AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

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PRESIDENT'S REPORT

Sonia Kovalevsky High School Day Program

I am pleased to report that the Sonia Kovalevsky High School Day program has been funded by NSA for 1997. AWM started this program in 1985. It supports colleges and universities that wish to hold a one-day program of workshops, talks, and problem-solving competitions for women high school students and their teachers. This issue's Education Column is an interesting article by Rora Iacobacci and Anne Hughes about SKHS Days held at St. John's University; see pages 12–13. Also, see page 14 for information on the application procedure for obtaining funding.

San Diego Joint Mathematics Meeting

The subject of the AWM panel discussion at the Meetings will be "What it takes to have a successful career in the mathematical sciences." The panelists are Lynne Butler (Haverford College), Nancy Kopell (Boston University), Lesley Sibner (Polytechnic University of New York) and Audrey Terras (UCSD). The panel will be held on Wednesday, January 8. The Noether lecture will be given by Linda Rothschild (UCSD) on Thursday, January 9. Her title is "How do real manifolds live in complex space?" The Hay Award will be presented at the Joint Prize Session on Thursday. The AWM workshop will take place on Saturday, January 11. We hope to see you at the Party on Wednesday. [See page 47 for the preliminary San Diego program.]

Teaching and Research in Liberal Arts Colleges

Many young women mathematicians have expressed a strong interest in getting a job at a liberal arts college, but are unsure whether they can still carry out strong research programs at the same time. Therefore I have asked several women mathematicians from liberal arts colleges to write about their experiences balancing teaching, service, and research. These articles will appear in this and subsequent issues of the *Newsletter*. We also invite our members to submit articles on this subject.

IN THIS ISSUE

AWM
ASSOCIATION
FOR WOMEN IN
MATHEMATICS

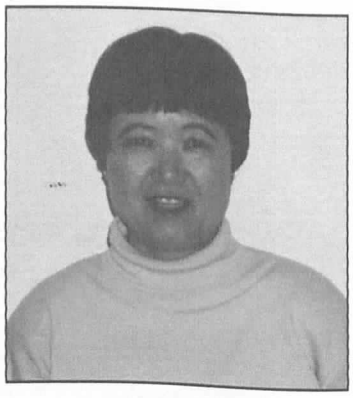
The Association was founded in 1971 at the Joint Meetings in Atlantic City. The purpose of the association is to encourage women to study and to have active careers in the mathematical sciences. Equal opportunity and the equal treatment of women in the mathematical sciences are promoted.
The *Newsletter* is published bi-monthly.
The Editor welcomes articles, letters, and announcements.
Circulation: 4,500.

Inappropriate Questions during Job Interviews

At both the IAS Mentoring Program in June and the Julia Robinson Conference in July, there were lively discussions concerning certain inappropriate questions that are occasionally asked (only of women) at job interviews. How should an interviewee respond to such a question? Our Founding President, Mary Gray, who is also a lawyer, will give her own views concerning this matter in the near future. We also welcome articles or letters from our members reporting particular examples from their own experience.

Fund Appeal

The end of our 25th anniversary year is approaching. If you have contributed to our fund drive, my sincere appreciation. If not, I would like to ask you once more to consider doing so.



Chuu-Lian Terng
September 24, 1996
Boston, MA

LETTER TO THE EDITOR

I am afraid that in her Brandeis talk, printed in this newsletter in four installments,[1] author Susan Quinn has misrepresented my argument about the possible impact of Madame Curie on American women scientists. Since she made a similar mistake in her biography of Marie Curie,[2] I hope you can allow me a little space to try to present (again) what I said and meant to say.

I *agree* that the number of women scientists in all fields of science, as counted by those listed in *American Men of Science*, went up between 1921 and 1938 — from 450 in 1921 to 1,912 in 1938.[3] I never said that the numbers remained constant or went down, or that Madame Curie discouraged anyone from taking up a scientific career, as Quinn implied. That is not what the "Madame Curie strategy" was about.

I was less interested in the numbers of persons listed and so countable by an interested researcher than in the somewhat more complicated issue of the comparative *level of credentialling* of the two sexes. Thus I pointed out that of the persons listed in the *AMS* in both years the women had a higher proportion of doctorates than did the men. For example, in the 1921 directory 71.8% of the women listed held doctorates vs. 58.2% of the men, and in 1938 83.2% of the women vs. 71.8% of the men did so. Thus just to be listed in the *AMS*, which was a kind of minimal level of recognition extended to both sexes at the time despite the directory's sexist title, the female scientists more often held a doctorate than did the male scientists. Or to put it another way, the women were *better* trained — in terms of degrees, the only credential on which we have large numbers — than were the men. That is to say the threshold was higher for the women than it was for the men.

This phenomenon of increased degree-earning among younger scientists of both sexes was probably inevitable, as Ph.D.'s became a requirement in most scientific fields in the 1920's and 1930's. Because earning a Ph.D. was a costly and lengthy experience, this new requirement could have been a significant barrier to women's careers in science and left many of them at the subdoctorate level, had they not been so highly motivated to earn the higher degree.

Maybe Madame Curie's highly publicized trip to the U.S. in 1921 was one factor inspiring so many of the young women of the time to think that a scientific career was worth the work of earning a Ph.D. QED

Yours truly,

Margaret W. Rossiter, The Marie Underhill Noll Professor of the History of Science, Cornell University (on leave at the Institute for Advanced Study, 1996–97)

Notes

1. Susan Quinn, "Did Marie Curie's Visits to America Open Doors for Women or Slam Them Shut?" Parts I–IV in AWM *Newsletter*, vol. 25, no. 5 (September–October 1995), pp. 27–29 through vol. 26, no. 3 (May–June 1996), pp. 15–16.

2. Susan Quinn, *Marie Curie, A Life* (New York: Simon & Schuster, 1995), pp. 396–7.

3. Margaret W. Rossiter, *Women Scientists in America, Struggles and Strategies to 1940* (Baltimore: Johns Hopkins University Press, 1982), p. 136.

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

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)
Affiliate: $250
Corporate: $150

Subscriptions and back orders

All members except family members receive a subscription to the newsletter as a privilege of membership. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for $40/year ($48 foreign). Back orders are $6/issue plus shipping/handling ($5 minimum).

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; phone: (312) 508-3554; fax: (312) 508-3514; email: leggett@math.luc.edu. Send all material regarding **book reviews** to Marge Murray, Department of Mathematics, 460 McBryde Hall, Virginia Tech, Blacksburg, VA 24061-0123; email: murray@calvin.math.vt.edu and for the **education column** to Sally I. Lipsey, 70 E. 10th Street, #3A, New York, NY 10003-5106. 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.

NEW FORMAT FOR AWM WORKSHOP AT SIAM MEETING

The AWM Workshop at the 1996 SIAM annual meeting was a two-day event held during the first two days of the meeting. Previous workshops had been very successful. Still it was felt that additional value might be gained if we changed the organizational structure. We set goals. They were: 1) to have presentations during the meeting so that all attendees of the annual meeting could have an opportunity to attend the presentations; 2) to have the postdoc presentations in minisymposia focused on particular research areas; 3) to have one event on the presentation of research results; 4) to have graduate student poster sessions; and 5) to have events focused on career advice, including advice on government funding.

The workshop opened with three talks and a panel discussion on the oral presentation of research results. In this minisymposium, organized by Rosemary Chang of Silicon Graphics, three experienced speakers, Rosemary Chang, Margaret Wright, and Gerald Farin, gave excellent advice and exhibited their own speaking skills. Following this well-attended event, postdocs could and did sign up to have their own talks at the SIAM meeting critiqued by senior researchers.

Four minisymposia followed, each organized around a specific research area. Postdocs gave impressive presentations on dynamical systems (organized by Kathy Alligood), on control theory (organized by Mary Ann Horn and Suzanne Lenhart), on stochastic processes (organized by Rachel Kuske and Malgorzata Klosek), and on inverse problems (organized by Changmei Liu). The speakers were M.W. Brunzie, Wai Chin, Jody Sorensen, Yi Li, K. Renee Fister, Nancy Lybeck, Renee Koplon, Christine McMillan, Rachel Kuske, Liliana Borcea, Robert Maier, Malgorzata Klosek, Susan Minkoff, Sarah Patch, and Changmei Liu. In a separate event, fifteen graduate students gave excellent poster presentations on a variety of subjects including mathematical modeling for a problem in finance, properties of a population model, noise smoothing and parameter estimation, chaos and much more.

Career advice came in three events. In one panel of three senior researchers, Suzanne Lenhart, Margaret Cheney and Kathy Alligood, each panelist talked about her own career path and the balance made between family life and career. In a second panel with participants Jagdish Chandra, Director of Mathematical Sciences at Army Research Office (ARO); Wen Masters, program director for Applied Analysis at the Office of Naval Research (ONR); and Deborah Lockhart, program director for Applied Mathematics at the National Science Foundation (NSF), each speaker gave valuable information about the programs at the three funding agencies and advice on submitting proposals that can succeed. The third event was the keynote speech delivered by Bozenna Pasik-Duncan at the AWM dinner the first night of the annual meeting. In a lively presentation, she told her career story as it progressed from Poland to the University of Kansas in the United States. The humorous presentation kept the AWM participants, the SIAM Board and Council, and invited guests well entertained.

It was a great pleasure to present the Schafer Prizes at the AWM dinner and to meet the awardees in person. The winner, Ioana Dumitriu from Courant Institute, had returned to Romania for the summer (I did have a chance to meet her at Courant Institute where I was on sabbatical last year). She wrote a delightful statement which was read in her absence. In fact all the awardees wrote very thoughtful personal statements which were shared when the awards were announced. Two other honorees, runner-up Karen Ball from Grinnell College in Iowa and honorable mention citation holder Tara Holm from Dartmouth College, did attend and received their awards in person. The fourth honoree, runner-up Wungkum Fong from UC Berkeley, was unable to attend.

It's important to thank Dawn Wheeler and the staff at the AWM office; without their efficient organization and friendly help for the participants the event could not succeed. Funding for the Workshop was provided by the Office of Naval Research. The Workshop was organized by Joyce McLaughlin, Chair of the AWM Workshop event and Chair of the Board of Trustees of SIAM; Margaret Wright, President of SIAM; and Suzanne Lenhart, a member of the SIAM Council.

Joyce McLaughlin, Ford Foundation Professor of Mathematics, Rensselaer Polytechnic Institute

RESEARCH AND TEACHING AT LIBERAL ARTS COLLEGES

Chuu-Lian Terng said that young women graduate students wonder whether it is possible to do research after joining the faculty at a liberal arts college.

It is not just possible, it is essential at the best liberal arts colleges. You will not be hired unless your thesis research is of high quality and your potential for continued growth as a mathematician is apparent. You will not be tenured without steady publication of good papers in refereed journals. You must establish a strong research program and demonstrate that you can maintain it alongside very good teaching at all levels and active service to your department and the college. On the other hand, you do not have to be the best young person in your field or publish many papers every year. But if undergraduates at a research university think you are a great teacher, students at a liberal arts college might find you merely a good one. So before you take a tenure-track job at a liberal arts college I recommend your research be in full swing, because the demands of becoming a very good teacher at a liberal arts college are considerable.

I am a professor of mathematics at Haverford College, and I cannot imagine a better life. Haverford needs and values what I have worked to become: a strong researcher with broad interests within and beyond mathematics, a devoted teacher and mentor for students at all levels, and an able servant of my department and the college. These three aspects of my life at Haverford enhance each other. Consider these facts: to attract mathematics majors and student research assistants I need to be a stimulating teacher; to teach mathematics courses that range from algebraic topology to linear optimization I need to have mastered and used mathematics far beyond my thesis research; to earn support for mathematics from colleagues in other departments I have to interact productively with them on search committees in related disciplines and interdepartmental curriculum development efforts; to earn respect for my department within the college I need to teach effectively and maintain a strong research program. Haverford does not want me to neglect teaching or service to leave more time for research, nor does Haverford want me to neglect research to devote more time to teaching and service. My life at Haverford is varied and intense.

The research universities where I was a student and junior faculty member (Chicago, MIT, and Princeton) provided the ideal environment to develop my mathematical talents, explore my mathematical interests, and establish a strong research program in my field (algebraic and enumerative combinatorics). I was not the very top mathematics student who graduated in 1981 from Chicago, but I pursued both economics and mathematics through first-year graduate courses, led problem sessions for calculus courses, and tutored in a number theory program for high school students. I was not quite the best of my advisor's students during my five years at MIT, but I studied topology as well as combinatorics, taught calculus several summers in a program for minority students, and learned statistical methods in speech recognition at IBM during a summer internship. I was not the hottest assistant professor at Princeton, but I taught a much wider variety of courses than most (including graduate courses in my field and courses for economics majors, one of which I created), worked as a cryptanalyst several summers, and served productively on the university course of study committee. I took full advantage of a postdoctoral year at the Institute for Mathematics and Its Applications, and I forced myself to apply for regular grant support. I seized every opportunity to publicize my work and participate in activities of the mathematical community. (Visit my Web page!) Haverford appreciates everything I have done and want to continue doing, especially, but not only, my research.

Students come to Haverford to work closely with faculty. (Every mathematics major writes a senior paper.) At Haverford, colleagues applaud when your most recent grant is announced at faculty meeting. (Ten humanities professors came to hear my faculty research talk last spring.) Haverford alumni endow professorships and contribute funds to support faculty research and travel.

I always want more time for research, but I do not take time away from teaching or service. So most days I do not have a minute to waste. (I really cannot waste a summer, a fall/winter/spring break,

Lynne M. Butler, Professor of Mathematics, Haverford College

or even a weekend.) I try to be increasingly efficient and energetic. And I find myself able to do more every year. I love working with smart, dedicated, capable people and working on hard, interesting, important problems. Go for it! And be grateful for the support you get. Even before I came to Haverford, I got a tremendous amount of support: from a high school teacher who studied group theory with me; from college professors who taught me algebra and analysis; from university professors who taught me topology and combinatorics; from my thesis advisor and postdoctoral mentor; and from my collaborators and colleagues, including my richly talented husband.

Notes on working at a liberal arts college

Are you considering taking the plunge from a research university into a small liberal arts college? If your overriding career goal is to accomplish as much research as possible, you will find the requirements of a college job frustrating. You will spend lots of time with students and contribute significantly to running the department and the college. If, however, your drive to do research is complemented by a love of teaching and an interest in community, a liberal arts college may be the ideal place for you. Pedagogical interests and triumphs are recognized and rewarded. You will be part of a diverse community of scholars. There is also opportunity to make contributions outside the realm of mathematics. On the other hand, the breadth of the job complicates the recipe for success. Balancing research, teaching and service, not to mention other areas of your life, can be a tall order.

Developing and sustaining a research program requires some extra effort. Two common obstacles are isolation and low expectations from colleagues in more traditional research jobs. You won't have a weekly seminar in your field right on campus, and you probably won't have a colleague down the hall who can appreciate the details of your current project. Mathematicians in your field may forget to ask what you are working on. To succeed you should work proactively to establish and maintain ties with colleagues in your subfield. Go to conferences, keep in touch by phone or email, and above all don't be shy about promoting your own work. Tell people what you are working on (even if they don't ask) and mail your preprints to everyone who has ever expressed interest in your work. Finally, when you are on leave, leave. Visit an institution with a large and lively group working in your field, or visit a reliable collaborator. If you cannot go away physically, distance yourself from the day-to-day concerns of the department and college. Remember, your colleagues managed fine before they hired you, so they can do without you for a year.

One major advantage of a tenure-track job at a small college over a temporary job at a more prestigious research university is the level of commitment the institution makes to you. Many liberal arts colleges hire with the intent to tenure. This investment in your success may show up in concrete ways in salary, benefits, travel money or startup funds, and in more intangible ways such as the support and mentoring you receive from individual colleagues. For instance, you may have better maternity benefits in a tenure-track job, and you will almost certainly have more time on your contract to recover your old level of productivity after baby is born and before the next job search. On the other hand, it is advisable, though not absolutely necessary, to have a few solid postdoctoral years of research before moving to a liberal arts college.

When evaluating a particular liberal arts college, think carefully about the infrastructure you rely on to do your research and ask questions about specifics. How well stocked is the library? Can you easily obtain any book or journal article you want to see? How far away is the nearest extensive mathematics library? Think also about how much you rely on talking to colleagues in your field. Can you survive on email and phone relationships? If not, how far will you have to travel to talk tech? Is there a seminar series in your field within weekly striking distance? Get specific information about the teaching load. Ask several members of the mathematics department exactly what courses they taught last year, what the enrollments were, and whether they were responsible for all grading and discussion sections. Don't settle for vague numerical descriptions such as "3–2," and don't assume that classes will be small because the college is. Find out what the secretaries' responsibilities are to faculty. What kind of computer will the college provide, and what kind of ongoing computer support can you expect? For instance, at some colleges faculty are responsible

Stephanie Frank Singer, Assistant Professor, Haverford College

for backing up their own machines. Finally, consider the nonacademic benefits and infrastructure. If maternity leave interests you, find out whether there is an official policy (even some women's colleges have none), including any effect on the tenure clock, and don't forget to investigate the daycare situation. Talk to women on the faculty, especially women in science but also women in other fields. You will be better off at an institution with a strong existing informal network of female faculty. Finally, ask for concrete information about the tenure rate. Don't settle for the ratio of successful tenure cases to total tenure cases, since people may leave without standing for tenure. Instead, ask what proportion of the tenure-track faculty hired in the past ten years have in fact gotten tenure.

When I was working on my Ph.D. I never imagined myself as a professor at a small liberal arts college. It has taken a long time to adjust to the politics, expectations and demands. But after five years I can say with confidence that this college is a good place for me. I am well-paid; I have wonderful, motivated students; I have ample opportunity to discuss and implement pedagogical innovations; I have time and support for research; I have significant responsibility and hence significant power to make improvements in the department and in the college. Certainly I envy colleagues who have daily contact with a lively research group, but I don't regret my choice.

The Compatibility of a Liberal Arts College and Research

I received my undergraduate degree at Beloit College, a liberal arts college in Wisconsin. I loved the learning environment at Beloit. Classes were small, the demands were high, and the professors were wise yet nurturing. I started graduate school with the future goal of returning to a liberal arts college as a faculty member. At graduate school, I enjoyed my teaching experiences but truly fell in love with doing research. When finishing my Ph.D., I applied for both postdoctoral research positions and tenure-track positions at liberal arts colleges. I was fortunate to have options of both. After spending a year doing research at MSRI as a postdoc, I received an NSF postdoc and simultaneously accepted a tenure-track position at Bryn Mawr College. A number of mathematicians who knew my dedication to my research questioned my choice, since they knew of others who had gone to liberal arts schools and had become engrossed in teaching and/or service commitments. I must admit, talking to these people made me quite nervous that my research would essentially end because of my choice. I have been at Bryn Mawr for three years now, but due to my NSF postdoc, I have taught at Bryn Mawr for only three semesters. I have been quite happy at Bryn Mawr and have found it to be a supportive and stimulating place to do research. I do know of others at liberal arts colleges who have not had equally good experiences. A position at a liberal arts college is often broken into research, teaching, and service components. I will discuss a few things I have observed about each of these components to hopefully help others see if they are a good match for a liberal arts college and if a given liberal arts college is a good place to pursue research.

If research is important to you then it is vital to be in an atmosphere where your colleagues are interested and active in research and where the administration values and expects research. Most departments at a liberal arts school are quite small, and so it is rare to have someone in your precise area. In order to avoid feelings of mathematical isolation, I think it is quite helpful to be located in an area where you have access to a research university that has active seminars. I am quite close to the University of Pennsylvania and enjoy mathematical interaction with faculty there. In order to continue doing research instead of getting overly drawn into the teaching and service aspects of the job, I think it is essential to have a certain level of mathematical maturity before going to a liberal arts school. It would have been very difficult to continue as I have with my research if I had not spent a few years doing postdoctoral work. When I went to Bryn Mawr, I had experience working on a variety of problems and had plans in my head for things I wanted to do. There are certain types of research that are better suited to a liberal arts college. I think that working on very hot topics is difficult since even though email and the Internet make communication easier, it is still easy to be left out of the loop. I also believe that work that requires a great deal of intricate, technical details will probably not be

Lisa Traynor, Mathematics Department, Bryn Mawr College, Bryn Mawr, PA 19010; email: ltraynor@brynmawr.edu

appreciated by your undergraduate students or non-mathematician colleagues. Getting students involved in research problems that you are interested in is always exciting. Bryn Mawr has a graduate program, so I am able to involve students at the graduate level. If your research has spin off problems or calculations that are accessible to undergraduates, this can be extremely rewarding for both you and the students. Undergraduate involvement in research is a big selling point at many liberal arts colleges these days, and many schools are quite financially supportive of such projects. It is hard to overemphasize the importance of an administration that is supportive of research. Getting start-up money and travel funds to attend one or two conferences a year are good signs that the school is respectful of your needs as a researcher. Since my research does not require fancy equipment, I remember thinking before I got to Bryn Mawr that even if the teaching and service portions of my job did get excessive, I could always do my math at night. I now realize that this was a bit naive and that even those extra hours could be consumed by teaching and service. I still do mathematics at night and on weekends, but at Bryn Mawr research is required for tenure and promotion, so I do not feel guilty for setting aside time for my research even when the semester is in its full hectic swing.

There are big differences between attending and teaching at a liberal arts school. Many aspects that make a liberal arts education appealing for students require enormous amounts of effort and energy from the faculty. If you are considering a liberal arts school and your research is a high priority, it is important to find a teaching load that is not excessive. I think that doing more than 3/2 (6–9 hours of lecture per week) would be extremely taxing. I believe that teaching is a challenging and creative activity, and I have enormous respect for my colleagues who are great teachers. I am always striving to make my own teaching more effective. I do not mind spending some extra time in order to think of ways to present material so that it will be interesting and understandable, and so I like being at a school where my efforts are appreciated. I enjoy the smaller class size at liberal arts schools. Often my classes have fewer than 25 students and sometimes fewer than 10. This allows me more opportunities for non-standard and more interactive teaching styles. When starting out, it is better not to be overzealous about teaching high-level courses. Even standard courses, such as calculus, that you may have already taught will require more energy and planning than you probably anticipate. When I came to Bryn Mawr, I found myself responsible for many new activities such as choosing books, writing syllabi, assigning homework, coordinating graders and computer labs, and writing exams. A standard calculus lecture that may be well received at a large university will often not be acceptable to students at a smaller school. Students often choose a liberal arts college because they are serious about their education and like the personal attention. I teach many non-science majors and am always looking for topics and student projects so that students will see mathematics as relevant to their interests. Some schools have open door policies, which means that you should be available to help students at all times. For my personality, I would find it difficult to find the serenity I need to concentrate on my research with this sort of policy. I do find myself making many additional appointments to meet with students outside of my office hours, but I make a point of reserving some hours every day for my research.

All teaching jobs have some service component. In order not to get bogged down with the service portion of a position at a liberal arts college, I think it is essential to have a well-organized department and to be a well-organized person. I have not been involved in an inordinate amount of service activities; however I have observed a number of more senior faculty who, although extremely efficient, devote large amounts of time to service. Compared to a large school where your service may be satisfied within the department, service at a liberal arts college involves dealing with members across the college community. For example, at an early stage, you may end up spending many hours debating curriculum requirements for all undergraduates. I do enjoy thinking about these issues to some extent but have found that, as a new faculty member, such issues can be a large time sink. Even within a department, service requirements are often demanding, and so it is very important to be in a department where the faculty interact well and where your colleagues are willing to share responsibilities. If the department is small, chances are you will be chair sooner than you think.

