials to: Chip Ross, Chair, Department of Mathematics, c/o Secretarial Services, Andrews Road, Lane Hall, Bates College, Lewiston, ME 04240. Consideration of candidates will begin March 22 and will continue until the position is filled.

**BOWDOIN COLLEGE - MATHEMATICS DEPARTMENT** - Tenure-track Assistant Professorship in applied mathematics starting Fall 1994. Initial appointment for three years with renewal possible. Possibility of second, non-tenure-track position - field open. Ph.D. required and strong research record or potential expected. Normal teaching load is two courses per semester. Candidates with record of effective undergraduate teaching preferred. Review of candidates begins 1 January, but applications will be considered until position is filled. Send resume and 3 letters of recommendation to: James E. Ward, Chair, Department of Mathematics, Bowdoin College, Brunswick, ME 04011. Include E-mail address. Bowdoin College is committed to Equal Opportunity through Affirmative Action. Women and member of minority groups are urged to apply and invited to identify themselves as such.

**CALVIN COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - The Calvin College Department of Mathematics and Computer Science expects to have from two to four openings for new faculty members beginning in the fall of 1994. One opening will be a regular, tenure-track opening in statistics. There will also be one or two temporary openings in mathematics to replace faculty members who will be on leave. In addition, there may be a temporary opening in Computer Science. Candidates for all positions must have a strong commitment to undergraduate teaching and to scholarship. A Ph.D. in statistics is required for the statistics position. Calvin College is a Christian liberal arts college in the Reformed tradition. It is owned and operated by the Christian Reformed Church. Calvin College enrolls approximately 4,000 students and graduates 25 mathematics majors each year. Applications will be accepted at any time, but applications received before February 28 will be given first priority. Applicants should forward a curriculum vitae, graduate transcripts, and three letters of reference to: Chair of Search Committee, Department of Mathematics and Computer Science, Calvin College, Grand Rapids, MI 49546. Inquiries may be sent to the address above or via electronic mail to: math@calvin.edu. Calvin College is an Equal Opportunity Employer.

**CLARKSON UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - The Department of Mathematics and Computer Science at Clarkson University invites applications for a tenure track position in computer science. Candidates must have: Ph.D. in computer science or in mathematics; demonstrated excellence in research and in teaching; expertise in theoretical computer science or programming languages. Rank and salary are negotiable. Applications including vita and names of three references must be received by March 31, 1994. Starting date is August 16, 1994. Applications should be submitted to: Professor D. Powers, Department of Mathematics and Computer Science, Clarkson University, Potsdam, NY 13699-5815. Clarkson University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are urged to apply. (Pos. #555)

**CLARKSON UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - The Department of Mathematics and Computer Science at Clarkson University invites applications for two tenure track positions. Minimum requirements are: Ph.D. in mathematics or a closely related discipline; demonstrated excellence in both teaching and research; ability to communicate readily in English. The **first position** requires expertise in statistics and probability and ability to provide leadership in undergraduate statistics and actuarial studies. The **second position** requires expertise in non linear waves and applied mathematics as well as a research area compatible with current faculty. Rank and salary are negotiable. Applications including vita and names of three references must be received by March 31, 1994. Starting date is August 16, 1994. Applications should be submitted to: Professor D. Powers, Department of Mathematics and Computer Science, Clarkson University, Potsdam, NY 13699-5815. Clarkson University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are urged to apply. (Pos. #554 and #556)

**FOOTHILL COLLEGE - DIVISION OF PHYSICAL SCIENCES, MATHEMATICS AND ENGINEERING** - The Division of Physical Sciences, Mathematics and Engineering is now accepting applications for **two full-time permanent positions**. Emphasis will be on teaching elementary statistics and calculus, and on basic skills mathematics, which include structure of arithmetic and beginning and intermediate algebra. Successful candidate's will also instruct other mathematics courses such as structure of arithmetic, elementary and intermediate algebra, trigonometry, precalculus, calculus, differential equations, and linear algebra. Participate in curriculum development; supplement math courses with computer applications; motivate and encourage students. Candidates should possess a M.A. in mathematics or applied mathematics, or a B.A. in either mathematics or applied mathematics and a M.A. in statistics, physics, or mathematics education or the equivalent. Applications and complete job descriptions may be obtained from: Employment Services, Foothill-De Anza Community College, 12345 El Monte Road, Los Altos Hills, CA 94022. 415-929-6217. A resume or vita may not be substituted for a completed application. First review date: April 12, 1994. Announcement #94052 and #94053. AA/EOE.

