AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

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PRESIDENT'S REPORT

Dear Friends,

We hope to see you at the wonderful AWM events planned for the Baltimore meeting, January 7–10. See page 30 for the details.

Sonia Kovalevsky High School Days

The Sonia Kovalevsky (SK) program grant has been renewed for another year by the National Security Agency. If you are affiliated with a U.S. college or university, please consider submitting an application to hold an SK High School Day; the deadline is January 20, 1998. Spread the word to others about this fantastic program — it can make a terrific difference in the lives of the high school women who attend. The organizers of the events have a great time, and the schools where they are held become better known to potential students. For more information, see page 25 or the AWM webpage (http://www.math.unl.edu/~awm).

We are interested in compiling information and materials about the SK Days both to use in an SK Days booklet and to help justify future funding. If you have put on an SK Day in the past and have materials and photos (in addition to what has appeared already in the *Newsletter*), please send them to us (AWM, Mathematics and Statistics Department, University of Nebraska Lincoln, Lincoln, NE 68588).

Toronto '98

This summer AWM will again participate in the MAA Mathfest, to be held July 16–18, 1998 at the Ryerson Campus of the University of Toronto. We plan to sponsor a speaker jointly with the MAA again and have a breakfast or lunch. The AWM summer postdoctoral/advanced graduate student workshop in conjunction with the SIAM meeting will also be in Toronto, earlier in the week at the main campus in another part of town. (Subway transportation between these two areas is easy, and a taxi is around US$5 + tip.)

AWM
ASSOCIATION
FOR WOMEN IN
MATHEMATICS

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

President
Sylvia Wiegand
Mathematics & Statistics Department
University of Nebraska
Lincoln, NE 68588
swiegand@math.unl.edu

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Newsletter Editor
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Meetings Coordinator
Bettye Anne Case; case@math.fsu.edu

Director of Membership, Meetings and Marketing
Dawn V. Wheeler; awm@math.umd.edu

AWM Office
4114 Computer & Space Sciences Building
University of Maryland
College Park, MD 20742-2461
(301) 405-7892; awm@math.umd.edu

Political activism: Five percent for NSF!!!

The final budget now approved by the House and the Senate gives the NSF a five percent increase. The efforts of the mathematical community definitely made a difference. Thank you, everyone!

As AMS President Arthur Jaffe has mentioned (AMS *Notices*, December 1997), support for mathematics research and education hinges upon a favorable outlook for science as a whole. This explains why we are working with a larger group of scientific societies. Over 100 of these societies now back a unified statement to the government on the importance of science and the need for increased support of science and education; the statement can be viewed at http://www.chemcenter.org/decade.html. Forty society presidents were present at a press conference held in Washington, DC on October 22 to show support for the scientific society statement and the bill of Senators Gramm (Republican-TX) and Liebermann (Democrat-CT) proposing to "double the support for science in a decade."

The Joint Policy Board for Mathematics *TIDBITS* (an email newsletter) for October 6 included this report:

> VA-HUD CONFERENCE CONCLUDES WITH 5 PERCENT INCREASE FOR NSF
>
> House and Senate conferees agreed this week on a final version of the FY 1998 VA, HUD, and Independent Agencies Appropriations bill. It includes $3,429.0 million for the National Science Foundation, an increase of $159 million, or nearly 5 percent, above the FY 1997 level and $62 million more than NSF's FY 1998 request. Half of that above-the-request increase will go for Research and Related Activities. The bill provides $2,545.7 million for this account, an increase of 4.7 percent or $114 million over last year. ... The conferees also agreed to provide $632.5 million for Education and Human Resources, $14.5 more than the FY 1997 level and $7 million more than the request. The additional funds were included for the Advanced Technological Education program and minority graduate and undergraduate initiatives.

European Women in Mathematics (EWM)

As mentioned in the last newsletter, AWM and EWM are planning a program at ICM '98 in Berlin, August 18–27. The program dates are not confirmed yet.

EWM maintains a webpage at http://www.math.helsinki.fi/EWM. Comments or material for inclusion should be sent to the EWM web editors at ewm@risc.uni-linz.ac.at or to Riitta Ulmanen at ulmanen@sophie.helsinki.fi. To join the EWM email net, email sarah.rees@newcastle.ac.uk. The EWM newsletter editorial for January 1997 addressed the topic "What is EWM for?" Some of the answers given there were: the EWM offers a network structure for female mathematicians and offers opportunities to meet women mathematicians; there is a focus on interdisciplinary activities; the EWM encourages solidarity and exchange of ideas.

The National Council of Teachers of Mathematics (NCTM)

For the first time, an NCTM president, Gail Burrill, will address the mathematical societies at the annual meeting in Baltimore. In the October 1997 issue of the NCTM *Bulletin*, Burrill's editorial made "A case for change" (in mathematics education) by citing the following points: Not enough people are comfortable with mathematics. Not enough workers are mathematically literate. New mathematical areas are important (and therefore the curriculum needs to be adjusted). Mathematics teaching often appears to be boring and repetitive (from one year to the next). Equity issues must be considered; for example, minority students now take more mathematics but are often urged to take low-level courses.

The NCTM annual meeting will be held April 2–4, 1998 in Washington DC.

New Editor for the Education Column

Beginning with this issue, Professor Ginger Warfield of the University of Washington and Chair of the AWM Math Education Committee will edit our newsletter Education Column. As you will see, Warfield is actively involved with many issues pertaining to mathematics education.

We are grateful to outgoing editor Sally Lipsey for her dedication to AWM; she has provided a column for almost every issue since November–December 1988. We especially appreciate the interesting columns she wrote herself, for example, "Mathematical Education in the Life of Florence Nightingale" [July–August 1993, pp. 11–12]. Thanks, Sally!

Questions for all of you

We at AWM don't know all the answers, but we do get questions (lots!). Please write or email us (swiegand@math.unl.edu) if you have some answers or comments.

Is the number and percentage of female undergraduate math majors declining? (Some schools have reported this.) If so, why?

A related item (see last newsletter): Are the numbers of women applicants down for all "elite" math departments? If so, why? Is the climate good for women at these institutions? Are women being encouraged to study in more "comfortable" departments?

MEMBERSHIP AND NEWSLETTER INFORMATION

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Individual: $40
Family (no newsletter): $30
Retired, part-time: $20
Student, unemployed, developing nations: $10
Contributing: $100
All foreign memberships: $8 additional for postage
Dues in excess of $10 and all contributions are deductible from federal taxable income.

Institutional:
Level 1 (one free basic job ad and up to ten student memberships): $120 ($200 foreign)
additional student memberships: $10 ($18 foreign) for next 15; $6 ($14 foreign) for remainder
Level 2 (one free basic job ad and up to three student memberships): $80 ($105 foreign)
Corporate: $150 Affiliate: $250
Friend: $1000 Benefactor: $2500

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).

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 Director of Marketing, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the newsletter must be Affirmative Action/Equal Opportunity designated.* A basic ad is four lines of type. Institutional members receive one free basic job ad as a privilege of membership. For non-members, the rate is $60 for a basic ad. 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 material for book review and education columns** to Anne Leggett, Department of Mathematical and Computer Sciences, Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; email: leggett@math.luc.edu; phone: (312) 508-3554; fax: (312) 508-2123. Send all **book review** material to Marge Murray, Department of Mathematics, 460 McBryde Hall, Virginia Tech, Blacksburg, VA 24061-0123; email: murray@calvin.math.vt.edu and all **education column** material to Ginger Warfield, Department of Mathematics, University of Washington, Seattle, WA 98195; email: warfield@math.washington.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.

Asked at the BMS meeting: If we encourage women to go into mathematics, will there be support for them later? What is the prognosis for women? Why is the percentage of women in mathematics going down? Do the "courageous" women think that other professions will be more promising?

What can we do to improve the climate and the advising for young women in middle schools? (This is where a lot of young women lose interest in or are discouraged from math and science.)

Again, let us know what you think about these important issues.

Have a great 1998! Join us in AWM activities, and keep in touch.

Sylvia

Sylvia Wiegand
November 29, 1997
on sabbatical at MSU
East Lansing, Michigan

PRESIDENT'S TRAVEL NOTES

Michigan State University

This semester's sabbatical at Michigan State University has been a wonderful opportunity, not only to work on my research, but also to become acquainted with a unique and beautiful place where there are friendly people (especially the mathematicians), a grand group of commutative algebraists, and remarkable women. It's a lovely campus with a river running through it. My half-time teaching position here supplemented my sabbatical pay; the support of Nebraska and MSU are much appreciated!

The MSU Math Women

Seven of the 54 full professors in the MSU Mathematics Department are women! — Patricia Lamm, Glenda Lappan, Christel Rotthaus, Sharon Senk, Jeanne Wald, Mary Winter, and Vera Zeiden (eight this semester, including this visitor). Lappan, president-elect of the NCTM, says that a significant number of male faculty have pushed for gender equality. The total number of faculty members at MSU is 84, which includes 16 women.

With other senior faculty we organized a women in mathematics dinner discussion meeting attended by about twenty-five math faculty and grad students and supported by the department. There was a lively and frank discussion, and the group is interested in continuing to meet.

Various issues were raised (mostly by the younger women) that some saw as special difficulties for women. For example, as part of a discussion on teaching, the attitudes of the undergraduate students came up: some undergraduates think women will be "easier" and be more available for help, and yet they are suspicious of women's qualifications initially; women have to prove themselves more. Some of these undergraduates say women have an easier time, that woman teachers are likely to be less qualified: that they got their jobs just because they are women. (The senior women reiterated the evidence that women do not have such an advantage. See also the BMS report below.)

Are teaching evaluations "fair," both in the abstract and towards women in particular? Are they taken too seriously? Undergraduates don't realize what effect their answers have, and they don't understand that a math class can't be taught like other courses. In important decisions such as promotion and tenure, other methods (e.g. peer evaluation) should also be used.

Should a potential job-seeker work toward building stronger teaching credentials or put more energy into improving the quality of his or her research? Good teaching and research are expected of all faculty at MSU, but the senior MSU women said that strong research credentials are a primary factor in tenure-track hiring. Quality of research and research field tend to play an even greater role for postdoctoral positions.

Other problems that may impact women more than men were discussed, such as getting a job with a spouse. People told of difficulties for commuting couples they knew. Women mathematicians

sometimes put off having children. In other countries the situation varies. In Italy it helps that sometimes a institution hires its graduates (perhaps both husband and wife, so neither has to move); in Germany, there are rules against married couples having two positions in the same department.

Another perspective was provided by the comments of senior faculty: the whole atmosphere had been more formal when they started teaching; undergraduates didn't have ideas of making trouble then! Several married couples managed their child-care by passing kids to spouses during the breaks between classes. (There have been some advances since then: more daycare is available, and it is possible to extend the tenure clock.) Balancing a mathematical life with having a family is difficult but possible. An academic lifestyle is more convenient for having kids than many because of the flexibility.

MSU Women in the College of Natural Sciences

I've attended two meetings of the Women's Advisory Council of the College of Natural Sciences (which advises the Dean), and I will participate in a panel discussion on women in the sciences.

The concerns of the advisory committee include the climate for women at all levels (undergraduate to senior faculty), hiring and other practices, salaries for women at all levels, recognition, awards given to women at all levels, and methods of increasing communication among women in the College. The committee discussed hiring, college advising practices, and student evaluation forms. Perhaps departmental evaluation forms should include a question about gender or minority bias shown by the professor, such as, "Did the faculty member encourage an equitable environment in the classroom?"

A report by Mathematics Professor Susan Schuur and me on the math dinner meeting inspired the two women in zoology to consider having a similar meeting in their department. Apparently the women chemistry graduate students already organize meetings every two weeks. I also described some programs at Nebraska honoring outstanding women undergraduates in science. Dean Leroi thought that activities at the department level made more sense at MSU where there are 41,545 students; he will discuss this idea with the department chairs.

Alaska

During my visit to the University of Alaska, Fairbanks, the weather was cold and the days were growing darker. In contrast, a beautiful green swirly aurora showed up in the evening sky and the people were warm and friendly, including Joan Wadlow, the Chancellor there (formerly of the University of Nebraska). Her staff enthusiastically arranged for me to speak about mathematics, women in mathematics, AWM and my research to the local TV station, to three groups of high school students, to a general university audience and to the mathematical sciences department. They also gave parties at the women's center and at the Chancellor's house. Kara Nance, a faculty member in computer science in the Department of Mathematical Sciences and a native Alaskan, escorted me from place to place. She was preparing for the Alaska SK Days on October 25, which she was organizing. (The program sounded exciting and original; we look forward to seeing her report about it.) The first day of my visit, she was being "shadowed" by a high school senior, LeAnn Fountain, who wanted to learn about computer science careers.

The high school talks were more like conversations; besides giving career information (which Nance provided for computer science and some aspects of mathematics), I described my life as a mathematician, told about AWM and asked a few questions, such as: Do you *like* mathematics? Can you do mathematics? Do you have any math anxiety? Does (did) your father like math? What about your mother? Would you admit that you like mathematics? Have you ever heard (before this) of any famous woman mathematician?

Nearly all thought they could do math; a third to one-half at each place said they liked math. When we explained what it is, perhaps a third of the total audience thought they might have math anxiety. About half as many mothers were thought to like math as fathers. Other answers varied. At one school the students had just studied Hypatia and they relished telling how she had been skinned alive and pulled apart limb from limb because society disapproved of her doing mathematics. At another school they had never heard of any famous women mathematicians, but not any men either — not even Euclid.

Despite some differences in the attitudes at the different schools, they all seemed not to have the perception that women couldn't or shouldn't do

math nor that women should be embarrassed about liking math. That's far different from the situation when I was growing up. Good work, Alaska teachers!

Morocco

The International Workshop on Commutative Ring Theory held October 27 through November 1 in Fes, Morocco attracted participants from Austria, Brazil, France, Italy, Korea, Spain, Sweden, Tunisia, the U.S. (5 of us) and of course Morocco. The opening ceremonies, held at the University in Fes, included gracious speeches by the dean and by other dignitaries welcoming us to this land close to algebra's origins. Other talks and our lodgings were in a government vacation complex in the little town of Imouzzer, near the mountains and an hour bus trip away from the busy metropolis of Fes. Organizer Salah Kabbaj made sure we were comfortable, happy and enlightened. We had several authentic Moroccan meals, including couscous prepared by Salah and his family; one meal was served in a beautiful house and one in a museum (which housed the world's smallest copy of the Koran). The week's program was pretty full: three days of invited participant talks (these were mostly in the less formal atmosphere at Imouzzer, where we sat on sofas), and then three oral thesis presentations at the university the remaining day and a half. (These theses are more than we would expect of our students and may be closer to the qualifications for tenure in the U.S.; the thesis I reviewed contained six substantial research articles.)

In Morocco, most educated people speak French; they also learn English in school but don't study it as long. It was fun to try out high school French learned thirty-five years ago — they were tolerant! The Moroccans were more open to me this time than two years ago (they knew me better), and I had more good conversations with them. One participant was amazed about my habit of taking notes

Affiliation is University of Fes unless otherwise noted. Back: Ammina Ben-Bachir (hostess), Soumaya Afilal (Tetouan), Souad Kharroubi, Majda Amrani, Zahra Elkhayyiri, Valentina Barucci (Rome), Hakima Zejli;
Front: Florida Girolami (Rome), Anissa Idrissi, Amina Yacoubi, Souad Ameziane, Sophie Frisch (Graz, Austria)

during the talks (the Moroccans seem to remember without notes). In addition to the nice mathematics presented (prime ideals, polynomials, chain conditions, among many other topics), I will especially remember the exotic atmosphere and the friendliness there — everybody talking to everybody.

Women in Morocco

At the home of Ammina Ben-Bachir in Fes, we held a discussion over tea and cakes about being a woman mathematician in Morocco. The Moroccan women were enthusiastic about meeting other women mathematicians; Professor Soumaya Afilal came all the way from the University of Tetouan just for the women's discussion. The women estimated that fewer than 10 percent of the mathematicians in Morocco are female. There are 11 women altogether in the two departments in Fes — seven at the main university campus and four at the other. Only one holds the rank of professor in Fes, and there are three other professors in Morocco. At Tetouan there are five women on the mathematics faculty — two of them professors. Generally the women professors are young. In biology there are more women than in mathematics.

Most of the women have children and find that the culture and the tradition that women bear the responsibility of family duties makes it difficult to maintain their research. Afilal, on the other hand, said that she and her husband, both mathematicians, share household duties and the care of their six-month-old baby.

In halting French I told them how the AWM started in 1971 — how we had noticed that women were invisible and how we wished to change that. The AWM has grown and we now present programs at meetings, we feature speakers, and we encourage younger women. Valentina Barucci of Rome told how the EWM began 10 years ago and discussed their programs, which are mostly scientific. The women hope to start an association for women in mathematics in Morocco!

Just as we had started to delve more deeply into our situations, identifying problems and possible solutions, we had to stop, since some of the women needed to be home for their children. We quickly took a group picture (see page 6).

In smaller groups, we learned more about the difficulties that Moroccan mathematicians have — particularly the women. Some would like to study and attend conferences abroad, but they need to be accepted and invited, and they need funds before they can leave Morocco. Perhaps some might apply to our university graduate programs. They would love to be able to get copies of journal articles. They do have easy access to Xerox machines and planned to copy and share the AWM materials I had brought. We will send some copies of the next newsletter to Morocco, and we'll send the participants a list of all the addresses. (The Moroccans do not have reliable email.) If any of you AWM friends have suggestions for helping the Moroccan women, please let me know about them.

Board of Mathematical Sciences (BMS)

At the BMS meeting on November 6 in Bethesda, I reported on AWM activities and explained why there still is a need for an AWM. Of course many of the BMS members already knew about us (in fact many are good friends of AWM). We had a lively discussion, and there were several questions afterwards. Many of these were answered by Lynne Billard, past president of the American Statistical Association. (She keeps statistics on women in academia.) Regarding whether women have an easier time getting jobs, it appears that for entry-level positions women and men have roughly equal opportunity. At the level of promotion or tenure, however, the percentages have not changed over the years. There has been essentially no improvement for women. This may be because, as various studies show, women's work is perceived to be of lower quality than the same work done by men. This may lead to the perception that women have not made major contributions and may similarly affect other criteria for evaluating a person for moving up in the ranks. Regarding why women may not choose to stay in mathematics or go into mathematics, it may be that younger women see so few established women that they think it's not a possible career for them. (Billard has written an article on this topic in the AMS *Notices* 1991, p. 701.)

Other travels

At Hope College in Holland, Michigan, I gave a talk and had a discussion with students at dinner. The women undergraduates described the atmosphere there as supportive and mentioned that they felt very comfortable in their math classes — even one who was the only woman in a class. In the

audience of 60, 45 admitted to liking math, but only 10 had ever heard of a famous woman mathematician (and these 10 looked suspiciously like faculty). Approximately 50% of all math majors at Hope College are women.

I also travelled to several special sessions and workshops — in Montreal (September 27–28), Boston (October 18–20) and Albuquerque (November 8–9). At each of these meetings the mathematical program was complemented by beautiful fall weather, and each place had a unique and memorable atmosphere. Each day in Montreal, we walked over Mont Réal, the "mountain" in the middle of the city, to get to the special session organized by Hema Srinivasan of Missouri and Irena Peeva of MIT. At the banquet in Boston the daughters of David Buchsbaum of Brandeis gave their thoughts on being a mathematician's daughter. In Albuquerque the session was small and congenial; there was time to talk and to take a refreshing break in the middle of the day to roam the hills outside of town.

As mathematical scientists we have many opportunities to travel to interesting places. Become a mathematician and see the world!

AWARDS AND HONORS

CONGRATULATIONS to the women listed below for their meritorious achievements.

CORA SADOSKY has been elected by the AAAS Council as an AAAS Fellow, for "outstanding service to the field and for work in mentoring young women, including tenure as president of the Association for Women in Mathematics."

NSF recently made over 90 awards in the Professional Opportunities for Women in Research and Education (POWRE) program. POWRE awards in the mathematical sciences were made to: MIN CHEN, Penn State, "Study of Model Equations for Water Waves"; ZHILAN FENG, Purdue, "Mathematical Models for Host-Parasite Systems"; RUTH GORNET, Texas Tech, "Spectral Geometry of Nilmanifolds and Kleinian Groups"; GAIL LETZTER, Virginia Tech, "New Constructions for Quantized and Classical Enveloping Algebras"; DEBORAH NOLAN, UC Berkeley, "Statistics: Research, Education and Application"; and SUELY OLIVEIRA, Texas A&M, "New Numerical Algorithms for Particle Transport and Integral Equations." Awards in computer science went to: SUSAN LANDAU, U Mass Amherst, "Certification of Security Protocols"; DIANE L. SOUVAINE, Rutgers, "Geometric Computations and Applications"; LINDA M. SEITER, Santa Clara University, "Managing Dynamic Evolution in Object-Oriented Systems"; and JING XIAO, UNC, Charlotte, "Robotics."

The POWRE program replaces the VPW program and several others for women. The women above have received their awards for a variety of projects: visiting professorships, research/educational enhancement projects, curriculum development, and return to research from administration.

LAI-SANG YOUNG, UCLA, has received a Guggenheim Fellowship for her work in the mathematical theory of dynamical systems.

In February 1997, a student conference was held at the thirtieth annual meeting of the Florida Section of the MAA. Nine papers by twelve students were presented; the top two papers were written by young women attending Lake Highland Prep School in Orlando! JENNIFER PELKA, 9th grade, received first prize for "Self-complementary Degree Sequences," and RACHEL AUERBACH, 8th grade, earned second place for "Fractal Music."

GRACE WAHBA, University of Wisconsin, was elected to the American Academy of Arts and Sciences in April 1997.

