

AWM

ASSOCIATION

FOR WOMEN IN

MATHEMATICS

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NEWSLETTER

January-February 1994

PRESIDENT'S REPORT

Cincinnati

Most of you will be reading this after the Joint Mathematics Meetings at Cincinnati. I hope to have shared it with many of you! As I indicated last issue, our program there will be very full. The report on all our activities will appear in the March-April *Newsletter*.

The January Meeting is also the 100th Annual Meeting of the AMS, and a full program of celebration is scheduled for Saturday, with Bettye Anne Case, AWM Meetings Coordinator, in charge of it.

AMS Elections

Five outstanding women who are AWM members will play a crucial leadership role in the Society for the next few years. Cathleen Morawetz (Courant Institute, NYU), a prominent mathematician and a great administrator, will be the second woman President in the Society's history. Jean Taylor (Rutgers) has been elected Vice President as a petition candidate. Thus, we have succeeded in keeping a woman mathematician in that job since 1985. Sylvia Wiegand (Nebraska), whose service to AMS (and to AWM) is well known, has been elected member-at-large of the Council; Linda Preiss Rothschild (UCSD, former AWM President) will be a member of the Nominating Committee; and Carolyn Gordon (Dartmouth, incoming member of the AWM Executive Committee) will be a member of the Editorial Boards Committee.

It is a good sign that these women mathematicians continue to be recognized by the community. They do not form a group in any political sense of the word, and their views on many subjects are varied. This is the way it ought to be!

Cheers to all of them, and to all of us in our successful quest for representation of our common interests!

Federal Funding

If you have the impression I cannot let go of this subject, you are right. It matters to us!

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AWM

ASSOCIATION FOR WOMEN IN MATHEMATICS

The Association was founded in 1971 in Boston, MA. The purpose of the association is to encourage women to study and to have active careers in the mathematical sciences. Equal opportunity and the equal treatment of women in the mathematical sciences are promoted.

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The AMS is discussing a Federal Policy Agenda. Such a document requires input from a broad spectrum of the mathematical community to be effective. It is necessary to reach out to gauge the concerns, interests and needs of different constituencies. Without the support and participation of the community at large we will have less impact on the outside world. To inform policy makers and the general public about the work of mathematicians and their capabilities to interact with people in other areas, we must look beyond our own circles.

It is especially important to reflect the interest of the community in preserving research not only at the top institutions but also everywhere it is demonstrably excellent. The "world class" research that has been talked about so much lately as the only sort deserving "adequate" NSF funding has never been defined and has been too closely associated with preserving the overhead funds that go to leading institutions. Since the "underrepresented groups" are even more underrepresented at those institutions, it is vital to AWM that these matters be discussed because real support for the advancement of women and underrepresented ethnic minorities is at stake. [And yes, I continue to use inverted commas as an ironic device, as in "curiosity-driven" research, which I agree is a misnomer for basic research.]

Another issue affecting women and other underrepresented groups is to require federal programs to be evaluated with respect to their success in achieving integrative goals. We should support programs that are effective in bringing more women and other underrepresented minorities into mathematics.

Also, the professional organizations should recommend that employers avoid the exploitative practice of hiring young Ph.D.'s by the year. This practice is affecting the profession, warping the lives of too many people to allow silence on the issue.

Travel Grants

The AWM-NSF travel grants program continues very effectively, thanks to the work of Carol Wood and the selection panels. The last awards supported the participation at professional meetings of eight women mathematicians. The numbers of applications and the quality are both rising, and the competition is getting pretty fierce. The number of good applications which were not funded was very high this last time, making the panel's job a difficult one. This reflects only the limited nature of the funds, and in no way on the excellence of the candidates. Please keep that in my mind, and keep applying! This program has much to offer and is a great resource in these days of scarce research grants.

Lipman Bers

Lipman Bers, Emeritus Professor of Mathematics at Columbia University, died last October. He was an exemplary teacher and a staunch supporter of human rights. He was well known for his contributions to mathematics and to mathematicians, but we

especially recognize his extraordinary production of women mathematicians. Among his remarkable former Ph.D. students are Linda Keen (CUNY), Lesley Sibner (Brooklyn Polytechnic) and Tilla Weinstein (Rutgers).

We will miss a dear friend. And we will continue to hope for more teachers like him.

Internet

If you tried to reach the AWM office via e-mail recently, you may have had your messages returned, or, even worse, lost. The University of Maryland system is having technical troubles, as happens from time to time to many systems. The matter would be only a short-term inconvenience, if it did not look like a prelude of things to come.

In fact, this may just be a taste of the hard times that we may all face whenever the Internet system becomes regulated by market demands. This is very hard to imagine for most of us, who have grown very dependent on this means of communication for both our professional and our organizational work.

At this moment, the cost to institutions of electronic mail is federally regulated. We are on the verge of a privatization that may suppress price regulations, federal or otherwise. The matter is being discussed in Congress with very little input from academia. The involvement of professional societies is necessary to protect the rights of their memberships.

An interesting report to the International Linear Algebra Society (ILAS) by one of our members on a question of interest to all e-mail users has just reached my desk. If you want to know more, ask for a copy of the report to ILAS from its author (szyld@math.temple.edu) and start asking questions in all your professional groups.

AWM-Net

And on a related issue: Dianne O'Leary (Maryland) has volunteered to organize and monitor an AWM-Net. It will be an e-mail forum on issues related to AWM and of concern to our membership.

For information on this service, which I think will be a great opportunity for networking, please see the announcement on page 10.

Women in Mathematics Symposium

The National Security Agency held a Women in Mathematics Symposium on November 15-16 in

Maryland, bringing together NSA mathematicians and a number of women from the external mathematics community. This meeting was occasioned by a recent drop in the number of women hired at NSA. There were several talks by women at NSA about their work and also discussion on the opportunities for women in mathematics there. NSA is reputed to be the largest single employer of mathematicians (B.A. to Ph.D. level) in the country, although the exact number is ... classified. AWM was officially represented by Past President Carol Wood (Wesleyan), who asks me to inform our members of NSA's outreach program. Through this program, employees give talks intended for various audiences, including K-12. NSA also provides materials and model suggestions for these talks to persons interested in similar efforts.

ICMI Study Session on Gender and Mathematics

The International Commission on Mathematical Instruction (ICMI) organized a Study Session on Gender and Mathematics at Hoor, Sweden, from October 7 to 12 in its series of studies on key issues in mathematics education. It was expertly chaired by Gila Hanna (OISE, Canada) and wonderfully hosted by Barbro Grevholm (Lund, Sweden).

The meeting, a truly international gathering, was by invitation and congregated sixty participants from Europe, North America, Asia, Australia and New Zealand. The work on the final position paper was done in small groups which met every day and gave all participants the opportunity for personal contacts and for sharing their experiences.

I was invited as President of AWM and gave a presentation on the role of organizations. There was much interest in learning more about our experience at AWM, and we provided materials on our activities. That the gains obtained in the U.S. for women in mathematics have come as a result of organizing, of finding common grounds, and of fighting for our rights made an impact.

The fact that several of the U.S. participants were women who were actively involved in the struggle for the right of women to mathematics made it easier to make our point clear. In particular, Mary Gray (American U), our founding President, gave an invited lecture that was very well received. Ann Hibner Koblitz (Hartwick College) and Beth Ruskai (UMass at Lowell) were among the speakers at the best attended panel, on feminist issues. Many of the discussions were on controversial issues that

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

Regular: \$40

Additional family (no newsletter): \$30

Base fees: \$25 and \$15

Prize Fund add-on: \$5

General funds add-on: \$10

Student, unemployed, retired: \$8

Contributing: \$100

Institutional:

Level 1 (two free basic ads and up to ten student memberships): \$120 (\$200 foreign)

additional student memberships: \$8 (\$16 foreign for next 15; \$6 (\$14 foreign) for remainder

Level 2 (two free basic ads and up to three student memberships): \$80 (\$105 foreign)

Affiliate: \$250

Corporate: \$150

Subscriptions and back orders

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

Payment

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

Ad information

AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Executive Director, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the newsletter must be Affirmative Action/Equal Opportunity designated.* Institutional members receive two free basic ads as a privilege of membership. For non-members, the rate is \$60 for a basic ad (eight lines of type). Additional lines are \$6 each.

Deadlines

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

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

Addresses

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were, of course, not resolved. The interplay with the absolutely male leadership of ICMI turned out to be no better than a double monologue on parallel channels. Much is to be done at the international organizations.

It is impossible to summarize here the wealth of experiences presented at this meeting, ranging from concrete experiments in England to statistics from Japan and personal stories from Mexico and New Zealand. It will be difficult for any of us to forget the vivid and disturbing stories of the brave Indian colleague who teaches mathematics at the university in Papua/New Guinea. Or the fact that in one of the most advanced countries in the world, Sweden — the same Sweden that invited Sonya Kowalewski to be the first woman university professor of mathematics in history — not only is there no woman mathematics professor nowadays, but there have been only twelve female Ph.D. graduates in the past twenty years, including two Chinese women!

But two conclusions are easy to make. In spite of the great diversity of experiences, in all countries, in all continents, the right of women to mathematics is postponed, and there is much to be done, not only to deal with but also to understand the issues of mathematics education and gender.

Jump in Numbers of Women in Mathematics?

The 1993 Annual AMS-IMS-MAA Survey of New Doctorates, compiled by Don McClure (Brown) and appearing in the November *Notices* of the AMS, is well worth reading.

Some of the numbers are terrible. The unemployment rate for new doctorates is steadily high and is a cause for great concern. The numbers of African Americans, Hispanic and Native Americans receiving doctorates continues to be dismal. What is surprising is that the percentage of women among Ph.D. recipients reached the new highs of 24% of all those awarded a doctorate and 28% of those awarded to U.S. citizens.

It will be interesting to follow up. Is this an aberration or a trend? And, in either case, what does it signify? And how are recently graduated women mathematicians faring in the job market? These questions are of interest to us all.

Changing of the Guard

The year that Ginny Reinhart devoted to work as AWM Executive Director comes to an end on

January 31. Her sunny disposition made things go more easily during the difficult transition from Wellesley to our new quarters in Maryland, including an intermediate move and many operational changes along with institutional growth. Thank you, Ginny, for your commitment and for your good humor!

We are happy to welcome, as our new Executive Director, Joanna Schot, who retired from the David Taylor Research Center, where her last two jobs were Director of Academic Programs and Head of the Applied Mathematics Division. Joanna will join Dawn Wheeler at the AWM headquarters at Maryland. We look forward to her vitality and experience as a new resource for our work.

As AWM grows, the office is becoming more and more a focus of our activities. It is great to know that it will continue to be in good hands!

Past President

The term of AWM presidents is four years, the last as Past President. This gives the incoming president the benefit of the experience and the help of the one who knows more about the job.

It is difficult, to say the least, for me to contemplate the fact that on February 1, Carol Wood will cease to be officially the Past President of AWM. And I will be on my own. I have gained a marvelous friend, better than any I could have dreamt of. This is one of the perks of working for AWM!

I want to pay tribute to my wonderful predecessor. Carol has been one of our best presidents. So steady, so calm, so reliable, so strong, even when facing the worse possible stress in her personal life, even when AWM was facing growth crisis after growth crisis. With her at the helm, AWM not only overcame several moves and related disruptions, but initiated important new programs and strengthened the ongoing ones.

But for me, it is much more than that. For the whole last year Carol has been beside me day after day after day in the process of moving, of settling, of starting anew. She has provided memory and imagination, unyielding support, incredible amounts of concrete work, all sort of efforts. She was the person I could count on for everything. The first volunteer. The best.

Carol deserves all the credit, all our thanks, and (for a short while) a rest. But, as I have said to her so often, "Don't have any hopes, dear Carol, we will continue counting on you!"

Retaining Women Mathematicians

I am going to end this report on a non-complacent note, with a problem that more than any other has been increasingly troubling to both Carol and me, as we believe it to be number one to our membership.

Much discussion is going on about recruiting and retaining women mathematicians. AWM is having a panel at Cincinnati on the (false, in my opinion) perception that affirmative action is giving women and minorities an unfair edge in an impossibly tight job market. But the issue does not seem to be the kind that will be resolved by talking alone.