Getting tenure at a liberal arts school is by no means guaranteed. Some liberal arts schools have extremely high instances of not granting tenure. I am always trying to evaluate if I am correctly balancing the amounts of time I spend on the research, teaching, and service components. The mathematics

department and administration at Bryn Mawr have been very open about their expectations and their evaluation of my progress, and that has relieved some of the stress on my track to tenure.

It is important to understand what you value and enjoy doing and to try to find a position where you will be given credit for devoting your time to your goals as much as possible. I do put a high priority on my research, but since I also feel that I am good at teaching and have good ideas on a number of various college and department issues, I appreciate that I am evaluated on a broader range of criteria. I find my position at Bryn Mawr to be extremely challenging, fulfilling, and compatible with my priorities.

AMS ELECTION

Barbara Osofsky, Rutgers University

It is the job of the Nominating Committee of the AMS to make sure that the membership of the AMS is represented in all its variety in the slate of nominees. There are many people out there with excellent ideas. They are the ones who will have to grapple with the serious problems facing our profession. If elected to the Nominating Committee, I will try to make sure that there are a large variety of views represented by mathematicians of all types so that all segments of the membership have a chance to vote for representatives that they feel can best serve them and the Society.

WOMEN PRESIDENTS

Six of seven major mathematical organizations in North America have women presidents at this time. They are AMATYC (Wanda Garner), AMS (Cathleen Morawetz), the Canadian Mathematical Society (Katherine Heinrich), NCTM (Gail Burrill), SIAM (Margaret Wright), and SMM (the Mexican mathematical society; Patricia Saavedra).

[Thanks to Ken Ross (male MAA president) for the observation.]

EUROPEAN WOMEN IN MATHEMATICS

The eighth general meeting of European Women in Mathematics (EWM) is organized in collaboration with the International Center of Theoretical Physics (ICTP) in Trieste, Italy and will take place at this center during the period December 13–17, 1997. Participants should plan to arrive on December 12 and leave on December 18.

The organizing committee consists of: Christine Bessenrodt (Germany), Bodil Branner (Denmark), Marie Demlova (Czech Republic), Emilia Mezzetti (Italy), Rosa-Maria Miro Roig (Spain), Marjatta Näätänen (Finland), Sylvie Paycha (France), Ragni Piene (Norway), Caroline Series (United Kingdom), and Inna Yemelyanova (Russia).

Participants will be housed at the ICTP Guest Houses and have their meals in the ICTP cafeteria. The approximate cost of living expenses will be 200 ECU. We encourage everyone to investigate different sources of support for travel and living expenses; for example it is important to find out early enough if your institution or state has some exchange agreements that can be used.

ICTP will give full financial support, including travel, for two women mathematicians from developing countries for a period up to two months to participate in the conference.

The mathematical program of the meeting consists of a session on representations of groups, organized by Michele Vergne (France); a session on p-adic numbers, organized by Catherine Goldstein (France); and an interdisciplinary session on symmetries, organized by Ina Kersten (Germany) and Sylvie Paycha (France).

The "non-mathematical" topic of the meeting will be a round table discussion on "Women and Mathematics: East-West-North-South" organized by Marie Demlova (Czech Republic) and Marjatta Näätänen (Finland). There will also be a poster session, where all participants are encouraged to present their work and to contribute an abstract to the proceedings of the meeting.

A second announcement, including application form, will be sent out in January 1997. For further information, please contact: Bodil Branner, Department of Mathematics, Building 303, Technical University of Denmark, DK-2800 Lyngby, Denmark; email: branner@mat.dtu.dk; fax: +45 45 88 13 99.

BOOK REVIEW

Barbro Grevholm and Gila Hanna, editors, **Gender and Mathematics Education: an ICMI Study in Stiftsgården Åkersberg, Höör, Sweden 1993**, Lund University Press, Lund, Sweden, 1995. ISBN 91-7966-276-5.

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> When thinking about the problem of gender and mathematics education, I see myself as a victim as well as a contributor. I am a victim because, like most of us, I had to go through the experiences of a woman as an outsider in mathematical studies during my entire education. On the other hand, we might well see ourselves as contributors to the problem, because nevertheless we were successful. As teachers of mathematics or as university professors we came integrated into the system, with all its opportunities but also with all its deficiencies and failures, and maybe we now contribute to its functioning or malfunctioning. (Christine Keitel, Germany, p. 371)

Christine Keitel's reflections captured many of my thoughts as I read the informative and thought-provoking *Gender and Mathematics Education*. As a woman and a mathematics educator, I could identify with several of the situations and statistics describing young women and their struggles to become part of the mathematics community. But I was even more fascinated by the discussion of factors that have contributed to the limitations imposed on women as mathematics learners and as professionals. Unwittingly, as mathematics professors and teachers, we probably have contributed to the very system that we are struggling to eradicate. Addressing a wide range of complex issues, *Gender and Mathematics Education* offers the reader thoughtful reporting and commentary from diverse international voices. Collectively they offer well-documented information, ways of thinking about gender issues, practical suggestions, and philosophical underpinnings for a shift in research about gender issues. Anyone teaching mathematics — regardless of the gender of their students — could benefit from the scholarship shared in this book.

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Gender and Mathematics Education comprises the proceedings of a conference funded by the International Commission on Mathematical Instruction (ICMI) and held in Höör, Sweden in October 1993 to discuss the gender imbalance in mathematics education that has been documented around the world. The book contains plenary addresses, research papers, panel presentations, and working group reports. The collection presents voices from more than 18 countries and illustrates both the similarities and the differences that exist internationally. For example, about 80% of mathematics majors in Kuwait are women; likewise, the majority of mathematics majors in Portugal are women. These statistics contrast sharply with the United States, where about 50% of the mathematics majors are women, and Japan, where the figure is 20%. Researchers from Papua New Guinea, for example, are concerned with the low participation of women in mathematics in particular and school in general. All countries reported concern over the small numbers of women who continue to study mathematics in graduate programs and the underrepresentation of women in mathematics-related careers.

This book is much more than a mere compilation of papers. All the participants started from the assumption that "there is no physical or intellectual barrier to the participation of women in mathematics, science, or technology," but from there they took off in a variety of directions. Gila Hanna, from Canada, summarized the key questions and issues in the introductory chapter and captured the themes that permeated the book. She offered three categories: 1) factors creating gender inequities in mathematics, 2) manifestations of gender inequities, and 3) foci for change. Papers in the first category dealt with studies about attitudes, sociocultural influences and the nature of mathematics and school mathematics. Studies in the second category reported girls' participation in both school and careers, discussing the relationship of girls and technology. Contributors to the third category addressed ways in which curricula, assessment, teachers, schools, and parents influence girls and how they can serve as powerful stimuli for change.

There was little overt disagreement in the book, but the contributors did represent different perspectives and used a variety of research techniques. Most of the studies were empirical and focused on the differences between girls and boys. For example, there were studies that discussed differences in achievement, different responses to

assessment techniques, different approaches to open ended tasks, different enrollment patterns, different attitudes, different perspectives on the use of mathematics, and different confidence levels.

The study of differences has been a traditional approach in documenting gender imbalance and in measuring improvement, but one of the most exciting components of the book was the discussion of a major shift in the way we think about gender issues. Years of research in gender and mathematics have identified inequities, socio-cultural variables, and some approaches to addressing those inequities, but the problem seems to be much more complex. For example, research identified differences in achievement scores of girls and boys as well as differences in enrollment patterns. Through various programs, girls were encouraged to take more mathematics, and the difference in achievement scores was almost eliminated. However, girls are still underrepresented in graduate mathematics programs and mathematics-related careers. The contrast between the increase in the number of women entering professions such as law and medicine, for example, and the relatively modest gains among women pursuing advanced degrees in mathematics and physical science is quite striking.

We need not only to identify differences, but also to understand more about women as learners of mathematics. Elizabeth Fennema, who has led the way in research on gender issues in mathematics for the last 20 years, explains: " ... I do not believe that we shall understand gender and mathematics until scholarly efforts conducted in a positivist framework are complemented with scholarly efforts that utilize other perspectives" (p. 28). Later in her paper she shares a vision of what future studies from a feminist perspective might contribute:

> It appears logical to me that as I try to interpret the problem from a feminist standpoint, it is different from what I focused on earlier. Instead of interpreting the challenges related to gender and mathematics as involving problems associated with females and mathematics, I begin to look at how a male view of mathematics has been destructive to both males and females. I begin to articulate a problem that lies in our current views of mathematics and its teaching. I am coming to believe that females have recognized that mathematics as currently taught and learned restricts their lives rather than enriches them. (p. 34)

There are several feminist theories, each offering a different perspective and carrying different implications for research design. The shift that seemed to be advocated by many participants called for a better understanding of women's perspectives. Suzanne Damarin explained in her paper the possible contributions of a variety of feminist theorists and contrasted feminist empiricism with feminist standpoint theory.

Feminist empiricism begins with the position that science and its global methods are basically sound, but some practices, procedures, assumptions, and, therefore, findings of scientists are biased against women; because these practices, or abuses, are detrimental both to women and to science, they must be identified and curtailed. In contrast, feminist standpoint theory argues that a less biased account of the world can and should be constructed by beginning investigations with the experiences of women (p. 129).

The paper by Damarin and several of the comments by panelists provided a vision of future research related to gender issues. The shift seemed to encourage new kinds of questions and consequently new or adapted theoretical foundations and methodologies.

An important point that was supported by all the contributors was the emphasis on women as individuals as well as members of groups. We know from empirical studies that the variance within the population of women is much greater than the differences between genders. Perhaps it needs to be said more often. Throughout the book, there are implicit and explicit references to the need to avoid essentialism, or the tendency to assign a specific characteristic to all women or all men.

This collection of research and commentary reports where we have been with respect to gender issues and where we are beginning to plow new ground.

CALL FOR BOOKS

Bridge to Asia is seeking donations of books, journals, and other forms of information for faculty and students in China and Southeast Asia. The needs are critical. And we misprinted their phone number last issue. So here are the correct contact numbers: phone: 510-834-3082; fax: 510-834-0962; http://www.bridge.org/Books.html.

EDUCATION COLUMN

Sonia Kovalevsky High School Day at St. John's University: A Five-Year Perspective

The Sonia Kovalevsky High School Day was the inspired creation of AWM, which sponsored its first Day in 1985 and has continued to sponsor or co-sponsor a number of programs nationally since then. The Day is intended 1) to introduce women high school students and high school teachers of both genders to exciting applications of mathematics and 2) to encourage both students and teachers to think of mathematics as an appropriate field for women to enter.

St. John's serves a large metropolitan area with a multi-cultural student body. Though SKHS Days may be held year-round, we have held them in April or May in connection with Mathematics Awareness Week.

It is hard to believe that we have finished our fifth annual SKHS Day. Some might think that we would be getting tired of the same basic program of a panel of prominent women in math-based careers, workshops for teachers and students, and a guest speaker. But the enormous variations that this model allows leads us to a new program each year filled with challenges.

To make this clearer, let us go back to our first year, 1992. As a result of the evaluations of that year, teachers now attend the panel discussion and two workshops, rather than three teacher workshops. Every effort is made to have one teacher workshop deal with technology in the classroom and the other a mathematical topic of current interest that can be brought back to the classroom.

Some of the teacher workshops over the past five years have been: "How to Create a Mathematical Research Program on the High School Level," "The Many Faces of Careers Based on Mathematics," "Using the TI-82 in Visual Thinking and Higher Order Thinking Skills," "Five Minute (Geometric) Energizers that Go On, and On, and On," and "Using the Internet as a Strategic Information Tool."

Evaluations from the second SKHS Day in '93 informed us that the students did not want the day to end. To meet this challenge, we initiated a summer problem-solving competition which consisted of a variety of problems from easy to progressively more challenging that were to be done during their vacation and submitted by the end of August. Students could work together or alone. Everyone who submitted solutions received a certificate of merit, while those with the very best solutions received a prize as well.

Students again informed us in the '94 evaluations that they wanted more involvement with the activities of the day. In response, we organized two math bowls, one for freshmen and sophomores and the other for juniors and seniors. In each category, girls from different schools made up the teams. This encouraged a sharing of mathematical ideas among strangers and enthusiastic support for all among teachers.

A second initiative taken in this regard was to broaden the category of guest speakers to include the arts, such as a mathematician-sculptor who encouraged the students to handle and enjoy Möbius-type sculptures and a mathematician-musician who invited the students to clap out the mathematical beat of rhythms.

In response to the evaluations of '95, wherein students asked for the opportunity to meet and talk to math majors, a new workshop was created by three SJU math majors during which they discussed the math they were taking, as well as other kinds of courses, and what they hoped to do upon graduation. This workshop proved to be a huge success because the math majors could easily relate to the problems, concerns, and questions of the students. They had "been there."

Some of the student workshops over the past five years have been: "M.C. Escher: Artist as Mathematician," "Genetically Speaking via Mathematics" [the speaker brought live chickens], "Market Statistics at the Core of Our Lives," "Detective Work with Mathematics," and "Mathematics Matters in Health Care."

As we review the evaluations from 1996, we anticipate new and exciting projects suggested by the high school students and teachers.

Needless to say, there are risks in running an SKHS Day such as: students getting lost on campus, not meeting the food requirements of vegetarians, projectors failing to perform, and teachers bringing double the number of students expected. Though

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rattling at the moment, however, none of these detract from the overall success of the Day.

In conclusion, we would like to express our appreciation to all those who have shared their ideas and experiences with SKHS Days through the AWM *Newsletter*. They have given us much guidance and insight without which we would never have accomplished as much.

MAA/TENSOR GRANTS

With funding from the Tensor Foundation, the Mathematical Association of America supports projects that encourage girls and young women to study mathematics. MAA/Tensor grants provide funds for student-centered projects conducted by high school, college, or university mathematics faculty. Ten grants of up to $5000 each will be made in April 1997 for projects that will begin by the end of the 1997–1998 academic year. The deadline for proposals is **February 28, 1997**.

An announcement detailing program objectives, submission procedures, and proposal evaluation criteria is available at the MAA home page (http://www.maa.org) or from the Member Services and Programs Department, Mathematical Association of America, 1529 18th Street NW, Washington, DC 20036; email: programs@maa.org; (202) 387-5200.

ICIAM AND GAMM NEWS

The *Proceedings* of the Third International Congress on Industrial and Applied Mathematics held in Hamburg, July 3–7, 1995 have appeared in the series "Mathematical Research" with the Akademie Verlag Berlin. To order the Proceedings, contact: Gesine Reiher, Akademie Verlag GmbH, Muehlenstrasse 33–34, D-13187 Berlin; phone: +49-(0)30-47889-396; fax: +49-(0)30-47889-399; email: reiher@akademie-verlag.de.

In recognition of the symbiosis of ICIAM 95 and GAMM 95, a selection of contributions to the Minisymposia and of the Contributed Presentations will be published in special issues of ZAMM. Special prices are available. For ordering information, contact: Marianne Simon, Akademie Verlag GmbH, Muehlenstrasse 33–34, D-13187 Berlin;

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 three award periods per year, with applications due February 1, May 1 and October 1. An applicant should send *five* copies of 1) a description of her current research and of how the proposed travel would benefit her research program, 2) her curriculum vitae, 3) a budget for the proposed travel, and 4) information about all other sources of travel funding available to the applicant 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 by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted.

phone: +49-(0)30-47889-350; fax: +49-(0)30-47889-399; email: Simon@akademie-e-verlag.de. The tables of contents of these volumes may be found at http://www.uni-regensburg.de/Fakultaeten/nat_Fak_I/ Mennicken/CICIAM.html.

The Annual GAMM Meeting, GAMM 97, will be held at the University of Regensburg, March 24–27, 1997. On this occasion GAMM celebrates its 75th birthday: it was founded by Richard von Mises and Ludwig Prandtl in 1922. The scientific program of GAMM 97 consists of plenary lectures, the 40th Ludwig Prandtl Memorial Lecture, a Public Lecture, a series of minisymposia and short communications. All conference participants are invited to present short communications on topics from applied mathematics or mechanics; applications of mathematics to non-mechanical problems are also welcome. The time limit for a lecture is 15 minutes plus five minutes for discussion. The conference languages are English, French and German.

Forms for registration, announcing a short communication and hotel reservations are available at the GAMM Office, Department of Mathematics, University of Regensburg, D-93040 Regensburg, Germany; phone: +49-(0)941-943-4918 (or 2954); email: r.gamm@mathematik.uni-regensburg.de; fax: +49-(0)941-943-4005. Further information can be obtained from the GAMM WWW homepage http://www.uni-regensburg.de/Fakultaeten/nat_Fak_I/Mennicken/gamm.html.

SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

Pending final approval, 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. Follow-up studies will track whether the participants go to college, what they major in, and what they do upon graduation from college.

We anticipate awarding approximately 17 grants of up to $3,000 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 by mid-February. The high school days are to be held in Spring 1997 and Fall 1997. Reports on the high school days are to be made to AWM within six weeks of completion.

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, 1997**.

A YEAR IN PROJECT NEXT

As a 1995–1996 Project NExT Fellow, I wanted to convey what I have gotten from the program to those who are unfamiliar with it. I will share not only my personal experiences, but those of other Fellows, with the important details that give a good feel for what Project NExT does to help young mathematicians make a smoother transition into the mathematics profession. The examples below only scratch the surface of the wide range of very useful practical advice all Fellows in the program received at the outset of their careers as new or recent Ph.D.'s in the mathematical sciences.

First, here is some additional background on Project NExT. NExT is an acronym for "New Experiences in Teaching"; the project began in the 1994–1995 academic year through a grant from the MAA and Exxon Education Foundation. The Project co-directors are Jim Leitzel at the University of New Hampshire and Christine Stevens at St. Louis University. Each year, a new group of Fellows is chosen through an application process; 66 Fellows participated in 1994–1995 and 78 in 1995–1996. Fellows attend two consecutive summer meetings (including the MathFest) and the Joint Winter Meetings in between. At these meetings, special sessions for Fellows include presentations by senior mathematicians on topics from calculus reform to keeping one's research active to grant-writing and many others. Fellows help plan the sessions for future meetings, suggesting the topics they most want to discuss. Besides the meetings, Fellows take advantage of a closed email discussion list maintained by Jim Leitzel; the list proved invaluable throughout the year, as we could ask each other questions about good texts, assessment methods, how to develop new courses, etc. In this piece, I will focus on the specifics of how the email list has helped me professionally; for more about Project NExT, check out the Web site: http://Archives.math.utk.edu/~toddwill/projnext.html.

Besides Chris Stevens and Jim Leitzel, we had roughly 30 other senior mathematicians across the nation to help answer the many questions posed daily by NExT Fellows. Questions included: How to obtain a set of base five blocks to use as manipulatives in a Math for Elementary Teachers course, possible texts to use for courses in mathematical statistics or numerical analysis, "student friendly" software packages to use in undergraduate courses such as linear algebra or differential equations, and many, many others. Several Fellows started their own listserves for Fellows interested in specific topics such as the teaching of an introductory linear algebra course or a course in mathematical modeling. There, Fellows could share more information about texts, tests, software packages, etc. without adding extra traffic to the main email list.

Throughout the year, I took full advantage of the power of the NExT list; I could post a question, go teach a class, and find several responses to my query waiting for me afterward! As I am in a small department in a small school, this form of contact has been critical to me professionally. Last fall, I taught introductory statistics for the first time. As I had two sections of it and was attempting to incorporate the software SPSS into it, I found my task to be quite challenging initially. At the Burlington MathFest last summer, I attended a session conducted by one of the NExT consultants whose expertise is in statistics. He gave us materials with references to useful texts, electronic journals, and sites containing downloadable data sets on the World Wide Web. I later asked him via email (among other things) how to motivate the difference between the standard deviation for a sample versus a population in an introductory course and how to give a good intuitive presentation to students on the rudiments of hypothesis testing. As I am not a statistician by trade, I had to work to deepen my understanding of some basic principles before I tried to present them. I also had informal electronic discussions with three NExT Fellows who are statisticians on such subjects as where to find good introductory material on ANOVA (ANalysis Of VAriance), and the philosophy behind teaching students how to apply mathematical techniques to solve problems of a statistical nature.

Last November, my Chair asked that a colleague and I devise a student-tracking database to be maintained by our department secretary. In it, we needed to track an incoming student's placement score, what course they were recommended to take, what course they did take, and their grade in that first math course. (At Saint Leo, a student may sign a waiver and enroll in a course above that which is recommended.) One NExT consultant detailed how the tracking system works at Purdue, and a Fellow put me in touch with a colleague of hers at the

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University of Maryland to get advice from him. The database I helped construct contained the student's name, ID number, placement score, recommended course, and the first math course they took and their grade. As memory permitted, we added fields for the second math course they took (if applicable) and their grade, so we could track a student's success at the next level. The advice I got also helped us choose DBase V for Windows over both Paradox and Microsoft Access.

Until this summer, Saint Leo did not have a homepage on the World Wide Web. Last fall, I asked people to give me addresses for "really *cool*" homepages to give me an idea of how we could get started. I received about a dozen responses, all listing one or more excellent sites for me to try. Some of the most popular sites included those for Reed College, St. Olaf College, and Duke University. Recently, Saint Leo obtained two domain names for its use on a mainframe supported by a local computer company and Internet provider, so we now have a host for our new page. From the tips I received, it was apparent that the College should undertake the creation of a homepage that focused on information designed to attract new freshman and transfer students and cut down on the amount of "glitz and glamor" found in many school's homepages. This past summer, I created text files for each major program at Saint Leo, along with admissions and financial aid information. A member of computing services at Saint Leo recoded these WordPerfect files into HTML code and then posted the resulting homepage on our new Web site.

One Fellow posted a note including details about a talk he gave on the teaching of differential equations, and that his work was to be published in the journal *PRIMUS*. I had never heard of that journal before, and I asked for a list of journals, both national and regional, addressing issues in undergraduate mathematics education. Last March, I gave a talk on a Taylor series one might use for a project for second or third semester calculus and hoped to get some good ideas on potential places to get my work published. Again, I received many responses, this time over a period of about two months, as summer break loomed at the time I posted my query. One Fellow informed me that the journal *UMAP*, Volume 17.1 (1996) contained a list of 43 journals satisfying my criteria. Needless to say, that saved me untold hours of digging on my own.

I am most grateful for all the help and advice I have received through the email list. Many Fellows' questions arose on topics with which I had enough familiarity to comment. One Fellow at a four-year liberal arts college was participating in his mathematics department's effort to propose a new mathematics course for non-majors, what many term "Math for Liberal Arts." At UW-Milwaukee where I did my Ph.D. work, the mathematics department had begun such a course several years ago in response to the high failure rate in the college algebra course. That course included topics like Euler circuits and elementary graph theory with applications, some linear programming, and some basic probability and statistics. Other responses to the entire list featured titles of texts he and his colleagues might consider and offers of syllabi for current courses in the same vein which could prove useful.

Another Fellow at a small state university asked what others of us were using as a software supplement in teaching a mathematical statistics course. I mentioned my use of SPSS 6.1 for Windows, and that it was helpful to prepare a couple of brief handouts on how to get started. I outlined my handouts for him that I gave to my students; I certainly hope that saved him some extra work.