INGRID DAUBECHIES received the 1997 Ruth Lyttle Satter Prize in Mathematics at the AMS Annual Meeting in San Diego. The prize was established using funds donated by Joan S. Birman of Columbia University in memory of her sister. The citation read:

> The Satter Prize Committee recommends that the 1997 Ruth Lyttle Satter Prize in Mathematics be awarded to Ingrid Daubechies of Princeton University for her deep and beautiful analysis of wavelets and their applications. Her work is a permanent contribution not only to mathematics but to science and engineering. Daubechies' best-known achievement is her construction of compactly supported wavelets in the late 1980's. Over the last five years she has continued their

development on the theoretical level and to applications in physics and signal processing. Her continuing research has resulted in the following path-breaking developments. Her discovery with Jaffard and Journe of orthonormal Wilson bases provided the first clues to the existence of cosine packet libraries of orthonormal bases as well as Gaussian bases. These are now standard tools in time frequency analysis as well as in the numerical analysis of partial differential equations. Her work with A. Cohen on biorthogonal wavelet bases provided a more flexible approach to the use of wavelets in image compression algorithms. Biorthogonal basis functions are currently the most common wavelets used in standard compression; they are considered to be superior to orthogonal filters in, for example, fingerprint compression. While continuing to push forward wavelet analysis, Daubechies has also made important contributions in other related areas. Of particular note are her work with Klauder on path integration and her work with her student Anna Gilbert on homogenization, which has contributed to our understanding of multiscale interactions and their computations.

NSF Graduate Fellowships have been awarded to those named below. The listing gives name, undergraduate institution in parentheses, and graduate institution (this comes from the application for the award, so may have changed by the time fellowship tenure began).

LORA ANNE BALLINGER (Kenyon College), University of Maryland; SARA BETH BARNES (University of Southwestern Texas), University of Washington; SHARON JOY HOLLANDER (MIT), Harvard University; TARA SUZANNE HOLM (Dartmouth College), MIT; ELIZABETH DEXTER MANN (Harvard University), MIT; MARTHA CORNELIA NASON (University of Washington), University of Washington; and EMILY BENWARE PROCTOR (Bowdoin College), University of Minnesota.

An NSF Minority Graduate Fellowship was awarded to: CLAUDIA PEDROZA (Boston University), Harvard University.

STEPHANIE FRANK SINGER, Haverford College, received an AMS Centennial Fellowship for 1997–1998. She has done research in integrable systems and integrable geometry. She has analyzed the geometry of various analogs and generalizations of the Toda lattice and is currently studying Hamiltonian actions on symplectic orbifolds. She will study the applications of integrable systems and algebraic geometry to particle physics while at the University of Pennsylvania during her Fellowship period.

IOANA DUMITRIU, who received last year's Schafer Prize, was one of the six highest ranking individuals on the 1996 Putnam Exam. The only woman ever to have placed among the highest scorers, she also received the Elizabeth Lowell Putnam Prize of $500 (given each year to the highest-scoring woman in the Competition).

1997 MAA Section Awards for Distinguished Teaching were given to: ANNE L. DUDLEY, Glendale Community College, Southwestern; MONA FABRICANT, Queensborough Community College, Metro New York; RHONDA L. HATCHER, Texas Christian University, Texas; RHONDA J. HUGHES, Bryn Mawr College, ESPADEL; and JEAN PEDERSEN, Santa Clara University, Northern California.

AMS Menger Awards were presented at the 1997 International Science and Engineering Fair held in Louisville, KY in May. JENNIFER PELKA, "Self-complementary Degree Sequences," freshman, Lake Highland Preparatory School, Orlando, FL and MELANIE SCHECHTER (with Matthew Seligman), "Products, Sums and Duality," juniors, Roslyn High School, Roslyn Heights, NY received Third Place ($250 each project). SUSANNAH RUTHERGLEN, "Steiner 3-Point Problem," sophomore, Charlottesville High School, Charlottesville, VA and JY-YING JANET CHEN, "Interesting Patterns of Inverse Pairs in Modular Arithmetic," senior, A&M Consolidated High School, College Station, TX received Honorable Mentions.

Two 1997 awards of The Association for Computing (ACM) were presented to women. The Grace Murray Hopper Award is given annually to an outstanding young computer professional based on a single recent, major technical or service contribution and carries a prize of $5000 provided by Unisys. The 1997 recipient was SHAFIRA GOLDWASSER (MIT) for her early work relating computation, randomness, knowledge and proofs. She is recognized worldwide as a leader in theory and cryptography research. XIAOYUAN TU (University of Toronto) received a $1000 Doctoral Dissertation Award for "Artificial Animals for Computer Animation: Biomechanics, Locomotion, Perception, and Behavior."

MINA S. REES: 1902–1997

Mina S. Rees died in New York City on 25 October 1997. Although she was probably best known in the mathematical community for her work with the Applied Mathematics Panel of the National Defense Research Committee during World War II and with the Office of Naval Research after the war, her influence on mathematics and science extended far beyond her years with the federal government. She was also known as a scholar and remarkably effective administrator, and she was extensively recognized for her farsighted contributions to the formulation of policies concerning mathematical research, federal support of science, and graduate education.

Mina Spiegel Rees was born 2 August 1902 in Cleveland, Ohio. She was the youngest of two girls and three boys of Alice Louise (Stackhouse) and Moses Rees. The family moved from Ohio to New York when Mina Rees was small, and her early schooling was in the New York City public schools. After graduating from Hunter College High School as valedictorian of her class, she attended Hunter College where she was a mathematics major. Rees distinguished herself in college, too, both academically and in student government, where her positions included president of the freshman and sophomore classes, editor-in-chief of the yearbook and chairman of the honor board her junior year, and president of the student council her senior year.

After her graduation *summa cum laude* in 1923, Rees became an assistant teacher at Hunter College High School and a full-time graduate student at Columbia. She recalled later that, "when I had taken four of their six-credit graduate courses in mathematics and was beginning to think about a thesis, the word was conveyed to me — no official ever told me this, but I learned — that the Columbia mathematics department was really not interested in having women candidates for Ph.D.'s. This was a very unpleasant shock.... I decided to switch to Teacher's College and take the remaining courses necessary for an M.A. there."[1]

Rees received her M.A. in 1925 and was hired as instructor of mathematics at Hunter College in 1926. Having had an interest in abstract algebra since her work at Columbia, and realizing that she wanted to get a Ph.D. in that area, Rees decided to go to the University of Chicago so that she could study with Leonard Eugene Dickson, a leader in the field whose work she knew. However, when she arrived at Chicago in 1929, with a leave of absence from Hunter College, Dickson's attention had turned to number theory. Even so, he asked Rees to be his student, and she completed her dissertation in abstract algebra. The dissertation was published in 1932 in the *American Journal of Mathematics*.[2]

After receiving her degree in 1931 Rees returned to Hunter College as instructor. She was assistant professor 1932–1940 and associate professor 1940–1950, although with the advent of World War II, her interests and talents were refocused, and she took an extended leave of absence from Hunter in 1943 to contribute to the war effort. Her publications during these first years at Hunter consist mainly of book reviews published in *Scripta Mathematica*.[3]

In 1942 the National Defense Research Committee was established as a part of the Office of Scientific Research and Development. The Applied Mathematics Panel was set up as a part of the NDRC the following year, and Warren Weaver, chief of the AMP, asked Rees to become a technical aide and his executive assistant. In that position, and as secretary to the panel, Rees was in a central position with respect to the problems that were posed by the various military constituents, efforts to extract the mathematical essence of the problems, and the task of finding mathematicians to solve them. Rees represented the government in contracting the problems to various universities throughout the country. She described the activities of the panel in a 1980 article in the *American Mathematical Monthly*.[4] Shortly after the end of the war, Rees received the President's Certificate of Merit in this country and the King's Medal for Service in the Cause of Freedom awarded by the British government in recognition of wartime civilian services by foreign nationals.

In 1946 Rees went to Washington, D.C. as head of the mathematics branch of the Office of Naval Research. Subsequently she was director of the mathematical sciences division, 1949–1952, and then deputy science director, 1952–1953. In an article in the *Bulletin of the AMS* in 1948, Rees noted that the ONR was committed "primarily to the support of fundamental research in the sciences,

Judy Green, Marymount University, judy.green@marymount.edu; Jeanne LaDuke, DePaul University, jladuke@condor.depaul.edu

as contrasted with development, or with applications of known scientific results — the types of activity in which scientists were largely engaged during the war."[5] The article goes on to describe activities in pure mathematics and in applied mathematics, including especially mathematical statistics and computer theory and development. The significance of Rees' role at the ONR was recognized in a resolution adopted by the Council of the AMS at its annual meeting in December 1953 and in a similar resolution adopted by the Institute of Mathematical Statistics. The former reads in part:

> Under her guidance, basic research in general, and especially in mathematics, received the most intelligent and wholehearted support. No greater wisdom and foresight could have been displayed, and the whole postwar development of mathematical research in the United States owes an immeasurable debt to the pioneering work of the Office of Naval Research and to the alert, vigorous and farsighted policy conducted by Miss Rees.[6]

In the 1950's Rees wrote a number of articles that give a sense of the wide range of her interests at that time. Among these is a remarkably comprehensive one on the federal computer program that appeared in *Science* in 1950,[7] having first been delivered as an invited address to the then recently founded Association for Computing Machinery. In 1952 she published a technical article with Richard Courant and Eugene Isaacson in *Communications on Pure and Applied Mathematics*.[8] She wrote several other articles, especially on computers and computing and on expanding roles for mathematicians.[9] Thirty years later Rees contributed more to the history of that period. An important survey of the computing program at the ONR first appeared in 1982.[10] Rees was also a member of the MAA committee on World War II history and contributed financial support for the preparation of a history of the Institute for Numerical Analysis at UCLA that had been commissioned by the National Bureau of Standards and the ONR.

Rees returned to Hunter College as professor of mathematics and dean of the faculty in 1953 and remained in those positions until 1961. In addition to her administrative work at the college, she was appointed to numerous boards and committees by the National Research Council, the National Bureau of Standards, and the National Science Foundation, among others. For example, she served as consultant to the Bureau of the Census to prepare for machine handling of the 1960 census data. Details about many of these positions can be found in the citation accompanying the MAA's first Award for Distinguished Service to Mathematics, which she received in January 1962.[11] Two years later the Senate confirmed her appointment to a six-year term on the National Science Board.

In 1955 Mina Rees married Leopold Brahdy, a physician. The *New York Times*[12] reported in 1961 that she shared his enthusiasm for hiking and bird-watching. They attended concerts and theatre, and she was an avid swimmer and painter. Brahdy died in November 1977.

In 1961, when the City University of New York was established, Rees was appointed professor and dean of graduate studies. At that time the university consisted of three community colleges and four senior colleges: City College, Hunter, Brooklyn, and Queens. Rees was instrumental in developing and shaping graduate studies at CUNY. She was provost of the graduate division 1968–69 and was president of the Graduate School from 1969 until her retirement as president emeritus in 1972.

As the 1965 AAUW Achievement Award Winner, Rees was described as the only woman dean of a graduate school in a coeducational institution. Rees noted at the time:

> It may be because the Graduate Dean is a woman, or it may be for completely objective reasons, that ours is proving an ideal university to draw into advanced graduate work the most obvious source of unused talent in a society that desperately needs additional numbers of persons with training through the doctorate, namely, women.[13]

Among attractions to women offered by the Graduate School, she added, "we have welcomed qualified women who have applied even to the extent of considering the need for a baby-sitter a proper reason for providing financial assistance." In a similar vein, Rees was a supporter of AWM. Her 1990 letter accompanying a generous contribution to the Schafer Prize Fund reads in part, "I was ... thrilled at the clear indications that we shall be producing truly distinguished women mathematicians in the immediate future who will carry on the trend that is well on its way."

Mina Rees held policy-making positions in a number of professional societies: she served as trustee of the AMS, on the board of the directors of SIAM, and as chair of the Council of Graduate Schools in the U.S., among others. In 1970, shortly before her retirement and after many years of

service within the association, Rees became president-elect of the American Association for the Advancement of Science. The following year she served as president, the first woman in this position. In a 1970 profile in *Science*, a colleague described Rees as "a person of engaging warmth and liveliness, of boundless energy, and — foremost — of an extraordinary directness and clarity in interpretation, giving sight to imagination."[14]

Among many honors not yet noted are at least eighteen honorary degrees from U.S. colleges and universities. In 1983 Rees was awarded the Public Welfare Medal by the Council of the National Academy of Sciences in recognition of distinguished contributions in the application of science to the public welfare. The library at the Graduate School and University Center of CUNY was dedicated as the Mina Rees Library in 1985.

Notes

1. Interview with Rosamond Dana & Peter J. Hilton in *Mathematical People*, edited by Donald J. Albers and G. L. Alexanderson, 255–67. Cambridge: Mass.: Birkhäuser Boston, 1987.
2. "Division algebras associated with an equation whose group has four generators." *Amer. J. Math.* 54 (1932): 51–65.
3. An extensive list of her other publications, along with material about her life and work, is found in: Fox, Phyllis. "Mina Rees." In *Women of Mathematics: A Biobibliographic Sourcebook*, edited by Louise S. Grinstein and Paul J. Campbell, 175–81. Westport, Conn.: Greenwood Press, 1987.
4. "The Mathematical Sciences and World War II." *Amer. Math. Monthly* 87 (1980): 607–21; reprinted in *A Century of Mathematics in America, Part I*, edited by Peter Duren, 275–89. Providence, R.I.: American Mathematical Society, 1988.
5. "The Mathematics Program of the Office of Naval Research." *Bull. Amer. Math. Soc.* 54 (1948): 1–5.
6. *Bull. Amer. Math. Soc.* 60 (1954): 134.
7. "The Federal Computing Machine Program." *Science* 112 (12 December 1950): 731–36; reprinted in *Ann. Hist. Comput.* 7 (1985): 156–63.
8. "On the solution of nonlinear hyperbolic differential equations by finite differences." *Comm. Pure Appl. Math.* 5 (1952): 243–55.
9. See, for example, "Digital computers their nature and use." *American Scientist* 40 (1952): 328–35, and "Mathematicians in the market place." *Amer. Math. Monthly* 65 (1958): 332–43.
10. "The computing program of the Office of Naval Research, 1946–1953." *Ann. Hist. Comput.* 4 (1982): 102–20.
11. "Award for Distinguished Service to Mathematics." *Amer. Math. Monthly* 69 (1962): 185–87.
12. "Creative Mathematician: Mina Spiegel Rees." *New York Times*, 10 July 1961, 23.
13. "The Dilemma That Faces Us." *AAUW Jour.* 59 (1965): 32–34.
14. Weyl, F. Joachim. "Mina Rees, President-Elect 1970." *Science* 167 (1970): 1149–51.

WEEA WEBSITE

The Women's Educational Equity Act (WEEA) Equity Resource Center has updated its website, http://www.edc.org/WomensEquity/. New features include: gender equity facts and quotes; Title IX on its 25th anniversary; facts from the Secretary of Education; women of the week in traditional and nontraditional professions (add your nominations for future choices); field-tested answers to gender equity problems in education as well as suggestions from website visitors; user-posted reviews of educational software, movies, or books; and an ongoing discussion of the definition of gender equity. The website's already existing features were: WEEA's catalog of books on gender equity issues; a working definition of gender equity; gender equity expert panel; a list of grantees; information about the WEEA Equity Resource Center; an email discussion list; and favorite web links.

WISE INIATIVE

With funding from the National Science Foundation, the WISE Initiative will make available approximately 75 travel grants each year to undergraduate and graduate women students majoring in science, engineering, and mathematics disciplines at CIC Institutions to enable them to present papers or posters at professional conferences. For applications, visit: http://www.indiana.edu/~owa/wisp.html or http://cedar.cic.net/cic/wise/travel.html. For more information, contact lwilson@indiana.edu.

BOOK REVIEW

Mary Harris, **Common Threads: Women, Mathematics, and Work**, Trentham Books Limited, Stoke-on-Trent, England 1997. xii+213. ISBN 1-85856-015-2 (paper).

Reviewed by: Claudia Zaslavsky, 45 Fairview Avenue, #13-I, New York, NY 10040. Book Review Editor: Marge Murray, Department of Mathematics, Virginia Tech, Blacksburg, VA 24061-0123; murray@calvin.math.vt.edu.

In September 1989 I participated in the "POP Maths" meeting in Leeds, England. This event, more formally called "The Popularization of Mathematics," had been organized by the International Commission on Mathematical Instruction to deal with the negative public image of mathematics and world-wide problems in mathematics teaching at all levels. The call was for "a major gathering of those interested ... accompanied by a nationally organized, yet international 'event' comprising a major exhibition, films, videos, lectures."

An outstanding feature of the meeting was the POP Maths Roadshow, an interactive exhibition designed to demonstrate that mathematics is both worthwhile and fun. From Leeds the exhibition was to travel to various sites in England and Wales during the following year. The displays were as varied as one may imagine: chaos, number and form in nature, artwork based on the structure of knots, a tile maze, symmetry, mathematics in different cultures, and much more. Groups of schoolchildren, bused in from surrounding communities, enjoyed playing a range of mathematical games from many lands.

One of the most fascinating exhibits was Common Threads, the brainchild of Mary Harris and her Maths in Work Project at the University of London Institute of Education. As the title suggests, the exhibit consisted entirely of textiles, with captions indicating the various aspects of mathematics that went into their design and production. To cite one example, Harris listed the three main variables involved in knitting a sweater: needle sizes, yarn thicknesses, and pattern sizes. She then discussed the Cartesian product of the three variables and their possible combinations. The Aran sweater in the exhibit introduced another variable in the form of traditional symmetric designs incorporated into the knitting process. Included was a photograph of an Aran sweater with a design based on random numbers!

A display of weaving was accompanied by a discussion of the Jacquard mechanism, which "stores information in binary form about which threads are to be lifted," and the role of the Jacquard system of punched cards in Charles Babbage's design of his Analytical Engine. Harris quoted Ada Lovelace: "The Analytical Engine weaves algebraical patterns just as the Jacquard loom weaves flowers and leaves."

The exhibit was based on the following themes: symmetry, number, creativity, information handling, and problem-solving. One of the most popular displays was a demonstration of the seven strip or frieze patterns — the different ways to repeat a pattern in one dimension — by using a baby sock as the motif. The thirty-four required socks were donated by Baby Boots. Another display focused on the solution of the problems inherent in turning the heel of a knitted sock, as compared with bending a cylindrical pipe into a right angle. The latter is considered "real maths," while knitting socks is just mindless "women's work."

The Common Threads exhibit wore out in the course of its two-year tour of England. In response to widespread demand, the British Council created two similar exhibits that eventually visited twenty-three countries between 1991 and 1994 before they were retired. Although the final destination for one of these tours was Vancouver, British Columbia, Common Threads never made it to the United States.

The book under review tells about the exhibit — and much, much more. As Harris states in her introduction:

> This book tries to place Common Threads and its influence within the historical context of the development and spread of mathematics education in England and beyond, while tracing the history of the education of girls and women and the effects of their work with textiles on their school curricula. (p. viii)

She is particularly concerned with the negative effects on the majority of the population, especially women, of the kind of mathematics education — or lack of education — to which they have been subjected. With the Common Threads exhibition, she challenged the stereotype, associated with feminine activity, that needlework is devoid of mathematical content.

The first two chapters describe the 2000-year history of "how needlework and mathematics came to be stereotypes in polar opposition." The medieval

guilds in Europe came to control the output of textiles, and with the introduction of large looms in production workshops and later in factories, women's work was downgraded. Working class women held factory jobs at low pay and under terrible conditions, or resorted to the practice of "sweating" (work at home or in sweatshops) in order to earn a meager income. [The practice continues to this day on a worldwide scale. I have a petition addressed to President Clinton for the abolition of sweatshop abuses in both the United States and abroad.]

By the end of the nineteenth century a minimum amount of schooling was mandated. For working class girls, the curriculum was based on needlework, the kind of plain sewing that might enable them to sew for their families or obtain jobs. Middle class girls, on the other hand, learned the fancy embroidery by which they would affirm the social status of their future husbands. As for mathematics, "the social classes became defined by the mathematics they were taught, and the mathematics to be taught defined the different gradations of society" (p. 38).

Furthermore, the mathematics that was taught differed for boys and for girls. Even middle class girls were prevented from learning much more than arithmetic and perhaps some algebra. The publication of Herbert Spencer's books in the second half of the nineteenth century furnished "scientific" proof of women's mental inferiority. Not only would higher education make women physiologically unfit for motherhood, but it would also disincline them from their feminine duties, thus leading to the moral decline of the family, the race, and the empire. Of all subjects, mathematics was thought to put the greatest strain on the learner. In fact, Ada Lovelace's illness was attributed to "too much mathematics" (p. 69). Several decades later, the Headmistress of Manchester High School argued that mathematics "should be kept at a minimum for girls ... the subject being useless to them" (p. 77).

Nor have such attitudes disappeared in the twentieth century. In my book *Fear of Math: How to Get Over It and Get On with Your Life*, I relate the story of Becky, a former elementary teacher and librarian. Her father had told her: "You only need to know up to twelve. No recipe calls for more than twelve," an allusion to her future role as a housewife.

Harris discusses the devastating effects of exclusion from mathematics in contemporary society:

> Girls barred from mathematics by expectation, convoluted theory, or the habits of long history, are deprived of input to and status in one of the most powerful parts of their own heritage and culture. (p. 85)

In the 1970's and 1980's, attitudes began to change in the face of the attack on mathematics education as a male, middle class preserve. She cites the role played by researchers in sociology, psychology, and mathematics education in tearing down the hurdles, beginning with work in America.

Harris took a different tack with her Maths in Work project. Her job was to analyze data from a skills survey of workplaces in order to influence curriculum development and improve the available learning materials for school-to-work programs. She was struck by the amount of mathematical thought that had been overlooked in the responses to the survey and began to conduct her own investigations by going into factories, interviewing people in various fields of production, and carrying out many tasks herself. Eventually she produced

> learning materials that would take practical, open-ended problems from workplaces and put them, with the minimum of instruction, into the hands of teachers to use and develop as they willed. (p. 94)

The tasks would be creative and open-ended. She named her pack of activities "Cabbage," a word derived from the French *coupage*, for the practice among garment makers of squeezing out a few extra pieces for their own use while cutting the cloth. (My mother-in-law reported having done this when she was a dressmaker for the nobility in tsarist St. Petersburg.) The twenty-two activities were quite varied and included *adinkra* designs from Ghana and baskets with symmetrical patterns from Botswana.