**JOHNS HOPKINS UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Applications are invited for anticipated faculty positions within the general area of algebra, analysis, geometry, number theory and topology. Of particular interest is the broad area of analysis. Positions may be filled at any level. Minority and women candidates are encouraged to apply. The Johns Hopkins University is an Affirmative Action/Equal Opportunity Employer. Applicants should submit a curriculum vitae and arrange for letters of recommendation to be sent to: Appointments Committee, Department of Mathematics, 404 Krieger Hall, Johns Hopkins University, Baltimore, MD 21218 (Applications in probability, statistics, operations research, and numerical methods will not be considered; applicants in these areas should instead contact the Dept. of Mathematical Sciences in the School of Engineering.)

**MARSHALL UNIVERSITY - COLLEGE OF SCIENCE - Dean** - Marshall University is especially interested in having women and minorities apply for the position of Dean of the College of Science at Marshall University which includes the mathematics department. For more information contact: Howard Aulick, Chair of the Search Committee, 400 Hal Greer Blvd., Huntington, WV 25755. Application deadline is March 15, 1994

**NORTHEASTERN ILLINOIS UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics, Northeastern Illinois University, invites applications for tenure track Assistant Professor beginning Fall 1994. Required: earned doctorate in mathematics. Responsibilities: teaching lower level service courses; courses to support undergraduate and graduate programs in applied math, statistics and math education; and curriculum development. Department offers undergraduate and masters degrees with specializations in statistics, operations research, scientific computing, elementary and secondary school teaching. Send application letter, vita, and three letters of reference (at least 1 addressing teaching effectiveness) to: Dr. Anna-Lise Jensen, Department of Mathematics, Northeastern Illinois University, 5500 N. St. Louis Ave., Chicago, IL 60625. Review of applications begins 3/14/94. Affirmative Action/Equal Opportunity Employer.

**PROFILES OF WOMEN IN MATHEMATICS: THE EMMY NOETHER LECTURERS booklet - 1994 edition Now Available!**

This booklet includes profiles of the women mathematicians who have presented the annual AWM Noether Lectures, since its inception in 1980 at the Joint Mathematics Meeting. Booklets are **\$1.50 each (\$1.00 on order of 10 or more)**. Send orders to: NOETHER BOOKLET ORDERS, c/o AWM 4114 Computer & Space Sciences Bldg., University of Maryland, College Park, MD 20742-2461. Please allow up to 4 weeks for delivery.

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## ADVERTISEMENTS

**OAKLAND UNIVERSITY, ROCHESTER, MICHIGAN - DEPARTMENT OF MATHEMATICAL SCIENCES** - The Department invites applications for a possible tenure-track position at the rank of Assistant Professor in the area of applied discrete mathematics. Responsibilities include teaching, research, and contribution to the department's collaborative efforts with industry. Candidates must have a Ph.D. in mathematics or a closely related discipline (or its requirements completed) by August 15, 1994. Preference given to applicants with strong research potential in applied discrete mathematics. Ability to interact with local industry highly desirable. Please send a vita and transcripts, and arrange for three letters of reference to be sent to: Chair of the Applied Discrete Mathematics Search Committee, Department of Mathematical Sciences, Oakland University, Rochester, MI 48309-4401. Review of applications will begin on March 1, 1994. Oakland University is a public institution with approximately 13,000 students enrolled in baccalaureate, masters, and doctoral programs. Oakland University is an Affirmative Action/Equal Opportunity Employer and especially encourages applications from women and minorities.