One of the 94–95 Fellows changed institutions beginning this academic year and wanted opinions on the viability of installing Linux and using PC TeX on her PC at her new school. She indicated that she would not have unlimited access to a mainframe and wanted to circumvent that difficulty. (Linux is much like the Unix operating system; it gives ordinary PC's much of a mainframe's multitasking performance and makes working with foreign Unix machines via the Internet easier.) I relayed to her the problems a friend of mine had at Saint Leo getting Linux configured properly, and that she might need to repartition her hard drive first. I made an attempt to install Linux, too, without success. I indicated that she could check into a newsgroup for Linux users to post questions if she needed help, as she did not know of anyone at her new institution who could answer any questions about it.

As one can see, the time saved through the help of others on a daily basis is crucial to one's success early in a career. Adjusting to a new school and/or new courses to teach, and perhaps getting used to teaching a full-time load (12 hours, for most of us), are typically quite stressful; Project NExT does much to alleviate that pressure. Not only do you get answers which speed your own progress, but you know that you are not alone, which is some comfort as well.

SUMMER MATHEMATICS PROGRAM FOR WOMEN

Each of the previous two summers, Carleton and St. Olaf Colleges have jointly hosted an enrichment program, funded by the National Science Foundation and the National Security Agency, for eighteen mathematically-talented first- and second-year undergraduate women. By introducing them to new and exciting areas of mathematics that they would not see in a standard undergraduate curriculum, by increasing their use and awareness of the computer for everyday communication and computation, and by honing their skills in writing and speaking mathematics, the program leaders endeavor to excite these women to pursue advanced degrees in the mathematical sciences. More importantly, they hope to increase each woman's confidence in her own abilities and to connect them all into a supportive network to carry them through their undergraduate and graduate education.

This past summer's intensive four-week program offered courses in Algebraic Coding Theory (Laura Chihara, St. Olaf College) and Applied Functional Analysis (Tamara Olson, Michigan Technological University). Besides their coursework, participants partook of a variety of mathematical events: panel discussions on graduate schools and careers, colloquia on a variety of topics (highlights this year included talks by Mary Ellen Rudin, Joe Gallian, and Marge Murray), recreational problem-solving, instruction in mathematical software and Internet use, and a trip to the Geometry Center in Minneapolis. The mathematical part of the program was balanced with optional weekend events including canoeing, hiking, tie-dying, and tubing.

Past participants (through program evaluations and the list server set up for their correspondence) report increased facility with mathematics, bolstered self-confidence, and new or renewed excitement toward mathematics.The program is funded through the summer of 1998; if you have first- or second-year women students whom you think would benefit from a demanding, invigorating month-long exposure to mathematics next summer (June 29 – July 27), please refer them to our web page at http://www.mathcs.carleton.edu/smp or have them contact Deanna Haunsperger at Department of Math/CS, Carleton College, Northfield, MN 55057; dhaunspe@mathcs.carleton.edu.

Deanna B. Haunsperger and Stephen F. Kennedy, Carleton College

Mary Ellen Rudin and students at summer math program

WOMEN IN MATHEMATICS: part II of III

We now deal with the second issue.

2. Encouragement

KL: Female students are just as capable as male students. But how can their talent be teased out to make them realize that studying mathematics is worthwhile? Should there be single-sex classes in coed schools? Should there be extra encouragement and guidance from teachers and senior scientists? Unfortunately, at this stage there are not many women senior scientists available to be mentors to female students. But do men feel comfortable mentoring female students?

DT: Encouragement plays an important part not only in making a choice but also in succeeding in that decision.

I have always had a great love of mathematics. At an all-girls school in South Africa, I was taught by two excellent women maths teachers and encouraged to do an additional maths course for year 12.

I chose to do a B.Sc. at university. When the time came to decide my subjects, the professor remarked that I might find maths rather difficult. That was the challenge, and I made the decision to study mathematics. In my honors year at the University in Johannesburg, I was one of eight women and only two men students — rather unusual. There I was encouraged to excel. The reward, if I came "top," being a junior lectureship. I can recall working around the clock towards those final exams, and in the end was awarded a scholarship to Oxford where I completed the degrees of Master of Science and Doctor of Philosophy in Mathematics.

As one of only a handful of women students among over a hundred postgraduates studying mathematics in Oxford, I was in a definite minority. My supervisor, also a woman, took me on as her first Ph.D. student. I had no encouragement from her whatsoever. We met weekly for an hour, and I dreaded the encounter. As well, I had met a fellow South African medical doctor doing further research, and this liaison was frowned upon.

However, I completed my doctorate within three years and got married as well. These days my supervisor and I are on very good terms. Perhaps the years have softened us.

I now lecture mathematics to second- and third-year engineering students. Twenty-three percent of engineering students are women. I believe they do need role models. In choosing a career, surely it makes a difference if a female student is encouraged by her teacher or sees other women achieving in her field. I specifically target the women students in my classes when I ask questions. They frequently know the answers, but it is more often the males who "call out" if I do not target the question specifically. This is easier in my third-year class of 100 students than the second-year one of 200. I encourage them all to aim for the top. One should never be satisfied with a mediocre result.

Last year a special scheme was initiated by the University of Melbourne whereby year 12 students who have achieved in mathematics are offered the chance of doing the advanced first-year university maths course. I was one of the lecturers participating in the scheme and immensely enjoyed teaching four very talented and enthusiastic girls. At this time there were no bonus points for passing. Their interest in mathematics and enjoyment of a challenge provided enough reason. I encouraged them at all times even when their CATS were weighing heavily on their shoulders. They all passed.

KL: I was never extended enough at school. When I'd gone ahead and done all the problems, I got bored, I started talking, and then I was reprimanded. I cannot remember ever being given extra work. I often asked questions which the teachers could not answer — I think the teachers were intimidated. These were women teachers — but not mentors! Despite all these things, I wanted to go on with maths. I had known this since I was about 13. I was good at it and very interested. There was never any question about my going on from my family — learning and knowledge were always most important — I was even excused from household chores if I had homework!

After my school years, when I got to university and heard about all the opportunities I had missed — such as maths camps and special scholarships —

A Public Lecture given at the Department of Mathematics, University of Melbourne, Parkville, Victoria, Australia on August 18, 1994 by Susanne Irvine, Kerry Landman, Christine Mangelsdorf, and Doreen Thomas

I felt very resentful towards the school. I think schools should know what is available to talented students. During my four years of Science Honors degree, I had no women lecturers, but there was quite a large number of women students. I just happened to mix with the men, but I did not really think about the gender of my companions. I can't remember ever making a conscious decision about whether I was or wasn't going to do a Ph.D., and I do not remember being actively encouraged to go on by the university staff. I felt I was following a natural path going on to my Ph.D. — I know this sounds odd. Despite all this, I did think about giving up working for my Ph.D. — research can be very frustrating, and it is difficult to see where you are going and what is expected. At different times while working, I thought about doing something else and branching out. I tried working for the EPA, thinking I might get involved with science policy. Over the years I have learnt that I need variety in a job. I don't enjoy just doing research or just teaching, I need a balance, which I think I have in this position now.

I never missed women peers. In all the jobs I've had, the faculty or managers were male, and I always had people taking an interest in what I did. I think all people need others to take an interest in their work — but to me it did not matter whether these peers or mentors were male or female.

CM: From an early age, I loved maths and was encouraged to do maths by my parents and teachers.

In years 7–10, I attended an all-girls school where I had many keen enthusiastic female maths/science teachers who actively encouraged girls to do maths and science. Our maths classes were streamed and students were encouraged to do work at their own pace. Bright students were extended beyond their year level. In year 10, I was given the opportunity to teach a few maths classes, and I spent nearly all of my time in maths classes helping other students. My school had a youth tutoring youth scheme where year 10 students tutored year 7 students in all subject areas. Students were encouraged to attend a one-day conference on women in maths and science. At the conference we discussed career opportunities for maths and science graduates, met women who worked in many of these areas, met other girls who were interested in maths and science and participated in practical workshops. With all of these positive experiences in year 7–10, many girls enjoyed maths and chose to do maths 1 and 2 in year 11. In fact, there were equal numbers of males and females in the maths 1 and 2 class when the school became coed in year 11.

Apart from the usual problems of adapting to having boys in the class, I had some very negative experiences in year 11 due to the unorthodox teaching methods of my year 11 maths teacher. He would give maths tests on anything in the course without warning, sometimes five classes in a row. He publicly humiliated students by making you collect your maths test from the front of the class where he announced your test result and passed judgment on your performance. He also made you solve maths problems on the blackboard; if you couldn't do the question you would have to stand there until someone helped you out. Some days, he would not say a word for the entire class but would write continuously on the blackboard. The overall effect of these teaching methods was that girls hated maths classes and were often in tears. They became unsure of themselves in maths, and this lack of confidence carried across to other subjects. However, the boys were not affected by this type of teaching — maybe they were used to these teaching methods from earlier years, who knows. As for me, although I hated maths classes with this teacher, my love of maths was enough to keep me going.

This same teacher also had different rules for students wanting to do pure and applied maths in year 12. He encouraged boys with marks above 60% to do pure and applied, whereas he discouraged girls from doing pure and applied even when they got above 90%. He said that girls would find it difficult, they would struggle, they would get better marks in biology or psychology, it was a boys' subject and they didn't need pure and applied for their future careers. I was furious when he tried to offer me this advice, and his attitude only made me more determined to do pure and applied. Unfortunately, all the other girls, who already lacked confidence in their maths abilities, listened to this advice. As a result, there were 12 boys and 1 girl (me) doing pure and applied maths in year 12. In a way, this teacher had given me the extra motivation I needed to succeed in maths in year 12 and right through university. I had to prove this teacher wrong by showing him that girls could do maths and they could do it well.

My experiences in year 12 maths was vastly different from year 11. Not once did I feel uncomfortable being the only girl in the class with a male teacher. My year 12 maths teacher actively supported girls doing maths and encouraged us all to

succeed in maths. All of the guys were friendly and supportive and treated me as their equal. The lack of female peers was not an issue as I had daily contact with girls in other subjects. I am sure that those girls who did well in year 11 despite the poor teaching would have done well at pure and applied in this positive working environment. Fortunately, some of these girls were prepared to give maths another chance at university. For example, one of these girls pursued maths at university, bridging pure and applied in first year, and is now teaching VCE maths.

At university, my first year maths lecturers and tutors were keen enthusiastic people who obviously loved maths. It didn't matter that they were male and that I had only one female lecturer, Kerry, during my whole Science degree (and even that was only for one term). The important thing was being exposed to people who loved maths and having someone who took an interest in my career.

I became very interested in chemistry at university, and I wanted to study both chemistry and maths through to honors level. One of the professors took an interest in my career and talked to me from second year onwards, helping me plan a course that combined chemistry with maths. This led to me doing applied maths honors with a research project in theoretical colloid science. I enjoyed the coursework and research project, although I found the continual emotional ups and downs that research brings difficult to handle.

At the end of honors, I decided to do a Diploma of Education. I had always wanted to teach maths, and I had never considered doing anything else. My supervisor was not happy with this decision, as he felt I had the potential to do a postgraduate degree and lecture at a university one day, so he made me apply for a scholarship to do a masters. When I was offered a scholarship, he harassed me until I deferred the Dip. Ed. and enrolled in a masters degree. He continued to harass me until I converted the masters into a Ph.D. some nine months later. My research went well, and I was able to take tutorials which satisfied my teaching desires. I have no regrets that I did a Ph.D. instead of a Dip. Ed., although at the time I felt like I was being bullied into something I did not want to do. Now, I am very glad my supervisor went to such an effort to make sure I pursued maths further, as doing a Ph.D. was the best option for me, and I would never have done a Ph.D. if it had not been for his insistence that I could achieve higher goals.

For the first time I really felt the lack of women in the maths department. I was the only female postgraduate student, there were no female postdocs, and there were only two female lecturers whom I had no contact with, and so I felt very isolated. Apart from this lack of female peers, everything went well with my Ph.D. until I got married and had a child.

SI: The level of encouragement that I have received has taken two levels.

At school I was generally greatly encouraged, and my talent was recognized. Most teachers were aware that the greatest negative to this was boredom and therefore gave me room to move at my own pace. They extended my knowledge and interest in mathematics by sending me to task forces; these were weekly sessions attended by one or two students from each of the local schools and generally involved looking at the more abstract sides of mathematics. I therefore strongly believe that every school should be aware of the resources and extracurricular activities that are available within their area so as to be able to cope with students of all levels. Although it was strongly suggested to me that I should consider moving to a selective school, I had no desire to change schools, and it is a credit to my high school that they did their best to accommodate me.

At university I thrived on the challenge; no longer was I in the minority, as there were many students around me better at mathematics than myself. As a result, entering university basically ended my encouragement phase, and in my undergraduate years I received little or no encouragement. I guess what got me to the postgraduate level was my drive to go on in mathematics, and possibly the fact that my two closest female friends at uni studied mathematics up to the end of honors. In fact we were the only three female students in that honors year.

Currently I am carrying out research towards a Ph.D. in the field of operations research, looking at reliability constraints applied to reservoirs and other such control systems, and find the support and enthusiasm of my supervisor a great asset through the highs and lows that are associated with postgraduate studies.

As to the issue of female role models, for myself, it has never been a great issue. As an undergraduate I essentially viewed my lecturers as sexless. I was more concerned with their talent rather than their

sex. When I started honors in this department and became more aware of the members of staff, I must say that I was greatly surprised at the lack of females in academic positions.

MAA W&M GRANTS

With funding from the National Security Agency, the Mathematical Association of America provides planning grants to college and university faculty for projects that encourage girls and young women to study mathematics. These grants are administered under the guidance of MAA's Women & Mathematics (W&M) Program. Five grants of up to $2500 in matching funds will be awarded for activities such as visits to successful programs, feasibility studies, and pilot projects, to take place by the end of the 1997–1998 academic year. The deadline for proposals is **February 14, 1997**.

An announcement detailing program objectives, submission procedures, and proposal evaluation criteria is available at http://www.maa.org or from the Member Services and Programs Department, Mathematical Association of America, 1529 18th Street NW, Washington, DC 20036; (202) 387-5200; email: programs@maa.org.

AWM AT SEATTLE

On Monday, August 12, 3-4 P.M., Karen Smith of MIT and the University of Michigan gave the AWM address on "Calculus mod p." The talk was well-attended, lively, enjoyable and understandable to the audience, who were mostly non-specialists. A very strong young algebraist who has had her Ph.D. for only three years, Karen has already distinguished herself by her outstanding abilities in teaching, speaking and (of course) research. Karen, who holds a tenure-track position at University of Michigan at Ann Arbor, spent the last two years at MIT.

Sylvia Wiegand, AWM President-Elect, University of Nebraska

An informal AWM breakfast was held in the dormitory Monday morning; about sixty people attended. As usual the AWM had a table in the exhibit area.

The Seattle MathFest was itself quite well-attended, with about 1000 participants.

HORIZONS

Women In Defense established the Horizons Foundation to encourage women to pursue careers related to the national security interests of the U.S. and to provide development opportunities to women who are already working in national security fields. The scholarship program is intended to provide financial assistance to further educational objectives of individuals either employed or planning careers in this area. The value of each Horizons scholarship will be no less than $500.

Applicants must meet the following criteria: 1) Be currently enrolled at an accredited university or college, either full- or part-time. Undergraduates who have attained at least junior level status (60 credits) and graduate students are eligible; 2) Demonstrate interest in pursuing a career related to national security; 3) Demonstrate financial need; 4) Have a minimum GPA of 3.25; and 5) Be a U.S. Citizen. Recipients of past awards may reapply.

The Foundation focuses on the following preferred fields of study for awarding scholarships: engineering, computer science, physics, mathematics, business, law, international relations, political science, operations research, and economics. Others will be considered if the applicant can successfully demonstrate relevance.

Completed applications including recommendations, financial reports and transcripts must be received no later than **November 1** for the Spring Semester and no later than **July 1** for the Fall Semester. Applications should be sent to: WID Horizons Foundation, c/o ADPA, 2101 Wilson Boulevard, Suite 400, Arlington, VA 22201-3061; phone: 703-247-2552; fax: 703-522-1885.

For additional information and applications, contact the Scholarship Director, Woody Lee at william_j_lee@ccmail.eo.ray.com or 703-416-5830. The application may also be downloaded via the url http://www.adpa.org/wid.

SCIENCE TESTIMONY

Mr. Chairman, members of the Committee, I appreciate the opportunity to be a part of this panel and testify before you this morning. I am Dr. Richard N. Zare, Marguerite Blake Wilbur Professor of Chemistry at Stanford University. In addition, I am also the Chairman of the National Science Board, the policy-making body of the National Science Foundation, which among other tasks is charged with focusing national attention on major issues with respect to science and engineering research and education.

I appear here today principally to discuss my role and my research on the Martian meteorite ALH84001 that is the topic of this hearing. In addition, I hope to convey how important it is to maintain a strong national research enterprise so that we can respond to tomorrow's challenges and opportunities in science and engineering, wherever they may occur.

I have led the Stanford University research group of Simon J. Clemett, Claude R. Maechling, and Xavier D. F. Chillier that looked for organic molecules in ALH84001. Using an invention of ours called microprobe two-step laser mass spectrometry we have searched for a class of organic molecules called polycyclic aromatic hydrocarbons (PAHs). Such molecules commonly occur in the incomplete combustion of organic molecules, such as what comes out of a diesel exhaust engine, or what is found in the sooting flame of a candle, or what is found on the surface of meat that has been left on the barbecue too long. It is also a telltale sign of the fossilization of animal and plant life, as observed in oil and shale deposits. Let me also emphasize that PAHs can be produced by processes having nothing whatsoever to do with life, such as passing methane gas over hot metal or in running discharges in a hydrocarbon atmosphere. Although somewhat different distributions of PAHs result from these processes, the identification of PAHs themselves is not proof that they came from some biological origin. I will return to this point later.

In our procedure, the meteorite sample is cleaved with a stainless steel knife blade and transferred into a high vacuum chamber for analysis in less than three minutes exposure to the laboratory air. Under visualization with a microscope, a pulsed infrared laser beam is fired at the sample, which heats a small spot of the sample surface that is approximately 40 microns in diameter. For reference purposes, the diameter of a typical human hair is about 100 microns. The heating rate is rapid and causes molecules in the focal spot of the laser to evaporate and leave the surface.

This rising gas plume of evaporated molecules is intercepted by a second pulsed laser beam whose wavelength is in the ultraviolet. Those molecules in the gas plume that absorb these more energetic photons go on to ionize. In the ionization process, an electron is knocked off the neutral molecule and flies away, leaving the molecule as a positively charged molecular ion. Different molecules produce ions with different weights or masses. The ions are produced between two metal screens held at different voltages. The resulting electric field between the two screens exerts a force on each ion of the same amount because the charge on each ion is the same. Recall that according to Newton's second law of motion, force equals mass times acceleration. Consequently, ions with differing masses receive differing accelerations from being born in the electric field. As a result, lighter ions hit an ion collector in a shorter time than heavier ions.

By recording the arrival times of the ions at the ion collector we are able to weigh the different ions, that is, to determine their mass distribution, which is called a mass spectrum. The laser vaporization and the laser ionization steps are gentle so that the ions stay intact. Consequently, by measuring the mass spectrum we are able to identify what molecules are present in a mixture without the usual need to separate the mixture into its substituent components prior to analysis. By scanning the location of the spot irradiated by the pulsed infrared laser, we can map out the spatial distribution of the molecules on the surface of the meteorite sample.

By this means we have found that PAHs are present in the Martian meteorite ALH84001, that they are more concentrated on the inside than the outside of this meteorite, and moreover, their concentration peaks at the same place where, as you have heard from Dr. David S. McKay, the NASA Johnson Space Center team found mineralogical and morphological features that suggest the presence of some primitive life forms. It seems to us well

Testimony of Dr. Richard N. Zare, Stanford University, before The Subcommittee on Space and Aeronautics House Science Committee, U.S. House of Representatives September 12, 1996. This is a great illustration of what science is and how it works.

established that the PAHs we find in ALH84001 are indigenous to this meteorite. Moreover, they seem to be intimately associated with the carbonate globules for which isotope data suggest a temperature of formation between the freezing and boiling points of water. If the PAHs formed at the same time as the carbonates, then it would seem improbable that they had an abiotic or inorganic origin. Because the concentration of organics in ALH84001 seems rather high, it also seems unlikely that they were preferentially adsorbed by the carbonates from Martian groundwater. All observations taken together suggests that some primitive type of life existed in this meteorite at the time of the carbonate formation, which is estimated to be about 3.6 billion years ago.

Let me interrupt this narrative to tell you how the device we call microprobe two-step laser mass spectrometry came about. More than twenty years ago in the Department of Chemistry, Columbia University, I was trying to understand chemical reactions in the gas phase, one collision at a time, under the support of the National Science Foundation. I had heard from Professor Philip M. Johnson, State University of New York at Stony Brook, about a new spectroscopic technique for making molecules gulp down more than one photon at a time and ionize, so-called resonance enhanced multiphoton ionization. We were one of the first research groups to apply this method to the study of chemical reactions under molecular beam conditions. Because you can count individual ions, its sensitivity met the challenge of looking at those rare collisions between reagents that went on to react. About ten years ago at Stanford University I had the idea that we could use the same technique to look at those molecules that cover a surface. The original motivation was to look at biological molecules in hopes of making a more sensitive analyzer for the sequence of amino acids present in proteins. It was only a chance encounter with a person spending a sabbatical in Stanford University's School of Earth Sciences, Professor Peter R. Buseck, who holds joint appointments in the Departments of Chemistry and Geology at Arizona State University, that convinced me that it would be interesting to study meteoritic samples. The time of four Ph. D. theses would need to elapse before this technique matured to its present state, providing excellent training to those graduate students brave enough to pursue this line of inquiry, a project that has been supported by NASA but uses NSF-purchased laser equipment.

I share with you this tortuous history because I believe it is fairly typical of how science advances. Our two-step laser mass spectrometer was not originally built to search for past life on Mars. Clearly, it now has that capability, but like all advances in instrumentation, it does have a multitude of other uses, some of which may be much more directly relevant to mankind's welfare. The point I am trying to make is that the power of investing in frontier instrumentation is that its applications have a way of expanding with time so that such advances can bring important economic and health benefits as well as help us explore the unknown.

This summary of my research points to a number of issues that I think are extremely important for Congress to consider. Perhaps the most significant underlying lesson is the value of consistent, long-term support for basic research, to provide the nation with the tools and the trained human resources necessary to take advantage of — and benefit from — unanticipated research developments. The Nation receives maximum benefit from a healthy and well-balanced scientific enterprise having the flexibility and nimbleness to respond to opportunities and challenges as they occur.

The basic science and engineering contributions that permitted us to conduct meaningful research on this meteorite come from many disciplines, including geology, astronomy, chemistry, molecular biology, physics, paleontology, and materials science. The contributions made over the years by researchers in these areas have in common the fact that the ultimate value of the research could not have been anticipated at the time the research was conducted. That is not at all surprising. The basic nature of scientific investigation is exploration, and the value of exploration is learning things that were not previously known.

When the original investigations began that resulted in the development of the laser, which was crucial to my research, no one dreamed that it would be used some day for probing for possible evidence of primitive life on early Mars, much less that it would have myriad applications in medicine, data storage, communication, engineering, and manufacturing.

Similarly, when the National Science Foundation became responsible for the single-point management of the United States Antarctic Program 20 years ago, who would have thought that the Antarctic would provide important information about

another planet! At the time, no one fully realized that the Antarctic would prove to be a treasure trove of research opportunities, including a rich source of meteorites. Nearly half of 16,000 meteorites so far found on Earth have been retrieved in the Antarctic. Although meteorites do not seem to strike Antarctica with unusual frequency, they do stand out against the bluish-white Antarctic ice. In addition, the frigid climate preserves the rocks from weathering and breaking down into soil.