Several chapters describe the Common Threads exhibit and its effect, both in England and in the twenty-three countries that it visited. Harris accompanied it to thirteen of these sites. In Zimbabwe it was housed in the Sheraton Hotel, where it attracted considerable favorable attention. The most effective visit was to Botswana, where educators and the Art Gallery supplied many more items, not merely textiles. In all countries, teachers were involved in workshops. The exhibit was instrumental in shaping new curriculum ideas involving applications to the indigenous cultures and in helping to overcome the devastating effects of the wholesale adoption of "New Math" in the former colonial countries in the 1960's and 1970's. Harris writes:

> As in cultures from which it is transported, mathematics reinforces power structures, labels different levels of social class and effectively filters out whole peoples through the handy tool of universally recognized results of commercially published examination. (p. 153)

Mary Harris displays an enormous breadth of scholarship and research, citing authorities in the many aspects of women's studies, mathematics education, ethnomathematics, and education in general. She does not mince words in condemning racist, sexist, and classist practices in England or in any other part of the world, past or present. Photographs of several displays — the baby sock strip patterns, Hungarian embroidery, Botswana baskets — make up for the reader's inability to view the actual exhibit. The book closes with a photograph of a poster that Harris designed, showing abstract geometric designs in one column and identical designs in patchwork in the other column. The first column is headed "real maths," while the second is labeled "girls' stuff."

YOUNG MATHEMATICIANS NETWORK

There will be several Young Mathematicians' Network (YMN) events at the Baltimore Joint Meetings. The Project NExT/Young Mathematician's Network Poster Session will be held on Friday, January 9, 1998, 8:30–10:55 A.M. at a location to be announced. The YMN Town Meeting, a one-hour panel focusing on the current primary concerns of young mathematicians, will take place 7:15–8:15 P.M., Wednesday, January 7, Room 303, BCC. The YMN/Project NExT Professional Development Panel "Professional Development Issues concerning Young and Future Faculty" will be held 7:00–8:30 P.M. on Thursday, January 8 in Room 315, BCC. Issues addressed will include teaching, becoming involved in the profession, maintaining scholarship, and finding opportunities open to young mathematicians. This lively discussion will include ample time for questions from the audience. Current YMN Board members will convene for two hours (8:00–10:00 P.M., Thursday, January 8, Room 304, BCC) at the YMN Board Meeting to discuss the future direction of YMN. Anyone interested in joining the YMN Board is strongly encouraged to attend.

Concerns of Young Mathematicians, YMN's electronic newsletter, has a new website courtesy of the AMS. The domain is youngmath.org. To submit an item to CoYM or to contact the editor of the month, you can now write either to concerns@youngmath.org or to the editor directly.

Concerns continues to contain many articles of interest to the young (and not so young) mathematician. In Volume 5, Issue 16, Ed Aboufadel points out a brief column in *Science* about the tenure plan recently approved at the University of Minnesota. The *Science* article states that "the maximum probationary period for a tenure-track faculty member goes from six to nine years"; this sets an extraordinarily bad precedent.

TIME MAGAZINE POLL

Time Magazine's "100 Most Important People of the 20th Century" poll is in desperate need of voters who support women. Of *Time*'s 61 suggested nominees, only eight are women. Go to http://www.pathfinder.com/time/time100poll.html to make some nominations of your own (sorry, but the web page doesn't indicate how long they will be accepting nominations).

This news item came our way via the Feminist Majority Foundation. To subscribe to the Feminist Majority Foundation online, send email to majordomo@nmpinc.com. Put only the words subscribe fem-alert in the body of the message.

DUES, DUES, DUES!

Second renewal notices were mailed in December to members who had not yet paid their dues for the 1997–98 membership year. Individuals and institutions who have not renewed by **February 1, 1998** will receive no further issues of the AWM *Newsletter*.

EDUCATION COLUMN

MER-AWM Special Session in Baltimore

At the Joint Meetings in January, one of the MER (Mathematicians and Educational Reform) special sessions will be sponsored jointly with AWM. In keeping with the natures of the two sponsors, we have chosen a topic which is pertinent for any mathematician with an interest in education, but which, in the current state of the mathematical world, tends to have an especially heavy impact on women: the evaluation of professional activities other than research. Dick Phillips of Michigan State University will review the strengths and weaknesses of some current review/evaluation systems for mathematics faculty. He will include some related ideas for promoting special types of professional activities with emphasis on teaching, administration, course and curriculum development, and advising. Pam Cook of the University of Delaware will discuss from the point of view of a department chair means of evaluating nonresearch activities (teaching, service). She will contrast the successful teaching portfolio with the successful research portfolio. She will also sound some cautionary notes.

White Paper on Math Education

"Mathematics Equals Opportunity," a 28-page report released by Education Secretary Riley at a White House conference in November, looks at the importance of mathematics for college and work, course-taking patterns in middle school, parent and student attitudes about math and science, international comparisons, and promising practices. The full report is available at: http://www.ed.gov/pubs/math/. Some findings from the report follow.

In the U.S. today, mastering mathematics has become more important than ever. Students with a strong grasp of mathematics have an advantage in academics and in the job market. Eighth grade is a critical point in mathematics education. Achievement at that stage clears the way for students to take rigorous high school mathematics and science courses, the keys to college entrance and success in the labor force. However, most 8th and 9th graders lag behind in their course taking.

Students who take rigorous mathematics and science courses are much more likely to go to college than those who do not. Data from the National Educational Longitudinal Study (NELS) revealed that 83% of students who took algebra I and geometry went on to college within two years of their scheduled high school graduation. Only 36% of students who did not take these courses went to college. While nearly 89% of students who took chemistry in high school went to college, only 43% of students who did not take chemistry did so.

Algebra is the gateway to advanced mathematics and science in high school, yet most students do not take it in middle school. Approximately 60% of the students who took calculus in high school had taken algebra in the 8th grade. However, 1996 NAEP data reveal that only 25% of U.S. 8th graders enrolled in algebra and that low-income and minority students were even less likely to do so.

Taking rigorous mathematics and science courses in high school appears to be especially important for low-income students. Low-income students who took algebra I and geometry were almost three times as likely to attend college as those who did not; the percentages are 71% versus 27%. By way of comparison, 94% of students from high-income families and 84% of students from middle-income families who took algebra I and geometry in high school went on to college, while sixty percent of students from high-income families and 44% of students from middle-income families who did not take these courses did so.

Despite the importance to low-income students of taking rigorous mathematics and science courses, these students are less likely to take them. Students from higher-income families are almost twice as likely as lower-income students to take algebra in middle school and geometry in high school. They are more than twice as likely to take chemistry.

Mathematics achievement depends on the courses a student takes, not the type of school the student attends. Students in public and private schools who took the same rigorous mathematics courses were equally likely to score at the highest level on the NELS 12th grade mathematics achievement test. Students whose parents are involved in their school work are more likely to take challenging mathematics courses early.

The results of the Third International Mathematics and Science Study (TIMSS) reveal that the

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

middle school mathematics curriculum may be a weak link in the U.S. educational system. While U.S. 4th graders scored above the international average in mathematics and science, U.S. 8th graders scored below average in mathematics and only slightly above the international average in science. Initial analysis of TIMSS data also shows that the middle school mathematics curriculum in the U.S. is less challenging than in other countries. The curriculum in the average 8th-grade mathematics classroom in the U.S. resembles the 7th grade curriculum elsewhere. Although algebra and geometry are integral elements of the middle school curriculum in other countries, only a small fraction of U.S. middle schools offer them.

The report recommends six things for educators, policymakers and community members to do:

1. Provide all students the opportunity to take algebra I or a similarly demanding course including fundamental algebraic concepts in the 8th grade and more advanced math and science courses in all four years of high school.
2. Build the groundwork for success in algebra by providing a rigorous curriculum in grades K–7 that moves beyond arithmetic and prepares students for the transition to algebra.
3. Ensure that all students, parents, teachers, and counselors understand the importance of students' early study of algebra as well as continued study of rigorous mathematics and science in high school.
4. Provide teacher preparation and professional development to teachers of mathematics to increase their knowledge and skills in mathematics and the teaching of mathematics.
5. Support mathematics achievement outside the classroom through math clubs, tutoring, and job shadowing for students needing extra help.
6. Support parents' involvement in their children's mathematics education.

The report also lists six things for parents to do:

1. Discuss your children's mathematics homework with them.
2. Visit your children's mathematics teacher to find out what your children are learning and how you can help.
3. Insist that your children enroll in algebra I or a similarly demanding course including fundamental algebraic concepts in the 8th grade and more advanced math and science courses in high school to keep their future options open.
4. Ensure that your children are gaining the groundwork for success in algebra through a rigorous curriculum in grades K–7 that moves beyond arithmetic and prepares them for the transition to algebra.
5. Help your children understand the importance of taking challenging mathematics and science courses to their future by visiting colleges, familiarizing them with college requirements, and exploring financial aid options available to students.
6. Show the importance of mathematics for career choices by talking with your children about the use of mathematics in your work or the work of adults they know.

Math Camp at the University of Nebraska

Last July, the Department of Mathematics and Statistics at the University of Nebraska hosted a summer camp for high school girls. The camp was funded in part by a grant from the MAA, along with matching funds from the department, the Nebraska Math and Science Initiative, and the UNL College of Arts and Sciences Math/Science Education Area of Strength. The camp was proposed by faculty members Wendy Hines and Judy Walker, who also organized it (with an enormous amount of help from undergraduate Camp Coordinator Tami Feit) and developed and taught the courses. In addition to Judy, Wendy, and Tami, graduate student Patricia Nelson, the Camp Counselor, and undergraduate Barbara Zach, the Camp Computer Consultant, were members of the camp personnel.

Fourteen girls were selected on a competitive basis from over 40 applicants from all over the state of Nebraska. Applicants were required to have completed high school geometry and have a strong interest in mathematics. Preference was given to girls entering 10th and 11th grades.

For a week the girls lived in a university residence hall, ate dormitory food, studied mathematics

Wendy Hines and Judy Walker, Assistant Professors of Mathematics, University of Nebraska

and made friends. They arrived on campus Sunday afternoon. They and their parents had an opportunity to snack, meet the camp personnel, visit with other Math Department faculty members (including Chair Jim Lewis, Undergraduate Advisor Gordon Woodward, and Professors Roger Wiegand and Sylvia Wiegand), and start to get to know the other campers. Dean Brian Foster from the College of Arts and Sciences gave a formal welcome to all. That evening was spent eating pizza and playing group-building games with the camp personnel. Monday morning the work began in earnest. Each morning the girls attended two one-hour lectures, one on number theory and cryptography, and the other on iteration of functions and chaos. Each afternoon the girls attended a three-hour problem session where they worked together to solve problems related to the courses.

In the cryptography course, the girls began by decoding some short mathematical quotations which were encoded using simple substitution ciphers. They learned how to use frequency analysis on the texts to make educated guesses about decoding. After learning some elementary number theory including modular arithmetic, Euler's Theorem, and techniques of fast exponentiation, they finished up the week learning about the RSA system for public key cryptography. Each camper set up her own public keys using Maple, and then they sent encrypted email messages to each other. In the chaos course, the girls learned about sequences obtained by iterating functions. They learned about fixed points, cycles and stability, studied the logistic map in some detail, and saw period-doubling bifurcations and chaos! The campers even learned how to draw bifurcation diagrams. The course concluded with an illustration of self-similarity in the bifurcation diagram, a discussion of the Feigenbaum number and a statement of Sharkovsky's Theorem.

Evenings were spent in social activities. The girls played both miniature golf and laser tag, saw a laser show followed by a technical discussion of how it works, went to a local melodrama and attended a street festival. They also spent time playing games, watching movies and studying and discussing coursework together.

On Thursday and Friday, we were treated to a visit from Professor Vera Pless from the University of Illinois at Chicago. Vera gave a two-hour talk on error-correcting codes. Many of the girls were quite excited about the talk and made astonishing observations. The girls also had an opportunity to interact socially with Vera, and a very enjoyable evening was spent with her talking about women mathematicians, eating pizza and playing the party game Taboo. (Vera started slow, but caught on quickly.)

The girls benefited in many ways from this week-long experience. They gained a real appreciation for the sophistication of mathematics and its applications. They were genuinely excited to see what vastly different things one can do with mathematics. We hoped that the all-girl classroom and the interaction with so many women mathematicians would develop their confidence and "math esteem," and, though

Back: Casey Mader, Elizabeth Green, Andrea Wiegand, Jennifer Muller, Megan Spilinek, Patricia Nelson, Lindy Mahoney; Middle: Tami Feit, Mary Huigens, Tiffany Hansen, Natalie Warga, Janelle Matousek, Wendy Hines; Front: Sylvia Wiegand, Stacey Pryal, Kimberly McArthur, Taryne Ladd, Barbara Zach, Judy Walker; Not pictured: Meagan Wells

many were already quite confident, the camp evaluations did indicate improvement. Perhaps the most significant benefit for some of the girls was simply the opportunity to meet other girls who were interested in mathematics. Many of them had never before met another girl interested in mathematics and had felt a real sense of isolation. Every camper indicated on the camp evaluations that they planned to keep in touch with some of the girls they had met.

Pending funding, we plan to hold the camp again this summer.

MARIA MITCHELL AWARD

The Maria Mitchell Association has established an annual award to honor an individual or organization that encourages girls and women in pursuing studies and careers in science and technology. Maria Mitchell (1818–1889) was the first woman astronomer and first woman astronomy professor in the U.S. As teacher, mentor, and role model, she epitomized the full measure of what a woman scientist could be.

While there are many awards for scholastic and professional achievement in the various fields of science, it is equally important to recognize the people and organizations whose influence and support make it possible for women to reach these accomplishments. To be eligible for the award, encouragement may take the form of special initiatives designed to foster interest and participation in science, mathematics and technology for school age girls, college students, graduate programs or related industries. These initiatives should provide models for other programs and should be well-documented, with demonstrable follow-through and outcome.

The first juried award will be presented in October, 1998; the winner shall receive a cash award of $5000. Funding for the award is provided by the Kenan Foundation through the year 2000.

The Association has issued a call for nominations for the 1998 award. Application materials will be available after January 15, 1998. The application deadline is **March 15, 1998**. For more information, contact: Maria Mitchell Association, 2 Vestal Street, Nantucket, MA 02554; 508-228-9198; http://www.mmo.org.

VIGRE PROGRAM

VIGRE (Grants for Vertical Integration of Research and Education) is a new program announced by the Division of Mathematical Sciences of the National Science Foundation. Its purpose is to provide resources to institutions with a Ph.D.-granting department in the mathematical sciences to carry out innovative educational programs at all levels that are integrated with the research activities of the department. The intent of the VIGRE program is to support the development of undergraduate students, graduate students and postdoctoral fellows in ways which promote interaction among all participants and which train them for a broad range of career opportunities.

Two competitions for proposals have due dates of **February 11, 1998** and **September 1, 1998**. Each institution may submit at most one proposal from a given department in any fiscal year; the federal fiscal year begins October 1. The VIGRE announcement is now available on the Web and in print. It may be accessed through the DMS home page by going to February 11 under Target Dates. It may also be accessed directly at http://www.nsf.gov/cgi-bin/getpub?nsf97155. If there are questions, contact the Division at VIGRE@nsf.gov.

1998 AWM DEADLINES

Put these important dates on your calendar! We welcome applications and nominations for our various awards and grant programs.

- Sonia Kovalevsky High School Mathematics Days: January 20
- Travel Grants for Women researchers: February 1 and May 1
- AWM Workshop (SIAM Meeting, University of Toronto, 7/98): March 1
- AWM Workshop (Joint Meetings, San Antonio, 1/99): September 1
- Alice T. Schafer Prize: September 15
- Louise Hay Award: October 1

SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

North Carolina A&T

The North Carolina A&T Sonia Kovalevsky High School Mathematics Day took place on Thursday, October 30, 1997. About 200 participants from high schools in the Greensboro/Raleigh/Durham area participated in the event.

After registration and breakfast, the morning session started with a talk on the life and work of Sonia Kovalevsky by G. Warrack of NCA&T. The students were noticeably impressed by her talent, the diversity of her activities, and the importance of the work that she produced in her short life of 41 years. Our principal speaker was Marge Murray from Virginia Tech who gave a talk: "How Women Became Mathematicians: A Look Back and a Look Forward." She did a superb job in including the audience and communicating with them during her one-hour lecture. That kept the students' attention, and a number of them selected her lecture as the thing that they liked the most.

After a short break we had a panel discussion on Careers in Mathematics. The panel consisted of Madonna Chernesky, NSA; Shannah Stephens, an analyst for a bank; Lisa Rich, a programmer working on retirement packages; and Terry Debagge, a consultant, with Alexandra Kurepa as the panel moderator. The panel was a complete success: students participated, asked questions, and were surprised at how many different careers come from mathematics, a comment they expressed in the survey. The panelists did a great job in arguing why and how a mathematical background helps by giving simple, specific examples that all underlined how it is the problem-solving skills and logic that help you survive the fast development of technology.

After lunch, students had a choice of one of three workshops: "Let's Solve Some Cipher" given by M. Chernesky from NSA was a lively and fun lecture that students found very interesting; "Mathematics and the Internet with Applications," organized by M. Chen and E. Rowe of NCA&T, introduced students to some applications of Maple and some web sites; and "Problems and Solutions" by D. Clemence of NCA&T. Prior to the event, the participating schools were sent a set of problems. Teachers were encouraged to form teams to try to solve these problems and bring their solutions to the event. That procedure removed the pressure of competition. During the workshop, the problems were discussed and "winners" acknowledged. Dr. Clemence was invited to visit some high schools for a follow-up visit to meet with their Math Clubs.

The teachers met in a workshop given by Fred Bowers of Spelman College, "Teaching at a Female Institution." An interesting discussion emerged between teachers where they shared problems that occur in the classroom regarding gender, exchanged ideas on how to solve some of them and raised some important questions regarding education. As a consequence, the group has agreed to meet again and discuss what the high school teachers can do to better prepare the students for college and what the college professors need to know about the problems that they have in high school.

As an organizer, it was very rewarding to offer a program that attracted that many participants and to look up in the auditorium and see a room full of young women with the interest and capability to do mathematics. I enjoyed meeting and talking to the students and look forward to having some of them as students and colleagues. In particular, the connection that has been made with the teachers in our community is invaluable. Dialog between high school and college teachers has to be encouraged and nurtured if our educational system is to improve. Programs like the Sonia Kovalevsky High School Day provide the opportunity for that to happen, so we would like to thank our sponsors AWM and NSA and encourage the continuation of the program.

Alexandra Kurepa, Department of Mathematics, North Carolina A&T University

University of Michigan

The University of Michigan Sonia Kovalevsky Day occurred on September 26, 1997. The Day was largely successful. However, it is important to note that our aim is to support young women who love math as fully as we can for the next year, and in that sense our Day was just the beginning. The follow-up phase of our project is also off to a good start.

Carolyn Dean, University of Michigan

We had approximately forty-two students, five teachers, and three parents at Sonia Kovalevsky Day. Our biggest disappointment was the withdrawal of Cass Tech High School in Detroit from the program on Wednesday, September 24. The school principal was overruled at the last minute on the plan of renting a van to transport the participants (something that was not a problem for any of our other cohorts), evidently over the question of liability for the Detroit Public Schools. However, we are making a special point of including the Cass Tech students fully in the academic year activities.

The participants attended parallel workshops on diverse topics such as projective geometry, actuarial mathematics (a tremendous success), elementary number theory, and geometry: eight workshops in all. The day was leavened by a lively "base eight" work contest with prizes and by lunch with many members of the Mathematics Department.

The Department's response was excellent. We had a full quota of student mentors and approximately twenty regular faculty members at the lunch. The mentoring concept has already had some signal successes but also had its problematic aspects. On the positive side, the undergraduate female students hit it off very well with their mentees. Several of the high school women have already returned to campus to spend the day attending classes and socializing with their mentors. Two of the undergraduate women have accepted speaking invitations at The Roeper School, a private high school for gifted students in suburban Detroit. The problematic aspect of the mentoring was the viewpoint of some the graduate student mentors (mostly male), who seem to have signed up with the idea that their role would be to encourage budding mathematical superstars. Several of them were inadvertently but, I think, significantly critical of mentee aspirations that did not reach this height.

Ironically, the other problem we had was with teacher participants in the Day. Unlike most SK programs (now we know why), we decided to have the teachers and students participate in joint activities. Our idea was that the teachers would sit back and learn from the experience. Instead, two of them attempted to dominate the proceedings. One subverted the registration process while the other tried to monopolize workshops. When we repeat the Day (as we plan to do with internal funding), we must separate out the teachers to prevent this.

We're establishing computer accounts for all of our participants. We've encouraged them to form a community among themselves and to network with other high school students, particularly females, with whom we have established connections. Towards this end, we are offering mathematical experiences over the UM Math Scholars Web site which we are happy to share with the wider community. At present, a course on fractals has begun and a course on graph theory is being planned. These courses are suitable for all bright high school students.

Our site can be found at www.math.lsa.umich.edu/~mathsch, and we hope that other programs will also benefit from our material.

University of Tulsa

Our Fourth Sonia Kovalevsky High School Mathematics Day (SKHSMD) was held at The University of Tulsa on September 19, 1997. There was a total of 141 eighth, ninth and tenth grade women students and 22 faculty members from 24 area schools. This program was a cooperative project between The University of Tulsa (TU), Tulsa Community College (TCC), and Tulsa Public Schools.

Participants began registering at 8:45 A.M. Information packets contained the program, workshop assignments, acknowledgements, evaluation forms, notepads inscribed with "Sonia Kovalevsky High School Mathematics Day" (donated by our local Kinko's Copies), and mathematics and related career information from such organizations as the Association for Women in Mathematics (AWM), Mathematical Association of America (MAA), Equals, Federal Aviation Administration, OSU-Aerospace Professional Development Center, NASA, National Council of Teachers of Mathematics, and the Conference Board of the Mathematical Sciences. A resource table offered items that we had received from the Society of Women Engineers, Society of Industrial and Applied Mathematics, American Association of University Women, National Action Council for Minorities in Engineering, Oklahoma State Regents for Higher Education, American Statistical Association, Women and Mathematics Education, and many other organizations. Also included was information about Sonia Kovalevsky. We found that the AWM *Newsletter* was a great source of information on

Shirley Pomeranz, Donna Farrior, and Sharon Wilson, Department of Mathematical and Computer Sciences, The University of Tulsa, pomeranz@euler.mcs.utulsa.edu

items for SKHSMD and organization/individuals who offer to share their SKHSMD experiences.