**PARKS COLLEGE OF ST. LOUIS UNIVERSITY - DEPARTMENT OF SCIENCE AND MATHEMATICS - Faculty Position in Computer Science** - The Department of Science and Mathematics at Parks College of Saint Louis University is seeking applicants for a tenure-track faculty position at the rank of Assistant or Associate Professor to begin in Fall 1994. The ideal candidate will have a doctorate in computer science or software engineering, or a minimum of five years of experience in the computer software industry. The faculty member will provide instruction and assist in further development of the department's Bachelor of Science degree programs in Applied Computer Science and Computer Software Systems (Software Engineering). Applicants should send a curriculum vitae, statement of future research plans, and three letters of recommendations to: Charles C. Kirkpatrick, Chair, Department of Science and Mathematics, Parks College of Saint Louis University, Cahokia, IL 62206. E-mail: kirkpat@newton.slu.edu. The review of completed applications will begin on March 1, 1994. Applications received after that date will continue to receive consideration until the position is filled. Parks College of Saint Louis University is an Equal Opportunity/Affirmative Action Employer. M/F/V/H

**SAN DIEGO STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Mathematics Education** - Applications are invited for a one-year position in mathematics education. Rank: Open. Require Ph.D. in mathematics education, mathematics, or a closely related field by September 1994. Duties included teaching undergraduates and graduates and conducting one's own research. Closing date: March 15, 1994. Applications received after that date will be considered if position is still open. Send Vita (including coursework or transcripts), and have at least three letters of recommendations sent to: Mathematics Education Search Committee, Department of Mathematical Sciences, San Diego State University, San Diego, CA 92182. San Diego State University is an Affirmative Action/Equal Opportunity Employer; and does not discriminate against the handicapped.

**SOUTHERN ILLINOIS UNIVERSITY @ CARBONDALE - DEPARTMENT OF MATHEMATICS - Temporary Positions 1994-95** - Temporary Positions are anticipated starting on August 16, 1994 as Lecturer. Masters degree in mathematics or admission to candidacy required; Ph.D. preferred. Applicants should provide evidence of excellence in teaching and foreign applicants must provide evidence of ability to teach in English effectively. Preference given to applicants with research interests compatible with those of the faculty. The duties will consist of 12 hours of undergraduate mathematics instruction each semester. Closing date May 15, 1994 or until positions are filled. Send applications (including transcripts) to: Temporary Positions, c/o Ronald Kirk, Chair, Department of Mathematics, Southern Illinois University @ Carbondale, Carbondale, IL 62901. SIUC is an Equal Opportunity/Affirmative Action Employer.

**SYRACUSE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - A position may be available in the area of mathematics education at the assistant professor level, beginning Fall 1994. The appointment will be jointly in the Department of Mathematics of the College of Arts and Sciences and in the Teaching and Leadership Program of the School of Education. Candidates should have outstanding research ability and evidence of excellence in teaching; some secondary school teaching experience is highly desirable. Responsibilities include: teaching and advising undergraduate and graduate (M.S. and Ph.D.) students in mathematics education; directing and conducting research in mathematics education; involvement with area mathematics secondary teachers. We have a particular interest in the use of technology in teaching and learning mathematics. Send a letter of application and vitae with a list of publications, and have three letters of reference sent to: Philip T. Church, Search Committee Chairman, Department of Mathematics, Syracuse University, Box 1, Syracuse, NY 13244-1150. Syracuse University is an Equal Opportunity/Affirmative Action Employer.

**TRINITY COLLEGE, HARTFORD, CONNECTICUT - DIRECTOR OF MATHEMATICS CENTER** - Trinity College seeks Director of its AEtna Mathematics Center to administer operations, staff and budget; to support the Mathematics Department's statistics, pre-calculus and calculus offerings; and to oversee the Center's community outreach activities. Responsibilities include supervising required undergraduate proficiency examination and related courses, developing compensatory programs, and teaching two or three courses per year. Pre-calculus teaching experience in secondary school, community college, or collegiate setting required. Ph.D. or Ed.D. in mathematics or mathematics education preferred, but waived in cases of extensive experience; statistical computing and administrative experience also desirable. Appointment date July 1, 1994 for three-year renewable term. Salary competitive. Send cover letter, vitae, statement of educational philosophy, and three letters of reference (at least one addressing candidate's teaching) to: Dean John S. Waggett, Trinity College, Hartford, CT 06106. Review of applications begins February 15, 1994. Trinity College is an Equal Opportunity and Affirmative Action Employer. Women and minorities especially encourage to apply.