But the annual expeditions for meteorites represent only a small portion of the research supported by the Foundation in the Antarctic. Other activities include atmospheric research at one of the most isolated and pristine locations on the planet. Because of the low temperatures and dry air, the Antarctic also provides a unique platform for infrared and submillimeter astronomy observatories. Finally, the Antarctic provides a unique site for research in astrophysics, glaciology, global climate change, and, perhaps most relevant to this hearing, an understanding of life forms that exist in very extreme environments — a topic that I believe deserves increased attention.

Researchers have recently found life forms that actually live inside of rocks in the Antarctic. Other extreme environments have also yielded living microorganisms, including temperatures well in excess of boiling water, and under atmospheric pressures many hundreds of times that at sea level. Finding life in conditions that would have seemed unthinkable twenty years ago at the time of the Viking missions to Mars is one of the reasons it made sense to look for life forms in a meteorite.

These discoveries have extended our understanding of life and the conditions under which it can occur to include other planets and their moons in the solar system. They have also generated knowledge and techniques that hold great promise for addressing practical problems on this planet Earth, such as in genetics, biochemistry, environmental clean-up, and resource recovery, to name but a few.

The message I would like to leave with this committee today is that the research we have undertaken to understand whether life once existed on Mars is only the most recent in a long line of inquiries into a multitude of fundamental questions. These questions range from planetary astronomy to molecular biology. We have traveled this road only as far as we have because those before us have had faith in the ultimate value of new knowledge, even when its immediate utility may not have been apparent.

Mr. Chairman, I know that you and your colleagues on this committee have been strong supporters of federal funding for research. I commend you for these efforts and hope that you will continue to impress upon your colleagues the importance of broad-based support for research for our future well-being.

The research that has led us to suggest that we might have uncovered fossilized remains of life on ancient Mars could not have been done were it not for contributions across many areas of science and technology. Nor could we have been successful without the contributions, ideas, and assistance of my colleagues and especially my students. This research endeavor has been one of the most exciting, yet humbling, activities that I have had the privilege to be associated with.

Thank you again for this opportunity to testify, and I would be pleased to respond to any questions that you might have.

NCGS PUBLICATIONS

The National Coalition of Girls' Schools has three new publications available. The *Girls & Technology Video* aims to spark discussion, offer new approaches, raise critical questions, identify some of the challenges and, most importantly, move educators and parents to action as they seek to strengthen the engagement of girls in technological experiences and careers. A 20-page booklet, *Girls & Technology Resource Guide*, is also available. It responds to questions such as: What is the culture that surrounds technology? How do girls relate to technological objects and careers? *Dads and Their Daughters: Father-to-Father Strategies* is six essays written by and for fathers of school-age daughters. Fathers discuss ways to share meaningful time with their daughters by getting involved, playing sports, volunteering at school, and pursuing interests and hobbies. Each essay is accompanied by hands-on tips and suggestions.

For more information, contact: The National Coalition of Girls' Schools, 228 Main Street, Concord, MA 01742; phone: 508-287-4485; fax: 508-287-6014; email: ncgs@ncgs.org.

FELLOWSHIPS AND GRANTS

Charles Phelps Taft Fellowships of three types are available from the University of Cincinnati: Postdoctoral Fellowships ($30,000 stipend), Graduate Fellowships for Minority Students and Graduate Fellowships for Graduate Study. Postdoctoral Fellowships are for scholars who have demonstrated unusual ability for creative research and who have received the Ph.D. within the past five years or who will have completed all the requirements for the degree by September 1 of the fellowship year. The Minority Fellowships are awarded to underrepresented minority students who are beginning graduate study. Application deadlines are **January 15, 1997**. For more information, contact: Taft Fellowships, M.L. 0037, University of Cincinnati, Cincinnati, OH 45221; email: martha.hart@uc.edu.

The National Research Council plans to award approximately twenty Ford Foundation Postdoctoral Fellowships for Minorities. The program is open to citizens of the U.S. who are Native American Indians, Alaskan Natives (Eskimo or Aleut), Black/African Americans, Mexican Americans/Chicanos, Native Pacific Islanders (Micronesians or Polynesians), and Puerto Ricans. Candidates should be engaged in or planning a teaching and research career and should have held the Ph.D. or Sc.D. degree for not more than seven years. The deadline for submissions is **January 3, 1997**. For more information, contact: Fellowship Office, TJ 2039, National Research Council, 2101 Constitution Ave., Washington, DC 20418; email: infofell@nas.edu; WWW: http://fellowships.nas.edu; phone: 202-334-2872.

The Office for Central Europe and Eurasia of the National Research Council, the operating arm of the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, offers grants to individual American specialists who plan to establish new research partnerships with their colleagues from Central/Eastern Europe (CEE) and the Newly Independent States (NIS). This program is designed primarily to prepare these new partnerships for competition in NSF programs. Short-term project development grants (two-week visits; $2,200–$2,500) and long-term grants (one to six months; $3,000–$15,300) are available.

Deadlines vary from **December 30, 1996** to **August 11, 1997**. For more information and application materials, contact: Office for Central Europe and Eurasia, National Research Council, 2101 Constitution Avenue NW, Washington, DC 20418; phone: 202-334-3680; fax: 202-334-2614; www: http://www2.nas.edu/oia/22da.html; email: ocee@nas.edu.

TEACH FOR AMERICA

Teach For America is the national teacher corps of recent college graduates from a diversity of cultural backgrounds and academic majors who commit two years to teach in urban and rural public schools and who serve as life-long advocates for equity and excellence in education. Since 1989, over 20,000 individuals have been inspired to apply to the program, and over 4,000 corps members have been placed in thirteen regions across the country.

An acute need in the school districts served by Teach For America is for individuals with a background in mathematics. This need is coupled with a need for women mathematicians to serve as strong role models for middle and high school girls in the field of mathematics.

For more information, contact Teach For America, 20 Exchange Place 8th Floor, New York, NY 10015; phone: 212-425-9039; fax: 212-425-9347. Teach For America is a member of the AmeriCorps National Service Network.

1997 BARRETT LECTURES

The 1997 Barrett Lectures will be delivered at the University of Tennessee, March 20–22, 1997, on the topic "Control Theory and Applications." E.B. Lee, University of Minnesota and Irena Lasiecka, University of Virginia will be the principal lecturers. In addition to several invited lectures, there will be a limited number of contributed talks. Suzanne Lenhart, University of Tennessee, is the organizer. For further information, contact her at lenhart@math.utk.edu or 423-974-4270.

MORE AWM AT SIAM NEWS

"From a Polish Space to the Land of Oz"

Professor Bozenna Pasik-Duncan, University of Kansas, was the keynote speaker at the AWM dinner banquet, Monday, July 22, 1996. The abstract for her talk follows:

> The lecture focuses on the challenges faced by a woman mathematician moving from Poland to Kansas. It shows how she balanced Polish and American mathematical cultures and how she balanced career and family life in two different cultures. The excitement of studying and doing applied mathematics, in particular stochastic theory-adaptive control and its applications, is shared. The lecture addresses how all mathematicians can make an important change in the modern world, and it describes how the students in America have made this Polish mathematician happy.

Bozenna Pasik-Duncan, University of Kansas

Alice T. Schafer Mathematics Prize

The Seventh Annual Alice T. Schafer Prizes were presented by Professor Joyce McLaughlin, Rensselaer Polytechnic Institute. The citations for the winners appeared in the July–August issue of this newsletter. We print the responses of these talented young women below.

Ioana Dumitriu, Schafer Prize Winner
Courant Institute of Mathematical Sciences,
New York University

To my regret I am unable to attend the award ceremony [in Kansas City, Missouri, July 22, 1996]. I have thus to express my gratitude to all those who made this moment possible in writing. I am not with you physically, but my letter is, and I hope that these words will compensate for my absence.

First, I want to thank the AWM for the honor you have bestowed on me by choosing me as the winner of the 1996 Alice T. Schafer Prize. I hope that in the years to follow I will continue to meet the high standards this prize establishes for me. I want to deeply thank all those who believe that I can become a mathematician. Their confidence in me has helped me pass through difficult moments as well as to enjoy the happy ones. I want to thank all those who have taught me Mathematics, both inside and outside the academic system. I hope that one day I will repay their efforts by letting the dreams they have for me come true. And last, but by no means least, I want to thank my parents for always supporting my dreams and all my friends for being there when I needed them.

Karen Ball, Runner-up
Grinnell College (AY 95–96), University of California, Berkeley (AY 96–97)

I am very honored to be in such distinguished company in being recognized as a runner-up for the Alice T. Schafer Prize. I would like to thank my family for their support and the Department of Mathematics at Grinnell College for introducing me to the beauty of mathematics and for encouraging me to take advantage of all available opportunities.

Wungkum Fong, Runner-up
University of California, Berkeley (AY 95–96), Massachusetts Institute of Technology (AY 96–97)

I would like to thank the AWM for again selecting me [for the second year in a row] to be an

Margaret H. Wright, Bell Labs, SIAM President; Jim Crowley, SIAM Executive Director; Tara S. Holm, Dartmouth College, Schafer Prize Honorable Mention; Karen Ball, Grinnell College, Schafer Prize Runner-up; Joyce R. McLaughlin, RPI, AWM Workshop Organizer

awardee. I would also like to thank Mr. Thomas Rike, Professor Mariusz Wodzicki, Professor Alexandre Chorin, and the many other great teachers who have encouraged me to study mathematics.

Tara S. Holm, Honorable Mention
Dartmouth College

It is a great honor to be recognized with an honorable mention to the Alice T. Schafer Prize. Like most of us, I have noticed a sharp decrease in the number of my women classmates in mathematics, from elementary school through college. And so the Alice T. Schafer Prize is a reminder that passion for mathematics is still alive among my peers. I would like to take this opportunity to thank the AWM, Kenneth P. Bogart, Thomas Sundquist, George Rosenstein, and all my other teachers and advisors for their help and encouragement.

AWM Workshop

As reported by Joyce McLaughlin on page four, the Workshop was very successful. Below we list the titles of presentations and posters from the various sessions.

AWM Minisymposium on Inverse Problems

Organizer: Changmei Liu, University of North Carolina

"Computing Resolution for Large Seismic Inverse Problems," Susan E. Minkoff, University of Texas, Austin

"Uniqueness of Scattering Cross Sections from B.V. Data," S.K. Patch, Stanford University

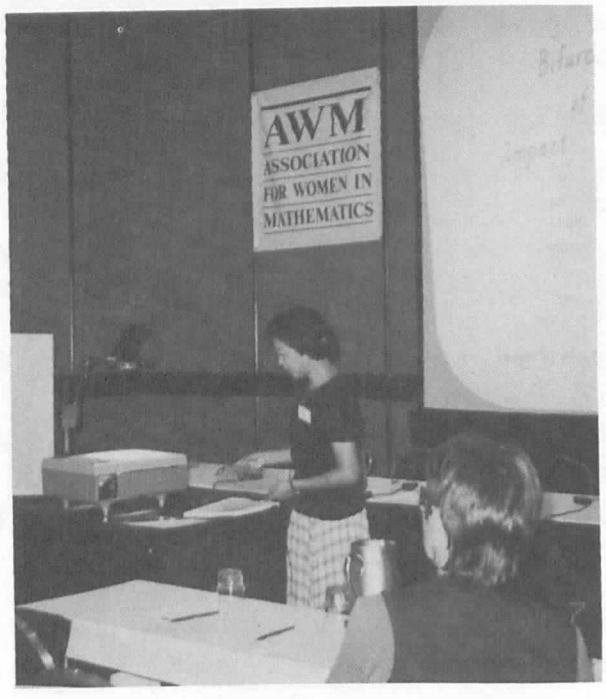
"An Inverse Problem in Elastodynamics," Lizabeth V. Rachele, University of Washington

"Inverse Obstacle Problem," Changmei Liu, University of North Carolina

AWM Minisymposium on Applications of Control Theory

Organizers: Mary Ann Horn, Vanderbilt University and Suzanne Lenhart, University of Tennessee

Wendy Brunzie, Montana State University



Wai Chin, IMA, University of Minnesota

"Optimal Control of a Predator-Prey System," Renee Fister, University of Tennessee, Knoxville

"Modeling and Estimation of the Dynamic Mechanical Behavior of Elastomers," Nancy J. Lybeck, North Carolina State University

"Identification for Fourier-Neural Recurrent Networks," Renee B. Koplon, Wright State University

"Control of Shells," Christine A. McMillan, Virginia Tech

AWM Minisymposium on Geometric Methods in Dynamical Systems I

Organizer: Kathy Alligood, George Mason University

"A Discontinuous Dynamical System on a Non-Compact Space: What Will Reality Think Up Next?" M. W. (Wendy) Brunzie, Montana State University

"Grazing Bifurcations in Impact Oscillators," Wai Chin, IMA, University of Minnesota

"Representations for Systems of Weakly Coupled Limit Cycle Oscillators," Jody Sorensen, Bates College

"Convergence of Solitary Wave Solutions to Compactons," Yi Li, University of Minnesota

AWM-SIAM Minisymposium on New Models and Approaches for Stochastic Phenomena in Physics and Chemistry

Organizers: Rachel Kuske, Stanford University and Malgorzata M. Klosek, University of Wisconsin, Milwaukee

"Probability Densities for Dynamics Simplified by Noise," Rachel Kuske, Stanford University/Tufts University

"Direct and Inverse Problems for Transport in High Contrast Media," Liliana Borcea, Stanford University

"Diffracted Rays, Boundary Layer Theory and the Two-Dimensional Stochastic Exit Problem," Robert S. Maier, University of Arizona

"Reflected Diffusion Plus One-Dimensional Dynamics," Malgorzata M. Klosek, University of Wisconsin, Milwaukee

AWM Poster Session for Graduate Students

"Solitary Waves and Periodic Pulse Trains in Nonintegrable Equations," Natalia Berloff, Florida State University

"Numerical Approximation of Manifolds, and Applications," Monica L. Brodzik, University of Pittsburgh

"Chaos in Discrete Dynamical Systems," Maria do Carmo Carbinatto, Georgia Institute of Technology

"BFGS with Update Skipping and Varying Memory," Tamara L. Gibson, University of Maryland, College Park

"Equilibria of Spherical Charge Distributions," R. Clarissa Howison, University of Cincinnati

"Stability Estimates for the Two-Dimensional Inverse Conductivity Problem," Lianfang Liu, University of Rochester

"A Parabolic System of Partial Differential Equations with Hysteresis," Laura Lochhead Rock, University of Texas, Austin

"An Age Structured Two-sex Population Model," Maia Martcheva, Purdue University

"The Optimal Design of Tall Columns," C. Maeve McCarthy, Rice University

"Hidden Symmetries and $D_4 + T^2$ Mode Interactions," Cindy S. Miller, University of Pittsburgh

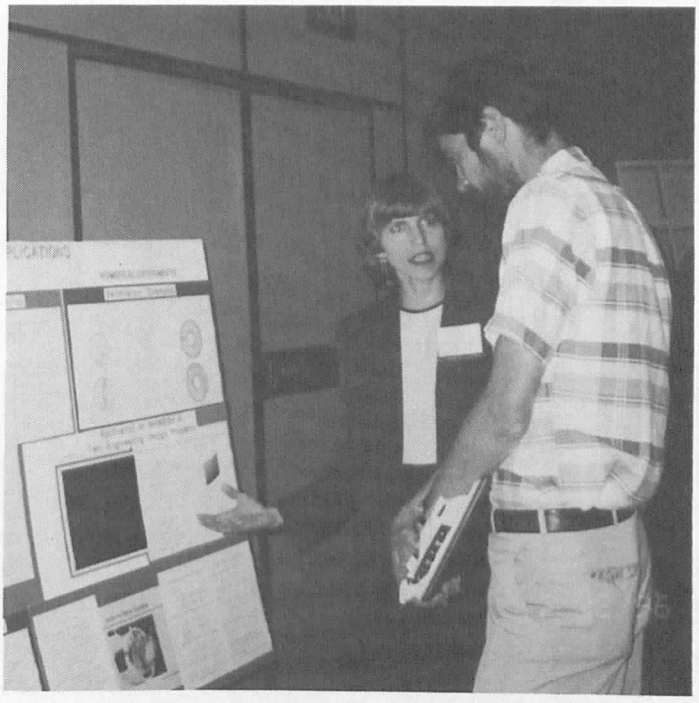
"On a Problem of Kelvin for Domains with Rough Boundaries," Dorina Mitrea, University of Minnesota

"Parameter Estimation and Noise Smoothing of the Lorenz System," Sharon Moulden, George Mason University

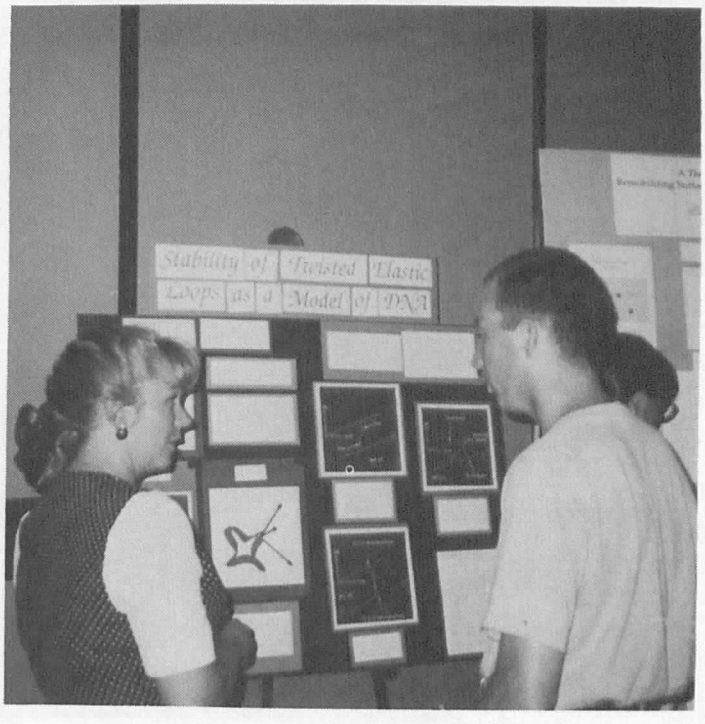
"Stability of Twisted Rods," Kathleen A. Rogers, University of Maryland, College Park

"Theoretical Study of Surfactant Effects on Rising Gas Bubbles," Yanping Wang, New Jersey Institute of Technology

"Portfolio Selection for Tracking a Fixed-Income Index," Katherine Wyatt, City University of New York



Monica L. Brodzik, University of Pittsburgh, discussing her poster



Kathleen Rogers, University of Maryland, discussing her poster

Suzanne Lenhart, workshop co-organizer, University of Tennessee and Cindy S. Miller, University of Pittsburgh, at Cindy's poster

C. Maeve McCarthy, Rice University, with a crowd at her poster

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ALMA COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Alma College invites applications for a tenure track faculty appointment in Mathematics to begin Fall 1997. Candidates should enjoy teaching a wide variety of undergraduate courses and be committed to excellence in teaching. Responsibilities include advising, assisting with curriculum revisions, supervising student projects, and active scholarship. Teaching experience and Ph.D. required; specialization in Applied/ Computational Mathematics preferred. Alma College is a selective, private liberal arts college known for the quality of its programs in the sciences. To receive full consideration, applicant's file must be complete by 15 December 1996. Applications should include curriculum vitae, graduate transcripts, statement of interests, and three letters of reference, two or more of which must speak to the candidate's teaching ability. Send applications to: **M. A. Nyman, Chair, Mathematics & Computer Science Department, Alma College, Alma, Michigan 48801-1599.** Alma College's non-discrimination policy includes age, color, creed, gender, national origin, physical ability, race, religion and sexual orientation. AA/EOE.

BENEDICTINE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications invited for an anticipated tenure-track position at the assistant professor level, beginning Fall 1997. Applicants must have a Ph.D. in mathematics and should be prepared to teach a broad range of undergraduate courses. A commitment to continued scholarship, excellence in teaching in a liberal arts environment and the use of technology in the classroom is essential. Duties include 12 hours teaching per semester. Send resume and 3 letters of recommendation (at least one should address teaching excellence) to: **Chair, Mathematics Department, Benedictine University, 5700 College Road, Lisle, IL 60532-0900.** Primary consideration will be given to applications received before February 1, 1997.

BOSTON COLLEGE - DEPARTMENT OF MATHEMATICS - Assistant Professor of Mathematics - Applications are invited for a tenure-track assistant professor position in Mathematics which will begin on September 1, 1997. Under exceptional circumstances we would consider hiring at a higher level. Necessary requirements include a doctoral degree, demonstrated success or strong potential in research, and a commitment to effective teaching at the undergraduate and graduate levels. At least two years teaching experience beyond the doctoral degree are preferred. Boston College is a Jesuit university enrolling approximately 8,500 full-time undergraduate students and 4.300 graduate students. The Department of Mathematics has twenty-one full-time faculty. It grants approximately fifty B.A. degrees in mathematics, and approximately ten M.A. degrees and five M.S.T. degrees (in the teaching of mathematics) annually. Current research interests include algebra, analysis, applied mathematics, dynamical systems, geometry, number theory, probability, statistics, and topology. Applicants should submit a curriculum vitae along with a cover letter, and should arrange to have at least four letters of reference sent to the Department. At least one of the letters should focus on teaching effectiveness and potential. Send all materials to: **Search Committee, Chair, Department of Mathematics, Boston College, Chestnut Hill, MA 02167.** E-mail inquiries may be directed to: Search-MT@hermes.bc.edu. Electronic applications will NOT be accepted. Review of applications will begin on January 1, 1997, and continue until the position is filled. Boston College is an Affirmative Action/Equal Opportunity Employer.

BOWLING GREEN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department invites applications for a tenure-track position in algebra at the Assistant Professor level starting August 1997. Applicants should have the Ph.D. degree and be highly qualified for undergraduate and graduate teaching and independent research. Preference will be given to algebraists who have research programs that complement those of current faculty and are likely to make significant contributions to our active doctoral program. (See our home page; URL http://www.bgsu.edu/departments/math/) Usual duties consist of teaching two courses each semester, research, and service assignments. Applicants should send an AMS standard cover sheet, curriculum vitae, transcripts, selected preprints or reprints, and a research plan along with three to four letters of recommendation (one concerning teaching) to: **Search Committee, Mathematics & Statistics Department, Bowling Green State University, Bowling Green, OH 43403.** Applications reviewed beginning February 1, 1997 until position is filled. BGSU strongly encourages applications from women and minority candidates. AA/EOE

BRANDEIS UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for a three-year non-tenure-track position beginning September 1997. Teaching will be at both the undergraduate and graduate levels. The position requires a Ph.D. and demonstrated excellence in teaching and research. Applicants should send a curriculum vitae and a description of current research and research plans, and arrange for at least three letters of recommendation discussing research and teaching to be sent, to: **Hiring Committee, Department of Mathematics - MS 050, Brandeis University, Waltham, MA 02254-9110.** The deadline is January 8, 1997. Brandeis University is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and minority candidates.