Just now, I learned of a very able and active young woman professor, with much accomplished in her career, whose tenure was denied. As in many other cases, a perception of gender discrimination is not an overreaction. What is to be done? How can we force fairness in the tenure and promotion process?

No question seems more urgent. We have to find a way. Collectively, through new ideas, leading to new actions. The goal is all that is clear: We need to insure the right of women to mathematics. As a job. And this continues to take more than good hard work.



Cora Sadosky
Washington, DC
1 December, 1993



CATHLEEN S. MORAWETZ ELECTED AMS PRESIDENT

Cathleen S. Morawetz has been elected to be the next President of the American Mathematical Society. Morawetz, Professor of Mathematics at the Courant Institute of Mathematical Sciences at New York University, is the second woman to be elected as AMS President in the Society's 105-year history and will begin her two-year term as President on February 1, 1995. The first woman to be elected as AMS President was Julia Robinson of UC Berkeley. A distinguished logician, Robinson served as President 1983–1984 before her death in 1985.

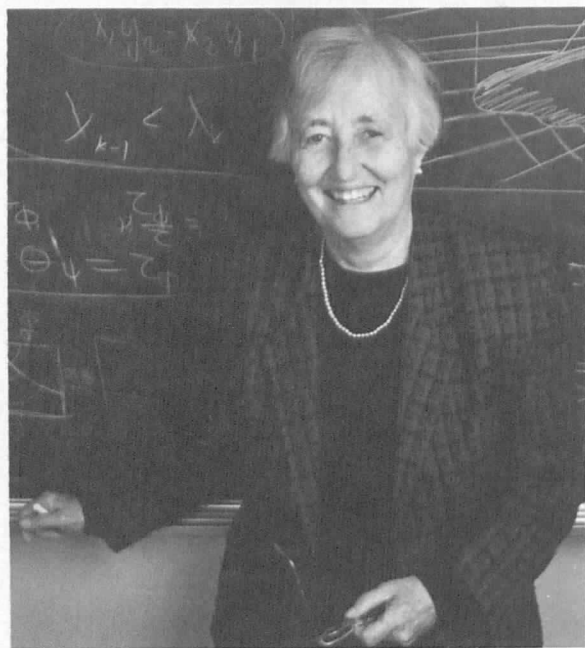
"Cathleen is a top-notch mathematician and will make an excellent president," says current AMS President Ronald L. Graham of AT&T Bell Laboratories. "Having served as President for the past year, I am keenly aware of the tremendous pressures on the mathematical community because of a host of critical issues currently before us — the job crisis, federal funding for mathematics, education reform, grossly inadequate representation of women and underrepresented minorities, and the declining public confidence in science — to name only a few. The Society, through its volunteer leadership, members and its dedicated staff, is spending a good deal of time and energy on coming to grips with these

issues, and I am eagerly looking forward to another year of grappling with the complex issues. I'm sure that Cathleen will provide great leadership in attacking these and many other problems which she will face during her term."

Morawetz does research in fluid dynamics, a branch of mathematics that analyzes how fluids move and how waves form in fluids. She has proved deep theorems about the complex equations that describe fluid motion; this research has been used to solve problems in aerodynamics, acoustics, and optics. Her particular specialty is the mathematics of transonic flow, understanding how fluids move when the speed of motion is greater than the speed of sound. She has also worked on computational problems in these areas.

In addition, Morawetz has made contributions to the mathematics profession as an AMS trustee and through serving on various AMS committees, such as the committee on Science Policy, which coordinates the AMS involvement in many issues involving federal funding of science, and the Advisory Committee on former Soviet Union Mathematics, which oversees the AMS program to assist mathematicians in the former Soviet Union. She is the only woman member of the Applied Mathematics Section of the National Academy of Sciences.

Morawetz served as Director of the Courant Institute of Mathematical Sciences from 1984 to 1988. A mother of four and also a grandmother, Morawetz is a great example of a woman who has fulfilled her dreams both in science and in family life. She has been an inspiration to her many students and colleagues.



Cathleen S. Morawetz

courtesy of James Hamilton

AWARDS AND HONORS

CONGRATULATIONS to the women listed below for their meritorious achievements.

from the Fall 1993 AAUW Outlook:

The 1993–94 Eleanor Roosevelt Teacher Fellows have been chosen by the AAUW. The fellows listed below will use their grants in various projects connected with math or computer science.

Tarah Cherry teaches fourth-grade reading, math, science, and language arts at Vincent Mauro Elementary School in New Haven, Connecticut. She will attend SummerMath for Teachers at Mount Holyoke College and will take a course titled "Trends in Elementary Mathematics" at Southern Connecticut State University, after which she will continue to work with her students on collaborative learning.

Paula Finton is a third-grade teacher of interdisciplinary math and science at Monticello Middle School in Tracy, California. She plans to complete her master's degree in integrated math and science education at Fresno Pacific College this year and will establish a math/science field day for girls, using other teachers and AAUW members as volunteers.

Patricia Hoffman teaches English as a second language in grades K-12 at St. James public schools in St. James, Minnesota. She will take courses at the University of Minnesota, the Whole Language Institute at Hamline University, and the Bueno Summer Institute. She plans to present a workshop on multicultural education, develop computer-assisted learning for ESL students, and run a summer camp program, "Science and Math in the Outdoors."

Kay Johnson teaches English, creative writing, and computer literacy at Bend Senior High School in Bend, Oregon. After taking extensive coursework she will offer workshops within her school district that will integrate self-esteem with critical thinking, technical writing, and problem solving in the fields of math and science.

Arneita Jolly is a learning disabilities teacher for fourth and fifth grades at the Daniel E. Morgan Elementary School in Cleveland, Ohio. She will take courses at Cleveland State University and attend a variety of workshops and conferences. She plans to establish a Girls' Math Club that will encourage girls to plan and implement projects using math.

Kathleen Meyer is a seventh-grade math teacher at Apollo Middle School in Hollywood, Florida. She will conduct independent research in various computer programs. Her goal is to design and implement a curriculum using drafting and software programs to interest girls in technology.

Ruth M. Pilichowski is a math and special needs teacher for grades 9-12 at Passaic County Technical & Vocational High School in New Jersey. She will take courses and attend conferences to prepare for instructional innovations and a series of staff train-

ing programs to inform math teachers about the special educational needs of girls.

Nancy J.S. Rosman is a special education teacher at Roosevelt High School in Sioux Falls, South Dakota. After completing graduate course work at the University of South Dakota, she will develop a curriculum for girls who are poor readers and/or "computer phobic." She will also use her training to enhance the curriculum in a team-taught course in the basics of algebra, which is an alternative to general math.

Norma H. Twombly is a seventh- and eighth-grade math teacher at Miller's Run Elementary School in Sheffield, Vermont. Her comprehensive project is designed to stimulate girls to pursue math-related fields by raising their expectations for career success and providing math-related extracurricular activities.

Susie Van Scoyk teaches an integrated curriculum in fourth and fifth grades at Pennington Elementary School in Wheat Ridge, California. Van Scoyk will attend workshops throughout the year that will help her develop a curriculum emphasizing math, leadership, self-esteem, and risk-taking skills. She will also learn techniques that benefit girls and eliminate gender bias in the classroom. She plans to start a "leadership class" for fourth- to sixth-grade girls.

Former MAA President Deborah Tepper Haimo received the Radcliffe Distinguished Alumna Award in June.

Hu Hesheng of Fudan University was elected as member of the Chinese Academy of Sciences in November 1991. After completing her postgraduate studies in 1952, she became a research fellow at the Institute of Mathematics of the Chinese Academy of Sciences. She has been a member of the faculty at Fudan University since 1956; currently she is director of the research section in differential geometry.

Lisette N. Lugo has received a Ford Foundation Minority Predoctoral Fellowship to study algebra at New York University. The Fellowship provides funds for stipends and tuition for three years. The Program seeks to increase the presence of underrepresented minorities on our college and university faculties by identifying individuals of high ability and enabling them to engage in scholarship without the interference of their normal professional duties.

AFFIRMATIVE ACTION PANEL, VANCOUVER

An Overview of the Canadian Approach to Employment Equity

Joan M. Geramita, *Queen's University, Kingston, Ontario*

My role on this panel is to provide an overview of the Canadian approach to *employment equity*, the name given in Canada to programs which try to ensure that all groups of people have access to full participation in the workforce. There are various federal, provincial and municipal employment equity programs applying to different, but not necessarily disjoint, sets of employers and designed to help remedy problems faced by specific groups. Most universities are participants in the Federal Contractors Program.

A lot of "rights" activity in Canada has been concerned with establishing or protecting the rights of social groups. The protection of French culture in Quebec, the recognition of the nationhood of aboriginal people, and the protection of the education rights of Roman Catholics in Ontario are examples. We have come rather lately to explicit codes of individual rights. (Provincial Human Rights Codes were put into place in the 1970's. The Canadian Charter of Rights and Freedoms was articulated in 1982 as part of the Canada Act.) The rights of groups of people are being extended by human rights challenges made by individuals, but rights of groups are also extended by challenges based on past laws or treaties and by negotiations between representatives of the group and the relevant level of government. I think this is an important influence on the way employment equity has evolved here.

Early employment equity activity was centered around the problems faced by women. While in the United States, the civil rights movement preceded this most recent period of women's rights activity, in Canada the situation was reversed. Activity for women's rights has led to increased awareness of practices which unfairly disadvantage individuals in other groups, especially those not already identified as having some group-connected rights. In the early 1970's, Canadian universities woke up to the fact

that there were very few women among the professors and, in certain disciplines, among the students. The standard academic response — form a committee — followed. In this case it proved to be a fruitful exercise.

Individual universities, provincial and national organizations created "Status of Women" Committees. These groups began to document the scarcity of women in most levels of academia and to suggest reasons for it. Among other things, they pointed out the importance of employing gender neutral language in official documents, the need for faculty maternity leave policies, and the debilitating effects of sexual harassment. Some policies and customs began to change, but in many universities there were very few tenure track positions in the 1970's, and the proportion of women among the professors did not change very much.

A few individual universities instituted programs to address this problem. Joan Wick-Pelletier will tell you about such a program at York University in Toronto, Ontario. However, it was not until the Federal Contractors Program (FCP) was instituted in the late 1980's that most universities began to devote significant resources to employment equity. This program identifies four groups whose participation in the workforce is uneven with respect to job category or far lower than would be expected given their presence in the population of potential workers. These groups are: women, persons who are members of a group which is a visible minority in Canada, persons with a disability, and aboriginal people.

The key features of the Federal Contractors Program are: a) a census of the workforce to determine how members of the designated groups are represented in various job categories, b) a comprehensive review of all employment systems both formal and informal, and c) a plan of action drawn up by the employer which is to include numerical goals for increasing the participation of underrepresented groups within various job levels, timetables for reaching those goals and special measures to facilitate the reaching of those goals.

These reports are summaries of the presentations by Joan Wick Pelletier and Joan M. Geramita at the panel on "Affirmative Action" held during the AMS-CMS-MAA Joint Mathematics Meetings, August 15-19, 1993 Vancouver, Canada. The panel, cosponsored by AWM and the CMS Committee on Women in Mathematics, was organized and moderated by Cora Sadosky, Howard University, AWM President and Asia Ivič Weiss, York University, Chair of the CMS Committee on Women in Mathematics.

The notions of *systemic discrimination* and *special measure* are important to the program, and I will elaborate on them a little bit. Judge Rosalie Abella in the 1984 *Report of the Commission on Equality in Employment* laid out some of the fundamental ideas informing the Canadian approach to employment equity. This report has had a strong influence on Canadian Supreme Court decisions on employment discrimination issues. The quotes which follow are taken from a draft paper on systemic discrimination being produced by The Canadian Association of University Teachers (CAUT) Status of Women Committee. Citing a Supreme Court decision, it defines systemic discrimination as: "discrimination which results from the simple operation of established procedures of recruitment, hiring and promotion, none of which is necessarily designed to promote discrimination."