The program began with refreshments and a welcome by program organizer Dr. Shirley Pomeranz. Kay Anderson, a mathematician at the National Security Agency (NSA) and a graduate of Central High School in Tulsa, also welcomed the participants and spoke about career opportunities at NSA. Her welcome set the tone for the day's activities.

Pat Stemmons, a math teacher from Carver Middle School in Tulsa who is active in Math Counts, hosted the next event, a math contest. In the past, some participants had found a standard type of math contest too competitive. This time we had the students work in teams. Teams of eight students decided for themselves how to partition the task of solving the forty problems from Math Counts. Even working in teams and with calculators provided, there were more problems than any team could solve in the 50 minutes available.

We tried to create a good combination of competition and cooperation. The cooperative aspect included working together, yet there was a competitive aspect because the teams solving the most problems correctly chose their prizes first. Although we had prizes for all the participants, we had only a limited number of each prize item. Thus, there was an incentive to do well, so that each student could get her first choice prize. We emphasized that there were no losers and that there are many styles of problem solving and working together. We handed out answer keys that the students could keep and go over later, and each team corrected its own solution list. We originally asked each team to do the grading because we were too short-staffed to do this ourselves. However, an unanticipated benefit was that grading their own team's work gave the students a sense of ownership of this event and was a further exercise in teamwork (not to mention, in honesty).

All the prizes had a mathematics theme. We had t-shirts reading "Mathematics Empowers Women" on the front and "Women Empower Mathematics" on the back. These were obtained from Dr. Frances Rosamond (National University, San Diego), who also loaned us the banner "Mathematics Empowers Women" that was carried at the UN Fourth World Conference on Women. Other prizes were copies of the book *She Does Math!* (published by the MAA and autographed by contributor Dr. Jill Tietjen) and mugs and key chains with the slogan "I Love Math" (ordered from Math Products Plus, a company that donated 50 mathematics calendars). All these prizes were purchased at discounts, once the vendors knew that the prizes were for a SKHSMD.

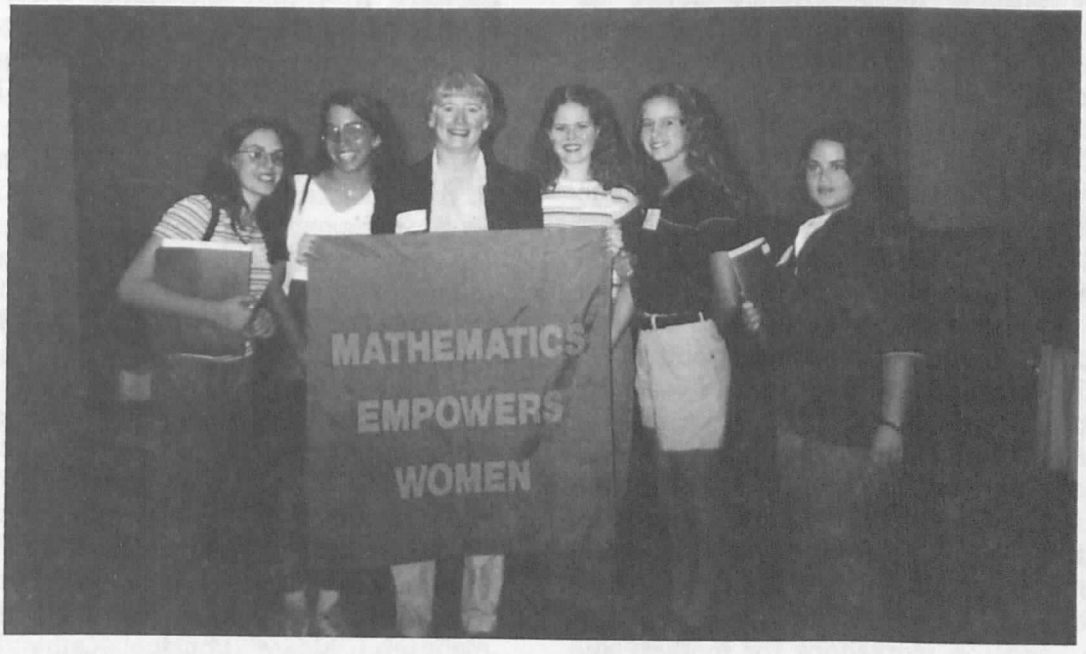
Students received tickets for their prizes. When the participants had filled out and submitted their evaluation forms, we exchanged the tickets for the indicated prizes. This ensured that we got our evaluation forms back and minimized the chances of broken math mugs or lost prizes.

After the math match and the selection of prizes, students and teachers proceeded to the first set of concurrent, hands-on workshops. The student workshops and workshop instructors were "Topology or Knot," Dr. Donna Farrior; "Surfing the Internet," Alexi Klends; "Codes and Ciphers," Dr. Tom Cairns; "Puzzles, Problem Solving and the Mathematics of Play," Reginald Noland; "Combinations, Permutations, and M & M's." Diane Trimble; "Mira Magic," Carolyn Bradshaw; "True Colors," Joyce Townsend; "What is College Like?" Reshma Keshav, Sarah Siebenaler, and Lula Adams; and "Teamwork Workshop," Laura Peterson and Catherine Fisher. Each student workshop was offered once in the morning and once in the afternoon. Teachers could attend the student workshops or workshops specifically designated for teachers. The morning teacher workshop was "Update on Gender Equity," Marty Peters; the afternoon teacher workshop was "TI-83 and Computer Based Laboratory," Diane Van Nostrand.

Between the two workshop sessions was lunch (always a popular event). Based on previous experiences, we decided against having a luncheon speaker. The participants had this time to compare workshop experiences and to meet students from other schools.

We had a career panel after the second workshop session. The panel members were Amy Wright, a mechanical engineer (Mapco, Inc.); Patti Burton, an industrial engineer/computer specialist (American Airlines); and Shea Roach, a business assurance manager with a certified public accounting firm (Coopers & Lybrand). Each panelist described her job, noted the math and math-related courses that she taken, and described some personal experiences, such as balancing both a career and a family. Panelist Patti Burton had a question for the participants: how many of the students had mothers who helped them with their homework (many did). Panelists answered questions from the students and remained for one-on-one conversations once the panel concluded.

Sonia Kovalevsky High School Mathematics Day, University of Tulsa



The banner says it all!

SKHSMD concluded at about 3:15 p.m., with participants helping themselves to refreshments, filling out evaluation forms, and claiming their math prizes.

The following are some selected comments from the student participant evaluation forms. Responses to the question "Did you learn anything that surprised you?" included: I learned that there were many great women out there that held good positions; College is interesting; I didn't realize that math is a broad subject. I learned that you use math in so many jobs and for so many reasons; I have good leadership skills; That math can be fun.

Additional comments on the student evaluation form included: Had a lot of fun; I found both of my classes [workshops] enjoyable. The classes could have been longer; This is a program for us, we had a good time; I'd love to come back.

Teacher evaluation form suggestions in response to the question "How can we present a better event next year?" included: Make it more exciting for the teachers; Make it later in the fall; Include more minority presenters and at least one minority career person.

It appears that the spring semester is a better time of year for our SKHSMD's. This was the first one we hosted during the fall semester, and several teachers commented that they were still getting to know their students at this time. It was suggested that we give schools more advance notice of SKHSMD, something that we found difficult to do at the beginning of the school year. We need to improve local publicity and broaden our base of volunteers for workshops and other support services.

We received helpful suggestions from the article "Sonia Kovalevsky High School Day at St. John's University: A Five-Year Perspective" [Dr. Rora Iacobacci and Dr. Anne Hughes, AWM *Newsletter*, v. 26, no. 6, November–December 1996]. We contacted Dr. Iacobacci, who gave us more pointers for keeping our SKHSMD lively from year to year. We plan to attend a workshop hosted by the American Society of Engineering Education (ASEE), Women in Engineering Division, on June 28, 1998 (at the ASEE Annual Conference) on hands-on engineering activities for pre-college students. Something that we would like to incorporate into future SKHSMD's is more parental involvement, perhaps having some hands-on workshops for mothers and daughters [Dr. Neda Fabris, Department of Mechanical Engineering, California State University, "Laboratory Workshop for Mothers and Daughters," presentation at the 1997 ASEE Annual Conference].

Undergraduate and graduate women students from the Department of Mathematical and Computer Sciences, Society of Women Engineers, TU Women in Science, and from other departments at TU and TCC helped with registration, did workshops or served as workshop assistants, and were on hand to talk informally with participants. We also received encouragement from our Department Chair, Bill Coberly (one of SKHSMD's biggest fans).

The organizing committee feels that the day was successful and exciting and looks forward to our next SKHSMD. We received our best set of evaluation yet. We combined a follow-up event for a summer mathematics academy with this SKHSMD in order to begin to unify our outreach activities supporting women in mathematics.

The assistance from Kay Anderson is very much appreciated. We gratefully acknowledge funding from the Association for Women in Mathematics/ National Security Agency and Mathematical Association of America/Tensor Foundation for this very worthwhile event. The University of Tulsa College of Engineering and Applied Sciences and Department of Mathematical and Computer Sciences provided matching funds and use of facilities. Funding from the Oklahoma State Regents for Higher Education was available so that some eighth and ninth grade girls could participate. Once we have established SKHSMD well in Tulsa, we will seek funding from local businesses.

SUPERCOMPUTING 97

The "Supercomputing 97" issue of *Parallel Computing Research*, the quarterly newsletter of the Center for Research on Parallel Computation, is now available at http://www.crpc.rice.edu/CRPC/newsletters/fal97/. Previous issues and articles can be found at http://www.crpc.rice.edu/CRPC/newsletters/index.html. If you have any difficulties accessing materials, please contact Kathy El-Messidi at elmessy@rice.edu. To subscribe or unsubscribe, mail requests to pcr@cs.rice.edu.

SUMMER OPPORTUNITIES

Enhancing Diversity in Graduate Education (EDGE)

This new program, funded by the National Science Foundation, is designed to strengthen the ability of women and minority students to successfully complete graduate programs in the mathematical sciences. The summer program consists of two core courses in analysis and algebra/linear algebra. There will also be minicourses in vital areas of mathematical research in pure and applied mathematics, short-term visitors from academia and industry, guest lectures, graduate student mentors, and problem sessions. In addition, a follow-up mentoring program and support network will be established with the participants' respective graduate programs.

For further information, see the display ad on page 33 or visit http://www/brynmawr.edu/Acads/Math/. The application deadline is **March 1, 1998.**

CSU Northridge

During summer 1998, the Math Department at California State University will, pending funding from NSF, continue its successful four-week (June 14 through July 10, 1998) math program for undergraduate women. The program will provide eighteen women with the opportunity of studying mathematics in a setting that differs from what most experience during their undergraduate careers. The students will attend two seminars that cover topics not usually seen in a standard undergraduate curriculum; in 1997 they were graph theory and knot theory. The instructors of the seminars will be women mathematicians. We encourage applications from students at schools where there are few opportunities to be with peers who share their interest in mathematics.

The application deadline is **March 20, 1998.** For more information see the display ad on page 33 or visit http://www.csun.edu/~csunsmp.

IAS/Park City Mathematics Institute

The IAS/Park City Mathematics Institute (PCMI) is a three-week program (July 12 through August 1, 1998) bringing together undergraduate students, graduate students, high school teachers, researchers, undergraduate faculty, and researchers in mathematics education. PCMI is sponsored by the Institute for Advanced Study (IAS), Princeton, NJ and receives major funding from the National Science Foundation. This year's topic is reprentation theory of Lie groups. The Mentoring Program for Women in Mathematics will be held at IAS in May. Application deadlines are **February 15, 1998.** For more information, see the display ad on page 32 or visit http://www.ias.edu/park.htm.

NSF Undergraduate Faculty Enhancement Workshop

Pending final NSF approval, A Teaching Undergraduate Geometry workshop will be held May 29 through June 2, 1998 at the Department of Mathematics, Cornell University. Enrollment is limited. We will begin reviewing applications on **April 1, 1998.**

This workshop is intended for college and university faculty who teach (or soon will teach) an undergraduate geometry course, such as the courses typically attended by future or in-service teachers. The leaders of the workshop will be Kelly Gaddis (Buffalo State College), David Henderson (Cornell University), Jane-Jane Lo (Cornell University), and Avery Solomon (Cornell University).

In the mornings, participants will experience a learning and teaching environment that is innovative both in terms of content and in terms of teaching methods. The content will be the integration of geometries on the plane, the sphere and other surfaces, presented through problems which emphasize experiencing the meanings in the geometry. Student investigations, small group learning, and writing assignments will be explored.

In the afternoons, there will be seminars and presentations on topics related to the workshop theme, including: "How to Write Good Exploratory Problems," "Using Writing in Mathematics," "Curriculum Developments in School Geometry," "Using Computer Technology in Geometry," "Formal versus Intuitive Knowing in Geometry," "What is in the Eight Undergraduate Geometry Courses at Cornell," "Non-test-based Assessments," "Student Affects and Beliefs Surrounding Innovative Programs," and "Including All Students by Encouraging Diverse Ideas." In addition, there will be ample free time for informal discussions and enjoyment of the geometry of nature in and around Ithaca.

Much of the housing and food expenses will be covered by the NSF for all participants. There may

also be very limited NSF funds available to support travel costs for participating faculty from institutions with limited resources. The NSF will also support follow-up activities by the participants after the workshop including local workshops, exchange of related classroom materials, and communication of experiences and ideas.

For more information and application procedures contact: http://math.cornell.edu/~dwh, or (if you have no internet access) email: dwh@math.cornell.edu; write: UFE Geometry Workshop, Department of Mathematics, Cornell University, Ithaca, NY 14853-7901; fax: 607-255-7149.

George Washington University

The 1998 Summer Program for Women in Mathematics (SPWM 98) at The George Washington University is a five-week (June 27, 1998 to August 1, 1998) intensive program for mathematically talented undergraduate women who are completing their junior year and may be contemplating graduate study in the mathematical sciences. The goals of this program are to communicate an enthusiasm for mathematics, to develop research skills, to cultivate mathematical self-confidence and independence, and to promote success in graduate school.

SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

The Association for Women in Mathematics has funds available through a grant from the National Security Agency (NSA) to support Sonia Kovalevsky High School Mathematics Days at colleges and universities throughout the country. Sonia Kovalevsky Days have been organized by AWM and institutions around the country since 1985, when AWM sponsored a symposium on Sonia Kovalevsky. They consist of a program of workshops, talks, and problem-solving competitions for high school women students and their teachers, both women and men. The purposes are to encourage young women to continue their study of mathematics, to assist them with the sometimes difficult transition between high school and college mathematics, to assist the teachers of women mathematics students, and to encourage colleges and universities to develop more extensive cooperation with high schools in their area.

We anticipate awarding approximately 15–20 grants of up to $3,500 each to universities and colleges; historically Black institutions and women's colleges are particularly encouraged to apply. Programs targeted towards inner city or rural high schools are especially welcomed. If selected, institutions will receive an information packet consisting of model schedules of activities, a check list for the sorts of arrangements that need to be made, suggestions for securing additional funding and for obtaining prizes to be awarded to contest winners, recruitment and publicity material to be adapted for local use, lists of possible workshop topics for students and teachers, model problem-solving contest material, and guidelines for follow-up activities and evaluation.

Applications, not to exceed five pages, should include: a) tentative plans for activities, including specific speakers to the extent known; b) qualifications of the persons to be in charge; c) plans for recruitment, including the securing of diversity among participants; d) budget; e) local resources in support of the project, if any; and f) tentative follow-up and evaluation plans.

Decisions on funding will be made in mid-February. The high school days are to be held in Spring 1998 and Fall 1998. Reports on funded high school days are to be made to AWM within four to six weeks of completion. In addition, all receipts (originals or copies) for reimbursement must be submitted to AWM within 45 days of the institution's event *or* no later than December 1, 1998, whichever comes first. Reimbursements will be made in one disbursement; no funds can be disbursed prior to the event date.

Send *five* complete copies of the application materials to: Sonia Kovalevsky Days Project Advisory Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; email: awm@math.umd.edu; phone: 301-405-7892. Applications via email or fax will not be accepted. The application deadline is **January 20, 1998.**

Sixteen women will be selected. Each will receive a travel allowance, campus room and board, and a stipend of $1,250.

The application deadline is **March 1, 1998**. Early applications are encouraged.

For further information, contact the co-directors, Murli M. Gupta (mmg@math.gwu.edu) and E. Arthur Robinson, Jr. (robinson@math.gwu.edu), or visit http://www.gwu.edu/~math/spwm.html. The application material is available on the web.

Carleton and St. Olaf

Carleton and St. Olaf Colleges will continue their NSF/NSA-funded successful, intensive, four-week summer program (June 28 through July 26, 1998) designed to encourage talented undergraduate women to pursue advanced degrees in the mathematical sciences. The students will take courses in Algebraic Coding Theory (taught by Laura Chihara, St. Olaf College) and Dynamical Systems (taught by Judy Kennedy, University of Delaware). In addition there will be opportunities for computer training, recreational problem solving, discussions about graduate school and careers in mathematics, and twice-weekly colloquia.

Please encourage your talented first- and second-year female mathematics students to apply. Applications are due **February 28, 1998**. For information or application materials, email Deanna Haunsperger at dhaunspe@carleton.edu, write to Summer Math Program, Math Department, Carleton College, Northfield, MN 55057, or visit the program's home page at http://www.mathcs.carleton.edu/smp.

Ergodic Theory, Groups, and Geometry

The National Science Foundation and the Conference Board of the Mathematical Sciences will sponsor a one-week conference at the Minneapolis campus of the University of Minnesota on "Ergodic Theory, Groups, and Geometry," June 22-26, 1998. The main speaker will be Professor Robert J. Zimmer of the University of Chicago, who will present a series of ten expository lectures. He will provide an introduction to the main techniques of the field and survey the major recent developments and open problems. Only a few other talks will be scheduled, in order to leave plenty of time for informal discussions among the conference participants.

A major goal of the conference will be to support and encourage mathematicians interested in entering the field, including postdocs, graduate students, and researchers in related areas, such as ergodic theory, differential geometry, number theory, and group representation theory. Women, minorities, and persons with disabilities are especially encouraged to apply.

NSF-AWM TRAVEL GRANTS FOR WOMEN

The objective of the NSF-AWM Travel Grants program is to enable women to attend research conferences in their fields, thereby providing a valuable opportunity to advance their research activities and their visibility in the research community. By having more women attend such meetings, we also increase the size of the pool from which speakers at subsequent meetings may be drawn and thus address the persistent problem of the absence of women speakers at some research conferences.

Travel Grants. These grants provide full or partial support for travel and subsistence for a meeting or conference in the applicant's field of specialization. A maximum of $1000 for domestic travel and of $2000 for foreign travel will be applied. International travel must be on U.S. flag carriers whenever possible.

Eligibility. These travel funds are provided by the Division of Mathematical Sciences of NSF, and the research conference must be in an area supported by DMS. For example, this includes certain areas of statistics, but excludes most areas of mathematics education and history of mathematics. Applicants must be women holding a doctorate (or equivalent experience) and having a work address in the 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, including *any* NSF grant, is ineligible. Partial support from the applicant's institution or from a non-governmental agency does not, however, make the applicant ineligible.

Applications. There will be two award periods from the current grant, with applications due **February 1, 1998** and **May 1, 1998**. 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 along with *five* copies of her cover letter to: Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. For more information, contact AWM at 301-405-7892 or awm@math.umd.edu. Applications via email or fax will not be accepted.

Financial support for air travel, housing, and local expenses will be provided to many of the participants.

For more information, see the conference web site at http://www.math.umn.edu/~adams/CBMS/main.html or contact one of the conference organizers, Scot Adams (adams@math.umn.edu) and Dave Witte (dwitte@math.okstate.edu).

QUERY

Dr. Maria-Grazia Ascenzi Del Duca, a long-time member of AWM, would like to network with other women mathematicians who are doing independent research. Currently she is teaching part-time and doing research on mathematical models for specific biomaterials. She says:

> A lot of freedom accompanies independent research, but so do a range of challenges. People are not used to Ph.D.'s who do research independently; the question is: "Where do you work?" "Where do you do research?" I have started to answer: "Anywhere."

She may be reached at 310-452-5723 or pdelduc@ucla.edu.

PATHWAYS II REPORT

Pathways for Women in the Sciences: The Wellesley Report, Part II presents the results of a longitudinal study of Wellesley undergraduates, examining who persists in science and math majors. In addition, the study analyzes retention in science and math careers for alumnae graduating in the classes from 1968–1991.

Retention in science differs for undergraduates, depending on a student's interest in pre-medical study: 56% of pre-medical students remain in science by the end of their senior year, compared to 41% of non-pre-medical students. For undergraduates, factors associated with dropping out of science include: less high school preparation in math and science; a preference for subjects with multiple interpretations instead of precise answers; a relatively lower interest in science; placing importance on material aspects of occupations; and lower math and science GPA's in the first two years of study.

The Alumnae study examined retention for Wellesley math and science graduates not entering the medical profession. About three-quarters of these alumnae continue in science directly after graduation. After this point, alumnae leave science at a rate of about two to five percent a year. Eleven years after graduation, more than half of math and science alumnae (not pursuing medicine) are still in science. Factors that contribute to leaving science include: lower parental encouragement; lower interest in science; not having a mentor; not participating in undergraduate research; and having children.

The 150-page report (CRW4B) is available from the publication department of the Wellesley Centers for Women. Call 617-283-2510 for information on ordering.

1999 AAAS ANNUAL MEETING AND EXPOSITION

The American Association for the Advancement of Science (AAAS) invites proposals for symposia for the 1999 Annual Meeting and Science Innovation Exposition in Anaheim, CA to be held January 21–26. The AAAS meeting attracts a diverse audience from all scientific disciplines and from the industrial, academic, non-profit, and policy communities. In addition, the meeting is attended by hundreds of journalists.

Symposia may be proposed for inclusion in one of twenty proposed Meeting Tracks. Successful proposals are characterized by interesting topics that are thoughtfully developed and by inclusion of capable and articulate presenters who represent the diversity of science and society. Nominations for Topical Lecturers are also invited.

The deadline for submission of proposals and nominations is **March 16, 1998**. For more information and application forms, contact: Annual Meeting Program Committee, Office of Membership and Meetings, AAAS, 1200 New York Avenue, NW, Washington, DC 20005; phone: 202-326-6450; fax: 202-289-4021.