BROWN UNIVERSITY - DEPARTMENT OF MATHEMATICS - J.D. Tamarkin Assistant Professorship - Three-year non-tenure, non-renewable appointment, beginning July 1, 1997. Teaching load: two courses per semester (6 hours per week). Applicants (regardless of age) should have received the Ph.D. degree before the start of the appointment, but no earlier than January 1, 1995. Applicants should have strong research potential and a commitment to teaching. Field of research interest will be taken into account. A curriculum vitae, a completed application form, and three letters of recommendation should be received by December 31, 1996. Requests for application forms and all other inquiries should be addressed to: **Tamarkin Search Committee, Department of Mathematics, Brown University, Providence, RI 02912.** Brown University is an Equal Opportunity/Affirmative Action Employer & encourages applications from women & minorities.

CARNEGIE MELLON UNIVERSITY - DEPARTMENT OF MATHEMATICS - Richard J. Duffin and Zeev Nehari Visiting Assistant Professorships - The Richard J. Duffin Visiting Assistant Professorship and the Zeev Nehari Visiting Assistant Professorship were established to honor Professor Emeritus Duffin and to honor the memory of Professor Nehari, both of whom had long and distinguished careers in the Department of Mathematics. Each position is available for a period of three years, beginning in September 1997, and carries a reduced academic year teaching load of six hours a week during one semester and three hours a week during the other. Applicants are expected to show exceptional research promise, as well as clear evidence of achievement and should have research interests which intersect those of current faculty of the Department. Applicants should send a vita, list of publications, and a statement describing current and planned research, and arrange to have three letters of recommendation sent to the committee. All communications should be addressed to: **Appointments Committee, Department of Mathematics, Carnegie Mellon University, Pittsburgh, PA 15213.** Carnegie Mellon is an Affirmative Action/Equal Opportunity Employer.

CARNEGIE MELLON UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - CENTER FOR NONLINEAR ANALYSIS - The Center for Nonlinear Analysis expects to make several Post-Doctoral appointments for 1997-98 in the area of applied analysis. This is a one-year (twelve-month) joint appointment by the Center and Department of Mathematics. Recipients will teach at most two courses per year. Applicants should send a vita, list of publications, a statement describing current and planned research, and arrange to have at least three letters of recommendation sent to the committee. The deadline for application is January 19, 1996; late applications may be considered on a space-available basis. All communications should be addressed to: **Post-Doctoral Appointments Committee, Department of Mathematical Sciences, Carnegie Mellon University, Pittsburgh, PA 15213.** Carnegie Mellon University is an Affirmative Action/Equal Opportunity Employer.

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CLAREMONT MCKENNA COLLEGE - DEPARTMENT OF MATHEMATICS - Claremont McKenna College invites applications for a tenure-track position in mathematics, at the assistant professor level, starting in fall of 1997. Candidates must have a Ph.D. in mathematics, demonstrated excellence in teaching across a broad range of undergraduate courses, and a productive, ongoing research program. Preference will be given to applicants whose research areas lie in pure mathematics. Claremont McKenna College is a highly selective undergraduate institution enrolling approximately 1,000 students. CMC is a member of The Claremont Colleges, which also include Pomona, Scripps, Pitzer, Harvey Mudd and The Claremont Graduate School. Collectively, The Claremont Colleges constitute an academic community of 6,000 students; their combined faculties include over 40 mathematicians. Claremont is located 35 miles east of Los Angeles. Applicants should provide a curriculum vitae, three letters of reference, and a professional statement describing their experience and philosophy in both teaching and research. Evaluation of applications will begin by December 31, 1996 and will continue until a candidate is selected. AA/EOE. Send all materials to: **Search Committee, Department of Mathematics, Claremont McKenna College, 500 E. 9th Street, Claremont, California 91711-6400.**

COLBY COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - We have a tenure-track opening in statistics beginning at the assistant professor level, commencing September 1, 1997. Ph.D. in statistics required. Colby is a small, private, highly selective liberal arts college located in central Maine about 3 hours north of Boston. The student body numbers some 1,700, the faculty 165. The Department of Mathematics and Computer Science currently numbers ten full time and two part time, all of whom have the Ph.D. We have major and minor programs in mathematics and computer science, but not in statistics. We are a young, active department, which places a high value on both teaching and research. Candidates who are able to demonstrate excellence in teaching along with research and who have some familiarity with data analysis are likely to be ranked higher in our selection process. The annual teaching load is 5 courses. The largest class size is approximately 30. The College offers research support for junior faculty, including a pre-tenure sabbatical. Colby actively encourages applications from women and minority candidates. Women candidates will also be considered for a Clare Boothe Luce Assistant Professor endowed position. We are an EO/AA employer. The salary is competitive, Send a cover letter, a current curriculum vita, and separate statements on teaching and research in hard copy to: **H.T Hayslett, Jr., Chair, Statistics Hiring Committee, Department of Mathematics and Computer Science, Colby College, Waterville, Maine 04901** (hthaysle@colby.edu). Also, arrange for three letters of reference to be sent to the same address. These letters should deal with both your research and your teaching abilities. Please include your e-mail address with your application and indicate whether you are planning on attending the Joint Mathematics Meetings on January 8-11, 1997, in San Diego. Review of applications will begin on December 1, 1996, and will continue until the position is filled. To guarantee full consideration, all application materials must be received by December 1, 1996. For more information about the College, please see the Colby web page at: http://www.colby.edu

COLLEGE OF CHARLESTON - DEPARTMENT OF MATHEMATICS - At least three tenure-track positions at the Assistant Professor level available Fall 1997. Qualifications: Ph.D. in one of the mathematical sciences, commitment to undergraduate and graduate teaching, and potential for continuing research. Preference for two positions will be given to applicants in statistics and those in some area of computational mathematics. Teaching: 9 hrs/wk normal load for those engaged in research. Salary is competitive. Send resume and have 3 letters of recommendation sent to: **Deanna Caveny, Chair, Math Dept., College of Charleston, Charleston, SC 29424-0001.** AA/EOE.

COLLEGE OF WILLIAM AND MARY - MATHEMATICS DEPARTMENT - The Mathematics Department invites applications for a tenure track assistant professorship, plus possible visiting positions, starting in August 1997. A Ph.D. in any mathematical science, together with demonstrated excellence in teaching and scholarship, is required. Preference given to candidates who interact with departmental research strengths in matrix analysis, operator theory, and operations research (see http://www.math.wm.edu). Send application letter, CV, research description, and at least three recommendation letters (at least one concerning teaching) to: **Search Committee, Mathematics Department, College of William and Mary, Williamsburg, VA 23187.** Credentials review begins on January 15, 1997 and will continue until appointments are made. We are an AA/EOE employer. Members of under-represented groups (including people of color, people with disabilities, Vietnam veterans, and women) are encouraged to apply.

COLUMBIA UNIVERSITY - DEPARTMENT OF MATHEMATICS - On the outside possibility that a Ritt Assistant Professorship may become available, the deadline for applications is January 10, 1997. Position for new Ph.D. regardless of age. One-year appointment, normally renewable for three more years. Teaching load, two courses per semester. Send vitae, (p)reprints and three letters of recommendation. At least one letter should address teaching experience. Preference will be given to candidates with research interests similar to those in the department. Please submit "AMS Application Cover Sheet" with application. First consideration will be given to applicants whose folders are complete by January 10, 1997. Send applications to: HIRING COMMITTEE, **Department of Mathematics, Mail Code 4406, 2990 Broadway, Columbia University, New York, NY 10027.** An equal opportunity-affirmative action employer.

DARTMOUTH COLLEGE DEPARTMENT OF MATHEMATICS - John Wesley Young Research Instructorship - 2-yrs., new or recent Ph.D.'s whose research overlaps dept. member's. Teach 4 ten-week courses spread over 2 or 3 quarters. $38,000 for nine months; $8,444 summer research stipend. Send application letter, resume, research/thesis description, graduate transcript and 3 (prefer 4) references (1 discussing teaching) to: **Betty Harrington, Department of Mathematics, Dartmouth College, 6188 Bradley Hall, Hanover, NH 03755-3551.** Files completed by Jan. 15, 1997 considered first. Dartmouth is committed to affirmative action and strongly encourages minorities and women to apply.

DICKINSON COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - The Department of Mathematics and Computer Science invites applications for one, possibly two, tenure-track positions in Computer Science at the Assistant Professor level starting Fall 1997. Applicants should have a Ph.D. in Computer Science by August 1997. Commitment to excellence in undergraduate teaching and strong research potential are expected. Dickinson is a private, highly selective, liberal arts college with 1,800 students. The Department has eight full-time faculty, with major and minor programs in both computer science and mathematics. Please send a CV, separate statements on teaching philosophy and research interests, three letters of recommendation and copies of graduate transcripts to: **Prof. Nancy Baxter Hastings, Department of Mathematics and Computer Science, Dickinson College, Carlisle, PA 17013.** Reading of completed applications will begin on November 18, 1996. See http://stats.dickinson.edu/math/index.html for more details or send inquiries to baxter@dickinson.edu. Dickinson is an Affirmative Action/Equal Opportunity Employer. Women and minorities are especially encouraged to apply.

DUKE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications and nominations are invited for one tenure track position as assistant professor in pure or applied mathematics. Salary is open; the position is to start September 1, 1997. Applicants please send (a) a completed application cover sheet (available in the September 1996 edition of the Notices of the AMS); (b) a vita; (c) a description of past research (1-3 pages); and (d) plan for future research. Applications should be filed by December 15; 1996 early application is advisable. The applicant should have at least three letters of recommendation, including one which evaluates teaching, sent directly to Duke by mid-January. All correspondence, including references, should be addressed to: **Faculty Search Committee, Department of Mathematics, Box 90321, Duke University, Durham, 27708-0321.** e-mail: search@math.duke.edu. Duke University is an affirmative action/equal opportunity employer.

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DUKE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for one position as Assistant Research Professor of Mathematics. Candidates should have completed a doctorate as of September 1, 1997 and show definite promise in research and teaching. The teaching load will be six hours per week during one semester and three hours per week during the other, so that the appointee will have additional time for research. The appointments are for one year and will be renewable for two additional years. The salary will be $38,000 covering work in the regular two-semester year. Applicants please send (a) a completed application cover sheet (available in the September 1996 edition of the *Notices* of the AMS); (b) a vita; (c) a description of current and past research (1--3 pages); and (d) plan for future research. Each applicant is requested to include in their materials the name(s) of one or more members of the faculty of the Department of Mathematics at Duke working in their general area of research. Applications should be filed by December 15; 1996 early application is advisable. The applicant should have at least three letters of recommendation, including one which evaluates teaching, sent directly to Duke by mid-January. All correspondence, including references, should be addressed to: **Appointments Committee, Department of Mathematics, Box 90320, Duke University, Durham, NC 27708-0320.** e-mail: appts@math.duke.edu. Duke is an Affirmative Action/Equal Opportunity Employer.

EMORY UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - The Department of Mathematics and Computer Science, Emory University, invites applications for two anticipated appointments effective 1997-98. **Position 1:** A tenure track Assistant Professorship or a tenured appointment at the rank of Associate Professor or Professor; applicants must have a research program in numerical analysis/computational science and hold a Ph.D. in Mathematics, Computer Science, or a closely related field. **Position 2:** A tenure track Assistant Professorship or a tenured appointment at the rank of Associate Professor or Professor; applicants must have a research program in algebra and hold a Ph.D. in Mathematics. As the department supports several undergraduate programs within Emory College, a Ph.D. in Mathematics, and M.S. in Computer Science/Mathematics, applicants are expected to have strong records, or promise, as undergraduate and graduate teachers. Applicants must **specify one of Positions 1 and 2**, and include CV's (with at least three recommenders' names). Please see that recommendation letters are sent to: **Professor Dwight Duffus, Screening Committee, Department of Mathematics and Computer Science Emory University, Atlanta GA 30322.** Screening of applications will begin on 1 January 1997. Emory University is an Affirmative Action/Equal Opportunity Employer.

FRANKLIN AND MARSHALL COLLEGE - DEPARTMENT OF MATHEMATICS - Assistant Professor of Mathematics/Statistics - Tenure-track entry-level position in undergraduate mathematics department beginning August 1997. Ph.D in math or statistics by September 1997. Interest and evidence of experience in teaching both mathematics and statistics required. For more information and application instructions, please visit **http://www.fandm.edu/Departments/Mathematics/jobdesc.html** or contact: **Alan Levine, Chair, Dept. of Math, Franklin & Marshall, P.O. Box 3003, Lancaster, PA, 17604-3003** or at a_levine@acad.fandm.edu. The deadline for full consideration is January 20, 1997. AA/EOE.

GEORGETOWN UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics has a tenure track position at the Assistant Professor level beginning August 25, 1997. The Ph.D. degree in Mathematics is required with strong research credentials in partial differential equations or harmonic analysis, preferably including computational aspects. A commitment to excellence in undergraduate teaching is essential. Send resume and reprints or preprints of no more than three research papers, and arrange for three letters of reference to be sent to: **Professor John Lagnese, Chairman, Search Committee, Department of Mathematics, Box 571233, Georgetown University, Washington, D.C. 20057, USA.** Complete applications must be received by January 1, 1997. Georgetown University is an Equal Employment Opportunity and Affirmative Action institution in employment and admissions.

GRAND VALLEY STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Assistant or Associate Professor of Mathematics Education - Doctorate in mathematics education or related field, demonstrated excellence in undergraduate teaching, and a promise of continued scholarly and professional growth are required. Candidates must have (1) strong teaching recommendations, (2) demonstrated interest in curriculum development for the preparation of teachers, both undergraduate and graduate, and (3) commitment to teaching and using innovative methods of instruction and assessment (including technology). Candidates are expected to participate in the teaching and ongoing development of mathematics courses for elementary and/or secondary teachers as well as departmental service courses in precalculus mathematics. Send a cover letter and vita, a copy of graduate transcripts, three letters of recommendation (two should address the applicants teaching ability and two should address the applicant's experience and potential in mathematics education), and a letter describing your teaching philosophy and experience. Send these materials to: **Mathematics Education Search Committee, Department of Mathematics and Statistics, Grand Valley State University, Allendale, MI 49401.** Consideration will begin on December 1, 1996 and continue until the position is filled.

GRAND VALLEY STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Assistant or Associate Professor of Mathematics - Grand Valley State University, an institution committed to teaching excellence, solicits applications for a tenure track assistant or associate professorship to begin August 1997. Responsibilities include teaching, participating in the ongoing development of mathematics courses (including departmental service courses), maintaining an active program of professional development, and advising students. The successful candidate will have: a Ph.D. in mathematics; demonstrated excellence in undergraduate teaching and strong teaching recommendations; commitment to continued scholarly and professional growth; demonstrated scholarly interest in an area of mathematics amenable to undergraduate research; experience in teaching mathematics courses including calculus, precalculus mathematics, mathematics education or introductory statistics. A completed application must include a cover letter and vita, a copy of graduate transcripts, at least three letters of recommendation. At least two letters must attest to the applicant's teaching ability and potential. The application must also include a personal statement that addresses the applicant's qualifications for the position (as listed above) and teaching philosophy including preferred methods of instruction and assessment, and the use of technology in the curriculum. Send these material to: **Mathematics Search Committee, Department of Mathematics and Statistics, Grand Valley State University, Allendale, MI 49401.** Completed applications must be received by December 20, 1996.

INDIANA UNIVERSITY, BLOOMINGTON - DEPARTMENT OF MATHEMATICS - Several three-year visiting positions will be available in the 1997-1998 academic year. These terminal postdoctoral positions are named after our late distinguished colleague Max Zorn, and are restricted to new Ph.D.'s. Outstanding candidates in all areas of pure and applied mathematics and statistics are encouraged to apply. Excellent research potential as well as a commitment to teaching are required. Indiana University is an affirmative action/EEO employer. Applications received by January 15, 1997 will be given full consideration. Please send a letter of application to: **Search Committee, Dept. of Mathematics, Rawles Hall, Bloomington, IN 47405-5701.**

INDIANA UNIVERSITY PURDUE UNIVERSITY INDIANAPOLIS - DEPARTMENT OF MATHEMATICAL SCIENCES - The Department of Mathematical Sciences invites applications for a tenure track position in statistics to begin August 1997. A Ph.D. in statistics or biostatistics and a strong commitment to research and undergraduate and graduate teaching are required. Candidates with interest in applied and interdisciplinary research are especially encouraged to apply. Rank and salary are commensurate with qualifications. A letter of application, resume and at least three letters of recommendation should be sent to: **Benzion Boukai, Statistics Search Committee, Department of Mathematical Sciences, Indiana University Purdue University Indianapolis, 402 N. Blackford St., Indianapolis, IN 46202, USA.** Review of applications will begin January 15, 1997 and will continue until the position is filled. Women and minorities are encouraged to apply. AA/EOE.

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INSTITUTE FOR ADVANCED STUDY - SCHOOL OF MATHEMATICS - The School of Mathematics will grant a limited number of memberships, some with financial support for research in mathematics at the Institute during the academic year 1997-98. Candidates must have given evidence of ability in research comparable at least with that expected for the Ph.D. degree. During the 1997-98 academic year, Karen Uhlenbeck will be the Distinguished Visiting Professor, and there will be a special program on geometric partial differential equations. ***Applications may be obtained from*: The School of Mathematics, Attention Richard Lloyd, Institute for Advanced Study, Olden Lane, Princeton, New Jersey 08540.** (E-mail address: lloyd@math.ias.edu) and should be returned by December 1, 1996. The Institute is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities.

JOHNS HOPKINS UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for two or more anticipated faculty positions. Priorities and levels of positions are as follows: **1) Tenure track Assistant Professor position in Analysis**. Preference will be given to researchers in the areas of geometric analysis and nonlinear partial differential equations. Candidates should have three years experience after the Ph.D. and have an outstanding record in research and teaching. Exceptional candidates will be considered at the rank of Associate Professor. All applications for this position should be sent to the ***Analysis Search Committee*** at address below. **2) Assistant Professor and Visiting positions** in the general areas of *algebra, analysis, geometry, number theory* and *topology*. All applications for these positions should be sent to: **Appointments Committee, Department of Mathematics, Johns Hopkins University, 404 Krieger Hall, Baltimore, MD 21218.** Applicants should furnish a complete curriculum vitae, at least four letters of recommendation (including a letter concerning teaching) and a description of current and planned research. Applications received by December 1, 1996 will be given priority. (Applications in probability, statistics, operations research, and numerical methods will not be considered; applicants in these areas should contact the Dept. of Mathematical Sciences in the School of Engineering). The Johns Hopkins University is an Affirmative Action/Equal Opportunity Employer. Minority and women candidates are encouraged to apply.

KALAMAZOO COLLEGE- DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Kalamazoo College seeks applications for tenure track position at Assistant/Associate Professor level beginning September 1997. Ph.D. in Mathematics or Applied Mathematics required with a strong background in some area of application. Salary competitive and consistent with level of experience. Principal responsibilities include teaching courses in all levels of mathematics. The ideal candidate will have an interest in developing an active research program that involves undergraduate student participation and in developing and teaching general education courses. Candidates are expected to have high aptitude and interest in undergraduate teaching, a commitment to the liberal arts, and a desire to involve undergraduates in scholarship both inside and outside the classroom. Kalamazoo College is a selective liberal arts institution of 1,200 students in a metropolitan community of 225,000 located midway between Chicago and Detroit. Completed applications received by December 31, 1996, will receive full consideration, with later applications reviewed as needed until the position is filled. Send curriculum vitae, undergraduate and graduate transcripts (unofficial acceptable), a two-to-three page statement of teaching philosophy and research plans, and three letters of recommendation to: **Dr. John Fink, Department of Mathematics and Computer Science, Kalamazoo College, 1200 Academy Street, Kalamazoo, MI 49006-3295.** Email: fink@kzoo.edu. For more information about the College, see our home page at www.kzoo.edu. Kalamazoo College encourages candidates who will contribute to the cultural diversity of the College to apply and to identify themselves if they wish. Equal Opportunity Employer.

KANSAS STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Subject to budgetary approval, applications are invited for tenure-track and visiting positions commencing August 10, 1997; rank and salary commensurate with qualifications. The Department seeks candidates whose research interests mesh well with current faculty. The Department has research groups in the areas of analysis, algebra, geometry/topology, and differential equations. Applicants must have strong research credentials and a commitment to excellence in teaching. A Ph.D. in mathematics or a Ph.D. dissertation accepted with only formalities to be completed is required. Letter of application, current vita, description of research, and three letters of recommendation should be sent to: **Louis Pigno, Department of Mathematics, Cardwell Hall 138, Kansas State University, Manhattan, KS 66506.** Offers may begin by December 9, 1996, but applications for positions will be reviewed until February 1, 1997, or until positions are closed. AA/EOE.

LEBANON VALLEY COLLEGE - Join a dynamic department of 6 faculty and 80 majors in an undergraduate liberal arts college of 1,200 students. Lebanon Valley College, located in central Pennsylvania invites applications for a tenure track assistant professor position. Applicants must be committed to quality teaching and professional activity. Ph.D. required. 12 hours teaching load. Specialty open, interest in statistics and actuarial science a plus. Deadline: December 15, 1996. Application requires a cover letter, resume, and at least three current letters of recommendation. Send to: **Bryan Hearsey, Lebanon Valley College, 101 North College Avenue, Annville, PA 17003-0501.** LVC is an AA/EOE and encourages applications from women and minorities.

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 1997 for persons typically about two or more years beyond their doctorates. This time we are looking for unusual new talent in any area. Applications should be completed by January 15, 1997. 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 1997 - 1998. 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, 1997. 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, 1997. 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, 1997. 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.

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MICHIGAN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department is seeking applicants for tenure track positions to begin in the Fall 1997, pending approval. The positions are expected to be at the Assistant Professor level, but exceptional applicants for a higher rank may be considered. Excellence in research and teaching is essential, and two or more years beyond the Ph.D. is expected. An applicant must submit a vita as well as a brief statement of research interests and arrange for at least four letters of recommendation to be sent, one of which must specifically address the applicant's ability to teach. ***Application via email is strongly encouraged.*** Contact jobs@math.msu.edu with a message containing "send application-info". Application materials can also be addressed to: **The Hiring Committee, Department of Mathematics, Michigan State University, East Lansing, MI 48824-1027.** Application should be made as soon as possible since candidate screening will begin in early November. Completed applications received by November 15, 1996 are assured of consideration. Women and minorities are strongly encouraged to apply. MSU is an Affirmative Action/Equal Opportunity Institution.

MICHIGAN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Pending funding, several two-year positions will be available beginning Fall 1997, for new or recent Ph.D.s. The teaching load is four semester courses per year and participation in the research activities of the department is expected. An applicant should send a vita as well as a brief statement of research interests and arrange for at least four letters of recommendation to be sent, one of which must specifically comment on the applicant's ability to teach. ***Application via email is strongly encouraged.*** Contact jobs@math.msu.edu with a message containing "send application-info". Application materials can also be mailed to: **The Hiring Committee, Department of Mathematics, Michigan State University, East Lansing, MI 48824-1027.** Application should be made as soon as possible since candidate screening will begin in November. Completed applications received by December 1, 1996 are assured of consideration. Women and minorities are strongly encouraged to apply. MSU is an Affirmative Action/Equal Opportunity Institution.

MICHIGAN STATE UNIVERSITY - DEPARTMENT OF STATISTICS AND PROBABILITY - The Department of Statistics and Probability at Michigan State University has a tenure track Assistant Professorship available beginning August 16, 1997. The candidates should have a Ph.D. in the field of statistics and/or probability and a strong research and teaching potential. Candidates with research interest in Statistics and its applications are strongly encouraged to apply. Please have a curriculum vitae and three reference letters sent to: **Search Committee, Department of Statistics and Probability, A415 Wells Hall, Michigan State University, East Lansing, MI 48824-1027.** Selection process will begin December 15, 1996 and continue until the position is filled. MSU is an Affirmative Action/Equal Opportunity Institution. Minorities and women are strongly encouraged to apply.