**UNITED STATES NAVAL ACADEMY - MATHEMATICS DEPARTMENT** - Applications are invited for one or two anticipated tenure-track appointments at the assistant professor level commencing August 1994. Ten month salary, commensurate with experience and qualifications. Research opportunities exist for augmenting salary during summer. Applicants must possess Ph.D., have a commitment to excellence in teaching and be capable of pursuing independent research. Send inquiries and applications to: J. M. D'Archangelo, Mathematics Department, United States Naval Academy, Annapolis, MD 21402-5002. Required of each applicant are a resume, undergraduate and graduate transcripts, and three letters of recommendation discussing applicant's teaching and research. The Naval Academy is an Equal Opportunity/Affirmative Action Employer.

**UNIVERSITY OF CONNECTICUT - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics invites applications for an anticipated, tenure-track position at the Assistant/Associate Professor level at the Hartford Campus effective September 1, 1994. The Hartford Campus is located in West Hartford, which is about thirty miles away from the main campus. UCONN-Hartford offers a two year program but hopes to expand to a four year program in Mathematics, and we are looking for a person who can take a leadership role in that transition. Requirements included a Ph.D. in Mathematics, experience and demonstrated talent in teaching both Mathematics and Statistics, and a strong evidence of research capabilities. Salary commensurate with experience. Screening of applicants will begin March 15, 1994, and will continue until the position is filled. For full consideration, send resume and at least three letters of recommendation to: Professor Jerome Neuwirth, Department of Mathematics, U-9, University of Connecticut, Storrs, CT 06269-3009. We encourage applications from under-represented groups, including minorities, women, and people with disabilities. (Search #4A229)

**UNIVERSITY OF MICHIGAN-DEARBORN, DEPARTMENT OF MATHEMATICS AND STATISTICS - Math Education Position** - The University of Michigan-Dearborn plans to fill a tenure track position in math education starting in September 1994. The position is at the Assistant or Associate Professor level and requires a doctorate in math education. A focus in early elementary or in elementary math methods, as well as teaching experience in grades K-8 is preferred. Demonstrated capability in teaching courses in math education at the university level is required, as well as demonstrated research capability in math education. The teaching load is 9 credit hours per term, and includes teaching general lower division math courses. To apply, send vita, transcript, and have 3 letters of recommendation sent to: Ronald P. Morash, Chairman, Department of Mathematics and Statistics, University of Michigan-Dearborn, 4901 Evergreen Road, Dearborn, MI 48128. To ensure full consideration, all applications materials must be received by April 15, 1994. The committee will continue to accept application materials until the position is filled. The University of Michigan-Dearborn is dedicated to the goal of building a culturally diverse and pluralistic faculty committed to teaching and working in a multicultural environment, and strongly encourages applications from minorities and women. The University of Michigan-Dearborn is an Equal Opportunity/Affirmative Action Employer.

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## ADVERTISEMENT

**UNIVERSITY OF RICHMOND - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - A one year visiting position is available for 1994-95, at the assistant professor/instructor level. Teaching load will be four courses per semester (two preparations), most of which will be at the calculus level, with approximately 25 students per class. A Ph.D. in mathematics is preferred but ABD's will be considered. Anyone with a Ph.D. will hold the rank of assistant professor; otherwise, the rank will be that of instructor. Send a letter of application (including e-mail address, if possible), curriculum vitae, transcripts, and three letters of recommendation, at least one of which addresses teaching to: Prof. Marion Stokes, Chair, Department of Mathematics and Computer Science, University of Richmond, VA 23173. Phone: (804) 289-8092, E-mail: stokes@aurora.urich.edu. The University of Richmond is an Equal Opportunity Employer