ATTENTION APPLIED MATHEMATICIANS!

SIAM WORKSHOP FOR WOMEN GRADUATE STUDENTS AND POSTDOCTORAL MATHEMATICIANS

supported by the Office of Naval Research, the National Science Foundation and the Association for Women in Mathematics, pending final approval

Over the past nine years, the Association for Women in Mathematics has held a series of workshops for women graduate students and recent Ph.D.'s (referred to as "postdocs" below) in conjunction with major mathematics meetings.

WHEN: The next workshop in the series will be held in conjunction with the 1998 SIAM Annual Meeting (July 13–17, 1998) and the 9th SIAM Conference on Discrete Mathematics (July 12–15, 1998) at the University of Toronto, Toronto, Ontario, Canada. This workshop will be held on Monday, July 13th and Tuesday, July 14th, with an introductory group discussion and dinner on Sunday, July 12th.

WORKSHOP: The workshop will consist of a poster session by graduate students, four minisymposia, a group discussion on careers, a panel on government funding and a dinner with a keynote speaker. The graduate student poster session includes all areas of research in applied mathematics. Each minisymposium will have a definite focus. The first minisymposium will include four talks about career skills including oral presentations, writing, and grant writing skills. The three remaining minisymposia will focus on the research areas of mathematical biology, discrete math/optimization, and PDE's and applications.

Applications for funding must be received by AWM by March 1, 1998. Selected graduate student participants will present their research in a poster session. Selected postdocs (those within five years of their Ph.D.) will speak in one of the three AWM research minisymposia. Applicants who meet eligibility requirements and are selected to participate in the AWM Workshop will receive reimbursement for full transportation costs, registration cost of the SIAM Annual Meeting and two days subsistence for meals and lodging, pending final budgetary approval. Departments are urged to help graduate students and postdocs obtain some supplementary institutional support to attend the Workshop and the associated meetings. All mathematicians (female and male) are invited to attend the entire program.

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

ELIGIBILITY: To be eligible for funding, *graduate students* must have begun work on a thesis problem. Applications should include a cover letter, a title and abstract (75 words or less) of the proposed poster, a summary of their work (1–2 pages), a curriculum vitae, and a supporting letter of recommendation from a faculty member or research mathematician. Applications from *postdocs* should include a cover letter, a title and abstract (75 words or less) of the talk (to be given if accepted), a summary of their work (1–2 pages), and curriculum vitae; they may also include a letter of recommendation. Letters of support are encouraged. The word "postdoc" refers to any mathematician who has received her Ph.D. within the last five years, whether or not she currently holds a postdoctoral or other academic position. All funded participants are invited and strongly encouraged to attend the full AWM two-day program. All non-U.S. citizen applicants must have a current U.S. address.

Send **five** complete copies of the application materials (including the cover letter) to: Workshop Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: 301-405-7892; email: awm@math.umd.edu. Applications via email or fax will not be accepted.

APPLICATION DEADLINE: **March 1, 1998**

AWM Events

AWM would like to invite you to our events to be held in conjunction with the Joint Mathematics Meetings at the Baltimore Convention Center, Baltimore, Maryland, January 7-10, 1998.

Preliminary Schedule as of December 10, 1997

Wednesday, January 7th

8:00 a.m. **AWM-MER Joint Session**

3:20 p.m.- 4:20 p.m. **Panel Discussion: *"Mathematicians and Families"***

Panelists: **Deborah Tepper Haimo**, UCSD; **Craig L. Huneke**, Purdue Univ.; **Suzanne M. Lenhart**, Univ. of Tenn.; **Rhonda J. Hughes**, Bryn Mawr; **Stephen F. Kennedy**, Carleton College; **Dawn Lott-Crumpler**, NJIT

At the conclusion of the panel, AWM will recognize the **Alice T. Schafer Prize honorees.**

4:20 p.m. -4:50 p.m. **Business Meeting**

6:00 p.m. **Noether Dinner:** As in the past, AWM will have a get-together with the Noether Lecturer for a casual dinner. If you would like to join us, a sign-up sheet will be at the AWM Table in the exhibit area.

9:30 p.m. **Open Reception:** with refreshments and cash bar. This has been a popular, well attended event in the past.

Thursday, January 8th

9:00 a.m. **19th Annual Emmy Noether Lecture: *"Symplectic structures: a new approach to geometry"*** presented by **Dusa McDuff,** SUNY at Stony Brook

4:25 p.m. Presentation to the winners of the **8th Annual Louise Hay Award** for Contributions to Mathematics Education and the **8th Annual Alice T. Schafer Prize** for Excellence in Mathematics by an Undergraduate Woman

These award presentations are held in conjunction with the **Joint Prize Session**. A cash bar reception will immediately follow.

Saturday, January 10th

8:20 a.m.-5:10 p.m. **AWM Workshop** for Graduate Students and Postdoctoral Mathematicians

Selected participants will present and discuss their research and meet with other mathematicians. **All mathematicians (male and female) are invited to attend the entire program.** The AWM Workshop is supported by ONR and NSF.

Co-organizers: Carolyn S. Gordon, Dartmouth Coll.; Gail Ratcliff, Univ. of Missouri, Catherine Roberts, Northern Arizona Univ.

8:20 a.m. - 8:30 a.m.	Opening Remarks	
8:30 a.m. - 8:50 a.m.	**Kimberly Pearson,** Valparaiso University	*"Lower Algebraic K-Theory of Bianchi Groups"*
9:00 a.m. - 9:20 a.m	**Caryn Werner,** University of Michigan	*"Counting moduli for some surfaces of general type"*
9:30 a.m. - 9:50 a.m.	**Jeanne Nielsen Clelland,** Inst. for Advan. Study	*"Bäcklund transformations of hyperbolic Monge-Ampère systems"*
10:00 a.m. - 10:20 a.m.	**Claire Baribaud,** Florida State University	*"Closed geodesics on a pair of pants"*
10:30 a.m. - 12:00 noon	**Graduate Student Poster Session**	
	Nancy E. Cunningham, Rice University	*"A variational approach to the local uniqueness of minimal surfaces in R^3"*
	Stephanie P. Edwards, Univ. of Wisc.-Madison	*"The Non-Real Zeros of f "and the Wiman Conjecture"*
	Cheryl Grood, Univ. of Wisc.-Madison	*"Even More Brauer Algebras"*
	Chawne M. Kimber, University of Florida	*"The Structure of Prime Ideal Spectra in Rings of Continuous Functions"*
	Lorelei Koss, University of North Carolina	*"Ergodic Theory of Analytic Maps of Complex Projective Space"*
	Céline M. Lossa, University of Rochester	*"The singular homology of strong bouquets of Moore spaces"*
	Cynthia McCabe, University of Iowa	*"Upper Bounds on Edge Numbers of Knots and Links"*
	Lisa A. Orlandi-Korner, Cornell University	*"Group Actions on R-trees"*
	Lisbeth E. Schaubroeck, U. of North Carolina	*"Subordination and Shears of Plane Harmonic Functions"*
	Olga Simek, University of Arizona	*"Heat Trace Asymptotics for Domains with Singular Boundaries"*
	Elizabeth Lee Wilmer, Harvard University	*"Exact Rates of Convergence for Some Non-Reversible Markov Chains"*
	Carolyn Yackel, University of Michigan	*"Asymptotic Bounds for Annihilator Lengths in Quotient Rings"*
12:00 noon - 1:30 p.m.	**AWM Workshop Lunch** *(for more info, contact AWM)*	
1:30 p.m. - 1:50 p.m.	**May M. Nilsen,** University of Nebraska-Lincoln	*"Group duals: the non-abelian case and the role of Hopf C^*-algebras"*
2:00 p.m. - 2:20 p.m.	**Natalie M. Priebe,** Rensselaer Polytechnic Institute	*"Derived Voronoï Tilings and How They Can Be Used to Analyse Hierarchy in Tilings"*
2:30 p.m. - 2:50 p.m.	**Sylvia Silberger,** Lafayette College	*"Entropies of One-Dimensional Tiling Subshifts"*
3:00 p.m. - 3:20 p.m.	**Deborah Heicklen,** Univ. of California, Berkeley	*"Independence in ergodic theory"*
3:30 p.m. - 5:00 p.m.	**Panel: "Launching a Career in Mathematics"**	*Panel Moderator:* **Catherine Roberts,** Northern Arizona State Univ.
	Panelists: **Patty Anthony Ashford,** NSA; **Jill Dietz,** St. Olaf College; **Ruth Gornet,** Texas Tech University; **Rachel Kuske,** Univ. of Minn.; **Dawn Lott-Crumpler,** NJIT; **Ruth Charney,** Ohio State Univ. ***(tentative)***	
5:00 p.m. - 5:10 p.m.	Closing Remarks	

AWM will have an information table in the exhibit area throughout the meeting. **For LOCATION and/or more details** on the above events, please stop by the **AWM Information Table** for an *AWM Events Program* or refer to your *Joint Mathematics Meetings Program.*

ADVERTISEMENTS

BALL STATE UNIVERSITY - MUNCIE, INDIANA

Assistant Professor - Department of Mathematical Sciences

Two tenure-track positions available August 21, 1998.

Minimum qualifications: all requirements for a doctorate in one of the mathematical sciences completed by time of appointment. **Preferred qualifications:** research interests compatible with present faculty, particularly candidates in the areas of Lie Groups, Computational/ Numerical Mathematics, and Stochastic Analysis; documentation of successful college or university teaching experience and evidence of research potential. **Responsibilities include:** teaching approximately 8 to 9 hours per semester, predominantly at the undergraduate level; research in mathematics; and professional service. In addition, one or more fixed term (not tenure-track) positions may also be available beginning the same date. The Department of Mathematical Sciences includes faculty in Pure and Applied Mathematics, Statistics, Actuarial Science, and Mathematics Education. The department offers a range of academic programs leading to B.A., B.S., M.A., M.S., and MAE degrees in these areas. The department's URL is: **http://www.cs.bsu.edu/~math/**

Competitive salary and benefits package. Send letter of application; *AMS Standard Cover Sheet* (available from the AMS or from the department); curriculum vitae; research summary; and three letters of reference, at least one of which substantially addresses the applicant's teaching ability and performance to: **Professor Ralph Bremigan, Chair, Mathematics Search Committee, Department of Mathematical Sciences, Ball State University, Muncie, IN 47306.** (E-mail: msearch@math.bsu.edu) Review of applications begins immediately and continues until the position is filled. Ball State University is an equal opportunity, affirmative action employer and is strongly and actively committed to diversity within its community.

CALIFORNIA STATE UNIVERSITY, CHICO

Department of Mathematics and Statistics

The Department announces a tenure track position in Mathematics Education at the Assistant Professor level beginning in the 1998-99 academic year. Minimum requirements: a doctorate in mathematics education, mathematics or a related field, including at least the equivalent of a strong master's degree in mathematics; evidence of quality teaching; a commitment to working with preservice and inservice teachers; capacity for excellence in research, writing, or other scholarly activities. The current salary range is $37,956 - $45,672 per academic year, depending on the level of appointment. Qualified candidates should submit a letter of application (including a statement of professional goals which addresses the qualifications and experiences required), a vita, and three letters of recommendation (including at least one relating to teaching effectiveness) to: Dr. Jim Jones, Mathematics Education Search Committee, Department of Mathematics and Statistics, CSU, Chico, Chico, CA 95929-0525. Closing date: February 20, 1998. CSU, Chico is an EEO/AA/ADA/IRCA employer that is committed to a culturally diverse work force, hence all qualified individuals are encouraged to apply.

THE OHIO STATE UNIVERSITY

Director of Mathematics - Statistics Learning Center

The Mathematics-Statistics Learning Center (MSLC) is an exciting new venture by the Mathematics and Statistics Departments to provide:

- tutoring services
- small group learning facilities
- computer laboratories
- faculty, TA, and peer-mentor training programs
- support for pedagogical experimentation
- state-of-the-art teaching materials.

The duties and responsibilities of the Director of the MSLC will include design and development of the MSLC, overseeing daily operations of the MSLC, working with faculty and TA's to improve teaching effectiveness, and teaching one lower division mathematics (or statistics) course per quarter.

We are seeking a dynamic, energetic individual with innovative ideas, and outstanding communication skills. Qualifications include an advanced degree in Mathematics, Statistics, or Mathematics Education, demonstrated excellent in teaching mathematical sciences at the college level, and some experience in administration.

The position is a twelve-month, full-time, Administrative and Professional staff appointment. Salary will be commensurate with qualifications and experience. Send a resume and letter of interest to: **Prof. W. J. Davis, Chair, MSLC Search Committee, Department of Mathematics, The Ohio State University, 231 West 18th Avenue, Columbus OH 43210.**

Evaluation of applications will begin in early December 1997, and will continue until a suitable candidate is found. ***The Ohio State University is a an Affirmative Action, Equal Opportunity Employer.***

Send inquiries for information to **davis@math.ohio-state.edu.** Learn more at **http://www.math.ohio-state.edu** and **http://www.stat.ohio-state.edu.**

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Dedicated to Educational Excellence for More Than 40 Years

Faculty Consultants for the Advanced Placement Reading

Next June more than 3,700 college faculty and Advanced Placement teachers will gather for one week to evaluate and score students' essays at the annual AP Reading.

Applications are now being accepted for faculty consultants at this reading. Participants exchange ideas and contribute suggestions about their discipline, their courses, and the AP Examinations. They are paid honoraria, provided with housing and meals, and reimbursed for travel expenses. The College Board's Advanced Placement (AP®) Program gives high school students an opportunity to take college-level courses and appropriate exams in 18 disciplines. More than 3,400 colleges and universities worldwide offer credit or advanced standing to students based on their exam performance.

Applications are now being accepted for faculty consultants in the following subject areas:

- Art
- Biology
- Calculus
- Chemistry
- Computer Science
- Economics
- English
- Environmental Science
- French
- German
- Government and Politics
- History
- Latin
- Music Theory
- Physics
- Psychology
- Spanish
- Statistics

Applicants should currently be teaching or directing instruction for the AP course or the corresponding college course in these disciplines.

To receive an application or to send one to a colleague, contact: **Educational Testing Service, Performance Scoring Services, MS 09-Z, Princeton, NJ 08541,** or e-mail: **apreader@ets.org**.

You can also visit our web site and complete your application online: **http://www.collegeboard.org/ap/html/faculty/invit001.html**

Educational Testing Service is an Equal Opportunity/Affirmative Action Employer and especially encourages minorities and women to apply.

DIRECTOR, DIVISION OF MATHEMATICAL SCIENCES
National Science Foundation ⌖ Arlington, VA 22230

NSF's Directorate for Mathematical and Physical Sciences seeks qualified candidates for the position of ***Director, Division of Mathematical Sciences***. The incumbent provides overall direction and management to NSF Program activities supporting research and education endeavors in mathematical sciences. In addition, the Division Director interacts with programs throughout NSF with related activities, and works as an integral part of the Mathematical and Physical Sciences management team.

Appointment to this Senior Executive Service position may be on a career basis, or on a 2-to-3 year limited term basis, with a current $103,897 to $119,856 salary range for a new SES appointment. Alternatively, the incumbent may be assigned under Intergovernmental Personnel Act provisions. Applicants must have a Ph.D. or equivalent professional experience in the mathematical sciences or a closely related field, substantial research experience and strong evidence of scholarship in mathematical sciences, recognized leadership in research administration and demonstrated ability in leading people.

The announcements (EP 98-3), which includes position requirements and application procedures, is located on the **NSF Home Page** at **http://www.nsf.gov/home/chart/work.htm#hrm.** Applicants may also obtain a copy of the announcements by contacting the **Executive Personnel and Development Branch** on **703-306-0755** (hearing impaired individuals may call TDD 703-306-0189). Applications must be **received** by **January 30, 1998.**

NSF is an Equal Opportunity Employer committed to employing a highly qualified staff reflecting the diversity of our nation.

Get Published! A common criticism of public education is its lack of relevance in the lives of children. The *MicroSociety®* program solves this problem by creating a new context for learning: bringing authentic, "real world" experiences into K-8 classrooms. In a *MicroSociety* program, children collaborate with parents, business people and teachers to create their own miniature societies. MICROSOCIETY, a not for profit 501(c) 3 organization, is looking for people interested in developing real world materials for students. Are you interested in getting published? We need **mathematicians**, bankers, lawyers, accountants, journalists, scientists, marketers, and more professionals to write about what they do best...their job. You can help us make a difference in the lives of children and get your name in print at the same time.

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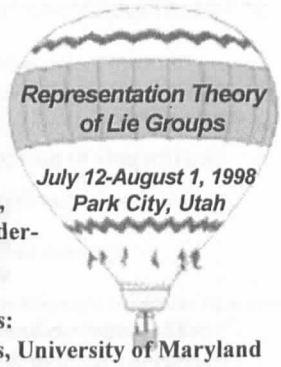

The IAS/Park City Mathematics Institute (PCMI) is a three-week program bringing together **undergraduate students, graduate students, high school teachers, researchers, undergraduate faculty, and researchers in mathematics education.**

Organizers:
David Vogan, MIT; Jeffrey Adams, University of Maryland

Lecturers:

➢*Graduate Summer School*: Anthony Knapp, SUNY at Stony Brook; Jian-Shu Li, Univ. of Maryland; Kari Vilonen, Brandeis Univ.; David Vogan, MIT; Roger Zierau, Oklahoma State University.

➢*High School Teacher Program:* Naomi Fisher, Univ. of Illinois at Chicago; Cynthia Hays, McCallum High School (Texas); James King, Univ. of Washington; Paul Sally, Univ. of Chicago; John Polking, Rice University.

➢*Undergraduate Program:* organized by Robert Bryant, Duke University.

Applications and information: contact IAS/PCMI, Institute for Advanced Study, Olden Lane, Princeton, NJ, 08540; 1-800-726-4427; email: pcmi@math.ias.edu; url: http://www.ias.edu/park.htm. All applicants are invited to apply for financial support.

PCMI is sponsored by the Institute for Advanced Study, Princeton, NJ, and receives major funding from the National Science Foundation.

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Enhancing Diversity in Graduate Education (EDGE)

BRYN MAWR COLLEGE ⊕ SPELMAN COLLEGE

This **new program**, funded by the National Science Foundation, is designed to **strengthen the ability of women and minority students to successfully complete graduate programs in the mathematical sciences.**

The summer program consists of two core courses in analysis and algebra/linear algebra. There will also be minicourses in vital areas of mathematical research in pure and applied mathematics, short-term visitors from academia and industry, guest lectures, graduate student mentors, and problem sessions. In addition, a follow-up mentoring program and support network will be established with the participants' respective graduate programs. Applicants to the program should be women who are **(i)** graduating seniors who have applied to graduate programs in the mathematical sciences, **(ii)** recent recipients of undergraduate degrees who are now entering graduate programs, or **(iii)** first-year graduate students. Final acceptance to the program is contingent upon acceptance to a graduate program in the mathematical sciences. In 1998, the program will be held at Bryn Mawr College outside Philadelphia, PA, and in alternate years at Spelman College in Atlanta, GA. The dates for the summer program are June 15 - July 10, 1998. A stipend of $1,800 plus room and board will be awarded to participants.

Applications should consist of the following: ● a statement describing the expected value of this program to the applicant's academic goals, ● two letters of recommendation from mathematical sciences faculty familiar with the applicant's work, ● a transcript and vita, ● a list of graduate programs to which the applicant has applied, together with a ranked list of her two or three top choices.

Visit our website at **http://www/brynmawr.edu/Acads/Math/**, *Deadline: March 1, 1998.* Applications should be sent to: **EDGE Program, Dept.. of Mathematics, Bryn Mawr College, Bryn Mawr, PA 19010.**

CSU NORTHRIDGE SUMMER MATH PROGRAM FOR WOMEN

During the summer 1998, the Math Department at California State University will, **pending funding from NSF**, continue its successful four-week (June 14 - July 10, 1998) math program for undergraduate women.

The program will provide eighteen women with the opportunity of studying mathematics in a setting that differs from what most experience during their undergraduate careers. The students will attend two seminars that cover topics not usually seen in a standard undergraduate curriculum. During the 1997 program the topics were: graph theory and knot theory. The instructors of the seminars will be women mathematicians. Through weekly colloquia and panel discussions on topics related to careers in mathematics, going to graduate school and women in mathematics, the students will meet a number of successful women mathematicians representing different fields of mathematics. The students will spend time in the computer lab, getting acquainted with a variety of mathematical software, and electronic communication.

The program is aimed at students who have finished a course in linear algebra, and a minimal number of theoretical mathematics courses. We encourage applications from students at schools where there are few opportunities to be with peers who share their interest in mathematics. Please announce this to your talented women undergraduates. The application deadline is **March 20, 1998.** For information and application material contact: **Dr. Magnhild Lien** via email: **csunsmp@csun.edu** or write to: **Summer Math Program, Dept. of Math, CSU Northridge, Northridge, CA 91330-8313**, or visit our home page at: **http://www.csun.edu/~csunsmp**

APPALACHIAN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Mathematics: Applications are invited for as many as three entry level tenure track positions at the assistant professor level in mathematics, beginning in August 1998. A Ph.D. in mathematics (or in mathematics education with a very strong mathematics component) is required. A strong commitment to teaching is mandatory; scholarship is expected and encouraged. Applicants will be considered in both pure and applied mathematics, excluding statistics and computer science. Appalachian State University, a member of The University of North Carolina System, is located in the mountains of northwestern North Carolina and has an enrollment of about 12,000 students. The Department of Mathematical Sciences includes mathematics (B.S. and M.S.), mathematics education (B.S. and M.S.), computer science (B.S. and M.S.), and statistics (B.S.). To apply, send a letter of application including a statement giving your teaching philosophy and your specific interest in Appalachian State University. Also include an *AMS application cover sheet*, resume graduate transcripts, and have three letters of recommendation forwarded by February 9, 1998 to: **Dr. James R. Smith, Search Committee M, Department of Mathematical Sciences, Appalachian State University, Boone, North Carolina 28608.** (704) 262-3050, jrs@math.appstate.edu. Appalachian State University is an equal opportunity/affirmative action employer and actively encourages applications from women and minorities.