The employment systems review of the FCP is meant to eliminate any vestiges of overt discrimination, but equally important in an institution with as many unwritten rules as a university the review should identify areas of systemic discrimination. Such a review, done in good faith, can also identify barriers for groups of people not designated by the FCP, for example gays and lesbians or members of minority religious groups. The action plan calls for special measures to remedy imbalances documented in the census. The idea of a "special measure" which would favor a particular group tends to generate resistance from academics and raise fears of a wholesale reduction in the quality of the professorate. It is, of course, in nobody's interest for that to occur. Ensuring that there are women on faculty hiring committees and insisting that the fate of every female candidate be documented are two of the less controversial special measures that have been instituted at Queen's. It may be more appropriate to think of special measures in terms of this paraphrase of Abella's report given in the CAUT document cited above: "It is as important to consider differently people who are different as it is to give the same treatment to people who are alike."

Implementation of Affirmative Action at York University

Joan Wick Pelletier, York University, Toronto

York University in Toronto is a young university. Founded as an offshoot of the University of

Toronto in 1959, York today has a student body of over 40,000 and is Canada's third largest university.

More forward-looking, adventurous, and socially-conscious than its "parent," York responded early to the concerns of women faculty, students, and staff by establishing the Office of Presidential Advisor on the Status of Women in 1975. Although the mandate of the Office was broad, one of its interests lay in increasing the number of women in all sectors of the University and in particular in increasing the number of women faculty members to serve as role models for students. When its first ten-year report showed only a modest increase in the percentage of full-time women faculty from 17% to 21%, the Office advocated mandatory affirmative action as an appropriate method of accelerating the elimination of gender imbalance.

In the spring of 1987, a Joint Committee on Affirmative Action for Women Faculty established a policy which has seen the University grow in full-time female faculty complement to 30% in 1992-93. The Committee recommends that there be a *continuing* Joint Implementation Committee on Affirmative Action for Women Faculty and that an affirmative action consultant be appointed in each unit. Each hiring unit was required to produce an affirmative action plan which would address hiring priorities and goals, advertising procedures, special affirmative action measures to be taken, short-listing procedures, criteria for invitations for interviews, and the final decision process. All hiring ads were required to contain the phrase "York University is implementing a policy of employment equity, including a program of affirmative action for women faculty." The crux of the policy was contained in the requirement that "the woman candidate must be appointed when qualifications are 'substantially equal' to those of the best-qualified male candidate in all units having fewer than 30% women among their full-time faculty."

A variety of ideas and initiatives emerged from the affirmative action plans of different units. For example, with respect to short-listing, the Faculty of Environmental Studies and the Department of Computer Science required that at least one qualified woman (if possible) be included on the short list. Others, such as the Department of Political Science, required that a rationale be given if no woman were included on the short list. The Faculty of Administrative Studies adopted a policy requiring that, despite pressures to make offers quickly, all offers

to male candidates be deferred until the qualified female candidates are interviewed.

Of course, at the final selection stage, units were forced to come to grips with the meaning of "substantially equal." Some of the working definitions that emerged were: "Two candidates are judged to be 'substantially equal' if we have difficulty choosing between them" and "Two candidates are judged to be 'substantially equal' if there is no reason to expect that the potential contributions of one would be greater or less than those of the other." The definition advocated by the Joint Implementation Committee was, "Only when the differences are major should a male candidate be preferred."

It would be false to say that the process of affirmative action went smoothly from the beginning. Resistance was encountered from several hiring units, especially due to the length of time added to the appointment process in the early stages of the program's implementation. There was some resentment of the power of the Joint Implementation

Committee in evaluating and approving individual Affirmative Action Plans and recommending to the President acceptance or rejection of appointment recommendations. However, the procedures and their effectiveness have gradually improved with time and experience, and most York faculty are proud of the gains made in addressing gender imbalance via the policy adopted.

To close with some results, it was noted earlier that the full-time women faculty comprised 21% of the professorate (241 of 1,134) in 1985-86 and 30% (371 of 1,240) in 1992-93. Especially dramatic gains were made in the professional Faculties of Administrative Studies and Law, from 4.8% to 24% and from 12% to 29%, respectively, where women as role models have been scarce. In Mathematics and Statistics the proportion of women among full-time faculty increased from 10% to 15%. On the other hand, the departments of physical sciences have seen little movement in their rate of approximately 7% women. Clearly, there is still progress to be made.

AWM-NET

AWM announces the formation of AWM-Net, an electronic mail forum for discussing issues related to the AWM mission.

Women in computer science have a list known as "systers," founded and managed by Dr. Anita Borg, that enables over 1400 women to engage in mentoring on such issues as graduate study, two-body problems, applying for jobs, etc. It also serves as a quick way to spread announcements about workshops, grant opportunities, etc. It is a valuable resource to the members, especially those who are geographically isolated from women colleagues.

Numerical analysts have a list known as NA-Net, founded by Gene Golub, that provides a weekly digest of announcements and serves as a mail-forwarder, so that users can contact any other user merely by knowing that person's key (last name, or first initial plus last name.)

The AWM-Net is inspired by Systers and by NA-Net but has a somewhat different organization. Many of the proposed rules and the etiquette are copied from those set down for Systers by Anita Borg.

Here is how it works. An AWM member joins AWM-Net by sending an electronic mail message to awm-net-request@cs.umd.edu. The content of the message should be the member's name, postal address, telephone number, and electronic mail address. Within a week, a response will welcome the member to the Net and provide further information on its use.

A member of AWM-Net sends messages to the entire membership by mailing to awm-net@cs.umd.edu. The messages are collected and transmitted to the AWM-Net membership in a single digest, daily or weekly, depending on the volume. If they wish, members can respond to individual senders or to the entire list.

AWM-Net is meant to be a safe and comfortable place to discuss issues of specific importance to women in mathematics. Although e-mail should never be considered to be a secure means of communication, members should treat all messages as confidential, unless the sender specifically labels a message "Public."

Dianne O'Leary, oleary@cs.umd.edu, Computer Science Department, University of Maryland

We can use AWM-Net to update each other on our work and interests and to discuss some of the problems (joys too!) of being women in our field. It is an appropriate place for calls for papers, information about grant opportunities, meetings, conferences, etc., questions about how to handle a career-related problem, and just about anything else related to women in mathematics.

AWM-Net is built on top of semi-automated technology, volunteer time, and computer services donated by the Computer Science Department of the University of Maryland. Please be patient as we work through the inevitable start-up glitches.

To join AWM-Net, or to ask questions about it, send mail to awm-net-request@cs.umd.edu.

NEW USE OF DEFENSE TECHNOLOGY

The Department of Energy's Lawrence Livermore National Laboratory has signed an agreement with Fischer Imaging Corporation of Denver to develop a highly accurate mammography device that will benefit from technology developed at the laboratory for weapons applications. The X-ray information will be recorded directly in digital form. Also, the wavelength of the X-ray will be variable to provide a high-quality image of breasts of all sizes and densities, using the least possible radiation dose.

WORKSHOP FOR WOMEN GRADUATE STUDENTS AND POSTDOCS

Over the past four years, the Association for Women in Mathematics, with funding from the National Science Foundation and the Office of Naval Research, has held a series of workshops for women graduate students and postdocs in conjunction with major mathematics meetings. The next workshop in the series is scheduled to be held on Sunday, July 24, 1994, immediately preceding the SIAM Annual Meeting in San Diego, CA.

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

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

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

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

For more information contact the AWM office.

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

EDUCATION COMMITTEE

Preparation for Mathematics Awareness Week

Looking for a way to celebrate Mathematics Awareness Week? Consider replicating the MathConn model in your area.

For the past five years, Cedar Crest College in Allentown, PA has hosted MathConn, a Mathematics Awareness Day for seventh and eighth grade girls and their teachers. Over 1300 girls from five neighboring states have attended these events. The message given is that mathematics proficiency is a prerequisite for the careers of the future. Student participants are encouraged to take as much mathematics, computer science, and science as possible to keep those career options open so career doors are not shut before them.

At MathConn events, both teachers and students have been exposed to vibrant topics of mathematics and to the ever-expanding use of technology in the classroom and the world. Mathematicians, educators, and business and industry personnel have joined forces to make a definite difference in the Lehigh Valley area.

Over the past five years, keynoters and presenters have included Linda Petzold, Joan Birman, Doris Schattschneider, Doug Cashing, Nancy Hagelgans, and Frank Morgan. Topics addressed have ranged from knots to bubbles. Both students and teachers have been enthralled by current mathematics presented by enthusiastic mathematicians. The Problem Discovery Session has been named in honor of Mary Ellen Rudin. Both student and teacher participants have become familiar with present day mathematicians. It is encouraging to have students and teachers become acquainted with today's mathematical stars.

The MathConn model is replicable. Penn State branch campuses across Pennsylvania have successfully used the MathConn model for their well-received Math Options program, referred to as the "daughter of MathConn."

Here are some tips on how to replicate MathConn in your area.

1. Call your local area school districts. Find those school personnel interested in mathematics.

These people include curriculum experts, mathematics specialists, teachers, and superintendents. These core people will help you design a program that will work in your area. Also, they will help you plan an event that will take into account what schools in your area want. In the Problem Discovery Session, students are mixed from various schools and grades. This suggestion came from two administrators who did not want a school against school competition.

2. Recruit personnel from business and industry to help with the events of the day and to suggest avenues for funding. In the Lehigh Valley, Air Products and Chemicals, Inc. has provided invaluable assistance due to the efforts of a MathConn Advisory Board member and Air Products employee who paves the way for bringing scores of presenters each year.

3. Start small the first year. Make whatever you design a smashing success. Schools will want to attend next year.

4. Be prepared to spend hours on the telephone making contacts and following leads for speakers and sponsors.

5. Be willing to take a chance. Use a presentation or special activity that is unique to your area.

6. Persevere. Keep planning the day even if funding seems impossible at the moment. Funds will appear.

7. Ask your institution for support. Talk to book sales representatives. Ask local school personnel for lists of book sales representatives.

8. At local conferences, visit the displays and ask for assistance. Be willing to take five books from one sales representative, 24 rulers from another, and so on. When you accumulate all these donations, you will have enough to share with participating schools and students.

9. Ask for advice from interested parties. Be willing to scrap all your ideas for their better ideas. Listen carefully to their suggestions.

10. Enlist the aid of students in all majors. If you teach a distribution course, explain to the students how they can help with this project. I have had freshmen help for all four years with majors of English, communications, and so on. The core of your student helpers will be mathematics and/or

Regina Brunner, Mathematics and Computer Science, Cedar Crest College, 100 College Drive, Allentown, PA 18104-6196; phone: (215) 437-4471; fax: (215) 437-5955. Any comments? Write to: AWM Education Committee, c/o Sally I. Lipsey, Chair, 70 E. 10th Street, #3A, New York, NY 10003-5102

computer science majors. But other students have skills you will need. They will be photographers, lighting experts, sign makers, map makers, name tag writers, folder stuffers, and so on. Also, they will help bring groups of students to various activities and lunch. Two student leaders to a small group is an ideal situation. One leads the group while the other keeps stragglers in place at the end of the group. Have a student assigned to help "lost" participants.

11. Organize student participants into small groups. At MathConn, students are divided in half into red and blue groups with folders and name tags of matching color. Color-coding was suggested by a student helper at MathConn 89. Groups are numbered for seating in the theater. One student enlisted the aid of her father to make numbered signs for seating. These are placed on wooden dowels donated by a local lumber company and placed throughout the theater. These signs have been used for the past four years. Color-coded name tags contain student name, school, seating number, and a one-letter code identifying the hands-on activity for that student.

12. MathConn consists of two separate conferences — one for students and one for teachers. A major organizational problem is efficient utilization of space since teachers and students share facilities. Plan in advance how this will work best at your school.

13. Be careful of how times for student activities and teacher activities are meshing. Try to have teachers in sessions while students are moving and vice versa. Traffic control is important. One student helper designed an elaborate scheme for moving so groups used various staircases. There were no bottlenecks formed.

14. Consider the kinds of activities to have for students and teachers. At MathConn, students attend a welcome session, a panel session, a hands-on session, a problem discovery session where they work in groups of four with calculators, a keynote session and/or a play, lunch and closing activities. Teachers attend the same welcome session, small workshop sessions, keynote sessions, lunch, and the same closing activities.