MONTCLAIR STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Applications are invited for two tenure-track positions in Mathematics Education starting in Fall 1997. Rank and salary at the Assistant or Associate level will be commensurate with qualifications and experience. Candidates are required to have a Ph.D. in Mathematics or in Education with a Mathematics specialization, and demonstrated commitment to research in Mathematics Education. A strong background in Mathematics through the Master's level and some experience with grades K-12 are also required. Preference will be given to those whose primary research involves mathematics teacher training (V-26) or one of the core curricular areas of algebra, analysis, geometry, statistics or discrete mathematics in grades 9-12, including the use of technology (V-27). Candidates should be capable of directing doctoral students and contributing leadership to the Department's active graduate program in Mathematics Education. Responsibilities will include involvement with undergraduate and master's courses in mathematics and undergraduate, master's and a developing Ed.D. program in Mathematics Education. Faculty are expected to be professionally active, committed to quality teaching and the pursuit of grants. The Department of Mathematics and Computer Science at Montclair State University includes undergraduate programs in Mathematics, Mathematics Education, Computer Science and Physics; Master's programs in Mathematics, Mathematics Education, Computer Science and Statistics. Currently, there are thirty-nine full-time faculty in the department. Department faculty are cooperating with the University's College of Education and Human Services in the development of an Ed.D. with a Specialization in Mathematics Education designed for the classroom teacher. Applicants should send a vita, a statement of professional goals, and three letters of recommendation to: **Math Education Search Committee, Department of Mathematics & Computer Science, Montclair State University, Upper Montclair, NJ 07043.** Initial screening will begin immediately & continue until the position is filled. Montclair State University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.

NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics at North Carolina State University expects to make an faculty appointment at the level of assistant professor or higher in computational fluid dynamics starting July 1, 1997 or as soon as possible thereafter. Applicants for a junior level position should have research experience beyond the Ph.D. Applicants for a senior position should have an outstanding research record and a well established research program. We hope that the successful applicant will interact with one or more or our active groups in simulation, design, and control of chemical vapor deposition reactors, simulation of granular flow, modeling and control of magnetorheological fluids, and flow through porous media. Excellence in teaching and the qualifications to teach a broad range of courses in applied and numerical mathematics, as well as calculus, are essential. The intellectual climate for applied mathematics and numerical analysis at NCSU is lively and challenging. Our group consists of over thirty faculty members (within a Department of over sixty faculty) and many graduate students and postdocs. The group has research programs in biomathematics, differential algebraic equations, integral equations, numerical linear algebra, numerical optimization/nonlinear equations, ordinary and partial differential equations, control, and parallel computing. The successful applicant will have the opportunity to become a member of the Center for Research in Scientific Computation which facilitates interaction between the faculty in the Mathematics Department and other research institutions and industry. Faculty in the NCSU Mathematics Department have access to the high performance computing and visualization facilities at the North Carolina Supercomputing Program. Applicants should send a vita and have three letters of recommendation sent to: **C. T. Kelley, Department of Mathematics, Box 8205, North Carolina State University Raleigh, NC 27695-8205.** Phone: 919-515-7163. FAX: 919-515-3798 E-mail: Tim_Kelley@ncsu.edu North Carolina State University is an equal opportunity and affirmative action. In its commitment to diversity and equity, North Carolina State University seeks applications from women, minorities, and the disabled.

NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics at N.C. State University expects to make several tenure-track faculty appointments in applied mathematics. Strong preference will be given to candidates who clearly demonstrate the ability and potential to contribute to the Industrial Applied Mathematics Program described below. The appointment will be at the rank of Assistant Professor or above, and will start on or after July 1, 1997. The applicant must have substantial experience beyond the Ph.D. (i.e., tangible records of significant research contributions and outstanding teaching), as well as evidence of strong interests in interdisciplinary research. At least one appointment is anticipated at the senior level (possibly an endowed professorship). The Department has an outstanding group of applied mathematicians in the areas of control and optimization, numerical analysis, ordinary and partial differential equations, and probability and stochastic processes, and the successful applicant will be expected to interact with members of this applied mathematics group. The successful applicant will become a member of the Center for Research in Scientific Computation (CRSC), which facilitates interaction between the faculty in the Mathematics Department and other departments, research institutions, and industry. The CRSC and the Mathematics Department have a jointly sponsored Industrial Applied Mathematics Program (IAMP) which is a formal university/industrial research project program. This program provides substantive non-academic research-related experiences for graduate student, postdoctoral, and faculty participants while contributing to the research efforts of industrial participants. These experiences, involving year-long participation in an [→]

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[←] industrial, government lab or agency or other nonacademic research project, facilitates the development of participants' ability to communicate and interact with scientists who are not traditional mathematicians but who have an interest in quantitative aspects of science and engineering. The program currently has more than 15 graduate students, 6 postdocs, 10 faculty, and 10 industry/government lab group participants with activities on 15 projects. Applicants should send a vita and have three letters of recommendation sent to: **Applied Math Search Committee, c/o Professor H.T. Banks, Center for Research in Scientific Computation, Box 8205, N.C. State University, Raleigh, NC 27695-8205.** Phone (919) 515-5289. Email: lmbecker@eos.ncsu.edu. On January 15, 1997, selection will begin and continue until the positions are filled. N.C. State University is an equal opportunity/affirmative action employer. In its commitment to diversity and equity, NCSU seeks applications from women, minorities, and the disabled.

NORTHEASTERN ILLINOIS UNIVERSITY, DEPARTMENT OF MATHEMATICS - Applications are invited for a tenure track Assistant Professor position starting with the Fall 1997 semester. A Ph.D. in mathematics is required, candidates with a specialty in a field of geometry or number theory will receive preference. Applicants should have demonstrated ability to do research in mathematics and should have the potential to be a skilled teacher. Send letter of application, curriculum vita which includes a list of publications, and 3 letters of recommendation to: **Barry Dayton, Chair Search and Screen Committee, Department of Mathematics, Northeastern Illinois University, 5500 N. St. Louis Ave., Chicago IL 60625.** Review of applications begins January 15, 1997. Northeastern Illinois University is an equal opportunity/affirmative action employer.

NORTHERN ARIZONA UNIVERSITY - DEPARTMENT OF MATHEMATICS - Tenure-track assistant professorship starting Fall 1997. A doctorate in mathematics or applied mathematics is required. Candidates should have a strong theoretical background and interest in numerical analysis; as well as the ability to contribute to an interactive research group in dynamical systems and applied mathematics and to teach a wide variety of courses. Experience or interest in teaching mathematics in a multicultural environment would be desirable. Qualifications also include substantial evidence of high quality teaching and potential for a productive research program. Send a letter of application, transcripts, a curriculum vita, and three letters of reference to: **Mathematics Screening Committee, Northern Arizona University, Box 5717, Flagstaff, AZ 86011.** Review of applications begins December 1, 1996. The search will remain open until the position is filled. NAU is an Equal Opportunity/Affirmative Action institution. Minorities, persons with disabilities, veterans, and women are encouraged to apply.

NORTHWESTERN UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for an anticipated tenure-track assistant professor position starting September 1997. Priority will be given to exceptional research mathematicians. Fields of interest within the department include Algebra, Analysis, Dynamical Systems, Probability, Partial Differential Equations, and Topology. Candidates should arrange to have their application material sent to: **Chairperson, Personnel Committee, Northwestern University, Department of Mathematics, 2033 Sheridan Road, Evanston, Illinois 60208-2730** and include: (1) the American Mathematical Society's Application Cover Sheet for Academic Employment in Mathematics, (2) a curriculum vita, and (3) at least three letters of recommendation. Inquiries may be sent via e-mail to "hiring@math.nwu.edu." In order to receive full consideration, applications should be received by December 15, 1996. Northwestern University is an affirmative action, equal opportunity employer committed to fostering a diverse faculty; women and minority candidates are especially encouraged to apply.

NORTHWESTERN UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Mathematics Department will sponsor an Emphasis Year in partial differential equations. This program will include two Ralph Boas assistant professorships, each carrying a three year, non-tenure track, non-renewal appointment. In addition, there may be visiting positions for more senior mathematicians for part of the academic year 1997-98, contingent upon availability of funds. Applications should be sent to the **Emphasis Year Secretary, Northwestern University, Department of Mathematics, 2033 Sheridan Road, Evanston, Illinois 60208-2730** and include: (1) the American Mathematical Society's Application Cover Sheet for Academic Employment in Mathematics, (2) a curriculum vitae, and (3) three letters of recommendation. Inquiries may be sent via e-mail to "hiring@math.nwu.edu." In order to ensure full consideration, applications should be received by January 15, 1997. Northwestern University is an affirmative action, equal opportunity employer committed to fostering a diverse faculty; women and minority candidates are especially encouraged to apply.

OHIO STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics of The Ohio State University hopes to have available several positions, both visiting and permanent, effective Autumn Quarter 1997. Candidates in all areas of applied and pure mathematics are invited to apply. However, for the permanent positions preference will be given to those in applied mathematics and analysis. Significant mathematical research accomplishments or exceptional promise, and evidence of superior teaching ability, will be expected. Please send credentials and have at least three letters of recommendation sent to: **Professor Robert Brown, Department of Mathematics, The Ohio State University, 231 W. 18th Avenue, Columbus, Ohio 43210.** Review of resumes will begin immediately. The Ohio State University is an Equal Opportunity/Affirmative Action employer. Women and minority candidates are encouraged to apply.

OHIO STATE UNIVERSITY - COLLEGE OF MATHEMATICAL AND PHYSICAL SCIENCES - Dean - The Ohio State University invites nominations and applications for the position of Dean of the College of Mathematical and Physical Sciences. The college has had a recent history of extraordinary success in developing innovative new directions for research and teaching. Departments have made impressive gains in recent National Research Council rankings. The University and State are supporting the college through extensive building and infrastructure developments. We seek an individual who will provide the creative intellectual leadership necessary to continue our drive towards pre-eminence. Qualifications for the position include a distinguished scholarly record in research and teaching plus demonstrated leadership and administrative ability. Candidates must qualify for a tenured appointment as Professor in one of the departments of the college. The University has an aggressive affirmative action program and seeks an individual with a strong commitment to this concept. The Dean is the Chief Executive officer of the college and reports to the Provost of the University. The College consists of six departments: Astronomy, Chemistry, Geological Sciences, Mathematics, Physics and Statistics. In addition, there are a number of cross-disciplinary degree programs, research centers and institutes. The college has a faculty of 240 and has an annual budget of $70 million. The research infrastructure is enhanced by The Ohio Supercomputer Center, located on campus, providing access to various Cray computers for faculty, students, and staff. The position will be available July 1, 1997. Salary and other considerations will be consistent with the university's commitment to recruiting the best qualified individual. To assure full consideration, applications and nominations should be received by November 1, 1996. The Search Committee will begin screening dossiers on that date and will continue to receive applications until the Dean is selected. Applications and nominations should be addressed to: **Chairperson, CMPS Dean Search Committee, Office of Academic Affairs, 203 Bricker Hall, 190 North Oval Mall, Columbus, Ohio 43210.** The Ohio State University is an Equal Opportunity, Affirmative Action Employer. Women, minorities, Vietnam-era veterans, disabled veterans and individuals with disabilities are encouraged to apply.

PURDUE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Several tenure-track or two-year research assistant professorships beginning August 1997. Ph.D. by August 1997, exceptional research promise, and excellence in teaching required. Possible positions at the Associate Professor/Professor level beginning August 1997. Ph.D. and excellent research and teaching credentials required. Applicants should mention at least one Purdue faculty member with whom they expect to have common research interests. Preference will be given to completed applications received by December 15, 1996. Send curriculum vitae, and arrange to have three letters of recommendation (for assistant professorships, at least one letter should discuss teaching) sent to: **Leonard Lipshitz, Head, Department of Mathematics, Purdue University, West Lafayette, IN 47907-1395.** Affirmative Action/Equal Opportunity Employer.

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PURDUE UNIVERSITY CALUMET - DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE AND STATISTICS - The Department of Mathematics, Computer Science and Statistics is seeking to expand an already active research program in mathematics education. The Department seeks applications for two tenure-track positions in mathematics education available August 1997. one of which focuses on mathematics education at the secondary school level. Duties and responsibilities include teaching a range of mathematics education and mathematics courses, including content and methods courses for prospective K- 12 teachers. supervising field experience, and working collaboratively with public schools. A doctorate in mathematics education with the equivalent of a masters degree in mathematics or a Ph.D. in mathematics with extensive experience in mathematics education research is required. Experience with secondary schools is highly desirable. Candidates must have a commitment to teacher education, to excellence in teaching, and to continued scholarly activity. Applicants with extensive research and teaching experience may be considered for appointment at the associate level or above. To apply, submit a letter of application, curriculum vitae, graduate transcript and three (3) letters of recommendation, at least one of which provides evidence of scholarly potential in mathematics education and at least one of which addresses teaching ability. Applications should be sent to: **Professor Erna Yackel, Department of Mathematics, Computer Science and Statistics, Purdue University Calumet, Hammond, IN 46323.** e-mail: yackeleb@calumet.purdue.edu. Review of applications will begin January 20, 1997 and will continue until the positions are filled. Purdue University Calumet is an Equal Opportunity, Affirmative Action employer.

RANDOLPH-MACON COLLEGE - DEPARTMENT OF MATHEMATICS - Applications are invited for a tenure-track position in mathematics beginning in the Fall of 1997. Candidates must have or expect to have the Ph.D. in either mathematics or statistics by that date. Applications from women and minorities are encouraged. The person filling the position must demonstrate a commitment to excellence in teaching in a liberal arts setting. Duties include teaching seven courses per academic year (typically 3-1-3), and maintaining an appropriate level of professional activity and service to the College. Vitae, three letters of recommendation, a statement of teaching philosophy not to exceed 500 words, and graduate transcripts should be sent to: **Dr. Bruce Torrence, Department of Mathematics, Randolph-Macon College, P.O. Box 5005, Ashland, VA 23005-5505.** Preference will be given to applications received prior to December 15, 1996. Randolph-Macon College is an equal opportunity employer. Randolph-Macon College, founded in 1830, is a small, selective, liberal arts college located near Richmond, VA. The department consists of seven full-time faculty, and maintains a computer classroom consisting of 25 Power Macintosh computers with full internet access. Research and curriculum development are encouraged and supported, and opportunities exist for collaborative student/faculty research.

RENSSELAER POLYTECHNIC INSTITUTE - DEPARTMENT OF MATHEMATICAL SCIENCES - Applications are invited for a tenure-track assistant professor position in applied mathematics, to begin in August 1997. Applicants are expected to have demonstrated outstanding research potential, and to have a strong interest and ability in teaching. Applicants should submit a letter of application, a curriculum vita, a description of research interests, and arrange to have three letters of recommendation sent directly to: **Mark H. Holmes, Chair, Department of Mathematical Sciences, Rensselaer Polytechnic Institute, Troy, NY 12180.** Evaluation of applications will begin December 15, 1996. Rensselaer is an equal opportunity/affirmative action employer and strongly encourages applications from women and underrepresented minorities.

RICE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Griffith Conrad Evans Instructorships - Postdoctoral appointments for two to three years for promising research mathematicians with research interests in common with the active research areas at Rice, particularly geometric topology, geometric analysis, differential geometry, mathematical physics, and ergodic theory. Duties will include research and classroom teaching. Applications received by December 31, 1996 will receive full consideration. Rice University is an Equal Opportunity Affirmative Action Employer and strongly encourages applications from women and minority group members. Inquiries and applications should be addressed to: **Chair, Evans Committee, Department of Mathematics, Rice University, P.O. Box 1892, Houston, TX 77251-1892.** Submitting the AMS Application Cover Sheet (available in Notices, EIMS, or e-math) would be greatly appreciated.

RUTGERS UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Rutgers University Mathematics Department invites applications for the following positions which may be open beginning September 1997. **(1) Tenure-Track and Tenure Positions.** The Department anticipates several openings, mainly tenure-track assistant professorships. Current priority areas include analysis and geometry. Tenured positions at a higher level may also be available, particularly in analysis. However, strong candidates in all fields and at all levels are encouraged to apply and will be given careful consideration. Candidates must have Ph.D., outstanding research ability in pure or applied mathematics, and concern for teaching. Semester course load now averages 6 hours. **(2) Hill Assistant Professorships (non-tenure track).** The Hill Assistant Professorships are three-year non-renewable positions. Candidates should have received the Ph.D., show outstanding promise of research ability in pure or applied mathematics, and have concern for teaching. Semester course load is approximately 6 or 7 hours. **(3) Non-tenure-track Assistant Professorships.** These are three-year non-renewable positions. Candidates should have received the Ph.D., be able to document an active interest in and exceptional ability for mathematics instruction, and show promise of research ability. Preference will be given to applicants with experience in the use of technology (such as graphing calculators and/or computer algebra systems) and group learning. Duties will consist of teaching three courses per semester mainly at the level of calculus. Applicants should send resume, with the AMS Application Cover Sheet attached, and have at least three letters of recommendation sent to: **Search Committee, Department of Mathematics, Rutgers University, New Brunswick, New Jersey 08903.** No electronic applications will be accepted. Applications should be received by January 3, 1997. Please indicate position(s) desired and give the AMS Subject Classification number of your area(s) of specialization. Applicants who applied in 1995-6 may, if they wish, request to have their previous application reactivated and submit only such new materials as they choose. Rutgers is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and minority-group members.

RUTGERS UNIVERSITY, NEWARK - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Assistant Professor of Mathematics - The Department of Mathematics and Computer Science invites applications for an anticipated tenure-track assistant professorship in pure mathematics to begin in September 1997. Applications for a higher level appointment may be considered if a position becomes available. Candidates must have a Ph.D. and a strong research record, show outstanding promise for future work in mathematics, and demonstrate a commitment to effective teaching. Preference will be given to candidates with research interests related to those of faculty in the department. Each candidate should include an AMS cover sheet and a curriculum vitae with the application. At least four letters of recommendation, one of which addresses teaching, should be sent in support of the application. The application and letters should be sent to: **Personnel Committee, Department of Mathematics and Computer Science, Rutgers University, Newark, NJ 07102.** Applications received by December 16, 1996 will receive first consideration. Rutgers University is a Equal Opportunity/Affirmative Action Employer.

SMITH COLLEGE - DEPARTMENT OF MATHEMATICS - The Mathematics Department of Smith College invites applications for a three-year non-tenure track position to begin in the Fall of 1997. Candidates must have a Ph.D. in mathematics or statistics and must provide evidence of excellent teaching and an active research program. Send a curriculum vitae and arrange to have three letters of reference sent to: **Mathematics Search Committee, Clark Science Center, Smith College, Northampton, MA 01063.** To receive full consideration you must provide a complete application before February 1, 1997. It is possible that more than one position will be available. Smith College is an Equal Opportunity/Affirmative Action institution. Minorities and women are encouraged to apply.

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STATE UNIVERSITY OF NEW YORK COLLEGE AT POTSDAM - DEPARTMENT OF MATHEMATICS - Assistant Professor - Mathematics - The State University of New York College at Potsdam, the oldest higher education institution in the SUNY system, invites applications for one (possibly two) full-time tenure-track position(s) effective September 1, 1997, at the rank of assistant professor. Responsibilities of the positions are to teach twelve hours per semester of undergraduate and first year graduate courses. Required qualifications are a Ph.D. in any area of mathematics with a strong interest in preparation for teaching undergraduate major mathematics courses. In addition, some preparation in statistics is desirable though not essential. Applications, which must include a letter of interest, a statement of the applicant's philosophy of teaching, a resume, three letters of recommendation describing teaching experience and abilities, and a transcript (a copy is acceptable) should be sent to: **Dr. Cheryl Chute Miller, Staffing Committee Chair, Mathematics Department, SUNY Potsdam, Potsdam, NY 13676** (millercc@potsdam.edu). To ensure full consideration, complete applications must be received by January 22, 1997. SUNY Potsdam is an equal opportunity affirmative action employer committed to excellence through diversity.

ST. CLOUD STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Mathematics Education Tenure Track Position - The Department of Mathematics invites applications for at least one tenure-track assistant or associate professor position, contingent upon funding, to begin September, 1997. Doctorate in Mathematics Education (or recent ABD), a Master's Degree in Mathematics (or equivalent), commitment to quality teaching, and knowledge of current research in mathematics education are required. Preference given to candidates with mathematics teaching experience at elementary or secondary level and for expertise in using technology as a tool in teaching mathematics. Responsibilities include teaching graduate/undergraduate mathematics education courses and undergraduate mathematics courses (12 hours per week), advising students, serving on department committees, and engaging in curriculum development, inservice workshops, and scholarly/professional activity. Doctorate required for tenure. To receive application materials send a letter of interest via regular mail or e-mail to: **Dr. Shirley Buls, Chair, Mathematics Education Search Committee, Department of Mathematics, St. Cloud State University, St. Cloud, MN 56301-4498**; E-mail : MathEdSearch@stcloud.msus.edu. Applications must be postmarked by February 3, 1997 . Women, minorities, and persons with disabilities are encouraged to apply.

ST. CLOUD STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Mathematics Tenure Track Position - The Department of Mathematics invites applications for at least one tenure-track assistant professor position, contingent upon funding, to begin September, 1997. The successful candidate will primarily teach undergraduate courses in mathematics and contribute to the vitality of the mathematics program. The normal teaching load is 12 hours/week. In addition, he/she will advise students majoring or minoring in mathematics, be involved in curriculum development and be involved in a program of scholarly/professional activity. A doctorate in mathematics by the appointment date is required. Recent Ph.D.'s will be preferred. Candidates must have a strong commitment to undergraduate teaching, possess excellent communication skills, be able to demonstrate teaching effectiveness, and have a record of or strong potential for scholarly and professional activity. To receive application materials send a letter of interest via regular mail or e-mail. To assure full consideration of your application, submitted materials should be received by January 17, 1997. Send to: **Ralph W. Carr, Chair, Mathematics Search Committee, Department of Mathematics, St. Cloud State University, St. Cloud, MN 56301-4498.** E-mail: MathSearch@stcloud.msus.edu. WWW Site: http://www.stcloud.msus.edu/~mathdept/mathsearch. Women, Minorities, and persons with disabilities are encouraged to apply.

TEXAS TECH UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics anticipates at least one and possibly three tenure track appointments at the assistant professor level, beginning Fall 1997. All fields will be considered but candidates in the areas of algebraic geometry, combinatorics, computational mathematics and biomathematics/statistics are especially invited to apply. Candidates must have an earned doctorate by the starting date and show evidence of excellence in teaching and strong research potential. Applicants should exhibit research interests that complement ongoing programs in the department and a willingness and ability to work with students at both the undergraduate and graduate level. To apply, please send a resume and have three letters of recommendation sent to: **Lawrence Schovanec, Chair of the Hiring Committee, Department of Mathematics, Texas Tech University, P.0. Box 41042, Lubbock, TX 79409.** E-mail: schov@math.ttu.edu. Texas Tech is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF ALABAMA AT BIRMINGHAM - DEPARTMENT OF MATHEMATICS - Applications are invited for a tenure-track position to begin September 1, 1997. Applicants should have demonstrated a strong research potential in mathematics as well as a commitment to teaching. Preference will be given to junior candidates whose research is compatible with that of our current faculty: this includes: dynamical systems, mathematical physics, nonlinear analysis, differential equations, differential geometry and topology including computational aspects of these areas. In addition to a demonstrated research program in mathematics, applicants showing a clear ability for establishing interdisciplinary research (including medical research) will receive strong consideration. For additional information on UAB, see our home page at http://www.math.uab.edu/. To apply please send the AMS standard cover sheet (available from the AMS), a curriculum vita and arrange for at least three letters of reference to be sent. Applications received by December 15, 1996 will be given full consideration. Send applications to: **Search Committee, Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL 35294-1170.** UAB is an AA/EO Employer.