BOSTON UNIVERSITY - DEPARTMENT OF MATHEMATICS - The department invites applications for a tenure-track Assistant Professorship position in the area of Statistics, starting Fall 1998. The successful applicant should have a strong commitment both to research and teaching. Send CV, short statement of teaching and research interests, and three letters of recommendation to: **Statistics Search Committee, Department of Mathematics, Boston University, 111 Cummington Street, Boston, MA 02215.** AA/EOE.

BOWLING GREEN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The department is seeking applicants for two instructorships beginning August 1998. Qualifications include a Master's degree in mathematics or statistics and experience teaching a variety of mathematics or statistics courses at the freshman/sophomore level. Preference will be given to those who have experience teaching one or more of: College Algebra and Trigonometry, Business Calculus, Introductory Statistics or Mathematics for Elementary Education students. Instructors will be expected to serve on departmental committees and may receive some administrative and supervisional duties. The successful candidate will be offered a contract which may be renewed up to three years. Qualified applicants must have proof of legal authority to work in the U.S. BGSU is an AA/EEO employer and encourages applications from women, minorities, veterans, and persons with disabilities. Send an *AMS standard cover sheet*, curriculum vita, three current letters of reference, and a transcript showing the highest degree. Send applications to: **Faculty Search Committee, Mathematics and Statistics Department, Bowling Green State University, Bowling Green, OH 43403-0221** by February 2, 1998.

BRYN MAWR COLLEGE - DEPARTMENT OF MATHEMATICS - Emmy Noether Lectureship - The Department of Mathematics at Bryn Mawr College invites applications for the Emmy Noether Lectureship, to be awarded for the academic year 1998-99. The Lectureship is intended to bring distinguished women mathematicians to Bryn Mawr College to teach and stimulate research in the tradition of Emmy Noether. Candidates must be women with a Ph.D. in Mathematics awarded in 1993 or earlier. The Lectureship carries a nine-month stipend of up to $40,000. The Lecturer will teach a one semester advanced course or seminar and spend the remaining time on research. Applicants should submit a vita and research plan, and direct three letters of reference to: **the Noether Lectureship Search Committee, Department of Mathematics, Bryn Mawr College, Bryn Mawr, PA 19010.** Selection will be made no earlier than February 1, 1998. Further information can be obtained by writing to noether@brynmawr.edu.

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CALIFORNIA STATE UNIVERSITY, BAKERSFIELD - DEPARTMENT OF MATHEMATICS - Applications are invited for tenure-track appointment at Assistant/Associate Professor level effective Fall 1998. Ph.D. or close to completion required. Applicants must have a background or interest in K-12 teacher education. All areas considered. Review of applications will begin January 15, 1998, and continue until position is filled. Send letter of application, vita, copy of graduate transcripts, and three letters of recommendation to: **Dr. Laird Taylor, Search Committee Chair, Mathematics Department, California State University, Bakersfield CA 93311-1099.** CSU Bakersfield is an AA/EOE. Applications from women, ethnic minorities, veterans, and individuals with disabilities are welcome. For more information see web page: http://www.cs.csubak.edu/Math/ or e-mail bjacobs@csubak.edu.

CALIFORNIA STATE UNIVERSITY, FULLERTON - DEPARTMENT OF MATHEMATICS - The department has an opening for a tenure-track assistant professorship in statistics beginning Fall 1998. Consideration may be given for a higher rank if the applicant has appropriate qualifications. Teaching responsibilities will include computer-based statistics courses, and courses in the core mathematics curriculum. Preference will be given to an individual with a wide range of interests or experience in applications and/or industrial outreach. The Department has 24 full-time faculty, and offers undergraduate degree programs in statistics, pure mathematics, applied mathematics, and teaching mathematics. We also offer a Masters degree in applied mathematics with industrial applications, and in teaching mathematics. We have modern computing facilities for faculty and students, and have faculty with research interests in mathematical and applied statistics, differential equations, modeling, optimization, mathematical physics, dynamical systems, and mathematics education. Applicants should have high potential in undergraduate teaching and research, possess excellent communication skills, and be familiar with modern statistical computing. Demonstrated excellence in teaching and research will be given extra consideration. Salary will be commensurate with experience. Candidates should send a letter summarizing their background in statistical methodology or experience in applications, undergraduate teaching, software proficiency, and scholarly research activities. A curriculum vita and at least three letters of reference should also be included. Recent graduates should provide transcripts of graduate and undergraduate work. Women and minorities are especially encouraged to apply. Applications should be sent to: **Chair, Search Committee, Department of Mathematics, California State University, Fullerton, Fullerton, CA 92834-6850.** For full consideration they should be received by February 27, 1998. Cal State Fullerton is an Affirmative Action/Equal Opportunity/Title IX/ADA Employer.

CASE WESTERN RESERVE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics anticipates making one tenure track appointment, and possibly a visiting appointment, beginning in August 1998. Required: Ph.D. in mathematics; exceptional promise, with accomplishments commensurate with experience, in research and teaching. All fields of pure and applied mathematics will be considered, with particular interest in fields that fit in well with our current specializations in algebra, analysis, differential equations/dynamical systems, geometry, imaging, numerical algebra/analysis, and probability. A complete application should contain *AMS cover sheet*, letter of application (including e-mail address and fax number), curriculum vitae, and relevant (p)reprints. Candidates should also have three letters of recommendation sent. Mail all materials to: **Appointments Committee, Department of Mathematics, Case Western Reserve University, Cleveland, OH 44106-7058.** No e-mail or fax applications will be accepted. Review of applications will begin after February 1, 1998. CWRU is an Affirmative Action/Equal Opportunity Employer.

THE CITY UNIVERSITY OF NEW YORK - GRADUATE SCHOOL AND UNIVERSITY CENTER - Positions in Mathematics - The Ph.D. Program in Mathematics of The Graduate School and University Center of The City University of New York anticipate **two** positions, to begin in September 1998: one at the lever of full professor and one at the postdoctoral visiting assistant professor level. The program currently has several active areas of research, including combinatorics, combinatorial group theory, differential geometry, ergodic theory and dynamical systems, fluid dynamics, Lie groups and representation theory, logic, number theory, Riemann surfaces, set theory , and topology. **PROFESSOR:** Primary responsibilities include teaching doctoral-level students, research, departmental service, and supervision of dissertations. Requires: earned doctorate; record of exceptional academic/scientific achievement; established ability to teach graduate students successfully. Salary range $62,394 - $74,980. A candidate of sufficient accomplishment in the field who has a substantial international reputation as a scholar may be nominated as a Distinguished Professor, with an annual supplement of $20,000. **POSTDOCTORAL POSITION:** A two-year position with an annual salary of $37,172. During the second year the successful candidate will teach one undergraduate course per semester. Candidates must possess the Ph.D. and should show outstanding research potential, as well as interest in one or more of the scientific directions represented in the program. Review begins January 31, 1998. Send application, CV, names/addresses of three references to : **Professor Jósef Dodziuk, Ph.D. Program in Mathematics, CUNY Graduate School, 33 West 42 Street, New York, NY 10036.** EO/AA/ADA/IRCA.

THE COLLEGE OF NEW JERSEY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Faculty Vacancies for Fall 1998 - Assistant Professor - Two tenure-track positions to teach 12 hours per semester including general education courses. Req'd: Ph.D. or Ed.D., demonstrated commitment to quality teaching, strong research potential. Preference for one position will be given to candidates prepared to teach professional courses and for both positions to candidates with postdoctoral experience in teaching and research. Send vita and three letters of recommendation including at least one letter regarding candidate's teaching ability to: **Search Committee, Department of Mathematics and Statistics, The College of New Jersey, P.O. Box 7718, Ewing, NJ 08628-0718.** Please indicate if you plan to attend the Jan. AMS/MAA Mtg. Deadline for application: January 15, 1998. To enrich education through diversity, TCNJ is an AA/EOE.

DUKE UNIVERSITY - DEPARTMENT OF MATHEMATICS and CENTER FOR MATHEMATICS AND COMPUTATION IN THE LIFE SCIENCES AND MEDICINE - Applications are invited for two postdoctoral positions in mathematical biology. Each position, carrying the title of Research Associate, has a two-year term beginning 1 July 1998, a competitive salary, and excellent fringe benefits. Research associates will be expected to **(1)** continue research projects in which they are already engaged; and/or **(2)** conduct collaborative research with Center members; and/or **(3)** conduct research in collaboration with one or more research groups in the Department of Zoology, the Department of Biomedical Engineering, or the Departments of Duke University Medical Center. Research associates will have no teaching responsibilities except for participation in a one-week workshop for undergraduates. However, instructional opportunities are available in the Department of Mathematics for those who wish to acquire teaching credentials. Applications will be accepted from Ph.D.'s in mathematics, biology, engineering, and related disciplines, but preference will be shown to recent Ph.D.'s in mathematics. Applications will be considered beginning 1 January 1998; applications will be accepted until the positions are filled. Duke University is an equal opportunity/affirmative action employer. Applicants should send curriculum vitae, two letters of recommendation, and a summary of current research and research interests to: **Professor Michael Reed, Department of Mathematics, Duke University, Box 90320, Durham, NC 27708-0320.** Email: reed@math.duke.edu. More information: http://www.math.duke.edu

FORT LEWIS COLLEGE - DEPARTMENT OF MATHEMATICS - The Department of Mathematics is seeking applicants for a tenure-track assistant professorship to begin in August 1998. Terminal degree in Mathematics or Mathematics Education required for tenure. Candidates must be qualified to teach courses in mathematics education and have a commitment to support mathematics education activities in the region. For details, contact: **Cliff Capp, Department of Mathematics/CSIS, Fort Lewis College, Durango, CO 81301-3999**, e-mail: capp_c@fortlewis.edu, or see our web page at http://www.fortlewis.edu/joblist.html. To apply, send letter of application, including your philosophy of education, vitae, transcripts showing highest degree awarded, and three current letters of recommendation, postmarked by January 31, 1998. Fort Lewis College is an AA/EO employer. Women and minorities are especially encouraged to apply.

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GEORGIA SOUTHERN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - ALLEN E. PAULSON COLLEGE OF SCIENCE AND TECHNOLOGY - Chairperson - Nominations and applications are invited for the position of Chair of the Department of Mathematics and Computer Science in the College of Science and Technology at Georgia Southern University for an appointment to begin July 1, 1998. A doctorate in one of the mathematical sciences or in computer science is required, as are knowledge and expertise in both mathematics and computer science. Candidates must have distinguished records of teaching, scholarship, and service, and qualify for appointment as an associate or full professor in the department. A strong commitment to excellence in undergraduate and graduate instruction, faculty scholarly activity, and faculty development is essential. Candidates must possess excellent communication and interpersonal skills. Evidence of interest, administrative skills, and ability to lead a multifaceted department is required. Duties include the support, leadership, and administration of a diverse department which has programs leading to bachelor's degrees in mathematics and computer science (CSAB accredited) and a master's degree in mathematics with concentrations in applied mathematics, computer science, and statistics. The department offers Core Curriculum courses required of all undergraduate, as well as content courses for mathematics education degree programs through the Ed.D. level. There are 38 faculty members at the Ph.D. and M.S. level in mathematics, computer science, mathematics education, and statistics, and another 21 faculty with Mathematics/Learning Support joint appointments. Department faculty have been leaders in integrating technology into the teaching of mathematics, while the vigorous research programs conducted by faculty reflect the breadth of the department. In-house computing facilities strongly support these efforts. Georgia Southern University, a unit of the University System of Georgia, was founded in 1906, and became a comprehensive regional university in 1990. The 634-acre campus is located in Statesboro, a community of approximately 30,000 residents 50 miles northwest of historic Savannah and 3 hours southeast of Atlanta. Fall Quarter 1997 enrollment of approximately 14,000 reflects a decade of expansion in size and scope, resulting in a faculty of well over 600. More information can be found at http://www.gasou.edu. Send letter of application describing qualifications and reasons for seeking the position, curriculum vitae, evidence of commitment to excellence in teaching and scholarship, and three letters of recommendation to: **Dr. Bill Ponder, Chair, Mathematics/Computer Science Search Committee, P.O. Box 8044, Georgia Southern University, Statesboro, GA 30460-8044.** Postmark deadline is February 20, 1998. Additional supporting documents may be requested of leading candidates. Nominations should be received in time for nominees to comply with application requirements by the postmark date. The names of applicants and nominees, resumes, and other general non-evaluative information are subject to public inspection under the Georgia Open Records Act. Georgia Southern is an Equal Opportunity/Affirmative Action Institution. Persons who need accommodations(s) in the application process under the American with Disabilities Act should notify the search chair.

GOUCHER COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - A tenure track position is available at the assistant professor level for Fall 1998. Ph.D. required in mathematics, with a specialization in the field of analysis. Additional requirements: a commitment to excellence in teaching; the ability to teach a wide variety of courses and conduct a research program; a commitment to fostering research by undergraduates. Deadline for applications: January 30, 1998. Submit vitae, transcripts of graduate work, three letters of recommendation (including two which address teaching experience or potential) and a personal statement describing your interest in teaching at a small liberal arts college to: **Professor Jill Zimmerman, Department of Mathematics and Computer Science, Goucher College, 1021 Dulaney Valley Road, Baltimore, MD 21204-2794.** Goucher College is an Equal Opportunity Employer.

GUSTAVUS ADOLPHUS COLLEGE - MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT - The Mathematics and Computer Science Department invites applications for a full-time tenure-track position in mathematics at the level of Assistant Professor, starting in September 1998. We are looking for someone who will work with us on our goal of becoming a leading national liberal arts mathematics program. Candidates must have a Ph.D. in mathematics (or a related field if they have strong qualifications in mathematics). Areas of particular interest include mathematical modeling and/or combinatorics. Candidates must be committed to undergraduate education and to undergraduate participation in projects/research, and they must be able to teach a broad range of undergraduate mathematics courses. Preference will be given to candidates who can contribute to the teaching of statistics or computer science. The department has an innovative mathematics curriculum which is committed to meeting the educational needs of all of its students. Faculty members have been awarded numerous NSF grants during the past several years involving various aspects of the curriculum as well as student/faculty research. There is strong institutional support for computing and for curriculum development. The department is housed in the six year old Olin Hall of Science along with the Physics Department and the Department of Information Technology. We have two computer laboratories in our department containing over thirty Unix workstations. Please send a letter of application, curriculum vitae, statements on teaching and research, transcripts, and three letters of recommendation (one of them specifically addressing teaching) to: **Dr. Karl Knight, Chair, Math and Computer Science Department, Gustavus Adolphus College, St. Peter, MN 56082.** Applications will be reviewed starting on January 15, 1998, and will be accepted until the position is filled. It is the policy and practice of Gustavus Adolphus College to provide equal educational and employment opportunities for all. We specifically encourage applications from women, minorities, and persons with disabilities.

IOWA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for two tenure-track position at the rank of Assistant Professor, to begin in August 1998. Candidates should have a Ph.D. in mathematics or applied mathematics or a related field and should exhibit evidence of outstanding research potential, normally including significant contributions beyond the doctoral dissertation. A strong commitment to excellence in teaching is also expected. The area of priority for one of the positions is mathematical control theory, including control of dynamical systems and of PDE's. Iowa State University has a campus wide control group, including faculty from the departments of Mathematics, Electrical and Computer Engineering, Aerospace Engineering and Engineering Mechanics, Mechanical Engineering, and Statistics. The successful applicant is expected to collaborate in an interdisciplinary setting. The area of priority for the second position is stochastic analyses and applications. Although applications from strong candidates in all areas of probability theory are welcome, preference will be given to candidates specializing in stochastic differential equations. We especially seek an individual who can collaborate with one or more of our strong groups in probability, PDE's, control theory, and numerical PDE's, all of whom have an interest in stochastic processes. Iowa State University is a Category I research university according to the classification of the Carnegie Foundation. We are a land grant university with special strengths in engineering and the applied sciences. The University operates the Ames Laboratory, a research laboratory of the Department of Energy. As a result, campus-wide opportunities for interdisciplinary interactions are especially rich. Additional information about the activities of the Department of Mathematics can be found at our web site (http://www.math.iastate.edu). Applicants should send a completed *AMS Standard Cover Sheet*, a curriculum vitae that includes a publication list, graduate school transcripts, and a brief statement about their current and future research programs to: **Dr. Max Gunzburger, Chair, Department of Mathematics, Iowa State University, 400 Carver Hall, Ames, IA 50011-2064.** They should also arrange to have three letters of recommendation concerning research and one concerning teaching sent directly to the above address. The deadline for completed applications is February 15, 1998, although applications will be considered until the positions are filled. Iowa State University is an affirmative action, equal opportunity employer and strongly encourages applications from women, minorities, and underrepresented groups.

DO YOU HAVE A NEW ADDRESS? Please use the **form on the BACK COVER** or drop us an **E-MAIL**: awm@math.umd.edu

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LEHMAN COLLEGE (CUNY) - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Two tenure track positions are available starting September 1, 1998. One position is for an Assistant Professor in Mathematics and one position is for an Assistant/Associate Professor in Computer Science. Both positions require an earned doctorate, outstanding research record or potential and commitment to excellence in teaching. Applicants should submit a curriculum vitae along with a cover letter and arrange for at least three letters of recommendation to be sent to the department. Use of the *AMS Cover Sheet* for Academic Employment is encouraged. All material should be sent to: **Prof. Robert Feinerman, Chair, Department of Mathematics and Computer Science, Lehman College, Bronx, NY 10468.**

LEWIS & CLARK COLLEGE - DEPARTMENT OF MATHEMATICAL SCIENCES - The Department of Mathematical Sciences invites applications for a tenure-track position in computer science at the assistant professor level, beginning August 1998. A Ph.D. in computer science is expected and promise of excellence in teaching and the ability to maintain a continuing research program are essential. Preference will be given to applicants with expertise in computer architecture, algorithms, computer algebra, and parallel systems, and a strong background in mathematics. The Department of Mathematical Sciences has five tenure-track positions in mathematics and two in computer science. The academic calendar consists of two semesters and the normal teaching load is five courses per year. Salary is competitive and commensurate with qualifications and experience. An application should consist of a letter of introduction describing the candidate's teaching and research goals, a curriculum vita, transcripts, and three letters of reference. Address application materials to: **Professor Greg Fredericks, Department of Mathematical Sciences, Lewis & Clark College, 0615 S.W. Palatine Hill Road, Portland, OR 97219.** Review of applications will begin January 30, 1998. Lewis & Clark College is an affirmative action/equal opportunity employer and particularly encourages applications from women and minorities.

MARYMOUNT UNIVERSITY, VIRGINIA - DEPARTMENT OF MATHEMATICS - Assistant Professor of Mathematics - Marymount invites applications for an Assistant Professor of Mathematics in the Department of Mathematics and Computing Sciences. Begins in August 1998. To qualify, applicant must have Ph.D. in Math, excellent teaching skills, & experience teaching w/technology. Candidates must have an active research program & interest in undergrad. research. The research area is open. Teaching expertise in probability & statistics is preferred. Responsibilities include teaching, academic advising, research, & curriculum development, & may include supervision of undergrad. research. The dept. includes eight FT faculty & offers bachelor's degrees in Computer Science, Computer Info. Systems, Mathematics, & Teaching in Secondary Mathematics as well as a master's degree in Computer Science. It is expected that all faculty at MU, in addition to teaching, assume responsibilities for academic advising, curricular developments, committee services, research & professional scholarship. MU is an independent, Catholic university enrolling students in 34 undergraduate & 24 master's programs. The Main Campus is located on a hillside in residential Arlington, VA. Landmarks of Washington, D.C. are visible from many campus locations. Review of applications will begin 12/1/97 and will continue until position is closed/filled. **Contact Personnel** for a faculty application by phone: **(703) 284-1680**; by e-mail: **personnel@marymount.edu**; or by mail **2807 North Glebe Rd., Arlington, VA 22207-4299**. TDD (703)284-1516. The official application must include a letter of application, a completed MU faculty application form, curriculum vita & three letters of reference. POSITION NUMBER F-39. http://www.marymount.edu - AA/EEO.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics at MIT has two openings for postdoctoral research and reduced teaching. Each position is a combination of a 50% Postdoctoral Associateship (in Physical and/or Numerical Mathematics) and a 50% Instructorship in Applied Mathematics -- for the 1998-99 academic year. The research will be partially supported by an NSF infrastructure grant, and the teaching load will be half that of the regular instructorship. Applicants should have demonstrated research ability and experience in some aspect of physical or numerical mathematics, as well as interest in participating in interdisciplinary collaborations. Applications should be completed by January 15, 1998. The following documents: **(a)** a vita; **(b)** three letters of reference and **(c)** a description of your most recent research; should be sent to: **Selection Committee, Room 2-332, Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA 02139-4307.** M.I.T. is an Equal Opportunity, Affirmative Action Employer.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - One or two assistant professor or higher levels in applied mathematics will probably become available in the fall 1998 for persons typically about two or more years beyond their doctorates. Applications should be completed by January 15, 1998. Applicants please arrange to have sent (a) a vita; (b) three letters of reference; (c) a description of your most recent research; and (d) the research that you plan for the next three years to: **Committee of Applied Mathematics, Room 2-345, Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA 02139-4307**. M.I.T. is an Equal Opportunity, Affirmative Action Employer.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics may make a few appointments at the lecturer and at the assistant professor or higher levels in pure mathematics for the year 1998 - 1999. The teaching load will be six hours per week in one semester and three hours per week in the other, or other combinations totaling nine hours. Open to mathematicians with doctorates who show definite promise in research. Applications should be completed by January 15, 1998. Applicants please arrange to have sent (a) a vita; (b) three letters of reference; (c) a description of your most recent research; and (d) the research that you plan for the next few years to: **Pure Mathematics Committee, Massachusetts Institute of Technology, Room 2-263, Cambridge, MA 02139-4307**. M.I.T. is an Equal Opportunity, Affirmative Action Employer.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - C.L.E. Moore Instructorships in Mathematics - Open to mathematicians with doctorates who show definite promise in research. Teaching loads are six hours per week during one semester, and three hours per week during the other. Applications should be completed by January 1, 1998. Please arrange to have sent (a) a vita; (b) three letters of reference (c) a description of the research in your thesis; and (d) the research which you plan for next year to: **Pure Mathematics Committee, Massachusetts Institute of Technology, Room 2-263, Cambridge, MA 02139-4307**. M.I.T. is an Equal Opportunity, Affirmative Action Employer.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - A limited number of instructorships and lectureships in applied mathematics are available for recent Ph.D.'s. Appointments will be made mainly on the basis of superior research potential. Applications should be completed by January 15, 1998. Applicants please arrange to have sent (a) a vita; (b) three letters of reference; (c) a description of your most recent research; and (d) the research that you plan for the next few years to: **Committee of Applied Mathematics, Room 2-345, Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA 02139-4307**. M.I.T. is an Equal Opportunity, Affirmative Action Employer.