15. Welcome sessions include introductory remarks and directions for the flow of the day.

16. Panel sessions and hands-on sessions include representatives from local businesses and industries and also alumnae. Alumnae have enjoyed returning to the campus and sharing some special

activities with the students. Many returning alumnae have been student helpers at previous MathConns. They love being the presenters now.

17. Problems for the Problem Discovery session are designed by teachers from local schools. There are five sections such as geometry, computation, and patterns. There is always an open-ended section that may include a design-your-own team problem. Each group of four consists of students mixed according to grade level and size of school. Each team consists of both seventh and eighth graders and of students from both small and large schools. Students enjoy making new friends and finding connections between their schools.

18. Keynoters have included women from industry, business, and academia. MathConn 93 broke the trend and had Frank Morgan present "The Soap Bubble Geometry Contest." They loved the "Bubble Man."

19. For MathConn 92 and 93, a play was developed by local educators. The script was based on that year's Mathematics Awareness Week theme. Within the play, students solved various problems. The intent of the play was to have a lively presentation requiring audience participation. The 1994 Mathematics Awareness theme is "Mathematics and Medicine."

20. Lunch is a very serious consideration. To feed 500 people efficiently while the campus is in session requires a great deal of team planning. Consult with food services immediately. Their cooperation and support is vital to the success of the event. At MathConn 93, red group had lunch while blue group was split into nine hands-on sessions, and then groups reversed. Teachers ate as a group after the students had finished lunch. Thus, there were three separate lunch slots in the program. Organization is of prime importance. Student helpers make this work. The day will not work without them.

21. Closing activities include special sessions designed for that day. At MathConn 92, Johanna Miller, second highest scoring female competitor in the 1991 National Math Counts competition returned as an alumna of MathConn 89. Johanna gave a lively presentation entitled "Math Anxiety: Who Needs It?" The student participants really enjoyed having a peer as a presenter. At MathConn 93, seven MathConn 89 alumnae returned to tell their future plans as seniors on their way to college. Also, Allen High School presented an explosive "Computer Simulation of Robotic Applications in Manufacturing"; one presenter was a MathConn 90

alumna. Also, each closing session has had dignitaries on hand from the Pennsylvania Department of Education, Girl Scouts, AAUW, NSF, and the U.S. Congress. These guests speak to all participants on why women are needed in careers in mathematics, computer science, and science. Also, they congratulate the award winners from the problem session.

22. Start times and end times of the event must be coordinated with the bus schedules of the various schools.

23. Small workshop sessions and keynote sessions for teachers involve educators from local schools, academia, and local businesses and industries. Topics addressed include use of calculators, cooperative learning, and topics addressing implementation of the NCTM *Standards*.

24. At the end of the day, every participant, student helper, and presenter receives a T-shirt as a remembrance of the day.

25. Enjoy the event you and your colleagues have designed. Keep the best parts and redesign others. The day will thrive on changes and adjustments as it grows and evolves.

If you would like sample programs or more information, feel free to contact me. Please let me know of your success. Start planning now for a day that makes a difference. Women are needed in mathematics, in the computing sciences, and in science. Encourage the girls of today to follow educational paths that will lead to promising careers in these fields. You and your work will be rewarded

with success, and more women will be in math-related careers in the next decade or even sooner. MathConn and its daughters do work!

ICMI: China Regional Conference on Mathematics Education

The International Commission on Mathematics Instruction (ICMI) holds an international congress on mathematics education (ICME) every four years. During intervening years, the commission sponsors regional conferences. From August 16–24, 1994, there will be a regional conference in Shanghai, China. The theme of the conference will be teacher preparation, both preservice and inservice. Fundamental questions to be discussed will focus on the content of both mathematics courses and professional courses in teacher education, the impact of technology, and international comparisons in all of these areas. For further details and a copy of the First Announcement, write to the ICMI representative: Prof. Jerry P. Becker, Department of Curriculum and Instruction, Southern Illinois University at Carbondale, Carbondale, IL 62901-4610.

Note: The address given for the Math/Science Network in last month's column was several years out of date. The current one is: Math/Science Network, Preservation Park, 678 13th Street, Suite 100, Oakland, CA 94612; 510-893-MATH.

NSF-AWM TRAVEL GRANTS FOR WOMEN

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

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

Eligibility. These travel funds are provided by the Division of Mathematical Sciences of NSF, and the research conference must be in an area supported by DMS. For example, this includes certain areas of statistics, but excludes many areas of mathematics education and history of mathematics. Applicants must be women holding a doctorate (or equivalent experience) and having a work address in the U.S. (or home address, in the case of unemployed mathematicians). Anyone who has been awarded an AWM-NSF travel grant in the past two years or who has other sources of external funding, such as a regular NSF grant, is ineligible. Partial institutional support does not however make the applicant ineligible.

Target Dates. There will be three award periods per year, with applications due February 1, May 1 and October 1. An applicant should send *five copies* of 1) a description of her current research and of how the proposed travel would benefit her research program, 2) her curriculum vitae, 3) a budget for the proposed travel, and 4) information about all other sources of travel funding available to the applicant, to: Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; (301) 405-7892.

THE OLGA TAUSSKY – JOHN TODD LECTURE PROGRAM

In honor of their combined contributions and dedication to the field of linear algebra, the International Linear Algebra Society (ILAS) has announced the Olga Taussky – John Todd Lecture Program, where a talented younger person in linear algebra will be selected, every 3 or 4 years, to deliver an hour address on his or her research, at a specific linear algebra meeting endorsed by the ILAS. Friends, students, and colleagues of Olga and Jack have already made generous contributions to a new fund to be used to cover the travel expenses of selected speakers for this Program. We take this opportunity to thank all those who have contributed to this Lecture Program.

It is a pleasure to announce here that the first speaker chosen for the Olga Taussky – John Todd Lecture program is Dr. Helene Shapiro (Swarthmore College), who will speak at the Pure and Applied Linear Algebra Conference: The New Generation, in Pensacola, Florida, March 17–20, 1993.

Although Olga Taussky and John Todd are internationally known for their many deep and penetrating results in linear algebra and numerical analysis, it seems proper to recap briefly here their splendid careers. We begin with Olga's career.

Olga Taussky was born August 30, 1906 in Olomouc (a city in Bohemia), and she later moved to Linz, Austria. She received her Ph.D. degree in mathematics in 1930 from the University of Vienna (under the direction of Professor Furtwängler). She spent the year 1931–1932 at the University of Göttingen and the years 1932–1934 at the University of Vienna. From 1934 to 1940, she was a fellow at Girton College, Cambridge, and she was an assistant lecturer at the University of London, 1937–1943. (It was in this period that she met John Todd; they married in 1938). During the war years, she worked as a mathematician at the Ministry of Aircraft Production (1943–1946). There, she applied Gerschgorin estimates of eigenvalues of matrices to actual flutter calculations! Then, she and John Todd came to America and took positions at the U.S. National Bureau of Standards (1947–1957); in 1957 they accepted positions at the California Institute of Technology, where they have remained ever since. (Olga was initially a Research Associate at Caltech

from 1957 to 1971, and she has been a Professor of Mathematics since 1971.)

Olga has written over 200 research papers and has had 16 Ph.D. students. Her many honors include an honorary doctorate from USC (1988), the Ford Prize of the Mathematical Association of America (1971; for her paper "Sums of squares"), the Gold Cross of Honor from the Austrian Government (1978), and corresponding memberships in the Austrian Academy of Sciences and the Bavarian Academy of Sciences.

Olga's mathematical research has been in the areas of algebraic number theory, integral matrices, and matrices in algebra and analysis. Being most familiar with her work in matrix theory, I can state that many of her research contributions in this area have been for me of path-finding quality. And, as a path needs a source of light, isn't it appropriate that she wrote "How I became a torchbearer for matrix theory" for the *Mathematical Monthly* (1988; pp. 801–812)?

She is the *grande dame* of matrix theory, and many, myself included, can trace their abiding interest in this area to her infectious enthusiasm for the subject!

John Todd was born May 16, 1911 in Carnacally, Ireland. His B.S. degree was from Queen's University in Belfast, Northern Ireland, in 1931. Later, he was a research student at St. John's College, Cambridge, 1931–1933, and then a lecturer from 1933 to 1937 at Queens' University and from 1937 to 1949 at King's College in London. From 1947 to 1957, Jack was at the U.S. National Bureau of Standards, initially at the Institute for Numerical Analysis at UCLA (1947–1948) and next in Washington, D.C., first as Chief of the Computation Laboratory (1949–1954) and then as Chief of Numerical Analysis (1954–1957). (This is where I first met Jack and Olga in 1954.)

Jack is best known for his many books and research papers in numerical analysis and for his contributions to the editorial board of *Numerische Mathematik*, *Journal of Approximation Theory* and *Aequationes Mathematicae*. He has written over 100 research papers, has had six Ph.D. students, and has written five books, including the widely-read *Basic Numerical Analysis*, volumes I and II.

May I also concisely sum up his research contributions in a personal way? Jack will always

Danny Hershkowitz, Technion – Israel Institute of Technology

be for me a young-at-heart pioneer in numerical analysis, with an inexhaustible knowledge of the literature, supplemented by an Irish twinkle in his blue eyes!

Next I give a biography of Helene Shapiro, the first Taussky-Todd lecturer.

Helene Shapiro completed her Ph.D. under the direction of Olga Taussky at Caltech in 1979, the fifteenth of Taussky's sixteen doctoral students.

Helene was born in Philadelphia in 1954. She obtained her undergraduate education at Kenyon College in Ohio where she was strongly influenced by Daniel Finkbeiner and his approach to matrix theory. She was sufficiently inspired by her mathematics courses to switch her major from biology and to apply to an NSF summer program in algebra at St. Olaf College, for which she was selected from a pool of more than 100 applicants. At St. Olaf, she benefitted from the tutelage and encouragement of Loren Larson and Ted Vessey. By her senior year she was firmly committed to study algebra and received an NSF Fellowship for graduate study in mathematics. She started her graduate studies at Princeton, but found the environment uncomfortable and transferred to Caltech at the end of the first semester. She remembers the Caltech years with fondness for the warm and open interactions with fellow graduate students and with faculty, who seemed delighted to join students in activities — whether that be a mathematical discussion or a hike in the San Gabriel mountains. Her association with Olga Taussky began after she took Professor Taussky's Advanced Matrix Theory class in the second year. This course bridged the gap between established results and open research issues, bringing a wide range of research questions within the grasp of the students.

Working with Olga, Helene investigated questions concerning unitary similarity, numerical range, and Hermitian pencils. Her thesis addressed the issue of simultaneous block triangularization. Olga described it as "a very substantial thesis which demonstrated her creativity, her scholarship and her powers of exposition." The work begun at Caltech was continued during a year at the University of Wisconsin (1979) as a Van Vleck Assistant Professor and at Swarthmore College (1980–present). She has published numerous papers on these subjects, culminating with a survey of canonical forms and invariants for unitary similarity which has been widely read and acclaimed by numerical analysts as well as algebraists. During this period, leaves spent

at RCA (1983) and at the University of Maryland (1984) provided her opportunities to investigate matrix applications in linear systems, coding theory, and radar engineering.

I have known Helene for 14 years and have had the privilege of working with her and learning from her. I have been especially impressed by the depth of her knowledge of the literature and her ability to trace results back to their source. Once, during our collaboration on a problem in linear systems, we were searching for a result which she remembered and thought was due to Schur. The Swarthmore Library did not have the collected works of Schur, so I agreed to look in Boston. She was right, of course. The result was due to Schur, but it had been published by Alfred Brauer. The story behind this was in Brauer's introduction to the collected works and involved Schur's flight from Nazi Germany. Helene attributes her meticulous attention to the literature directly to Olga, who would never be satisfied with less.

In addition to her research accomplishments, Helene is an outstanding educator. Her teaching skills caused her to be highly prized as a TA by faculty at Caltech. She has been at Swarthmore for thirteen years, serving as Chair of the math department from 1990 to 1992. Her devotion to her students and to the process and the content of mathematics education exemplifies the very best of the liberal arts tradition. That she is a product of this tradition of excellence is reflected in her life outside the college as well. Whether she is running the Philadelphia marathon or playing the piano, she pursues her activities with great enthusiasm and intensity.