**UNIVERSITY OF VERMONT - DEPARTMENT OF MATHEMATICS AND STATISTICS - Assistant Professor in Applied Mathematics** - The Department of Mathematics and Statistics invites applications for a tenure-track assistant professorship in applied mathematics. Duties include teaching two courses per semester, research in applied mathematics, and service on departmental committees. Applicants should have strong research credentials and possess the Ph.D. degree in applied mathematics or a closely related discipline with a research specialty in an area compatible with the interests or present faculty members. These areas include mathematical modeling in biomechanics, hydrodynamic stability and nonlinear waves, and computational methods. Teaching experience is also desirable. Preference will be given to applicants with strong modeling and computational backgrounds who can collaborate effectively with engineers and with physical and medical scientists on research problems of interdisciplinary interest. Applicants should send a vitae, description of research, and three letters of reference to: Prof. Roger Cooke, Personnel Committee, Department of Mathematics and Statistics, University of Vermont, Burlington, VT 05401-1455. Review of applications will begin March 1, 1994; duties begin in the Fall Semester 1994. The University of Vermont is an Equal Opportunity/Affirmative Action Employer. Women & members of other underrepresented groups are particularly encouraged to apply.

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Applications are invited for an anticipated tenure-track position in Geometry (differential or algebraic, or related areas) beginning Fall 1994. Because we seek applicants who will be able to develop a strong case for eventual promotion and tenure, preference will be given to those with postdoctoral or instructorship experience and established research programs. Please send vitae and brief description of research and have three letters of reference sent to: Prof. William Floyd, Chair, Geometry Search Committee, Department of Mathematics, Virginia Tech, Blacksburg, VA 24061-0123. At least one letter should address the applicant's qualifications as a teacher. Applications will be accepted until April 15, 1994 or until position is filled. Applications completed by March 15, 1994 will be included in the first round of evaluations. Virginia Tech has a strong commitment to the principle of diversity and, in that spirit, seeks a broad spectrum of candidates including women, people of color, and people with disabilities. Individuals with disabilities desiring accommodations in the application process should notify Melissa McIntyre in the Mathematics Department at 703-231-6536 (TDD/PC 1-800-828-1120 - Voice 1-800-828-1140) by the application deadline.

**WASHINGTON STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Assistant Professor, tenure track position in the Department of Mathematics available Fall 1994. Ph.D. in Statistics, Probability or closely related field required. Preferred areas of research interest include probabilistic modeling, computer based inferential techniques or quality control. Research potential essential. Teaching responsibilities will include graduate courses in statistics and probability. Applications will be accepted through March 2 or until the position is filled. To apply, send curriculum vitae, transcripts, 3 references and a statement concerning current and long range research interests to: Mike Jacroux, Department of Pure and Applied Mathematics, Washington State University, Pullman, Washington 99164-3113. Washington State University is an Equal Opportunity/Affirmative Action Educator and Employer. Protected group members are encouraged to apply.

**WASHINGTON STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Pure and Applied Mathematics has a permanent tenure track position available beginning Fall 1994. Assistant Professor level. Applications are invited from analysts with applicable expertise in partial differential equations (preferably in convection-diffusion/semilinear parabolic equations). Applicants should have significant research accomplishments and strong commitment to teaching. The successful applicant will be expected to interact with established departmental research groups in mathematical modeling and numerical analysis. The position requires a Ph.D. with competence in teaching relevant graduate courses in real/functional analysis. Applicants should submit vitae, statement of current and planned research and arrange to have three letters of recommendations sent to: V. S. Manoranjan, Search Committee, Department of Mathematics, Washington State University, Pullman, WA 99164-3113. Washington State University is an Equal Opportunity/Affirmative Action Educator and Employer. Protected group members are encouraged to apply.