UNIVERSITY OF CALIFORNIA, DAVIS - DEPARTMENT OF MATHEMATICS - Regular and Visiting Faculty Positions in Mathematics - Applications are invited for anticipated positions at either the Assistant, Associate or Full Professor level and Visiting Research Assistant Professorship (VRAP) positions in the Department of Mathematics, University of California, Davis, effective July 1, 1997. These positions are contingent on budgetary and administrative approval. Appointments of the Assistant, Associate, or Full Professor positions will be made commensurate with qualifications. Minimum qualifications include a Ph.D. degree in mathematical sciences and great promise in research and teaching. Candidates for the Associate or Full Professor position must have demonstrated outstanding attainment in research and teaching. Duties include mathematical research, undergraduate and graduate teaching, and service. The Department of Mathematics is recruiting at the Assistant and/or the Associate Professor level in the following areas: **(1)** Applied Mathematics and **(2)** Geometry/Topology and at the Assistant, Associate or Full Professor level in the areas of **(3)** Numerical Analysis/Scientific Computation and **(4)** Analysis/Partial Differential Equations. The VRAP positions are renewable for a total of three years with satisfactory performance in research and teaching. The VRAP applicants are required to have completed their Ph.D. no earlier than 1993. The Department of Mathematics is interested in applicants in the following areas for the VRAP positions: **1)** Algebra, **2)** Analysis/PDEs, **3)** Applied Mathematics, **4)** Geometry/Topology, **5)** Mathematical Physics, **6)** Numerical Analysis/Scientific Computation. The tenure-track positions are open until filled, but to assure consideration, applications should be received by December 16, 1996. The application deadline for the VRAP positions is February 3, 1997. To initiate the application process, request an application package by writing an e-mail message to forms@math.ucdavis.edu. Those who do not have access to e-mail can obtain the package by writing to: **Chair of Search Committee, Department of Mathematics, University of California, Davis, California 95616-8633.** The Department of Mathematics at UC Davis is an Affirmative Action employer with a strong institutional commitment to the achievement of diversity among its faculty and staff. In this spirit, we are particularly interested in receiving applications from women, persons of color and persons from other underrepresented groups.

ADVERTISING DEADLINE for the January/February 1997 issue is: DECEMBER 1, 1996.

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UNIVERSITY OF CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - Regular Positions in Pure and Applied Mathematics - The UCLA Department of Mathematics invites applications for two or more tenure track positions in pure or applied mathematics. Exceptional promise in research and teaching is required. Positions are initially budgeted at the assistant professor level, but sufficiently outstanding candidates will be considered at higher levels. Teaching load is an average of 4.5 quarter courses per year. Positions subject to availability of resources and administrative approval. To apply, send electronic mail to: **search@math.ucla.edu** or open **"http://www.math.ucla.edu/~search"** on the World Wide Web, or write to: **John B. Garnett, Chair, Department of Mathematics, University of California, Los Angeles, CA 90095-1555.** Attn: Staff Search. UCLA is an equal opportunity/affirmative action employer.

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 $42,900. 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, 1997. **(2) One or two Research Assistant Professorships in Computational and Applied Mathematics.** Applicants must show very strong promise in research and teaching. Salary $42,900. 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, 1997. **(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 $45,800. 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 $38,904 or more, depending on experience. Preference will be given to applications completed by February 1. 1997. **(4) An Adjunct Assistant Professorship.** One year appointment, probably renewable once. Strong research and teaching background required. Salary $39,900-$41,800. 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: **John B. Garnett, Chair, Department of Mathematics, University of California, Los Angeles, CA 90095-1555. Attn: Staff Search.** UCLA is an equal opportunity/affirmative action employer.

UNIVERSITY OF CALIFORNIA, SANTA BARBARA - DEPARTMENT OF MATHEMATICS - FACULTY POSITIONS - The University of California, Santa Barbara invites applications for the following positions in the Department of Mathematics, beginning Fall 1997. **(1) TWO TENURE TRACK POSITIONS:** One in analysis at the assistant professor level, and one in either analysis or in numerical analysis/applied mathematics at either the assistant professor level or the associate professor level. Appointment is effective July 1, 1997 and candidates must possess a Ph.D. by September 1997. For the position in the fields of numerical analysis and applied mathematics, there is particular interest in individuals with expertise useful for the numerical resolution of nonlinear problems arising in an applied science such as electromagnetics, fluid dynamics, material science, or semiconductor theory. For both positions, demonstrated research excellence and potential to become an effective teacher are required. Candidates who best enhance the long term research plans of the department will be given preference. **(2) KY FAN ASSISTANT PROFESSORSHIP:** Candidates will be considered in the following mathematical areas: algebra, theoretical computer science, differential geometry, analysis, numerical analysis/applied mathematics, and low-dimensional topology. The Ky Fan Assistant Professorship is a special two-year nonrenewable position which carries a research stipend and a course load of 4 one quarter courses per year. Appointment is effective July 1, 1997. Candidates must possess a Ph.D. by September 1997 and should have held their Ph.D. for no more than five years as of January 1, 1997. Selection will be based primarily on research achievement, but evidence of satisfactory teaching is necessary and departmental research priorities will be taken into account. **(3) SPECIAL VISITING POSITIONS:** Subject to availability of funds, one or more special one-year visiting assistant professorships in the research areas mentioned under (1) and (2) above, with possibility of a second year, carrying a teaching load of 5 or 6 one quarter courses per year. Applicants for the Ky Fan and the tenure track positions will automatically be considered for the visiting positions. Excellence in research, potential for interaction with other faculty and evidence of good teaching required. Candidates must possess a Ph.D. by September 1997. Applicants should send the following materials to: **either** the **Analysis Committee**, the **Numerical/Applied Committee**, or the **Visiting Appointments Committee**, as appropriate, at the **Department of Mathematics, University of California, Santa Barbara, CA 93106-3080**: a vita, a publication list, and a statement of research interests and the American Mathematical Society Cover Sheet (available online at http://www.ams.com). Include an email address if available. Applicants should also arrange to have at least four letters of recommendation sent to the appropriate committee. Applicants for the tenure track positions will automatically be considered for any visiting positions (including the Ky Fan Assistant Professorship) upon request, so duplicate applications are unnecessary. Applications which are complete by January 3, 1997, will be given full consideration. UCSB is an affirmative action/equal opportunity employer.

UNIVERSITY OF CALIFORNIA, SANTA BARBARA - DEPARTMENT OF STATISTICS AND APPLIED PROBABILITY - invites applications for two tenure-track positions in Statistics: Assistant/Associate Professor specializing in theoretical statistics, and Assistant Professor specializing in theoretical or applied statistics. Starts July 1, 1997. Require Ph.D. in Statistics and demonstrated potential for excellence in research and teaching, modern interests preferred. Current resume, papers and three reference letters to: **David Hinkley, Department of Statistics and Applied Probability, University of California, Santa Barbara, CA 93106-3110, USA.** Deadline: December 31, 1996. The University of California is an Equal Opportunity and Affirmative Action employer. Women and minorities are encouraged to apply.

UNIVERSITY OF DELAWARE - DEPARTMENT OF MATHEMATICAL SCIENCES - The Department of Mathematical Sciences invites applications for two tenure/tenure track positions beginning September 1, 1997. The first position is in applied mathematics at any level but strong preference will be given those individuals at the associate or entry full professor level with an established record both in publication and funded research. Expertise in the areas of wave propagation, fluid dynamics, material science and/or inverse problems as well as experience and interest in establishing links with industry and other academic disciplines will weigh heavily in the candidate's favor. Evidence of effective teaching is essential. The second, junior level position, is in scientific computation with prospects of complementing the first position. Applicants should send a curriculum vitae (including funding history), reprints and/or preprints and three letters of recommendation to: **Applied Math Search Committee, Department of Mathematical Sciences, University of Delaware, Newark, DE 19716** by January 1, 1997 to receive full consideration. The University of Delaware is an equal opportunity employer which encourages applications from qualified minority group members and women.

UNIVERSITY OF GEORGIA - DEPARTMENT OF MATHEMATICS - Assistant Professorship - Applications are invited for a tenure.-track position, starting in Fall 1997, at the rank of assistant professor. We especially encourage women and minorities to apply. Preference will be given to those areas currently represented in the department. The principal qualification is excellent in teaching and research. Salary will be commensurate with ability and experience. To apply send a vita and four letters of recommendation to: **Kevin Clancey, Head, Department of Mathematics, The University of Georgia, Athens, GA 30602.** The deadline for applications is January 1, 1997. The University of Georgia is an Equal Opportunity/Affirmative Action Employer.

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UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN - DEPARTMENT OF MATHEMATICS - Faculty (Rank Open) - Applications are invited for one or more full-time faculty positions (rank open) to commence August 21, 1997. The department will consider applicants in all fields of mathematics, but we intend to show preference in applied mathematics, differential equations, mathematical physics, probability theory, number theory, and combinatorics. Salary and teaching load are competitive. Applicants should send a letter of application, curriculum vitae and publication list, and arrange to have three letters of reference sent directly to the address below. We encourage use of the application cover sheet provided by the American Mathematical Society. Send to: **Philippe Tondeur, Chair, Department of Mathematics University of Illinois at Urbana-Champaign, 1409 West Green Street, Urbana, IL 61801.** tel (217) 333-3352 e-mail: search@math.uiuc.edu. All materials, including letters of reference, should be received by December 6, 1996. All completed applications received by that date will receive full consideration. Candidates must have completed the Ph.D. (or equivalent) by the time the appointment begins and are expected to present evidence of excellence in research and teaching. Applications from women and minority candidates are especially encouraged. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF IOWA - DEPARTMENT OF MATHEMATICS - The Department of Mathematics of The University of Iowa invites applications for the following positions: **(1.)** Tenure-track beginning or early assistant professorship, starting in August 1997, in the broadly interpreted area of computational mathematics. Expertise is desired in areas such as numerical parallel computing, computer graphics, or computational geometry. Extraordinary candidates at higher rank may be considered. Selection will be based on evidence of outstanding research accomplishments or potential, and teaching ability. A Ph.D. or equivalent training is required. **(2.)** Pending availability of funds, one or more visiting positions for all or part of the 1997-98 academic year. Selection will be based on research expertise and teaching ability. Preference will be given to applicants whose scholarly activity is of particular interest to members of the current faculty. Women and minority candidates are especially urged to apply for the above positions. The University of Iowa welcomes the employment of professional couples on its faculty and staff, permits the appointment of faculty couples within the same department, and permits the sharing of a single appointment by a faculty couple. Formal screening will begin December 15, 1996; applications will be accepted until the positions are filled. To apply, send a complete vita and have three letters of recommendation sent to: **Professor Bor-Luh Lin, Chair, Department of Mathematics, The University of Iowa, Iowa City, Iowa 52242.** The University of Iowa is an Equal Employment Opportunity and Affirmative Action Employer.

UNIVERSITY OF KANSAS - DEPARTMENT OF MATHEMATICS - Applications are invited for tenure-track and temporary positions at the assistant professor level beginning August 18, 1997 or as negotiated. (These positions are contingent on final budgetary approval.) For the tenure-track positions preference for one position will be given to candidates in stochastic control theory and otherwise to candidates in pure or applied mathematics or statistics whose specialties mesh well with those already represented in the department. For the temporary positions, preference will be given to candidates whose research interests mesh well with those of our faculty. Candidates must have a Ph.D. or its requirements completed by August 15, 1997. Postdoctoral experience for the tenure-track positions is preferred. Letter of application, detailed resume with description of research, completed AMS standardized application form, and three recommendation letters should be sent to: **C.J. Himmelberg, Chairman, Department of Mathematics, 405 Snow Hall, University of Kansas, Lawrence, KS 66045-2142.** Deadlines: Review of applications will begin on January 1, 1997 and will continue until the positions are filled. EO/AA Employer.

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department of Mathematics and Statistics at the University of Maryland Baltimore County (UMBC) has an opening for a tenure-track faculty position in statistics beginning Fall 1997. Candidates with a Ph.D. in statistics/biostatistics and primary research activities in applied statistics such as biostatistics, computational statistics, environmental statistics and sampling are invited to apply. The applicant should have an active independent research program and a strong potential for obtaining external funding. It may be possible to consider exceptional candidates for a more senior rank. The department offers B.S., M.S. and Ph.D. degrees in applied mathematics statistics. Applications, letters of reference, summary of current research and research program should be sent to: **Statistics Recruiting Committee, Department of Mathematics and Statistics, University of Maryland Baltimore County, Baltimore, MD 21250.** The committee will begin scanning the applications by November 1996. UMBC is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department of Mathematics and Statistics at the University of Maryland Baltimore County (UMBC) has openings for one or more tenure-track faculty positions in applied mathematics beginning Fall 1997. The candidates should be able to interact with the department's existing groups in optimization, numerical analysis, PDEs, systems theory, or statistics. Preference will be given to candidates with interests in interdisciplinary computational and industrial applications. One of the positions is targeted for the area of mathematical optimization. The applicants should have active independent research programs and strong potential for obtaining external funding. It may be possible to consider exceptional candidates for a more senior rank. The department offers B.S., M.S. and Ph.D. degrees in applied mathematics and statistics. Application, letters of reference, summary of current research and research program should be sent to: **Applied Mathematics Recruiting Committee, Department of Mathematics and Statistics, University of Maryland Baltimore County, Baltimore, MD 21250.** The committee will begin scanning the applications by November 1996. UMBC is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF MICHIGAN - DEPARTMENT OF MATHEMATICS - The University of Michigan expects to have at least two T.H. Hildebrandt Research Assistant Professorships. Three-year appointment, reduced teaching load. Also expect to have several 3-year term assistant professorships. Preference given to persons of any age having the Ph.D. degree less than two years, with a research interest in common with senior faculty. Applicants should have a strong research program and serious commitment to teaching. Salary competitive. Non-discriminatory Affirmative Action Employer. Starting date: September 1997. Send application to: **Professor B.A. Taylor, Chairman, Department of Mathematics, University of Michigan, Ann Arbor, MI 48109-1109.** E-mail: math.chair@umich.edu. Application deadline is December 16, 1996. http://www.math.lsa.umich.edu/

UNIVERSITY OF MICHIGAN - DEPARTMENT OF MATHEMATICS - The University of Michigan expects to have up to five tenure eligible or tenured positions including several as part of an interdisciplinary/applied initiative. Besides the initiative, searching broadly for individuals who would significantly broaden and strengthen areas currently represented and who cut across areas. Exceptional research and teaching experience required. Non-discriminatory Affirmative Action Employer. Starting date: September 1997. Send application to: **Professor B.A. Taylor, Chairman, Department of Mathematics, University of Michigan, Ann Arbor, MI 48109-1109.** E-mail: math.chair@umich.edu. Applicants considered on a continuing basis. Rank and salary negotiable. See the Departmental home page, http://www.math.1sa.umich.edu for more details.

The **1996-97 MEMBERSHIP RENEWAL NOTICES** were mailed out in August to all **institutional** and **individual** members. The 1996-97 membership year is from **OCTOBER 1, 1996** to **SEPTEMBER 30, 1997.** If you haven't received your renewal notice, please let us know: **E-MAIL: awm@math.umd.edu**

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UNIVERSITY OF MICHIGAN, DEARBORN - DEPARTMENT OF MATHEMATICS AND STATISTICS - Math Education Position - The University of Michigan-Dearborn plans to fill a tenure-track position in math. educ. starting in Sept. 1997. The position is at the Asst. or Assoc. Prof. level and requires a doctorate in math educ. A focus, in math methods at the elementary level as well as teaching experience in grades K-8, is preferred. Demonstrated capability in teaching courses in math educ. at the university level is required, as well as demonstrated research capability in math educ. 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 send to: **Dr. Ronald P. Morash, Chair, Department of Mathematics and Statistics, University of Michigan-Dearborn, Dearborn, Michigan 48128-1491.** To ensure full consideration, all application materials must be received by Jan. 20, 1997. 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 MICHIGAN, DEARBORN - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applied Mathematics Position - The University of Michigan-Dearborn plans to fill a tenure-track position, starting in Sept. 1997, at the Asst. or Assoc. Prof. level. This position requires a Ph.D. in an area of applied mathematics. A research area in an area of computational mathematics is preferred. Teaching capability in applied mathematics is required. Interest in developing undergraduate and master's curricula in applied mathematics, especially computational mathematics, is desired. 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, transcript, and have 3 letters of recommendation set to: **Dr. Ronald P. Morash, Chair, Department of Mathematics and Statistics, University of Michigan-Dearborn, Dearborn, Michigan 48128-1491.** To ensure full consideration, all application materials must be received by Jan. 20, 1997. 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 MISSOURI, COLUMBIA - DEPARTMENT OF MATHEMATICS - Our department is now in the last stage of completing its enhancement program. In the last three years, we have successfully hired 11 outstanding young faculty members in competition with some of the best departments in the country. We have created several postdoctoral positions and several graduate fellowships. Salary increases for our department averaged between 6.5% to 9% during the last three years. To join this successful department, you are invited to apply for **two tenure-track positions** at the Advanced Assistant Professor level and **several postdoctoral positions** beginning August 1997. The tenure-track positions require a Ph.D. in Mathematics, two to three years experience after the Ph.D., quality teaching, and a distinguished research record in Algebra/Algebraic Geometry or Mathematical Physics. The posdoctoral positions will be in the three enhanced areas which include Modem Analysis/Harmonic Analysis, Algebra/Algebraic Geometry and Mathematical Physics for a period of one to three years. Send a curriculum vitae along with a letter of application, a completed AMS Standard Cover Sheet, and arrange for three letters of recommendation to be sent to: **Elias Saab, Chair, Department of Mathematics, University of Missouri-Columbia, Columbia, Missouri 65211.** The application deadline is January 31, 1997, or until the positions are filled thereafter. Applications after February 28, 1997, will not be guaranteed consideration. Visit our home page at http://math.missouri.edu/~news/issue1/front.html. AA/EEO.

UNIVERSITY OF NEBRASKA, LINCOLN - DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING - Department Chair - The Department of Computer Science and Engineering (CSE) invites applications and nominations for the position of department chair. CSE has 20 faculty, 350 undergrads, and 94 grad students. The department offers degrees in Computer Science and Computer Engineering, with programs leading to the B.S., M.S., and Ph.D. CSE has internationally recognized research programs and seeks to further improve its standing in Communication Theory and Foundations; Performance, Dependability, and Security in Distributed Systems; Signal Processing and Image Understanding; and Human Centered Systems and Multimedia. The University of Nebraska, Lincoln (UNL) is the state's land grant institution and premiere research campus. UNL has approximately 24,000 students. UNL 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. Contact Dr. Samuel B. Treves at (402) 472-0872 for assistance. Qualifications: an earned doctorate in Computer Science, Computer Engineering or a closely related field, strong leadership for research and academic programs, and credentials appropriate for appointment as a tenured full professor. The candidates academic credentials or background should permit him/her to be a credible and effective advocate for CSE in both the College of Arts and Sciences and the College of Engineering and Technology. Application screening will begin January 15, 1997 and continue until the position is filled. Salary will be commensurate with qualifications. Women and minorities are particularly encouraged to apply. For a ***complete job announcement, details of the application process, and additional information*** about CSE and UNL, **please visit: http://http.cs.unl.edu/, or contact Dr. Samuel B. Treves at (402) 472-0872 or streves@unlinfo.unl.edu.**

UNIVERSITY OF NORTHERN IOWA - DEPARTMENT OF MATHEMATICS - Assistant Professor of Mathematics - Tenure-track position to teach courses offered by the mathematics department at both the undergraduate and graduate levels. Applicants should have a Ph.D. in mathematics and be committed to quality education and scholarship at a comprehensive university. Candidates with research interests in algebra or analysis compatible with those of present faculty and with experience using technology in the classroom are preferred. Appointment begins in August 1997. Salary is competitive; fringe benefits are excellent. Application must be received by February 14, 1997 to receive full consideration. For more information contact **Gregory Dotseth, Department of Mathematics, University of Northern Iowa, Cedar Falls, IA 50614-0506.** (319)273-2397 dotseth@math.uni.edu AA/EOE.

UNIVERSITY OF OKLAHOMA - DEPARTMENT OF MATHEMATICS - The Department invites applications for a tenure-track assistant professor position in Mathematics beginning August 1997; Candidates must have a Ph.D. or equivalent degree in mathematics and demonstrate potential for excellence in both research and teaching. Preference will be given to candidates whose research interests are compatible with existing faculty in the area of algebra, analysis/applied math, geometry and topology. Post-doctoral experience is desirable but not essential. Faculty members normally teach two classes each semester, do research, and contribute University and Department service appropriate to their experience. Salary will be commensurate with qualifications and experience. For full consideration send a completed AMS Cover Sheet, curriculum vitae, and a description of current and planned research; and, have three letters of recommendation, at least one of which discusses the candidate's teaching, sent by January 15, 1997. Applications will be considered until the position is filled. All correspondence should be directed to: **Search Committee, Department of Mathematics, University of Oklahoma, 601 Elm, Phsc 423, Norman, OK 73019-0315, USA..** Telephone 1-405-325-6711; FAX: 1-405-325-7484; email: search@math.ou.edu. 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.

UNIVERSITY OF OREGON - DEPARTMENT OF MATHEMATICS - Assistant professor tenure-track position in pure mathematics or statistics beginning September 1997. Qualifications are a Ph.D. in mathematics or statistics, a strong record of research accomplishment, and evidence of teaching ability. Preference given to candidates with research interests that complement those currently represented. Competitive salary with excellent fringe benefits. Send complete resume and three letters of recommendation. Closing date is January 3, 1997. Women and minorities are encouraged to apply. An EO/AA/ADA Institution committed to cultural diversity. Contact **Gary Seitz, Department Head, University of Oregon, Department of Mathematics, Eugene, OR 97403.** email: **seitz@math.uoregon.edu.**

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UNIVERSITY OF PENNSYLVANIA - DEPARTMENT OF MATHEMATICS - Tenure Positions in Mathematics - We anticipate that commencing July 1, 1997, there may be one or more tenure positions available in the following areas: algebra, analysis, geometry/topology and discrete mathematics. These positions are for candidates with outstanding, internationally recognized research achievements who are successful teachers of undergraduate and graduate students. Rank and salary will depend upon experience. Write to: **Personnel Committee, Department of Mathematics, University of Pennsylvania, Philadelphia, PA 19104-6395.** The University of Pennsylvania is an equal opportunity, affirmative action employer.