IN MEMORIAM

Professor Florence N. David died July 23, 1993 of lung cancer at home in Kensington, CA. She received the first Elizabeth L. Scott Award in 1992 "for her efforts in opening the door to women in statistics; for contributions to the profession over many years; for contributions to education, science, and public service; for research contributions to combinatorics, statistical methods, applications, and understanding history; and her spirit as a lecturer and as a role model" [see this *Newsletter*, May–June 1993, pp. 5–6].

SUPPORT AVAILABLE FOR SKHS MATHEMATICS DAYS

Through a grant from the Alfred P. Sloan Foundation and a grant from the National Science Foundation, the Association for Women in Mathematics has funds available to support Sonia Kovalevsky 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.

We anticipate awarding approximately 20 grants of up to \$5,000 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. All applicants will receive a module 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, names of possible speakers and workshop leaders, 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.
- f) Tentative follow-up and evaluation plans.

The application deadline is **January 15, 1994**.

It is anticipated that decisions on funding will be made in February by the Project Advisory Committee, consisting of Mary Gray (American University), Eleanor Palais (Belmont High School, Massachusetts), and Alice Schafer (Marymount University, Virginia). It is expected that the high school days will be held in spring 1994, fall 1994, or spring 1995. Reports on the high school days must be sent to AWM by an appropriate date.

Please send *five copies* of your application to: Sonia Kovalevsky Days Advisory Committee, c/o Association for Women in Mathematics, 4114 Computer and Space Sciences Building, University of Maryland, College Park, MD 20742-2461.

If you have questions, please contact: Mary W. Gray, Department of Mathematics and Statistics, American University, Washington, D.C. 20016-8050, phone: (202) 885-3171, fax: (202) 885-3155, E-mail: mgray@american.edu. Please do not call the AWM office with questions on this project.

CALL FOR NOMINATIONS: ALICE T. SCHAFFER MATHEMATICS PRIZE

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

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

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

FELLOWSHIP ENDOWED

The Jack and Rita G. Minker Fellowship in Computer Science has been established by Jack Minker, professor of computer science at the University of Maryland, in memory of his late wife.

The two-year fellowship will provide a 12-month stipend at a minimum of \$18,500, full tuition remission, and the standard university benefit package.

Qualifications for the award include competence in computer science, mathematical maturity, scholarly capabilities in the humanities and the arts, and service to the community.

Rita G. Minker was for many years on the staff of NIH. The fellowship stipulates that a minimum of one-third of the recipients will be women.

CONNECTING THE PAST WITH THE FUTURE: WOMEN IN MATHEMATICS AND SCIENCE

The second in a series of four satellite educational broadcasts targeted for junior high students was aired on November 16, 1993. These broadcasts focus on the historical contributions of women in mathematics and science, provide contemporary role models, and consider future careers for junior high females in the fields of mathematics and science. Accompanying the broadcasts are curriculum materials that can be used with the program.

The first broadcast was aired on April 27, 1993. The show featured Ada Lovelace, the first computer programmer, and her contributions to mathematics and science. The contemporary role models were Janice Lukich, Senior Development Engineer at Caterpillar, and Karen Powel, Senior Manager of Software Development at McDonnell Douglas. Janice and Karen were interviewed on the air while participants had the opportunity to call in the questions. Curriculum materials were prepared to accompany the broadcast and sent to the participants. These consist of three booklets: the history of computing, biographical sketches of the women featured on the show, and mathematical activities. Also on the program was a Mathbyte that was an

interesting mathematics question intended to stimulate mathematical thinking and relate to the mathematics activities booklet.

The broadcast on November 16 featured Mary Somerville, mathematician and astronomer. She was considered the queen of science of nineteenth century England and helped to popularize science. The contemporary role models were Renita Anderson, Program Manager of NASA Communications (NASCOM) at NASA Headquarters, and Bonnie Buratti, space scientist with Jet Propulsion Laboratories in California. Renita and Bonnie were interviewed, and participants were again able to interact with them on the air. The curriculum materials are again three booklets: space travel, biographical sketches, and mathematics activities.

The third show will be aired on April 26, 1994, and the fourth will be in November, 1994. If you have a satellite dish you should be able to receive the broadcasts. For information on how to downlink the broadcasts call Mike Orwig at 309-298-2182.

The broadcasts are available on videotape along with the curriculum materials for \$25 per show. For questions or to order, contact Judith Olson, Department of Mathematics, Western Illinois University, Macomb, IL 61455; 309-298-2275.

AMATYC STANDARDS

The American Mathematical Association of Two-Year Colleges has been awarded funding from the NSF and the Exxon Education Foundation to develop national standards for curriculum and instruction for two-year college and lower division mathematics courses at the level of algebra and pre-calculus.

The eighteen month program will also involve representatives from the MAA, the NCTM, and the National Association of Developmental Education. The project is to revitalize the content of the mathematics curriculum below the calculus level so that students will be engaged as active learners in worthwhile mathematical tasks that prepare them for careers and to be informed citizens in the twenty-first century.

A draft of the national standards are currently being circulated. Release of the final standards document is expected in late fall, 1994.

BRYN MAWR – SPELMAN SUMMER MATH PROGRAM

For each of the past two years, eight undergraduate women from Bryn Mawr, Spelman and area colleges participated in an NSF-funded summer research program designed to identify and encourage talented young women to pursue careers in the mathematical sciences. The program, aimed at women who have just completed their freshman or sophomore year, is intended to serve as preparation and motivation for subsequent participation in REU programs later in the students' undergraduate years, as well as enticement to go on in their study of mathematics. The program is based on the conviction that by exposing students to mathematics research, by encouraging them to work in teams and share their ideas, by providing them with opportunities to present their own work and to meet successful women and minority mathematicians, then they will be more self-confident, more aware of mathematics as a field to which they might contribute, better able to see themselves as future mathematicians, and more committed to careers in teaching and research.

In addition to the undergraduate participants, graduate student mentors provided assistance on a daily basis and served as important role models. Research topics included wavelets, coding theory, graph theory, minimal surfaces, and number theory; each had a substantial computational component. The program hosted many short-term and long-term visitors, and the students were presented with a wide variety of both formal lectures and informal discussions about careers in mathematics, particularly for women and minorities. There was a timely lecture the week the proof of Fermat's Last Theorem was announced, as well as talks on topology, number theory, mathematical biology, operations research, and Fourier analysis. All research was done in Bryn Mawr's Julia Martin Cheever Computer Classroom, which was partially funded by an NSF ILI Grant and completed in 1991.

In addition to the summer research, the 1992 undergraduate participants all attended the joint meetings in San Antonio (with funding provided by their colleges and the Spelman Scholars' Program). Many of the first-year participants attended REU's or held internships the following summer, and several are now in the process of applying to graduate

programs in the mathematical sciences. The 1992 participants are looking forward to a reunion in Cincinnati and are all in the process of gathering funding from their respective institutions. Principal Investigators Sylvia Bozeman of Spelman and Rhonda Hughes of Bryn Mawr plan to move the program to Spelman for the next two years; either may be contacted for further information.

MAW VISUALS

Several Mathematics Awareness Week visuals are available from the Joint Policy Board for Mathematics, 1529 Eighteenth St., NW, Washington, DC 20036; 202-234-9570. All posters are rolled and mailed in tubes. Prices include postage. All orders must be prepaid. Please make check out to AMS.

The visuals are: "Mathematics & Manufacturing" Poster, 1993 MAW, color, \$6; "Mathematics & Manufacturing" Postcards, 1993 MAW, set of 3, one each of 3 designs, color, \$1.50; "Mathematics & the Environment" Poster, 1992 MAW, color, \$5; "Mathematics & the Environment" Postcards, 1992 MAW, set of 4, one design, \$1; "Mathematics: It's Fundamental" Poster, 1991 MAW, color, \$4; Mathematics Applications Postcards, 1991 MAW, set of 4, one each of 4 designs, \$2; "Communicating Mathematics" Poster, 1990 MAW, color, \$4; "Mathematics: Discovering Patterns" Poster, 1989 MAW, black and white, \$2; "Umbilic Torus" Poster, 1989 MAW, color, \$4; and one each of all 6 posters, a \$23 value, \$15.

QUERY

During some unpacking at the office in Maryland, we came across a stack of photos of women mathematicians (some of them of drawings, e.g., of Hypatia). Does anyone know where the photos came from and how we got possession? If you do, please let the office know!

CONFERENCES

A Celebration of Women in Mathematics

On the weekend of March 5th–6th 1994 a two-day conference will be held at MIT to illustrate the impressive contributions that women have made in mathematics. Colloquium style lectures will be given by distinguished women mathematicians on a wide range of topics which will include analysis, differential geometry, dynamical systems, knot theory, minimal surfaces, mathematical physics, symplectic geometry, applied mathematics, and computing.

The lectures will be given by: Joan Birman (Columbia), Dusa McDuff (SUNY, Stony Brook), Jill Mesirov (Thinking Machines), Cathleen Morawetz (Courant), Jill Pipher (Brown), Jean Taylor (Rutgers), Chuu Lian Terng (Northeastern), Karen Uhlenbeck (Texas), and Lai Sang Young (Arizona).

This workshop is funded by the NSF Visiting Professorships for Women Program and supported by Brown University and MIT. All mathematicians are cordially invited to attend. For further information please contact Susan Friedlander (e-mail: susan@math.nwu.edu).

Hudson River Undergraduate Mathematics Conference

A regional Hudson River Undergraduate Mathematics Conference will be held at Siena College near Albany on Saturday, April 9, 1994. Faculty and undergraduates will participate as equals in presenting and enjoying 15-minute talks, each targeted for calculus students or for mathematics majors. All interested undergraduates are welcome. The program begins with continental breakfast from 9 to 10 A.M. and ends with an informal supper/party from 4:30 to 7:30 P.M. Meals will be provided free of charge. The conference is sponsored by the Sloan Foundation and also by AMS, AWM, MAA, SIAM, and Siena College.

Each college and university in the region has a local organizer. Others with questions (perhaps about organizing similar events) may contact the steering committee: Emelie Kenney, Chair, Siena College (kenney@siena.bitnet); Frank Morgan, Williams College (Frank.Morgan@williams.edu); David Vella (dvella@skidmore.edu), Skidmore College; and William Zwicker, Union College (zwickerw@gar.union.edu).

First World Congress in Computational Medicine, Public Health and Biotechnology

While attending conferences during the past five years, I have noticed a large number of women at meetings which were specifically geared towards mathematical modeling in biology. Since, traditionally, women are scarce in mathematics in all areas, I wondered why this was the present trend.

To help answer this question, and to pose hundreds more, I have decided to organize a session at this Congress to discuss this issue (as well as others) and promote women in mathematics. I encourage participation and/or attendance at this meeting by all women in this and related fields.

I am also soliciting ideas and information that any of you may have that could be helpful for a session of this type.

More information about the conference may be found in the November–December *Newsletter*. If you have any further questions or comments, please contact me, Denise Kirschner (615-322-7456, e-mail dek@athena.cas.vanderbilt.edu) or Matthew Witten (chair; e-mail mwitten@chpc.utexas.edu, 512-471-2472).

Women's Congress in Moscow

The Association of Russian Women Mathematicians and Center of Visiting Programs propose to hold an International Congress of Women Mathematicians from May 30 to June 3, 1994 in Moscow. The work of the Congress will be divided into four sections: Differential Equations, Topology and Algebra, Mathematical Simulation, and Mathematical Education.

The program comprises lectures, round tables and poster sessions. Themes and speakers will be selected by the Scientific Committee. Poster sessions will give participants the opportunity to present their works. These sessions will be organized by topic so as to encourage the exchange of ideas. Each participant may present only one poster. Poster size should not exceed a maximum width of 42 cm or a maximum height of 100 cm. Proceedings will be published after the conference. Text presented in conference proceedings and for poster reports should consist of less than 6 pages (page size 20x30 cm, top and bottom margins 2.5 cm each, left-hand margin 3.5 cm, right-hand margin 1.5 cm). The official languages of the Conference are Russian and English.