MICHIGAN STATE UNIVERSITY - COLLEGE OF NATURAL SCIENCE - Co-Director for the Division of Science & Mathematics Education - The College of Natural Science invites applications from mathematics educators for the position of Co-Director of the Division Science and Mathematics Education. The person appointed will have a full-time academic year appointment with at least 51% time as Co-Director. Candidates should hold, or be qualified to hold, the rank of tenured Full Professor in the Mathematics Department of the College of Natural Science and/or in the Department of Teacher Education of the College of Education. Applicants or nominees must possess an established record of scholarship and proven administrative and leadership skills in mathematics education, excellent communications and interpersonal skills, at least five years' teaching experience in undergraduate mathematics or mathematics education, and a broad vision of [→]

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[←] what Science and Mathematics Education can become in the twenty-first century. Experience in working with inservice teachers is highly desirable. Applicants and nominees should submit a vitae, names of three references, and a statement (not more than three pages) of the candidate's vision for mathematics and science education at Michigan State University, by January 15, 1998 to: **Dr. George E. Leroi, Dean, 103 Natural Science Building, Michigan State University, East Lansing, MI 48824-1115.** Fax: (517) 432-1054. Expected starting date: August 16, 1998. Women and underrepresented minorities are encouraged to apply. MSU is an affirmative action/equal opportunity employer. Handicappers have the right to request and receive reasonable accommodation.

MICHIGAN TECHNOLOGICAL UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Applications are invited for a tenure track position at the Assistant or Associate Professor level in Applied Mathematics to begin in the Fall of 1998. The successful candidate must have a strong research record, a Ph.D. in mathematics, applied mathematics or a closely-related field, and evidence of excellence in teaching. For an appointment at the associate level, we seek an individual who can help develop our applied mathematics program at the undergraduate and graduate level, contribute to the research of the department and serve as a mentor for our junior faculty. Preference will be given to applicants who have an outstanding research record in the mathematical aspects of materials or mechanics and have a strong commitment to interdisciplinary university research as well as collaboration with industry or government. Review of applications will begin on December 15, 1997 and continue until the position is filled. Applicants should send a letter of application, a curriculum vita, and arrange to have four letters of reference sent directly to: **Applied Math Search Committee, Department of Mathematical Sciences, Michigan Technological University, Houghton, MI 49931-1295.** Michigan Technological University is an equal opportunity educational institution/equal opportunity employer/affirmative action employer.

MOORHEAD STATE UNIVERSITY - MATHEMATICS DEPARTMENT - Tenure track position (pending funding) at rank of assistant professor to begin September 1998. A Ph.D. or Ed.D. in mathematics education is strongly preferred. Substantial progress towards a terminal degree is required. Eligibility for licensure at some level K-12 and good communication skills are required. Preference will be given to candidates with evidence of successful teaching experience at the K-12 and college level. Interest or experience in teaching a mathematics methods course for elementary education majors and evidence of ability to work effectively as a member of a teaching team are desirable. Duties include teaching mathematics education methods courses, elementary education content courses and undergraduate mathematics courses. Other responsibilities include advising secondary mathematics education majors, developing in-service workshops, working on assigned committees and maintaining an appropriate level of professional activity. The teaching load is twelve hours per semester, which may include supervising student teachers. Screening of applications will begin January 19, 1998. Completed applications must include a resume, MSU Standard Application Form, graduate and undergraduate transcripts, and three current letters of reference. Apply to: **Don Mattson, Chair, Mathematics Department, Moorhead State University, Moorhead, MN 56563,** (218) 236-2274. Fax - (218) 236-2168 and email: mattson@mhdl.moorhead.msus.edu. EO/AA.

MUHLENBERG COLLEGE - MATHEMATICAL SCIENCES DEPARTMENT - The Muhlenberg College Mathematical Sciences Department invites applications for a tenure-track assistant professorship beginning August 1998. The position requires demonstrated teaching excellence and ongoing professional activity. Applicants should have a Ph.D. in the mathematical sciences and teaching experience in both mathematics and computer science. Teaching assignments will include courses in both areas. Standard teaching load is three courses per semester, one of which may be scheduled in the evening. The department offers B.S. degrees in mathematics and computer science. Muhlenberg College is an independent, undergraduate, coeducational institution located in the picturesque Lehigh Valley just south of the Pocono Mountains and within easy driving distance of both Philadelphia and New York City. To apply, send a resume, statement of letter detailing teaching experience and research, and three letters of recommendation to: **Dr. George Benjamin, Mathematical Sciences Department, Muhlenberg College, Allentown, PA 18104-5586.** Application review begins December 15, 1997 and will continue until the position is filled. EOE.

NORTH CAROLINA STATE UNIVERSITY - CENTER FOR RESEARCH IN SCIENTIFIC COMPUTATION - The Center for Research in Scientific Computation at N.C. State University expects to make several post-doctoral appointments beginning in the summer or fall, 1998 (availability of the positions is contingent upon funding). The appointments will be in the area of applied mathematics and scientific computation. The research interests of the Center include mathematical modeling, analysis and control of partial differential equations, numerical optimization, computational fluids and flow control, numerical methods for transport in porous media, stochastic partial differential equations, high-performance computation and biomathematics. The successful applicants will be involved in research programs between the Center and other research groups at NCSU that offer a unique opportunity for post-doctoral research on mathematical projects arising in industrial/governmental laboratories. Applicants should send a vita and brief description of research interests and have three letters of recommendation sent to: **Prof. K. Ito, Dept. of Mathematics, Box 8205, N.C. State University, Raleigh, NC 27695-8205.** Applications will be considered at any time after January 15, 1998, as funding becomes available. NCSU is an AA/EOE. In its commitment to diversity and equity, NCSU seeks applications from women, minorities, and the disabled.

NORTHERN MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Mathematics Education - The Department of Mathematics and Computer Science and the Glenn T. Seaborg Center for Teaching and Learning Science and Mathematics at Northern Michigan University invite applications for a tenure-track position in Mathematics Education at the rank of Assistant Professor beginning with the 1998-99 academic year. The successful applicant must possess an Ed.D. or Ph.D. in Mathematics Education prior to employment; be prepared to teach a variety of undergraduate mathematics and undergraduate and graduate mathematics education courses; be willing to work in partnerships with local schools; participate in program development in mathematics education; advise undergraduate and master's degree students; and demonstrate the potential to be an effective mathematics educator and active scholar. Applicants with specialized interests in any area of Mathematics Education are encouraged to apply; however, preference will be given to applicants whose special interests are at the elementary, middle or secondary school level. In addition, applicants must have at least three (3) years of K-12 teaching experience. Northern Michigan University is a comprehensive institution of approximately 8,000 students located in the city of Marquette on the shore of Lake Superior. Marquette is a community of 24,000 and is the cultural, commercial, medical and governmental center of Michigan's beautiful Upper Peninsula. The region offers unexcelled outdoor recreational opportunities in all seasons. Access to the Upper Midwest's major population centers of Milwaukee, Minneapolis, Chicago, and Detroit is available through the Marquette County Airport. Applications should include a complete resume, letter of application, transcripts, and names, addresses (including e-mail), and telephone numbers of three references. Nominations are welcomed, and should be submitted as early as possible. Application materials should be sent to: **Terrance L. Seethoff, Head, Department of Mathematics and Computer Science, Northern Michigan University, 1401 Presque Isle, Marquette, Michigan 49855-5340**, (906) 227-2020. Email Address: tseethof@nmu.edu. For additional information see http://www.nmu.edu/home.shtml or http://math.nmu.edu/web/ or http://seaborg.nmu.edu/. Applicant review will begin February 16, 1998, and will continue until the position is filled. NMU is an AA/EOE.

OHIO UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for a tenure-track assistant professor position in topology, effective September 1, 1998. A Ph.D. in mathematics is required. Applicants must show exceptional promise in research and teaching. Preference will be given to candidates whose research interests complement those of the department faculty. The salary is competitive and there is an excellent fringe benefit package. A review of applications will begin January 31, 1998. Send a letter of application, resume, and three letters of recommendation to: **Chair, Search Committee, Department of Mathematics, 321 Morton Hall, Ohio University, Athens, Ohio 45701.** Ohio University is an Equal Opportunity/Affirmative Action employer, women and minorities are encouraged to apply.

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OHIO WESLEYAN UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Assistant Professor - Computer Science - Applications are invited for a tenure-track position in Computer Science beginning fall 1998. A Ph.D. in Computer Science is required. Responsibilities include teaching a broad range of undergraduate computer science courses, developing a program of scholarly activity in computer science, and working closely with undergraduates in and out of the classroom. A commitment to high-quality undergraduate education is required. Applicants should have expertise, experience, and interests in the areas of parallel/distributed computing, operating systems, or artificial intelligence. Ohio Wesleyan University is a selective liberal arts and sciences institution of 1,800 students located in Delaware, OH, a community of 21,000 located 20 miles north of Columbus, OH. Send a cover letter, CV, graduate transcripts (unofficial acceptable), and 3 letters of recommendation to: **Computer Science Search, Department of Mathematical Sciences, Ohio Wesleyan University, Delaware, OH 43015.** Applications received by February 1, 1998 will receive full consideration, with later applications reviewed as needed. Further information may be found at www.owu.edu. Ohio Wesleyan University is an affirmative action/EEO employer and encourages women and minority applicants.

PURDUE UNIVERSITY - DEPARTMENT OF STATISTICS - Faculty Position(s) in Statistics - The Department of Statistics at Purdue University has one or more openings for faculty positions. Screening will begin December 1, 1997, and continue until the position(s) is (are) filled. Essential Duties: Conduct advanced research in statistics and teach undergraduate and graduate level courses in the Statistics Department. Essential Qualifications: A Ph.D. and strong interest in research and teaching are required. Salary and benefits are competitive and commensurate with qualifications. Women and minorities are encouraged to apply. Rank and Salary are open. Affirmative Action/Equal Opportunity Employer. Candidates for assistant professor should send a curriculum vitae and arrange for three letters of reference to be sent. For senior positions, send a letter of interest or nominations, curriculum vitae and the names of three references. Send applications to: **Mary Ellen Bock, Head, Department of Statistics, Purdue University, 1399 Mathematical Sciences Building, West Lafayette, IN 47907-1399, USA.**

PURDUE UNIVERSITY CALUMET - DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE AND STATISTICS - The Department of Mathematics, Computer Science and Statistics is seeking applicants for one tenure-track assistant professorship to begin Fall 1998. Responsibilities include teaching service courses as well as courses for mathematics majors and secondary teaching mathematics majors. Additional responsibilities include maintaining an active program of research or comparable scholarship, and service to the Department and the University in the form of committee assignments, curriculum development, etc. The candidate must have a Ph.D. in any area of mathematics or applied mathematics by August 1999. Successful candidate must be able to document strong teaching abilities and research or scholarship records. Salary is commensurate with experience and qualifications. Submit a letter of application, curriculum vitae, and three letters of reference (at least one of which addresses teaching ability and one of which addresses scholarly activities) to: **Weihua Ruan, Chair, Mathematics Search Committee, Department of Mathematics, Computer Science and Statistics, Purdue University Calumet, 2200 169th Street, Hammond, IN 46323-2094.** Use of *AMS Application Cover Sheet* is recommended. Review of applications will begin February 17, 1998, and will continue until the position is filled. Located in Northwest Indiana close to Chicago, Purdue University Calumet enrolls more than nine thousand students in more than 80 associate's, bachelor's and master's degree programs in 16 academic departments. The 12-building commuter campus is situated on 180 wooded acres, less than one hour by car or train from Chicago. Purdue University Calumet is an Equal Opportunity/Affirmative Action Employer and applications from women and minorities are especially encouraged.

RHODE ISLAND COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Tenure line opening anticipated at Rhode Island College. Required: Doctorate in Mathematics (or Math Education, Statistics, or CS + Masters level in math) with an interest in teaching a wide variety of courses, scholarship, and professional service. Preferred: college teaching experience, expertise in using technology. Deadline: February 16, 1998. Send application, resume, transcripts, three letters of reference, to: **Human Resources, Rhode Island College, Providence, RI 02908, Attention: Math/CS Search**, TDD 401-456-8216.

ROWAN UNIVERSITY - MATHEMATICS DEPARTMENT - Assistant Professor - Applied Math (Tenure-Track) - Effective (9/1/98). Ph.D. in Applied Math with detailed knowledge of engineering math and a love of teaching. Courses include undergrad and grad engineering and other math courses. Load is 12 s.h. per semester. Submit letter, CV, transcripts, three letters (at least one addressing teaching) to: **Dr. Gary Itzkowitz, Chair, Dept. of Math, Rowan University, Glassboro, NJ 08028.** Complete application due January 15, 1998. Incomplete applications won't be considered. An EOE/AA/M/F/D employer.

SAINT JOSEPH UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - The Department of Math/Computer Science expects to appoint a tenure track assistant professor of Computer Science. Details of the position, qualifications and application procedure can be found at: "http://www.sju.edu/~cscwww/job98.html".

SAN DIEGO STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Mathematics Education - Applications are invited for a tenure-track position in mathematics education. Rank: open - Professor or Associate Professor preferred. Requires doctorate in mathematics education or a closely related field, research and publications in mathematics education, and a master's degree in one of the mathematical sciences. Duties include teaching graduates and undergraduates, interacting with doctoral and master's students, and conducting research. Closing date: January 20, 1998. Applications received after that date will be considered if position is still open. Send vita and have at least 3 letters of recommendation sent to: **Mathematics Education Search Committee, Department of Mathematical Sciences, San Diego State University, San Diego, CA 92182-7720.** SDSU is an Affirmative Action/Equal Opportunity Title IX Employer and does not discriminate against persons on the basis of race, religion, national origin, sexual orientation, gender, marital status, age or disability.

SAN JOSE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Tenure track position in Mathematics Education at the rank of Assistant Professor for the 1998-99 academic year. Candidates must have a Ph.D. in Math Ed by August 1998, math background equivalent to a masters degree, K-12 experience, ability to develop teachers of English language learners, awareness of the sensitivity to the educational goals of a multicultural population, and commitment to quality teaching. For this position, preference will be given to candidates with demonstrable expertise or interest in developmental mathematics education, and with at least 1 year of K-12 experience in U.S. schools and experience in preservice and inservice mathematics teacher education. Application deadline is February 1, 1998. Applicants should send vita, transcripts, and 3 letters of recommendation to: **Dr. Michael Burke, Dept. of MathCS, San Jose State University, San Jose, CA 95192-0103.** EOE/AAE. PVIN: SCI98-031.

SONOMA STATE UNIVERSITY - MATHEMATICS DEPARTMENT - Sonoma State University invites applications from Ph.D.s (Mathematics, Applied Mathematics, or Statistics) for tenure-track faculty position in Applied Mathematics/Statistics starting AY 1998-99. Request detailed announcement from: **Dr. Brian Jersky, Sonoma State University, Mathematics Department, Rohnert Park, CA 94928-3609;** (Web URL: http://www.sonoma.edu/math/). Review begins January 23, 1998. Sonoma State University is an AA/EOE Employer.

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SOUTHWEST MISSOURI STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Mathematics Education - The Department of Mathematics at Southwest Missouri State University anticipates an Assistant Professor position in Mathematics Education beginning August 1998. This is a tenure-track position. Applicants must have a Ph.D. or Ed.D. in Mathematics Education or a doctorate in Mathematics with extensive experience in teacher preparation, evidence of excellence in teaching, potential for research, commitment to professional activities, and effective communication skills. Preference will be given to applicants with elementary or secondary experience, and research interest compatible with those of current faculty. Duties include teaching, research, and service. Send a letter of interest, vitae, graduate transcript, description of current research, and have three letters of reference sent to: **Mathematics Education Position, Dr. Kurt Killion, Chair of Search Committee, Department of Mathematics, Southwest Missouri State University, Springfield, MO 65804-0094.** To ensure full consideration, application materials should be received by February 1, 1998. SMSU is an AA/EO institution.

SWARTHMORE COLLEGE - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department invites applications for possible one to three one- or two-year positions as Visiting Assistant Professor in mathematics, beginning in Fall 1998. The positions are open to applicants in all fields of mathematics. Candidates should possess a commitment to undergraduate education and promise in research. A Ph.D. in mathematics by the starting date is also expected. The annual teaching load will be three courses in one semester and two courses in the other. Please send a resume, statement of interest, and three letters of recommendation to: **Mathematics Search Committee, Department of Mathematics and Statistics, Swarthmore College, 500 College Avenue, Swarthmore, PA 19081**. All such applications should be sent in paper form; no e-mail or fax applications will be processed. E-mail inquiries for further information concerning this announcement may be addressed to msdept@cc.swarthmore.edu. All applications received by December 24, 1997 will receive full consideration. Swarthmore College is an Equal Opportunity employer. Women and minority candidates are encouraged to apply.

SYRACUSE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for the following positions: **1.)** A one-year temporary term position at the Assistant Professor level beginning August 1998. Candidates should have a Ph.D. in mathematics, a strong research record and potential, and a strong teaching record and potential. Preference given to candidates whose research interests mesh well with current faculty. See our homepage (http://math.syr.edu) for more information. **2.)** Positions to replace faculty on leave during the 1998-99 academic year. These part-time positions have negotiable teaching loads and lengths and should be attractive to faculty on leave from other institutions. Applications should include a cover letter, CV, and one letter of recommendation about the applicant's teaching. Applications for the one-year position should also include three letters of recommendation about the applicant's research. Address applications to: **Chair, Department of Mathematics, Syracuse University, Syracuse, NY 13244.** Syracuse University is an Equal Opportunity/Affirmative Action Employer.

TUFTS UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for a tenure-track Assistant Professorship to begin September 1, 1998. A Ph.D. with a specialization in applied mathematics is required. Applicants must show promise of outstanding research and excellent teaching. The teaching load will be two courses per semester. We are building a group in applied mathematics to work together and with other units in the university. We will give preference to candidates who can become active members of this group. Candidates working on inverse and ill-posed problems from an applied and computational point of view will be preferred. Applicants should send a curriculum vitae and have three letters of recommendation sent to: **Christoph Börgers, Search Committee Chair, Department of Mathematics, Tufts University, Medford, MA 02155.** Review of applications will begin February 15, 1998 and continue until the position is filled. Tufts University is an Affirmative Action/Equal Opportunity employer. We are committed to increasing the diversity of our faculty. Members of underrepresented groups are strongly encouraged to apply.

TUFTS UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are being invited for an Assistant Professorship in dynamical systems, to begin September 1, 1998. Initial one-year contract, renewable to a maximum of three years. Ph.D. required. Applicants must show promise of strong research and excellent teaching. Research interests preferred: geometrically motivated systems and smooth ergodic theory. Send application and three letters of recommendation to: **Professor Z.. Nitecki, Hiring Committee Chair, Department of Mathematics, Tufts University, Medford, MA 02155.** Review of applications will begin January 28, 1998 and continue until the position is filled. Tufts University is an Affirmative Action/Equal Opportunity employer. We are committed to increasing the diversity of our faculty. Members of underrepresented groups are strongly encouraged to apply.

UNIVERSITY OF CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - Temporary Positions - Subject to availability of resources and administrative approval: **(1) Three E.R. Hedrick Assistant Professorships**. Applicants must show very strong promise in research and teaching. Salary $45,000. Three year appointment. Teaching load; four quarter courses per year, which may include one advanced course in the candidate's field. Preference will be given to applications completed by January 6, 1998. **(2) One or two Research Assistant Professorships in Computational and Applied Mathematics.** Applicants must show very strong promise in research and teaching. Salary $45,000. One year appointment, probably renewable up to two times. Teaching load: at most four quarter courses per year, which may include one advanced course in the candidate's field. Preference will be given to applications completed by January 6, 1998. **(3) One Adjunct Assistant Professorship or Lectureship in the Program in Computing (PIC).** Applicants for the Adjunct position must show very strong promise in teaching and research in an area related to computing. Teaching load: four quarter programming courses and one more advanced quarter course per year. One year appointment, probably renewable once. Salary $48,400. Applicants for the Lectureship must show very strong promise in the teaching of programming. An M.S. in Computer Science or equivalent degree is preferred. Teaching load: six quarter programming courses per year. One-year appointment, probably renewable one or more times, depending on the needs of the program. Salary is $40,656 or more, depending on experience. Preference will be given to applications completed by February 1, 1998. **(4) An Adjunct Assistant Professorship.** One year appointment, probably renewable once. Strong research and teaching background required. Salary $41,900-$43,900. Teaching load: five quarter courses per year. **(5) Possibly one or more positions for visitors.** To apply, send electronic mail to: **search@math.ucla.edu** or open "http://www.math.ucla.edu/~search" on the World Wide Web, or write to: **Tony Chan, Chair, Department of Mathematics, University of California, Los Angeles, CA 90095-1565, Attn: Staff Search.** UCLA is an equal opportunity/affirmative action employer.

UNIVERSITY OF CALIFORNIA, SANTA BARBARA - COLLEGE OF ENGINEERING - Computational Science and Engineering - Faculty Positions - The College of Engineering at the University of California, Santa Barbara is in the process of developing a multidisciplinary college-wide program in Computational Science and Engineering (CSE). An objective of the CSE program is to build strengths in the core areas of numerical methods, algorithms and software tools for scientific computation, high performance computing and communications, and scientific visualization, as well as to establish collaborative linkages in the applied areas of CSE such as computational fluid dynamics, quantum computation, nanoelectronics, control systems, computational materials, etc. Applications are invited from outstanding candidates at all levels. The College of Engineering is recruiting for a senior-level position in the CSE program. In addition, an assistant professor position in Computer Science is targeted at the core areas of CSE, and a senior-level position Mechanical and Environmental Engineering is directed at the applied area of [→]

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[←] computational fluid dynamics. Multidepartmental appointments within the College of Engineering are possible, in both the core and applied areas. Senior candidates should have established an international reputation in an area within the broad framework of the program, and a track record of interdisciplinary collaboration. Junior candidates should have outstanding research potential. Please send a complete application consisting of a curriculum vita and the names and addresses of at least four professional references to: **Search Committee in Computational Science and Engineering Dean's Office, College of Engineering, Engineering I Bldg., Room 1016, University of California, Santa Barbara, CA 93106.** Applications and nominations will be received until the position is filled. UCSB is an equal opportunity, affirmative action employer.