UNIVERSITY OF PENNSYLVANIA - DEPARTMENT OF MATHEMATICS - Junior Positions in Mathematics - Several positions will be available beginning July 1, 1997. Candidates should have strong research credentials and be recognized as potentially successful teachers of undergraduate and graduate students. Send resume and three letters of reference to: **Personnel Committee, Department of Mathematics, University of Pennsylvania, Philadelphia, PA 19104-6395.** These are due by December 15, 1996. The University of Pennsylvania is an equal opportunity, affirmative action employer.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - The Department of Mathematics expects two tenure-track positions at the assistant or associate professor level, in addition to several visiting and postdoctoral positions. Applicants must show exceptional promise in research and teaching. To apply, please submit the following materials in a single package: letter of application (including your email address and fax number), the *AMS Cover Sheet*, and a curriculum vitae. Candidates for assistant professor, visiting and/or postdoctoral positions should also arrange for three letters of recommendation to be sent. Mail all materials to: **Chair of Appointments Committee, Department of Mathematics - DRB 155, University of Southern California, Los Angeles CA 90089-1113.** Review of applications will begin December 1, 1996. Additional information about USC can be found on the Web at http://www.usc.edu/. USC is an Equal Opportunity/Affirmative Action employer.

UNIVERSITY OF TEXAS AT ARLINGTON - DEPARTMENT OF MATHEMATICS - Applications are invited for possibly two to three anticipated tenure-track positions beginning with the Fall Semester 1997. **One of these will be a position** of Assistant Professor in Mathematics Education. The candidate must show strong potential for excellence in teaching and research in Math Education. The Department is seeking to extend its effectiveness in the area of undergraduate mathematics, mathematics programs for future elementary middle and secondary teachers, and Masters and Ph.D. degrees in Mathematics Education. **For the other positions**, we seek candidates in various areas of mathematics, in particular numerical analysis and differential equations, which are complementary to those of the current faculty and would enhance and support the goals of the Department. Application deadline is December 15, 1996, or until positions filled. Salary and rank are commensurate with qualifications which must include the Ph.D. degree (an earned doctorate by August 1997). Candidates must show strong potential for excellence in teaching and research. For an Associate or Full Professorial appointment the candidate must have excellent teaching credentials and a nationally established research record; some success in attracting outside funding is desirable. Please send a resume and three letters of recommendation to: **Chairperson, Faculty Recruiting Committee, University of Texas at Arlington, Department of Mathematics, Box 19408, Arlington, TX 76019-0408.** The University of Texas at Arlington is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF TEXAS AT AUSTIN - DEPARTMENT OF MATHEMATICS - Openings for Fall 1997 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, 1997. Other factors being equal, preference will be given to those whose doctorates were conferred in 1996 or 1997. 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: **University of Texas at Austin, Department of Mathematics, 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, 1996. The University of Texas at Austin is an equal opportunity employer.

UNIVERSITY OF TORONTO - DEPARTMENT OF COMPUTER SCIENCE - The Department of Computer Science, University of Toronto, invites applications for one or two tenure-track positions as Assistant Professors in Communication Networks, Distributed Information Systems or Software Engineering. Salary will be determined according to the successful applicant's experience and qualifications. The appointment is to commence July 1, 1997 and the position is on the St. George (downtown) campus of the University of Toronto. Applications, including a curriculum vitae and a list of publications, should be sent to: **Professor Wayne H. Enright, Chair, Department of Computer Science, University of Toronto, Toronto, Ontario, M5S 3G4, Canada.** Please arrange to have three letters of reference sent directly to the same address. Deadline for application is January 15, 1997. The attention of applicants is drawn to a similar position, separately advertised, that is presently available on the University's Scarborough campus. A separate application is required, as detailed in the advertisement. In accordance with Canadian Immigration requirements this advertisement is directed to Canadian citizens and permanent residents of Canada. In accordance with its Employment Equity Policy, the University of Toronto encourages applications from qualified women or men, members of visible minorities, aboriginal peoples, and persons with disabilities.

UNIVERSITY OF TORONTO - DEPARTMENT OF COMPUTER SCIENCE - Applicants are sought for a tenure-track position in computer science at the University of Toronto, Scarborough Campus. It is expected that the appointment will be made at the rank of Assistant Professor. The university's teaching and research activities in computer science are closely integrated across the university's three campuses in the Greater Toronto Area. Duties of the present position will include teaching undergraduate courses on the Scarborough campus, teaching graduate courses on the downtown campus, and engaging in research and the supervision of graduate students. Excellent candidates from all areas of computer science are encouraged to apply. We are seeking people with a strong commitment to, and demonstrated excellence in, both teaching and research. The areas of expertise in which our needs are greatest are operating systems, networks, software engineering, distributed systems, and related topics. We especially value individuals with a broad knowledge of computer science. Applicants must hold, or expect to shortly receive, a Ph.D. in computer science or a closely related field. Applications, including a CV and research statement, should be submitted by 31 January 1997 to: **Professor J. Thompson, Chair, Division of Physical Sciences, Scarborough Campus, University of Toronto, Scarborough, Ontario M1C 1A4, Canada.** Candidates should arrange for at least three letters of reference to be sent to the above address. Enquiries may be addressed to Professor Thompson at jthompso@scar.utoronto.ca or 416-287-7196. The attention of applicants is drawn to a similar position, separately advertised, that is presently available on the University's downtown campus. A separate application is required, as detailed in the advertisement. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and landed immigrants (permanent residents) of Canada. In accordance with its employment equity policy, the University of Toronto encourages applications from qualified men and women, members of visible minorities, aboriginal people, and persons with disabilities.

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ADVERTISEMENTS

UNIVERSITY OF WASHINGTON - DEPARTMENT OF MATHEMATICS - Applications are invited for several positions starting September 1997. There is one three-year non-tenure track acting assistant professorship available. There are also two positions initially budgeted as tenure-track assistant professorships, but sufficiently outstanding candidates may be considered at the associate professor or professor level. Applicants must have the Ph.D. degree in hand by the starting date. Duties include undergraduate and graduate teaching and independent research. Applications should include a curriculum vitae, statement of research and teaching interests, three letters of recommendation, and a Mathematics Subject Classification (as found in the December index volumes of Mathematical Reviews) of their primary research interest. Applications should be sent to: **Appointments Committee Chair, Department of Mathematics, Box 354350, University of Washington, Seattle, WA 98195-4350.** Priority will be given to applications received by December 15, 1996. The University of Washington is building a culturally diverse faculty and strongly encourages applications from female and minority candidates. The University is an Equal Opportunity/Affirmative Action employer. Availability of positions is subject to budgetary approval.

UNIVERSITY OF WATERLOO - DEPARTMENT OF COMBINATORICS AND OPTIMIZATION - The Department of Combinatorics and Optimization at the University of Waterloo invites applications for tenure-track and definite term faculty positions at the rank of Assistant Professor, in any area of combinatorics and optimization, but especially in cryptography, graph theory and combinatorial optimization. A Ph.D. and proven ability, or the potential, for excellent research and effective teaching are required. Responsibilities will include the supervision of graduate students, as well as teaching at the undergraduate and graduate levels. Salary will depend on the candidate's qualifications. Interested individuals should send curriculum vitae 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 N2L 3G1, Canada.** Effective date of appointment: July 1, 1997. Closing date for receipt of applications is January 15, 1997. 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.

UNIVERSITY OF WATERLOO - DEPARTMENT OF COMBINATORICS AND OPTIMIZATION - The Department of Combinatorics and Optimization at the University of Waterloo invites applications for tenure-track and definite term faculty positions at all ranks in the area of cryptography. A Ph.D. and proven ability, or the 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. In addition to one or more junior appointments, there is a possibility of a tenured professorial appointment associated with an externally funded research chair, at the senior level. Individuals with a strong and established research program are particularly encouraged to apply. Salary will depend on the candidate's qualifications. Interested individuals should send curriculum vitae 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 N2L 3G1, Canada.** Effective date of appointment: July 1, 1997. Closing date for receipt of applications is January 15, 1997. 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.

UNIVERSITY OF WATERLOO - DEPARTMENT OF PURE MATHEMATICS - The Department of Pure Mathematics at the University of Waterloo invites applications for a tenure-track position at the Assistant Professor level starting July 1, 1997. The Department is particularly interested in candidates whose research interests are related to Algebraic or Geometric Topology, Functional Analysis or Number Theory. In order to be considered for the position, a Ph.D. is required. An appointment will be offered only to someone with very strong research and teaching qualifications. Duties will include research, and teaching at all levels. Salary will depend on the candidate's qualifications. The closing date for receipt of applications is January 15, 1997. An application should contain the curriculum vitae of the candidate plus three letters of reference sent directly from referees. 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. This appointment is subject to the availability of funds. Please send applications to: **Dr. W. Gilbert, Chair, Department of Pure Mathematics, University of Waterloo, Waterloo, Ontario, Canada, N2L 3G1.** The department's Web page is at <http://math.uwaterloo.ca/PM_Dept/homepage.html/>

UNIVERSITY OF WYOMING - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for tenure-track Assistant Professorships 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 and the mathematics of porous-media flows, Applications received by January 15, 1997, will receive first consideration. For more information, visit our Web site, http://math.uwyo.edu/. The University of Wyoming is an equal opportunity employer, and we welcome 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, USA.**

UTAH STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applications are invited for a tenure track position at the assistant professor level, to begin September 1997. Requirements include a Ph.D. (by September 1997) in mathematics with a strong research record/potential in a currently active area of topology. Applicants with recent postdoctoral experience are especially encouraged to apply. All applicants should send a current resume, together with a completed AMS Standard Cover Sheet, and arrange for four letters of reference with one letter addressing teaching history/potential, to be sent directly to: **Mathematics Search Committee, Department of Mathematics and Statistics, Utah State University, Logan Utah 84322-3900.** The search committee review process will begin on January 15, 1997 and the position will remain open until filled. Utah State University, with a student body of 20,000, is located in Logan, Utah, in the Wasatch Range of the Rocky Mountains. The University offers competitive salaries and excellent medical, retirement, and professional benefits. General information about the Department can be found at web site http://www.math.usu.edu and information regarding professional amenities and benefits at Utah State University can be found at http://www.usu.edu/~persinfo/jobs.htm. Utah State University is an equal opportunity/affirmative action employer.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are solicited for a tenure-track assistant professorship in combinatorics/discrete mathematics. Candidates must have a Ph.D. in mathematics or the equivalent and must demonstrate strength in research and teaching. Preference will be given to applicants with post-doctoral experience. The Department seeks candidates who will interact well with research groups in computational algebra and representation theory. Please send the AMS Standard Cover Sheet, a letter of application, curriculum vitae, and summary of research plans to: **Combinatorics Search Committee, Department of Mathematics, Virginia Tech, Blacksburg, VA 24061-0123.** Four letters of recommendation, including one which focuses on teaching skills, should be sent to the same address. Review of applications will begin on December 15, 1996 and continue until the position is filled. Virginia Tech has a strong commitment to the principle of diversity and, in that spirit, seeks a broad spectrum of candidates including women, minorities, and people with disabilities. Individuals with special needs desiring accommodations in the application process should contact Ezra Brown, Department of Mathematics, brown@math.vt.edu, 540-231-6950 (TDD/PC 1-800-828-1120 or Voice 1-800-828-1140).

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ADVERTISEMENTS

WASHINGTON STATE UNIVERSITY - DEPARTMENT OF PURE AND APPLIED MATHEMATICS - Tenure-track assistant professor position available in numerical partial differential equations/computational geometry beginning August 16, 1997. Ph.D. in mathematics or closely-related area, with emphasis on numerical partial differential equations/computational geometry required. Evidence of success in teaching undergraduate mathematics, and evidence of strong potential for quality graduate instruction and dissertation direction, research publication, and ability to attract external funding also required. Existing publications, prior funding, postdoctoral experience, or other similar concrete evidence of potential is a strong plus. Duties include graduate and undergraduate instruction, research direction of graduate students and attraction of external funding. To apply send letter of application, vitae and three names of references to: **Chair, Search Committee, Department of Mathematics, P.O. Box 643113, Washington State University, Pullman, WA 99164-3113.** Screening begins December 1, 1996 and will continued until position is filled. WSU is an EO/AA educator and employer. Protected group members are encouraged to apply.

WASHINGTON UNIVERSITY IN ST. LOUIS - DEPARTMENT OF MATHEMATICS - One- or two-year visiting position, to begin August 1997. Salary at assistant professor level. Teaching load: two courses one semester, one course the other. Applicants should have research interests which are close to those of our faculty. These include certain types of algebra, analysis and geometry. To apply, send vita and research plan to: **Edward N. Wilson, Chairman, Mathematics, Washington University in St. Louis, Campus Box 1146, 1 Brookings Drive, St. Louis, MO 63130.** Ask three persons to send letters of recommendation directly to us. At least one of the letters should report on teaching performance. To insure full consideration, materials should reach us by February 2, 1997. Washington University is an affirmative action/equal opportunity employer and specifically invites and encourages women and minorities. Employment eligibility verification required on hire.

WAYNE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for an anticipated tenure-track position at the rank of Assistant/Associate Professor in computational mathematics with an emphasis in symbolic computation and its interaction with algebra and combinatorics. There is also the possibility of another tenure-track position in any area of specialization. Visiting positions for 1997-98 in any field of mathematics are also anticipated. Ph.D. in mathematics required. Applications should include a signed, detailed vitas description of current research interests, and four letters of recommendation, including one addressing teaching. Solid evidence of excellence in teaching at the undergraduate level is preferred over a statement of teaching philosophy. Send application to: **William S. Cohn, Chair, Department of Mathematics, Wayne State University, Detroit, MI 48202.** Wayne State University is an equal opportunity/affirmative action employer and applications from female and minority candidates are particularly encouraged. All buildings, structures and vehicles at WSU are smoke-free. Wayne State University - People working together to provide quality service.

WESTERN MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Western Michigan University seeks applications for tenure-track assistant professor positions in (1) Combinatorics/Graph Theory, (2) Mathematics/Applied Mathematics with a strong background in Ordinary Differential Equations, (3) Statistics, to begin Fall 1997, pending budgetary approval. A doctorate degree, excellent teaching ability, and a strong commitment to research compatible with the interests of the faculty are required for each position. Outstanding applicants at the associate professor level for the position in Combinatorics/Graph Theory may be considered. Salary and fringe benefits are competitive. Western Michigan University, a Carnegie Classification Doctoral I Institution and equal opportunity employer, has an affirmative action program which encourages applications from underrepresented groups. Send letter of application, vita, statement of research plans, academic transcripts, and three letters of recommendation to: **John W. Petro, Chair, Department of Mathematics and Statistics, Western Michigan University, Kalamazoo, MI 49008.** Email: john.petro@wmich.edu, fax 616-387-4530. For information about Western Michigan University see http://www.wmich.edu/. Review of applications will begin November 1, 1996, and applications will be accepted until the positions are filled.

WESTERN WASHINGTON UNIVERSITY - DEPARTMENT OF MATHEMATICS - Tenure-track Position - Begin Fall 1997. Candidates with interests in mathematical modelling in the biological / environmental sciences are particularly welcome, but strong candidates with interests in other areas will be considered. A Ph.D. and evidence of effective teaching skills are required. Faculty are expected to be productive scholars and excellent teachers. A strong commitment to undergraduate instruction and curriculum development is required. Scholarly collaboration and independent grant-funded research are expected. WWU is beside Bellingham Bay, between Seattle and Vancouver, with excellent recreational opportunities. Candidates should obtain the Position Announcement and WWU math summary sheet from http://www.wwu.edu/~mathweb or the address below, and submit the WWU summary sheet, the AMS standard cover sheet, a vita, complete transcripts, description of research and teaching accomplishments and interests, and four letters of recommendation addressing both teaching and research qualifications, by January 17, 1997, to: **Search Committee, Department of Mathematics, Western Washington University, Bellingham WA 98225-9063.** Fax: (360) 650-7788. Tel: (360) 650-3785. Email: mathdept@cc.wwu.edu. No electronic applications. WWU encourages applications from women and minority candidates. AA/EOE.

YORK UNIVERSITY - DEPARTMENTS OF MATHEMATICS & STATISTICS AND SOCIOLOGY - Applications are invited for a cross appointment at the Assistant Professor level in the Departments of Mathematics & Statistics and Sociology, to commence July 1, 1997, subject to budgetary approval. The successful candidate must have a Ph.D. and is expected to have established a record of research and teaching excellence in statistics and its application to sociology. The selection process will begin on January 15, 1997. Applicants should send resumes and arrange for at least three letters of recommendation to be sent directly to: **George L. O'Brien, Chair, Department of Mathematics & Statistics, York University, 4700 Keele Street, North York, Ontario, Canada, M3J 1P3, Canada**; Fax: (416) 736-5757; e-mail: chair@mathstat.yorku.ca (Web: http://www.math.yorku.ca/). York is implementing a policy of employment equity, including affirmative action for women faculty. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

YORK UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applications are invited for a tenure-track appointment at the Assistant Professor level in the Department of Mathematics & Statistics in the area of Operations Research or Financial Mathematics to commence July 1, 1997, subject to budgetary approval. The successful candidate must have a Ph.D. and is expected to have established a record of research and teaching excellence. The selection process will begin on January 30, 1997. Applicants should send resumes and arrange for at least three letters of recommendation to be sent directly to: **George L. O'Brien, Chair, Department of Mathematics & Statistics, York University, 4700 Keele Street, North York, Ontario, M3J 1P3, Canada;** e-mail: chair@mathstat.yorku.ca; Fax: (416) 736-5757. (Web: http://www.math.yorku.ca/). York is implementing a policy of employment equity, including affirmative action for women faculty. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

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ASSOCIATION FOR WOMEN IN MATHEMATICS

1996/1997 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

Home Phone: **Work Phone:**

E-mail:

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..... $ 30 _____
(NO newsletter) Please indicate regular family member: _____

CONTRIBUTING MEMBERSHIP..... $100 _____
Indicate if you wish for this contribution to remain anonymous: _____

RETIRED or PART-TIME EMPLOYED MEMBERSHIP (circle one)..... $ 20 _____

STUDENT or UNEMPLOYED MEMBERSHIP (circle one)..... $ 10 _____

ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO)....**FOR ADDITIONAL POSTAGE ADD** $ 8 _____
All payments must be in U.S. Funds using cash, U.S. Postal orders, or checks drawn on U.S. Banks.

☐ I am enclosing an additional DONATION to the **"AWM 25TH ANNIVERSARY ENDOWMENT FUND"** $ _____

INSTITUTIONAL DUES SCHEDULE

	U.S.	FOREIGN	
_____ Sponsoring CATEGORY I (may nominate 10 students for membership).....	$120	$200	_____
_____ Sponsoring CATEGORY II (may nominate 3 students for membership).....	$ 80	$105	_____

Effective July 1, 1996 -- 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]

N/D96

TOTAL ENCLOSED $ _____

AWM Events

AWM would like to invite you to our events to be held in conjunction with the Joint Mathematics Meetings at the Marriott Hotel & Marina and the San Diego Convention Center, San Diego, January 8-11, 1997.

Preliminary Schedule as of October 15, 1996

Wednesday, January 8th

3:30 p.m.- 4:30 p.m. **Panel Discussion:** ***"What it takes to have a successful career in the mathematical sciences"***
Panelists: **Lynne Butler,** Haverford College; **Lesley Sibner,** Polytechnic University of New York; **Nancy Kopell,** Boston University; **Audrey Terras,** University of California, San Diego

4:40 p.m. -5:10 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. Separate checks will be requested.

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

Thursday, January 9th

9:00 a.m. Eighteenth Annual **Emmy Noether Lecture:** ***"How do real manifolds live in complex space?"***
presented by **Linda Priess Rothschild,** University of California, San Diego

4:25 p.m. Presentation of the Seventh Annual **Louise Hay Award** for Contributions to Mathematics Education.
This award presentation is held in conjunction with the Joint Prize Session. A cash bar reception will immediately follow.

Saturday, January 11th

8:50 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 mathematician. All mathematicians (male and female) are invited to attend the entire program. The AWM Workshop is supported by the Office of Naval Research
Co-organizers: Ruth M. Charney, Ohio State Univ.; Carolyn S. Gordon, Dartmouth Coll.; Catherine Roberts, Northern Arizona Univ.

8:50 a.m. - 9:00 a.m.	Opening Remarks	
9:00 a.m. - 9:20 a.m	**Perla L. Myers,** University of California, Santa Cruz	*"Random Walks on the Finite Torus"*
9:30 a.m. - 9:50 a.m.	**Beth L. Chance,** University of the Pacific	*"General Theory of Hierarchical Model Behavior"*
10:00 a.m. - 10:20 a.m.	**Gretchen Ostheimer,** Tufts University	*"Algorithms for Polycyclic Groups"*
10:30 a.m. - 10:50 a.m.	**Elizabeth G. Jurisich,** University of Chicago	*"A decomposition theorem for the Monster Lie algebra"*
11:00 a.m. - 12 noon	**Graduate Student Poster Session I**	
	Sarah-Marie Belcastro, University of Michigan	*"Mirroring Families of K3 Surfaces"*
	Carol E. Fan, University of Michigan	*"Injectivity Radius Bounds in Hyperbolic Convex Cores"*
	Stephanie A. Fitchett, University of Nebraska, Lincoln	*"Fat Points Ideals and Blow-Ups of the Projective Plane"*
	Sabrina A. Hessinger, North Carolina State University	*"Computing the Galois Group of an Order Four Linear Differential Equation"*
	Michelle Diann Homp, University of Nebraska, Lincoln	*"A Two-Dimensional Degenerate Parabolic Equation with Oblique, Evolutionary Boundary Conditions"*
	Annela Rammer Kelly, University of Missouri, Columbia	*"Vector-Valued Measures"*
	Jean Beth Mastrangeli, Bryn Mawr College	*"Symplectic Packings of the Cotangent Bundle of the Torus"*
	Jennifer L. Mueller, University of Nebraska, Lincoln	*"A Parameter Recovery Problem on the Real Line"*
	Mary R. Sandoval, University of Michigan	*"Spectral Asymptotics and Spectral Asymmetry for Systems of Differential Operators"*
	Zsuzsanna Szaniszlo, U. of Nebr.; U. of South Dakota	*"A generalization of the Bolloba's Inequality"*
	Tamara B. Veenstra, Dartmouth College	*"Siegel Modular Forms: Results on Satake Parameters"*
	Rebecca G. Wahl, Purdue University	*"Composition Operators with Multivalent Symbol"*
12:00 noon - 1:00 p.m.	**AWM Workshop Lunch** *(for ticket information, contact AWM)*	
1:00 p.m. - 1:20 p.m.	**Dorina I. Mitrea,** University of Missouri, Columbia	*"Boundary value problems for differential forms on domains with rough boundaries"*
1:30 p.m. - 1:50 p.m.	**Weiqing Gu,** Harvey Mudd College	*"The stable 4-dimensional geometry of the real Grassmann manifolds"*
2:00 p.m. - 2:20 p.m.	**Chikako Mese,** University of Southern California	*"Minimal Surfaces and Conformal Mappings in Singular Spaces"*
2:30 p.m. - 2:50 p.m.	**Tracy Lin Payne,** Washington University in St. Louis	*"Invariant Submanifolds for Geodesic Flows for Manifolds with Nonpositive Curvature"*
3:00 p.m. - 4:20 p.m.	**Panel: "Launching a Career in Mathematics"** (Panelists: TBA)	
4:30 p.m. - 5:00 p.m.	**Graduate Student Poster Session II** *(refer to list from Session I)*	
5:00 p.m. - 5:10 p.m.	Closing Remarks	

AWM will have an information table in the exhibit area throughout the meeting. **For 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.***

AWM

Newsletter Volume 26, Number 6, November–December 1996

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):

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Position_____ Institution/Org._____

Telephone: Home_____ Work_____

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

MAIL TO:

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

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