Titles of reports and abstracts must be received by March 1, 1994. If you want to take part in the Congress, please register and send payment by March 1, 1994. The registration fee is \$100 for participants and \$50 for guests. For more information, contact the organizing committee (Address: Center of Visiting Programs, Arch. Vlasova St., 51 Moscow, 117393, Russia; Telephone/fax (095) 120-11-20; e-mail: yarosh@orgmath.msk.su).

Women, Work and Computerization

An international conference under the auspices of the IFIP WG 9.1 (Computers and Work) organized by Staffordshire University, UMIST, WiC and the Open University with support from the University of Manchester will be held at the Manchester Conference Centre, UMIST, Manchester, UK, from July 2 to July 5, 1994.

The fifth Women, Work and Computerization conference will provide a forum for researchers, practitioners and users to present their experiences and research in an area of increasing international interest. In addition, it provides an opportunity for women working in computing to meet and share experiences. The unifying theme is "Breaking old boundaries: building new forms." Many of the old divisions that have kept people apart are breaking down. Perhaps we can develop IT to support new and better ways of working.

Possible topics include: 1. Community, Communications and Information Technology (multimedia, women's information networks, publishing, gender perspectives on disability and access, stereotyped gender images in mass media and computer games, computer-mediated communications, cross-cultural comparisons, IT in the household), 2. IT, Flexibility and Restructuring (careers in IT, home infomatics and teleworking, management cultures, the work process, office systems, women managing IT, roles for trade unions, gaining recognition for IT skills, global division of labor, implementation of new manufacturing technologies), 3. Information Systems Design and User-centred Perspectives (Human Computer Interface, Computer Supported Cooperative Work, participative approaches to systems design, critiques and new developments in software engineering, gender and expert systems), 4. Education, Training and Learning (training for IT careers, women and girls gaining IT skills and why women don't choose IT, strategies in education at all levels, computers and symbolism in early childhood, IT

based educational tools (eg. games, networks and virtual reality), computer games, informal learning), and 5. Feminist Theoretical Perspectives on Power, Knowledge and Technology (Artificial Intelligence, feminist epistemologies, virtual reality, ubiquitous computing, power in organizations, utopias, technology assessment, policy issues).

For more information, contact: Alison Adam, IFIP WWC5, Dept. of Computation, UMIST, P.O. Box 88, Manchester M60 1QD, UK; ; fax + 44 (0) 61 200 3324; e-mail a_adam@mac.co.umist.ac.uk.

Differential Equations and Applications

An International Conference on Differential Equations and Applications to Biology and to Industry will be held June 1-4, 1994 at the Claremont Colleges. Recent advances, problems and methods at the interface between mathematics, biology and industry will be the central topics of the conference and will be illustrated by one-hour invited lectures, half-hour invited presentations and open discussions by new and established researchers. The conference is dedicated to the memory of Stavros Busenberg who succumbed to Lou Gehrig's disease in April, 1993; he was a well-known teacher and researcher in differential equations, mathematical biology and industrial mathematics.

The invited one-hour speakers are Andrew Dobson, Avner Friedman, Karl Hadeler, Jack Hale, Mimmo Iannelli, Simon Levin, Misayasu Mimura, John Ockendon, and Pauline van den Driessche.

For more information, contact: DECONF, Mathematics Department, Harvey Mudd College, Claremont, CA 91711; phone: 909-621-8023; e-mail: DECONF@hmc.edu.

World Congress of Bernoulli Society

Funding may be available to subsidize attendance at the Third World Congress of the Bernoulli Society for Mathematical Statistics and Probability, which will be held jointly with the 57th Annual Meeting of the Institute of Mathematical Statistics, Chapel Hill, NC, June 20-25, 1994.

The Organizing Committee strongly encourages the participation of junior researchers such as recent graduates and graduate students. Grant applications have been made for partial support of travel and other expenses of junior researchers. Members of traditionally underrepresented groups in probability and statistics are especially encouraged to apply.

A "Mentor Program" is being established to ensure interaction of junior researchers with senior colleagues at the meeting. This will pair a junior researcher with a host/mentor in a related area of research for the meeting.

Some very limited financial support may also become available for other needy cases, particularly for East European participants.

Requests for such support to attend the conference or the associated workshops on Probability and Stochastic Differential Equations should be sent to the Congress Organizing Committee, Statistics Department, University of North Carolina, Chapel Hill, NC 27599 (e-mail: Congress@stat.unc.edu) indicating whether meeting or workshop support is requested. An abbreviated vita should be enclosed, along with a brief recommendation from the thesis advisor in the case of graduate students. Applications should be received by February 28, 1994.

Preference will be given to those presenting a paper at the Congress or a workshop.

NSF-CBMS Regional Research Conferences

Contingent upon NSF funding, the following NSF-CBMS regional research conferences will be held in 1994: "Analytic Gauge Theory," Clifford H. Taubes, lecturer, January 5-9, New Mexico State University, ross@nmsu.edu; "Controlled Topology and the Characterization of Manifolds," Steven C. Ferry, lecturer, May 24-28, University of Tennessee at Knoxville, daverman@utkvx.utk.edu; "Recent Advances in Spectral Graph Theory," Fan R.K. Chung, lecturer, June 6-10, California State University at Fresno, rudolphn@csufresno.edu; "Complex Dynamics in Higher Dimensions," John Erik Fornaess, lecturer, June 12-17, SUNY at Albany, range@math.albany.edu; and "Bayesian Methods in Finite Population Sampling Theory and Applications," Malay Ghosh, lecturer, dates not yet announced, University of Connecticut at Storrs, gelfand@uconnvm.bitnet.

To stimulate interest and activity in mathematical research, the NSF intends to support six NSF-CBMS regional research conferences in 1995. Each five-day conference features a distinguished lecturer who delivers ten lectures on a topic of important current research in one sharply focussed area of the mathematical sciences. The lecturer subsequently prepares an expository monograph based upon these lectures, which is normally published as a part of a regional conference series. Support is provided for

about 30 participants at each conference; the conference organizer invites both established researchers and newcomers, including postdocs, graduate students, and underrepresented groups, to attend.

Proposals are invited for the 1995 conferences. The deadline date for submission is April 4, 1994. For more information, contact: CBMS, 1529 18th St., NW, Washington, DC 20036; 202-293-1170.

Park City/IAS Mathematics Institute

The Park City/Institute for Advanced Study Mathematics Institute, formerly known as the Regional Geometry Institute, incorporates learning, teaching and research activities along with interaction in a unique four-level integrated format. Participants include high school teachers, undergraduates, graduate students, postdocs and researchers.

The three-week institute will be held in Park City, Utah from July 10 to July 30, 1994; funding has been requested from the NSF. High school teachers, in partnership with university mathematicians and students, will explore the evolution of classical geometry to modern geometry on curved spaces and will discuss issues of geometry education and reform. Undergraduate and graduate students will be offered an intense, yet accessible, introduction to areas of research and application by nationally respected leaders in mathematics. The Research and Graduate Summer School topic for the 1994 Summer Session is "Gauge Theory and the Topology of Four-Manifolds." Active researchers will have a stimulating but informal working environment. A range of computer activities and problems in geometry can be explored by participants in a fully networked computer lab.

Those interested in interaction between programs and with other participants are encouraged to apply. Applications from women and members of minority groups are encouraged.

Topics and organizers for the 1996 Summer School and Research Program will be chosen in the fall of 1994. Interested persons should contact Dan Freed (dafr@math.utexas.edu).

The 1993-95 High School Teacher Program is now in its second year; information about the 1995-97 program will be available in the fall of 1994.

The application deadline is March 1, 1994. For information and application forms, contact: PC/IAS Mathematics Institute, 18C DeTrobriand St., Salt Lake City, UT 84113; phone: 801-585-3488; fax: 801-585-5793; e-mail: PCMI@math.utah.edu.

Joint Summer Research Conferences

The 1994 AMS-IMS-SIAM Joint Summer Research Conferences in the Mathematical Sciences will be held at Mount Holyoke College, South Hadley, MA from June 11 to July 15. It is anticipated that the series will be supported by grants from the NSF and other agencies. The topics are: "Continuous algorithms and complexity," June 11-17; "Moonshine, the monster, and related topics," June 18-24; "Multidimensional complex dynamics," June 25-July 1; "Markov chain Monte Carlo methods," June 25-July 1; "Periodicity and structured homology theories in homotopy theory," July 2-8; and "Bergman spaces and the operators that act on them," July 9-15. For more information, see the November 1993 *Notices*; the deadline for information requests is March 4, 1994.

Proposals for 1995 conferences may be made. These conferences emulate the scientific structure of those held at Oberwolfach and represent diverse areas of mathematical activity, with emphasis on areas especially active. Careful attention is paid to subjects in which there is important interdisciplinary activity at present. One- or two-week conferences may be proposed. The deadline for suggestions is February 1, 1994; see the July/August 1993 *Notices* for more information.

BIBLIOGRAPHIES

Laura Hunt, School of Information and Library Studies at the University of Michigan, has compiled a listing of electronic resources available over the Internet for those doing feminist or women's studies research. Her *Guide to Internet Resources for Women* has been posted on the Internet. She would appreciate receiving suggestions or comments, reports of missing items and items which do not work as listed (lahun@umich.edu).

On the InforM Database at the University of Maryland: telnet or gopher to inform.umd.edu; select Educational Resources/Women's Studies/Computing/Guides to the Internet/guide by hunt.

On the Clearinghouse for Subject-Oriented Internet Resource Guides at the University of Michigan: 1) Gopher: Minnesota's list of Gophers/University of Michigan/Library Resources/New and Featured

Internet Resources/Clearinghouse of Subject-Oriented Internet Resource Guides/Guides on the Social Sciences/Women's Studies Guide; 2) Anonymous FTP: ftp to una.hh.lib.umich.edu, login as "anonymous," use your e-mail address as password, path: inetdirsstacks, file: women:hunt.

The second edition of *The History of Women and Science, Health, and Technology: A Bibliographic Guide to the Professions and the Disciplines*, edited by Phyllis Holman Weisbard and Rima D. Apple, is a partially annotated listing of over 2500 citations arranged by subject and indexed by author. The six sections of the bibliography are overviews, women in the scientific professions, health and biology, home economics/domestic science, technology, and books for older children and young adults. Single copies are available while supplies last from the Women's Studies Librarian, University of Wisconsin System, 430 Memorial Library, 728 State St., Madison, WI 53706; email: wiswsl@macc.wisc.edu. Please include your full mailing address in your request.

CALLS FOR PAPERS

The *Journal of Women and Minorities in Science and Engineering* seeks submissions for its first year of publication. The first issue will be published in Winter, 1994. The purpose of the *Journal* is to publish original, peer-reviewed papers that report innovative ideas and programs, scientific studies, and formulation of concepts related to the education, recruitment, and retention of underrepresented groups in science and engineering. Issues related to women and minorities in science and engineering will be consolidated to address the entire professional and educational environment. Subjects for papers can include: empirical studies of current qualitative or quantitative research, historical investigations of how minority status impacts science and engineering, original theoretical or conceptual analyses of feminist science and Afrocentric science, reviews of literature to help develop new ideas and directions for future research, explorations of feminist teaching methods, black student/white teacher interactions, and cultural phenomena that affect the classroom climate.

To receive guidelines for manuscript preparation contact: Kathy Wager, Editorial Assistant, *Journal of Women and Minorities in Science and Engineering*, Women's Research Institute, Virginia Tech, Sandy Hall Room 10, Blacksburg, VA 24060; phone: 703-231-6296; fax: 703-231-7669; e-mail: jrlwmse@vtvm1.cc.vt.edu.

Subscriptions can be obtained by sending a letter of interest and a check payable to: Begell House Inc. Publishers, 79 Madison Ave., New York, N.Y. 10016-7892. Institutional rate: \$75.00; individual rate: \$40.00.