UNIVERSITY OF CONNECTICUT HARTFORD CAMPUS - DEPARTMENT OF MATHEMATICS - Assistant Professor - Mathematics - The Department of Mathematics anticipates an opening for a tenure-track position at the Assistant Professor level at the Hartford Campus starting Fall 1998. This position requires teaching two courses per semester and service at the Hartford campus, located in West Hartford 30 miles from the main campus. In addition, an office will be provided at the Storrs campus and active participation in the research activities and interaction with the faculty at the Storrs campus is expected. Candidates must have a Ph.D. in Mathematics and demonstrate evidence of excellent teaching ability and outstanding research potential. Preference will be given to candidates whose research and teaching interest strengthen programs within the department, especially Applied Harmonic Analysis, Linear Algebra, Partial Differential Equations and Probability. Salary commensurate with experience. The review of applications will begin January 15, 1998 and continue until the position is filled. Send resume and at least three letters of recommendation to: **Head, Department of Mathematics, U-9, University of Connecticut, Storrs, CT 06269-3009.** We encourage applications from under-represented groups, including women, minorities and people with disabilities. (Search #98A201)

UNIVERSITY OF MICHIGAN, DEARBORN - DEPARTMENT OF MATHEMATICS AND STATISTICS - The university plans to fill a tenure-track position in mathematics education, starting in September 1998. The position is at the Assistant or Associate Professor level and requires a doctorate in mathematics education. An interest in mathematics methods at the elementary level and demonstrated capability in teaching courses in mathematics education at the university level are desirable. The teaching load is 18 credit hours per academic year. Assistant professors receive one course released time per year for each of the first three years. To apply, send vita, transcripts, and have 3 letters of recommendation. Contact: **Dr. Ronald P. Morash, Chair, The University of Michigan-Dearborn, Department of Mathematics and Statistics, Dearborn, Michigan 48128-1491.** Internet: rmorash@um-f1.umd.umich.edu Fax: (313) 593-5552. 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.

UNIVERSITY OF NEBRASKA, LINCOLN - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applications are invited a tenure-track position at the Assistant/Associate Professor level starting in Fall 1998. Candidates must have a Ph.D. in mathematics by August of 1998. Candidates must demonstrate evidence of excellent teaching ability and outstanding research potential in an area that can contribute to the department's involvement in the Arts and Sciences Discrete and Experimental Mathematics Area of Strength. Strong preference will be given to candidates with interests in geometric or combinatorial group theory, semigroup theory or a closely related area, although outstanding candidates in other areas may also be considered. Ability to contribute to the department's mathematics education activities is a plus. For more details on this position, see our web site at <http://www.math.unl.edu>. Send vita and three letters of recommendation to: **the DEM Search Committee, Department of Mathematics and Statistics, University of Nebraska-Lincoln, Lincoln, NE 68588-0323.** The review of applications will begin February 1, 1998, and continue until suitable candidates are selected. Women and minority candidates are particularly encouraged to apply. The University of Nebraska is committed to a pluralistic campus community through Affirmative Action and Equal Opportunity, and is responsive to the needs of dual career couples. We assure reasonable accommodation under the Americans with Disabilities Act. Please contact Mavis Hettenbaugh at 402-472-4395 for assistance.

UNIVERSITY OF NEBRASKA, LINCOLN - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applications are invited for two tenure-track positions at the Assistant/Associate Professor level starting in Fall 1998. Candidates must have a Ph.D. in statistics or a closely related field by August of 1998. Candidates must demonstrate evidence of excellent teaching ability and outstanding research potential in statistics. Strong preference will be given to candidates whose interests include one of the following department priorities: **i)** research in non-sampling error or other aspects of survey research with the potential to contribute to the Gallup Research Center: **ii)** research in biostatistics which requires innovative statistical methodology: **iii)** research in statistical computing. Ability to contribute to the department's mathematics education activities is a plus. Send vita and three letters of recommendation to: **the Statistics Search Committee, Department of Mathematics and Statistics, University of Nebraska-Lincoln, Lincoln, NE 68588-0323.** The review of applications will begin February 1, 1998, and continue until suitable candidates are selected. For more details on these positions, see our web site at <http://www.math.unl.edu>. Women and minority candidates are particularly encouraged to apply. The University of Nebraska is committed to a pluralistic campus community through Affirmative Action and Equal Opportunity, and is responsive to the needs of dual career couples. We assure reasonable accommodation under the Americans with Disabilities Act. Please contact Mavis Hettenbaugh at 402-472-4395 for assistance.

UNIVERSITY OF OKLAHOMA - DEPARTMENT OF MATHEMATICS - Applications are invited for two full-time tenure-track positions beginning 16 August 1998. The positions are initially budgeted at the assistant professor level, but an appointment at the associate professor level may be possible for an exceptional candidate with qualifications and experience appropriate to that rank. Normal duties consist of teaching two courses per semester, conducting research, and rendering service to the Department, University, and profession at a level appropriate to the faculty member's experience. Both positions require an earned doctorate and research interests that are compatible with those of the existing faculty; preference will be given to applicants with potential or demonstrated excellence in research and prior successful undergraduate teaching experience. For one of the positions, additional preference will be given to applicants with research interests in applied or computational mathematics. Salary and benefits are competitive. For full consideration, applicants should send a completed *AMS cover sheet*, curriculum vitae, a description of current and planned research, and have three letters of recommendation (at least one of which must address the applicant's teaching experience and proficiency) sent to: **Search Committee, Department of Mathematics, University of Oklahoma, Norman, OK 73019-0315.** Telephone: 405-325-6711, Fax: 405-325-7484, email: search@math.ou.edu. Screening of applications will begin on February 15, 1998 and will continue until the position(s) is filled. The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer. Women and Minorities are encouraged to Apply. The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer. Women and Minorities are Encouraged to Apply. The University of Oklahoma has a policy of being responsive to the needs of dual-career couples.

ADVERTISING DEADLINE for the March/April 1998 issue is: FEBRUARY 1, 1998.

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UNIVERSITY OF PITTSBURGH - DEPARTMENT OF MATHEMATICS - The Mathematics Department of the University of Pittsburgh invites applications for a tenure-track position in Scientific Computing/Numerical Analysis, to begin Fall 1998. The appointment will be at the starting Assistant Professor level, but experienced candidates with outstanding records will be considered for higher level appointments. We seek excellence in teaching and research so applicants should demonstrate substantial research accomplishment and a dedication to teaching. We particularly encourage applications from minorities and women. The University of Pittsburgh is an affirmative action/equal opportunity employer. All appointments at the University of Pittsburgh are subject to budgetary approval. Send a vita, three letters of recommendation, and a research statement by January 23, 1998 to: **Hiring Committee, Department of Mathematics, University of Pittsburgh, Pittsburgh, PA 15260.**

UNIVERSITY OF SOUTHERN COLORADO - DEPARTMENT OF MATHEMATICS - Tenure-track Assistant Professor position commencing August 17, 1998. Duties include teaching 12 credit hours a semester (primarily undergraduate courses, including mathematics courses for non-majors), continued scholarship and service. A commitment to a program of scholarship consistent with departmental and institutional goals is essential. Applicant must work effectively in an ethnically and culturally diverse environment and be supportive of K-12 collaboration. A Ph.D. in mathematics in some area of analysis is required, with significant course work or experience in the applications of mathematics. Some classroom teaching experience is required. Teaching interests must be broad enough to support mentoring both upper and lower division students. The applicant also must have a strong interest in teaching upper division applied mathematics or statistics, and possess expertise in the use of computers in teaching or research. To apply send **1)** Letter of application, **2)** Current curriculum vitae, **3)** Copy of transcripts and **4)** three letters of recommendation, at least two of which address the candidate's teaching ability and potential, to: **Search and Screen Committee, Department of Mathematics, University of Southern Colorado, 2200 Bonforte Blvd, Pueblo, CO 81001-4901;** (719) 549-2433. Open until position is filled. Screening of applications will begin February 1, 1998. *USC is an EO/AA Employer. Women, Minorities and individuals covered by the provision of ADA are encouraged to apply.*

UNIVERSITY OF TEXAS AT AUSTIN - DEPARTMENT OF MATHEMATICS - Openings for Fall 1998 include a number of Instructorships, some of which have R.H. Bing Faculty Fellowships attached to them, and two or more positions at the tenure-track/tenure level. Instructorships at The University of Texas at Austin are postdoctoral appointments, renewable for two additional years. It is assumed that applicants for Instructorships will have completed all Ph.D. requirements by August 31, 1998. Other factors being equal, preference will be given to those whose doctorates were conferred in 1997 or 1998. Candidates should show superior research ability and have a strong commitment to teaching. Consideration will be given only to persons whose research interests have some overlap with those of the permanent faculty. Duties consist of teaching undergraduate or graduate courses and conducting independent research. The projected salary is $33,500 for the nine-month academic year. Each R.H. Bing Fellow holds an Instructorship in the Mathematics Department, with a teaching load of two courses in one semester and one course in the other. The combined Instructorship-Fellowship stipend for nine months is $36,500, which is supplemented by a travel allowance of $1,000. Pending satisfactory performance of teaching duties, the Fellowship can be renewed for two additional years. Applicants must show outstanding promise in research. Bing Fellowship applicants will automatically be considered for other departmental openings at the post-doctoral level, so a separate application for such a position is unnecessary. An applicant for a tenure-track or tenured position must present a record of exceptional achievement in her or his research area and must demonstrate a proficiency at teaching. In addition to the duties indicated above for Instructors, such an appointment will typically entail the supervision of M.A. or Ph.D. students. The salary will be commensurate with the level at which the position is filled and the qualifications of the person who fills it. Those wishing to apply for any of the aforementioned positions are asked to send a vita and a brief research summary to: **Department of Mathematics, The University of Texas at Austin, Austin, Texas 78712, c/o Recruiting Committee**. Transmission of the preceding items via e-mail (address: recruit@math.utexas.edu) is encouraged. Applications must be supported by three or more letters of recommendation, at least one of which speaks to the applicant's teaching credentials. The screening of applications will begin on December 1, 1997. The University of Texas at Austin is an equal opportunity employer.

UNIVERSITY OF WATERLOO - DEPARTMENT OF COMBINATORICS AND OPTIMIZATION and ST. JEROME'S UNIVERSITY - Junior Position in Cryptography - Applications are being invited for a four year definite term faculty position at the rank of Assistant Professor in the area of cryptography. A Ph.D. and proven ability, or the clear potential, for excellent research and teaching are required. Responsibilities will include the supervision of graduate students, as well as teaching at the undergraduate and graduate levels. The appointment is shared equally between the Department of Combinatorics and Optimization and St. Jerome's University (Federated with the University of Waterloo). The successful candidate will be joining a substantial research and training centre in cryptography, featuring two recently approved NSERC Industrial Research Chairs. Salary will depend on the candidate's qualifications. Effective date of appointment: July 1, 1998. These appointments are subject to the availability of funds. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. The University of Waterloo encourages applications from all qualified individuals, including women, members of visible minorities, native peoples, and persons with disabilities. Interested individuals should send curriculum vitae, selected reprints/preprints and the names of three references to: **Prof. I.P. Goulden, Chair, Department of Combinatorics and Optimization, Faculty of Mathematics, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.** Email: combopt@math.uwaterloo.ca; http://math.uwaterloo.ca/CandO_Dept/homepage.html; http://www.usjc.uwaterloo.ca/; Phone: (519) 888-4567 x3482; Fax: (519) 725-5441. Closing date for receipt of applications is January 31, 1998.

UNIVERSITY OF WATERLOO - DEPARTMENT OF COMBINATORICS AND OPTIMIZATION - Research and Postdoctoral Positions in Cryptography - Applications are being invited for definite term research junior faculty and postdoctoral positions in the area of cryptography. A Ph.D. and proven ability, or the potential, for excellent research and teaching are required. Responsibilities will include teaching at the undergraduate and graduate levels, as well as supervision of graduate students for faculty positions. Successful candidates will be joining a substantial research and training centre in cryptography, featuring two recently approved NSERC Industrial Research Chairs. Salary will depend on the candidate's qualifications. Effective date of appointment: July 1, 1998. These appointments are subject to the availability of funds. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. The University of Waterloo encourages applications from all qualified individuals, including women, members of visible minorities, native peoples, and persons with disabilities. Interested individuals should send curriculum vitae, selected reprints/preprints and the names of three references to: **Prof. I.P. Goulden, Chair, Department of Combinatorics and Optimization, Faculty of Mathematics, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.** Email: combopt@math.uwaterloo.ca; http://math.uwaterloo.ca/CandO_Dept/homepage.html; Phone: (519) 888-4567 x3482; Fax: (519) 725-5441. Closing date for receipt of applications is January 31, 1998.

UNIVERSITY OF WISCONSIN, MADISON - DEPARTMENT OF STATISTICS and DEPARTMENT OF BIOSTATISTICS AND MEDICAL INFORMATICS - Accepting applications for a joint tenure track Assistant Professor position starting in the Fall of 1998. Candidates should have a Ph.D. in Biostatistics or in Statistics with an interest in biostatistical research. The position will require teaching one course per semester and collaborating with scientists in medical genetics and molecular biology in the Comprehensive Cancer Center and with the General Clinical Research Center. Candidates should send a resume and 3 letters of reference to: **Hiring Committee, Department of Statistics, University of Wisconsin, Madison, 1210 W. Dayton, Room 4352, Madison, WI 53706.** Deadline: January 30, 1998. Note: Unless confidentiality is requested in writing, information regarding candidates must be released upon request. Finalists cannot be guaranteed confidentiality. The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.

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UNIVERSITY OF WYOMING - DEPARTMENT OF MATHEMATICS - Tenure-Track Position in Analysis - The University of Wyoming Mathematics Department (Web site http://math.uwyo.edu/) invites applications for a tenure-track Assistant Professorship in Analysis, to start August 1998. Applicants must demonstrate strong ability in research, breadth of mathematical knowledge, strong commitment to undergraduate and graduate teaching, and willingness to supervise masters and doctoral students. Candidates in all areas of analysis will be considered; however, we are particularly interested in strengthening our existing research in function theory, functional, geometric and harmonic analysis. Complete applications consist of curriculum vitae including publication list, a summary of research interests, a statement of teaching qualifications, and three letters of recommendation, sent directly to: **Myron B. Allen, Head, Department of Mathematics, University of Wyoming, Laramie, WY 82071-3036**. Applications received by 15 January 1998 will receive first consideration. The University of Wyoming is an affirmative action/equal-opportunity employer, and we encourage women and underrepresented minorities to apply.

UNIVERSITY OF WYOMING - DEPARTMENT OF MATHEMATICS - Applied Mathematics - The Department of Mathematics invites applications for a tenure-track Assistant Professorship in applied mathematics. We seek candidates with an earned doctorate, proven teaching ability, and strong research in areas of interest in the Department, including numerical analysis, partial differential equations, fluid mechanics, and porous media. Applications received by January 15, 1998, will receive first consideration. For more information, visit our Web site, http://math.uwyo.edu/. The University of Wyoming is an equal opportunity, affirmative action employer, and we encourage applications from women and underrepresented minorities. Please send vitae, three letters of reference, and a statement of teaching qualifications to: **Myron B. Allen, Head, Department of Mathematics, University of Wyoming, Laramie, WY 82071-3036**.

URSINUS COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - One-year position as Assistant Professor, with possible renewal, starting Fall 1998. Highly selective, independent, four-year, liberal arts college near Philadelphia. Salary commensurate with qualifications. Ph.D. in mathematics (prefer analysis) or computer science required. Evidence of excellent teaching essential. Experience with a computer algebra system desirable. Interest in supervising independent student projects a plus. Teach three courses per semester. Send letter of application, resume, and three letters of recommendation to: **Search Committee, Department of Mathematics and Computer Science, Ursinus College, Box 1000, Collegeville, PA 19426-1000.** E-mail documents, in plain text only, may be sent to jshuck@acad.ursinus.edu. Applications received by February 1, 1998 will receive full consideration. EOE/AA.

UTAH STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Head - Applications are invited for the position of Head of the Department of Mathematics and Statistics at Utah State University, a Carnegie Research I, Land-Grant institution. The Department is one of six in the College of Science. It offers degree programs at the bachelors and masters levels in mathematics, statistics, and mathematics education, an a Ph.D. in Mathematical Sciences. The Department has approximately 35 faculty members whose research interests span a variety of areas in pure mathematics, applied mathematics, computational mathematics, and statistics. The applicant must qualify for a full professorship at USU, have an earned doctorate in any area of pure or applied mathematics or statistics, have strong administrative skills, an established research record, preferably with external funding, and a commitment to excellent in teaching, research, and service. The applicant must also support scholarly activity in all areas of mathematics, statistics, and mathematics education. The salary is negotiable. The University offers excellent medical, retirement, and professional benefits. With a student body of 20,000, USU is located in a valley at the northern end of the Wasatch Range of the Rocky Mountains. Opportunities for a wide range of outdoor activities are plentiful. More information about the University and Department can be found at the web side www.usu.edu, and information regarding professional amenities and benefits can be found at www.usu.edu/~perinfo. The committee will begin screening application on February 10, 1998, and the position will be open until filled. Employment begins July 1, 1998. By regular mail, send a letter of application, a resume, a telephone number, an e-mail address, and have four letters of recommendation sent to the address below. Two of the letters should address administrative skills. To: **Chairman, Screening Committee, Mathematics and Statistics Head, Utah State University, Logan, UT 84322-3900.** Utah State is an equal opportunity/affirmative action employer.

WESLEYAN COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Computer Science - The Department of Mathematics and Computer Science at Wesleyan College has an opening for a tenure-track, assistant professorship in computer science. Ph.D. and commitment to undergraduate teaching required. The successful candidate will be instrumental in leading the implementation of our new computer science minor. Preference will be given to candidates qualified to teach topics in discrete mathematics, and numerical methods on an occasional basis. Committed to becoming a preeminent liberal arts college for women, Wesleyan emphasizes critical and collaborative thinking, discussion-based learning, writing across the disciplines, and student-faculty research. The College has just instituted a new, progressive, general education core requirement program and the Division of Natural Sciences and Mathematics has recently received substantial intramural and extramural funding in support of a hands-on approach to learning. Submit letter of application, vita, transcripts, and three letters of recommendation to: **Priscilla Danheiser, Dean of the College, Wesleyan College, 4760 Forsyth Road, Macon, GA 31210-4462.** Review of applications will begin on December 15, 1997 and continue until the position is filled. Wesleyan expects to interview at the AMS meeting. Women and minority candidates are encouraged to apply. AA/EOE.

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS - Anticipated tenure-eligible position in statistics, beginning Fall 1998, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and statistics, including scholarship and consulting, and Ph.D. required. Please have a vita and three letters of recommendation on teaching and research sent to: **Hiring Committee, Williams College, Department of Mathematics, Williamstown, MA 01267**. Evaluation of applications will begin November 15, 1997 and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS - Two full-time visiting positions in mathematics or statistics for the 1998-99 year, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research, and Ph.D. required. For one of the positions the ability to teach statistics is a plus. Please have a vita and three letters of recommendation on teaching and research sent to: **Visitor Hiring Committee, Williams College, Department of Mathematics, Williamstown, MA 01267**. Evaluation of applications will begin November 15, 1997 and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates.

WRIGHT STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Department Chair - Department has 34 Ph.D. faculty with extensive bachelor's programs plus master's in pure or applied math and in applied statistics. The department also houses a Statistical Consulting Center and has outreach K-12 activities and a program to assist minority WSU students. Faculty research is emphasized. Candidates should qualify for appointment as a full professor with: earned Ph.D. in mathematics or statistics; continuing record in teaching and research; leadership maintaining a cooperative, supportive, collegial environment; academic program development and organization experience; sensitivity, and interpersonal and communication skills. Salary will reflect qualifications and experience. Wright State, a comprehensive metropolitan university with about 16,000 students, is located in the metro Dayton area, adjacent to Wright-Patterson Air Force Base, in an area of intense high tech activity. See www.math.wright.edu for more information. Review begins 30 January 1998, continuing until position is filled. Send vita; brief leadership philosophy statement; and names, addresses and phone numbers of 5 references to: **M&S Search Committee Chair, Dean's Office, College of Science and Mathematics, Wright State University, Dayton OH 45435.** WSU is an Affirmative Action - Equal Opportunity employer.

ASSOCIATION FOR WOMEN IN MATHEMATICS

1997/1998 MEMBERSHIP FORM

AWM's membership year is from October 1st to September 30th. Please fill-in this information and return it along with your DUES to:

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

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

LAST NAME **FIRST NAME** **M.I.**

ADDRESS_____

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Home Phone: **Work Phone:** **Email:**

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

PROFESSIONAL INFORMATION:

If student, GRADUATE or UNDERGRADUATE? (circle one)

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

DEGREES EARNED:

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

INDIVIDUAL DUES SCHEDULE

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

REGULAR INDIVIDUAL MEMBERSHIP	$ 40	_____
2ND FAMILY MEMBERSHIP (NO newsletter) Please indicate regular family member: _____	$ 30	_____
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INSTITUTIONAL MEMBERS WILL RECEIVE **ONE** FREE JOB ADVERTISEMENTS (*up to* **four** *lines*) IN OUR NEWSLETTER PER YEAR. Advertising deadlines are the 1st of every EVEN month. 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 $10 ($18 for foreign members) for each additional student add-on over initial 10 students for Category I; over initial 3 students for Category II]

J/F98

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A W M

Newsletter Volume 28, Number 1, January–February 1998

ADDRESS CORRECTION FORM

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

(Please Print)

Name_____

Address_____

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City_____ State_____ Zip_____-_____

Country (if applicable)_____ E-mail Address_____

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Telephone: Home_____ Work_____

☐ You may include this information in the next AWM Membership directory.

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Database Corrections
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4114 Computer & Space Sciences Bldg., University of Maryland, College Park
Maryland 20742-2461

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Marie A. Vitulli
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