## ANNOUNCEMENTS

**INSTITUTE FOR MATHEMATICS AND ITS APPLICATIONS, UNIVERSITY OF MINNESOTA, MINNEAPOLIS**

**Summer Program on Molecular Biology - July 5-29, 1994**

The program will get together molecular biologist and mathematicians who have worked on aspects of protein sequencing, protein folding, molecular dynamics. One goal is to bring young mathematicians into contact with this fast growing field. **Week 1:** Sequencing and Mapping, July 5-8; **Week 2:** Genetic Linkage and Mapping, July 11-15; **Week 3:** Protein Structure and Dynamics, July 18-22; **Week 4:** Topology and Geometry of DNA and RNA, July 25-29. It is the intent of the coordinators (M. Waterman (Chair), J. P. Mesirov, G. Myers, K. Schulten, T. P. Speed, D. W. Sumners) to strike a 50-50 balance between mathematics and biology. Each weekly segment will feature introductory and survey talks by senior researchers and a larger number of technical talks. Informal interaction encouraged. \$100 registration fee. Some support available for researchers (including graduate students) who are, or wish to become, familiar with the subject. Women and minorities especially encouraged to apply. For details write to: Avner Friedman, Director, Institute for Mathematics and its Applications, University of Minnesota, 514 Vincent Hall, 206 Church Street, S.E., Minneapolis, MN 55455. Applications due by May 6, 1994.

**WOULD YOUR DEPARTMENT LIKE TO OPERATE A PROGRAM TO BRING MORE WOMEN INTO MATHEMATICS?**

With support from the National Science Foundation (NSF), Mills College will hold a conference at the University of California at Berkeley, July 14-16, 1994, to bring together people interested in developing projects to increase the flow of women into graduate programs in the mathematical sciences. Some funds are available to help defray travel cost for eight to ten conference participants. Mills College will operate one such project for the fourth summer, in 1994. The NSF has encourage us to find other institutions wishing to develop related projects beginning in 1995. Out of this conference will come a proposal to the NSF for funding projects at more than one institution. Interested individuals should contact Leon Henkin by sending e-mail to: kathy@mills.edu or by telephoning 510-430-2227. Please discuss the matter with colleagues and your department chair before phoning.

**Want to advertise a position ADVERTISING RATES and INFORMATION on PAGE 4.**

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# ASSOCIATION FOR WOMEN IN MATHEMATICS

## 1993/1994 MEMBERSHIP FORM

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 ADDRESS \_\_\_\_\_  
 \_\_\_\_\_  
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AWM's membership year is from October 1, 1993 to September 30, 1994. Please fill-in this information and return it along with your DUES to:

**AWM Membership**  
**4114 Computer & Space Sciences Building**  
**University of Maryland**  
**College Park, MD 20742-2461**

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

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 Please include this information in: (1) the next **AWM Speaker's Bureau** (Yes/No) \_\_\_\_\_ (2) the next **AWM Membership Directory** (Yes/No) \_\_\_\_\_

**PROFESSIONAL INFORMATION:**

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 Institution/Company: \_\_\_\_\_  
 City, State, Zip: \_\_\_\_\_

**DEGREES EARNED:**

	Degree(s)	Institution(s)	Year(s)
Doctorate:			
Masters:			
Bachelors:			

### INDIVIDUAL DUES SCHEDULE FOR MEMBERSHIP YEAR 1993/1994

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

REGULAR INDIVIDUAL MEMBERSHIP (Base dues \$25 plus \$5 prize fund and \$10 general).....	\$ 40	_____
2ND FAMILY MEMBERSHIP (Base dues \$15 plus \$5 prize fund and \$10 general).....	\$ 30	_____
(NO newsletter) Please indicate regular family member: _____		
CONTRIBUTING MEMBERSHIP.....	\$100	_____
Indicate if you wish for this contribution to remain anonymous: _____		
STUDENT, RETIRED, OR UNEMPLOYED MEMBERSHIP (circle one).....	\$ 8	_____
ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO) .....	ADD \$ 8	_____

**All payments must be in U.S. Funds** using cash, U.S. Postal orders, or checks drawn on U.S. Banks.

### INSTITUTIONAL DUES SCHEDULE FOR MEMBERSHIP 1993/1994

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_____ Sponsoring CATEGORY I (may nominate 10 students for membership).....	\$120	\$200	_____
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INSTITUTIONAL MEMBERS RECEIVE TWO FREE ADVERTISEMENTS IN OUR NEWSLETTER PER YEAR. All institutions advertising in the AWM Newsletter are Affirmative Action/Equal Opportunity Employers. Also, Institutions have the option to nominate students to receive the newsletter as part of their membership.  
 NOTE: List names and addresses of student nominees on opposite side or attach separate page. [ADD \$8 (\$16 for foreign members) for each additional student add-on over initial 10 students for Category I; over initial 3 students for Category II]

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MA94



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