Quantum is published by the National Science Teachers Association and Quantum Bureau (Moscow) in conjunction with the American Association of Physics Teachers and the National Council of Teachers of Mathematics. The magazine, devoted to math and science, is aimed at high-achieving students as well as teachers, professors, and professionals. The editors are especially interested in finding women mathematicians and scientists who would be interested in writing for *Quantum*. Contact: Timothy M. Weber, Managing Editor, *Quantum*, 1840 Wilson Boulevard, Arlington, VA 22201; e-mail: 72030.3162@compuserve.com.

ON THE FASTRACK?

The August 25, 1993 "On the Fastrack" comic strip by Bill Holbrook reads as follows: panel 1) A lot of these rich geezers took "trophy wives" in the 1980s. But now, substance is in; panel 2) See that guy? He bought a small college just so it could award his wife a doctorate! — In what?; panel 3) Mathematics. — Clomp, clomp, clomp. — Oh, poo. I broke a heel.

BUDAPEST SEMESTER

The Budapest Semesters in Mathematics Program enables third or fourth year undergraduate students to spend a semester or year studying mathematics in Budapest, Hungary. Admission criteria

are high, but the rewards are great. A semester immersed in the mathematical culture of Budapest is an intellectual adventure of the very first rank.

The application deadline for fall semester is April 30. Copies of the brochure and application materials are available via anonymous ftp (ftp to "ftp.stolaf.edu" and login as "anonymous"; the files are in the directory pub/budapest), or contact Paul D. Humke, North American Director, Budapest Semesters in Mathematics, St. Olaf College, Northfield, MN 55057; 800-277-0434 BSM office, 507-646-3113 St. Olaf; humke@stolaf.edu.

BRIEF NOTES

The Annenberg/CPB Math and Science Project is asking educators and researchers nationwide to submit information on current activities aimed at science and mathematics educational reform in grades K-12 to be included in a *Guide to Science and Mathematics Reform*. Projects at school through national levels are within the scope of the guide. Information on significant reform initiatives and trends, pilot projects, case studies, tools, workshops, conferences, and other professional development activities will be included. Of special interest are efforts that prepare teachers and administrators to implement changes based on the philosophy and pedagogy of reform.

To submit or obtain information, or to be included on the guide mailing list, call 301-907-6510 or e-mail TLCI@access.digex.net.

"Science Project Aims to Get Girls to Love the Lab" by Meera Somasundaram, *Washington Post*, July 17, 1993. The Physical Sciences Outreach Program for Girls targets middle-school girls and gives them a nine-day excursion into the world of physics. Now in its fourth year, the program is "an effort to counter at an early age the idea that science is for boys exclusively."

Back Off! How to Confront and Stop Sexual Harassment and Harassers offers numerous pragmatic suggestions, not only for women but also for men when the women around them are harassed and for community and group action. The paperback book is \$12 and is published by Fireside.

Women in Higher Education: A Feminist Perspective is an anthology of articles covering a wide range of subjects of interest to us all. The 600-page book is published by Ginn Press as part of its Ashe Reader Series; the book costs \$41.

"Workplace Alternatives: How to Make Them Work for Your Institution" is a 39-page booklet describing a variety of flexible workplace arrangements. Published by the College and University Personnel Association, it is available for \$20 from CUPA, 1233 20th St., NW, Suite 301, Washington, DC 20036.

Improving Math and Science Teaching summarizes a conference that focused on ways to improve professional development and instructional materials. A publication of the U.S. Office of Educational Research and Improvement, it is available for \$1.75 from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954; stock number 065-000-00553-1.

The Wonderful World of Mathematics is an annotated list of children's books in mathematics for preschool through age six. Prepared by the National Council of Teachers of Mathematics (NCTM), it is available for \$17 from NCTM, 1906 Association Drive, Reston, VA 22091; 703-620-9840.

A study of 832 foundations in 1990 discovered that only 4.1% of the philanthropic dollars were going to programs that specifically address the needs of girls and women. Says Jane Ransom, the president of Women and Foundations/Corporate Philanthropy, "We have progress, but at a snail's pace" (grants targeting girls and women were only 2.9% of overall giving in 1981). The report "Getting It Done: From Commitment to Action on Funding for Women and Girls" was published in 1992 by Women and Foundations/Corporate Philanthropy, 322 Eighth Ave., Room 702, New York, NY 10001.

Lifting a Ton of Feathers: A Woman's Guide to Surviving in the Academic World by Paula J. Caplan argues that while many women blame only themselves when they fail, their fate is more likely to be sealed by the barriers they face within the predominantly male academic environment. University of Toronto Press, 1993, \$18.95, paper.

The Prentice Hall Guide to Scholarships and Fellowships for Math and Science Students, 1993, is available in paper for \$19.95 from Simon and Schuster at Mail Order Customer Service, Rt. 59 at Brook Hill Dr., West Nyack, NY 10094; 800-288-4745.

A Practical Guide for Scholars Seeking Research Support from Business, 1992, is available for \$19.95 from Sage Publications, Inc., 2455 Teller Rd., Newbury Park, CA 91320; 805-499-9774.

Grants for Teachers: A Guide to Federal and Private Funding is available for \$47 from Capitol Publications, P.O. Box 1453, Alexandria, VA 22313; 800-327-7203.

Briefs on Mentoring is available for \$.48 plus SASE from Briefs on Mentoring, Box 40, Teachers College, Columbia University, New York, NY 10027.

Project Respect is an project of the NOW Legal Defense and Education Fund with the goal of ending sexual harassment in our schools and in our workplaces. The multitiered agenda targets employers, public officials, the courts, women's rights advocates, school officials and women and girls "so that we can once and for all achieve true economic equality and independence through work and education." Contact: NOW LDEF, Project Respect, 99 Hudson St., 12th Floor, New York, NY 10013.

The issue of single sex marriages will soon come before the Hawaii Supreme Court. It is anticipated that certain clauses in the constitution of Hawaii will make such marriages valid. Marriages valid in one state are valid in any other, which may lead to other states permitting single-sex marriages within their borders.

The Grandmother Winnifred Foundation is offering grants to women over the age of 54 who can propose a project that will improve the lives of other women. Write the Foundation at P.O. Box 1449, Wainscott, NY 11975.

To Reclaim a Legacy of Diversity: Analyzing the "Political Correctness" Debates in Higher Education has recently been published by the National Council for Research on Women, 530 Broadway, New York, NY 10012; 212-274-0730.

ADVERTISEMENTS

APPALACHIAN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Mathematical Sciences - Applications are invited for a tenure-track position at the assistant professor level in mathematical sciences beginning August 1994. A doctorate in mathematics education is preferred, doctorate in mathematics accepted. Persons with expertise in educational uses of technology are especially encouraged to apply. Teaching is primary; research is encouraged and supported. Appalachian State University, a member of the University of North Carolina System, has 11,500 students. It is located in the Blue Ridge Mountains of northwestern North Carolina. The department has 40 full-time faculty and 450 majors and offers M.S. as well as undergraduate degrees. To apply, send a letter of application, resume, copy of graduate transcript, and have three letters of recommendation forwarded by February 15, 1994 to: Dr. James R. Smith, Department of Mathematical Sciences, Appalachian State University, Boone, NC 28608 (jrs@math.appstate.edu). Appalachian State University is an Equal Opportunity/Affirmative Action employer and actively encourages applications from women and minorities.

APPALACHIAN STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Computer Science - Applications are invited for a tenure-track position in computer science at the assistant professor level beginning Fall 1994. A Ph.D. in computer science or equivalent is required. A strong commitment to teaching is mandatory and scholarship is expected and supported. The department offers a CSAB/CSAC accredited B.S. degree in computer science and is currently planning an M.S. program. Appalachian State University, a member of the University of North Carolina System, is located in the Blue Ridge Mountains of northwestern North Carolina and has an enrollment of 11,500. The computer science program has 9 full-time positions and approximately 150 majors. To apply, send a letter of application, resume, graduate transcripts, and have three current letters of recommendation forwarded by February 1, 1994 to: Dr. James R. Smith, Department of Mathematical Sciences, Appalachian State University, Boone, NC 28608 [(704) 262-3050; jrs@cs.appstate.edu]. Appalachian State University is an Equal Opportunity/Affirmative Action Employer and actively encourages applications from women and minorities.

BALL STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Applications are invited for a tenure-track position at the rank of Assistant Professor in the Department of Mathematical Sciences. Position is available Fall 1994. A doctorate in one of the mathematical sciences, completed by August 22, 1994, and evidence of successful college or university teaching are required. Demonstrated research potential is preferred. Salary and benefits are competitive and commensurate with qualifications. Duties include teaching, predominantly at the undergraduate level, mathematical research, and professional service. The Department of Mathematical Sciences includes faculty in pure and applied mathematics, statistics, actuarial science, and mathematics education. The department offers a range of academic programs leading to B.A., B.S., M.A., M.S., and M.A.E. degrees in these areas. Outstanding candidates in any area of the mathematical sciences will be considered, although preference will be given to candidates whose research interest are compatible with those of the present faculty or with departmental needs. Applications from women and minorities are strongly encouraged. Applications must be postmarked by February 1, 1994. Interested applications should request a departmental application form for Dr. Bernadette H. Perham, Chair, Faculty Search Committee, Department of Mathematical Sciences, Ball State University, Muncie IN 47306-0490. Ball State University is an Equal Opportunity/Affirmative Action Employer and is strongly and actively committed to diversity within its community.

BARUCH COLLEGE, CUNY - DEPARTMENT OF MATHEMATICS - Tenure-track position beginning August 31, 1994; rank and salary will be commensurate with qualifications and experience. A Ph.D. in mathematics or in mathematics education is required, as well as a demonstrated commitment to research in mathematics education. A proven record of excellence in teaching, curriculum development, and scholarly publication is preferable and past successful grant funding is very desirable. Applications must be received by March 31, 1994. Send resume, and the names (no letters!) of three references to: Baruch College, Department of Mathematics-Search Committee, Box 509, 17 Lexington Avenue, New York, NY 10010. Baruch is an Equal Opportunity/Affirmative Action Employer; women and minorities are encouraged to apply.

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

BOWLING GREEN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Assistant Professor, Tenure Track - The Department anticipates two tenure-track positions and encourages applications in: Mathematics Education, Functional/Applied Analysis (Approximation Theory, Banach Spaces, Operator Theory, Optimization, PDEs & Scientific Computation) and Probability & Stochastic Processes. We have 31 faculty, 70 full-time graduate students, and a growing doctoral program (twenty three Ph.D.'s awarded in the last five years). The selected candidate, who must have a Ph.D., will be expected to pursue research, teach two courses per semester, work with graduate students, and eventually have the opportunity to direct Ph.D. dissertations. Those with post-doctoral experience are encouraged to apply. Candidates are expected to have a strong research record (or potential) in an area compatible with current faculty. Salary Competitive. Please provide vitae, publication list, official transcript, and have three letters of recommendation (one concerning teaching) sent by February 1, 1994 to: Professor A. M. W. Glass, Chair, Department of Mathematics and Statistics, Bowling Green State University, Bowling Green, OH 43403-0221 USA. Bowling Green is an Equal Opportunity Employer. Women and minorities are encouraged to apply.

BUCKNELL UNIVERSITY - DEPARTMENT OF MATHEMATICS - Bucknell University anticipates a two-year position in statistics, with the possibility of renewal for one additional year, beginning August 1994. Bucknell is a private, primarily undergraduate university of about 3,500 students; its broad curriculum in the liberal arts and sciences is complemented by strong professional programs in engineering, education, and management. Several departments, including mathematics and nearly all science and engineering departments, offer master's degrees. Qualifications include a Ph.D. in statistics and evidence of high potential for teaching and research. To apply, send curriculum vitae, three letters of reference, and other supporting materials to: Sally Morrison, Chair, Department of Mathematics, Bucknell University, Lewisburg, PA 17837. (No faxes, please.) The reference letters should among them discuss both teaching and research. Applications are due February 8, 1994, although late applications may be considered. Women and members of minority groups are encouraged to apply.

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA - MATHEMATICS DEPARTMENT - Subject to the availability of funding, one tenure track teaching position in mathematics at the assistant professor level, salary dependent upon qualifications. Doctorate in Mathematics or related field and expertise in ordinary, partial, and/or stochastic differential equations and their applications to modeling required. Evidence of potential for excellent teaching and scholarly research required. Closing date March 30, 1994; position starting September 1994. Cal Poly Pomona is actively seeking to maintain its heritage and identity as a comprehensive center of education that serves a dynamic, multicultural region (with 58% ethnic minorities). For additional information or to apply, contact: Search Committee, Mathematics Department, California State Polytechnic University, 3801 W. Temple Avenue, Pomona, CA 91768-4033. (909) 869-3467. Cal Poly Pomona is an Equal Opportunity/Affirmative Action Employer.

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CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA - MATHEMATICS DEPARTMENT - Tenure-track teaching position in Mathematics Education at the Assistant Professor level, subject to funding. Doctorate in Mathematics or Mathematics Education; experience in K-12 teaching or teacher education and potential for related research required. Application, resume, copy of transcripts, and three current reference letters to be postmarked by March 30, 1994; position starting date September 1994. Cal Poly Pomona is actively seeking to maintain its heritage and identity as a comprehensive center of education that serves a dynamic, multicultural region (with 58% ethnic minorities). For information or to apply, contact: Math Ed Search Committee, Mathematics Department, California State Polytechnic University, 3801 W. Temple Avenue, Pomona, CA 91768-4033. (909) 869-3467. Cal Poly Pomona is an Equal Opportunity/Affirmative Action Employer.

CALIFORNIA STATE UNIVERSITY @ LOS ANGELES - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - The Department of Mathematics and Computer Science invites applications for two tenure track positions at the assistant professor level and one Mathematics Education position at a senior level, with a starting date of late June or September 1994. Preference will be given to the areas of: Combinatorics, Probability Mathematical Statistics, Operations Research and Mathematics Education. Ph.D. required (Ph.D. or Ed.D. in Mathematics Education). Considerations will start February 1, 1994. Send inquires to: Marshall Cates, Chair, Department of Mathematics and Computer Science, California State University at Los Angeles, 5151 State University Drive, Los Angeles, CA 90032. CSU @ Los Angeles is an Equal Opportunity/Affirmative Action/Handicapped Title IX Employer.

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE - DEPARTMENT OF MATHEMATICS - California State University, Northridge seeks one tenure-track assistant professor and, depending on qualifications, one assistant or associate professor beginning Fall 1994. The availability of these positions is subject to final approval of funding. A Ph.D. in Mathematics, or equivalent, completed by August 1994, is required and excellent accomplishments or potential in one of the following areas: algebra, analysis, geometry, applied mathematics or topology. In addition the successful applicant must have a strong commitment to teaching and a willingness to interact and collaborate with colleagues. Responsibilities include teaching a maximum of 12 units per semester with possible reductions in the teaching load to carry out research or to make other professional contributions. Upper division and graduate classes are often held in the evening. California State University, Northridge is located in the Los Angeles area and is in close proximity to Caltech, UCLA and USC. To apply submit a letter describing your specific qualifications, vitae and three letters of recommendation to: Department of Mathematics, Hiring Committee, CSUN, 1811 Nordhoff Street, Northridge, CA 91330-8313. Application deadline: February 1, 1994. CSU, Northridge, is an Equal Opportunity/Affirmative Action, Title IX, Section 504, Employer. Applications from women, minorities and persons with disability are particularly encouraged.

CALIFORNIA STATE UNIVERSITY, SAN MARCOS (CSUSM) - DEPARTMENT OF MATHEMATICS - CSUSM invites applications for an entry-level, tenure-track Assistant Professor position starting in August 1994, subject to final administrative authorization. The first priority for the position is geometry. Any related field of geometry, such as algebraic geometry, analytic geometry, computational geometry, convex and discrete geometry, differential geometry, finite geometry, geometric analysis, is welcome. Applications should be addressed to: Mathematics Geometer Search Committee. The second priority for the position is for candidates who can offer evidence of their ability to teach graduate statistics and courses in modeling or operations research. Applications should be addressed to: Mathematics General Search Committee. CSUSM seeks individuals with strong academic preparation who have an interest in teaching undergraduates. Experience with incorporating mathematical software into teaching is strongly desired. An application consists of a statement of interest, a complete resume, a copy of transcript, and at least three letters of reference which should comment on the applicant's credentials in teaching, research, and service. Applications should be addressed as above and sent to: California State University San Marcos, San Marcos, CA 92096-0001. Review of applications will begin February 7, 1993 and will continue until the position is filled. CSU San Marcos is an Affirmative Action/Equal Opportunity Employer. The University has a strong commitment to the principle of diversity and seeks a broad spectrum of candidates including women, members of minority groups and people with disabilities.

CLEMSON UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Applications and nominations are invited for the position of Department Head. Qualifications include a Ph.D. degree, teaching experience, proven research ability, and leadership potential. Administrative experience is highly desirable. The Mathematical Sciences Department at Clemson has successfully integrated the areas of algebra/combinatorics, analysis, computational mathematics, operations research, and probability/statistics into balanced educational programs at both the undergraduate and graduate levels. It offers B.A., B.S., M.S., and Ph.D. degree programs and a jointly administered Ph.D. program in Management Science. The department has achieved national recognition in a number of areas from pure and applied research to program and classroom innovation. With 54 faculty members, 90 graduate students, and a significant service course load, it is the largest unit within the College of Sciences. A candidate is sought who is committed to the mathematical sciences philosophy and who will provide strong leadership for future development. Initial screening of applicants will begin February 1, 1994 but applications will be accepted until the position is filled. This position will be available July 1, 1994. Salary will be commensurate with credentials and experience. Vitae (with names and telephone number of three references), nominations, and requests for further information should be sent to: Professor Douglas R. Shier, Chairman, Department Head Search Committee, Department of Mathematical Sciences, Clemson University, Box 341907, Clemson, SC 29634-1907. Clemson University is a land-grant university and an Affirmative Action/Equal Opportunity Employer.

CLEVELAND STATE UNIVERSITY - MATHEMATICS DEPARTMENT - Assistant Professor in Mathematics - The Mathematics Department invites applications for a tenure track position at the Assistant Professor level. Candidates must have completed a Ph.D. in a mathematical science by the starting date and must have demonstrated a commitment to excellence in both teaching and research. Applicants must have research specialization in one of the following areas: applied statistics, applied probability, stochastic processes, numerical analysis, wavelet theory. Applicants should arrange to have a vitae and three letters of recommendation sent to: Professor John J. Walsh, Department of Mathematics, Cleveland State University, E. 24th and Euclid Avenue, Cleveland, OH 44115. (Funding for this position is pending.) Starting date: September 19, 1994. Salary: Competitive. Deadline for applications: February 4, 1994. Cleveland State University is an Affirmative Action/Equal Opportunity Employer. Reasonable accommodation provided for disabilities.

CONNECTICUT COLLEGE - MATHEMATICS DEPARTMENT - Anticipated one (possibly two) year visiting position, probably at the level of assistant professor, beginning Fall 1994. Background in applied mathematics and probability preferred, to teach three courses each semester, in a department of six full time faculty. We require a doctorate as well as excellence in teaching and research. Connecticut College is a Equal Opportunity/Affirmative Action Employer and strongly encourages applications from women and minority candidates. Please send a cover letter, a curriculum vitae, and the names of three references to: Professor Bridget Baird, Connecticut College, Box 5412, New London, CT 063204196. bbbai@mvox.cc.conncoll.edu.

DARTMOUTH COLLEGE - MATHEMATICS AND COMPUTER SCIENCE - John Wesley Young Research Instructorship, 2-years., new or recent Ph.D.'s whose research overlaps department member's. Teach 4 ten-week courses spread over 2 or 3 quarters. \$34,000 for nine months; \$7,556 summer research stipend. Send application letter, resume, research thesis description, graduate transcript, and 3 (prefer 4) references (1 discussing teaching) to: Phyllis A. Bellmore, Mathematics and Computer Science, Dartmouth College, 6188 Bradley Hall, Hanover, NH 03755-3551. Files complete January 15, 1993 considered first. Dartmouth is committed to Affirmative Action and strongly encourages minorities and women to apply.

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INSTITUTE FOR MATHEMATICS AND ITS APPLICATIONS, UNIVERSITY OF MINNESOTA, MINNEAPOLIS - IMA Summer Program - Mathematical Modeling for Instructors, August 1-19, 1994 - Supported by the National Science Foundation. **THE GOALS:** To provide experience in the use of mathematical modeling to solve problems which come from industry and engineering, for 32 college/university instructors of undergraduates, so that they can incorporate their experience and newly acquired skills in either enrichment of existing math courses or development of new undergraduate courses in math modeling. **THE METHOD:** The 3 week period will be divided into two equal parts. Monday morning of the first week 4 problems will be posed to the whole class with brief general background. Then the students/instructors will be organized into 4 teams and each team will concentrate on a problem. The students, as a team, will develop mathematical models as independently as possible, with guidance by a tutor as needed. Then they will work on the mathematical analysis of the problem, including numerical methods. At the end of the first part, each group will make both a public and a written report to the whole class on their progress and possible future directions. The process will then be repeated with new teams. There will be special sessions devoted to consideration of how the instructors can use this material in the undergraduate classroom setting, as well as discussions of modeling problems posed by the instructors themselves. Instructors are expected to participate in the entire program. **THE TUTORS:** Donald Drew - Rensselaer Polytechnic Institute, Patrick Hagan - Los Alamos National Laboratory, Ellis Cumberbatch - Claremont Graduate School, Gerald Young - University of Akron, David Ross - Eastman Kodak, Colin Please - Southampton University, England. **APPLICATION PROCEDURE:** Mathematicians who teach undergraduates are invited to apply. Two letters of recommendation required, one from the departmental chairperson, as well as the applicant's curriculum vitae and statement of background and interest in employing modeling in the undergraduate math curriculum. Prerequisites: Ph.D. in mathematics or applied mathematics, some ODE and PDE, computational experience and some physics background. The IMA will cover local living expenses but not travel. (IMA Participating Institutions may use their PI funds for this purpose.) Selection criteria will include background and motivation as well as geographic and institutional diversity. Women and minorities are especially encouraged to apply. All correspondence should be sent before **March 15, 1994** to: **Mathematical Modeling, C. O. Avner Friedman, Director, Institute for Mathematics and its Applications, University of Minnesota, 514 Vincent Hall, 206 Church Street, S.E., Minneapolis, MN 55455.** The University of Minnesota is an Equal Opportunity Educator and Employer.

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

KANSAS STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Subject to budgetary approval, applications are invited for tenure-track and visiting positions commencing August 18, 1994; rank and salary commensurate with a qualifications. The Department seeks candidates whose research interest mesh well with current faculty. The Department has research groups in the areas of analysis, algebra, geometry/topology, and differential equations. Although all fields will be seriously considered, some preference will be given to candidates in 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 vitae, description of research, and three letters of recommendation should be sent to: Louis Pigno, Department of Mathematics, Cardwell Hall 137, Kansas State University, Manhattan, KS 66506. It is expected that offers will begin on December 14, 1993, but applications for positions will be reviewed until February 1, 1994, or until positions are closed. Kansas State University is an Affirmative Action/Equal Opportunity Employer.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - One or two assistant professor or higher levels in applied mathematics will probably become available in fall 1994 for persons typically about two or more years beyond their doctorates. This time we are looking especially for unusual new talent in the areas of computation and/or statistics. For further information, write 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 assistant professor or higher levels in pure mathematics for the year 1994-1995. 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. Applicants please send (a) a vitae; (b) a description of your most recent research; and (c) 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, in order that the appointees may have ample time for research. Please send (a) a vitae; (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 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 February 15, 1994 and our decisions will be announced in the early spring. For further information, write 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.

MEREDITH COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - The Department of Mathematics and Computer Science at Meredith College invites applications for a position as Assistant/Associate Professor and Director of Computer Science within the Department of Mathematics and Computer Science. Qualifications desired include: a Ph.D. in Computer Science (or Computer Information Systems); a strong interest in teaching; a commitment to undergraduate computer science education and to liberal arts education. An opportunity for curriculum development. Meredith College is a women's college with a stable enrollment of about 2,000 students located near the Research Triangle area of North Carolina. Send letter of application and resume to: Dr. Virginia Knight, Head, Department of Mathematics and Computer Science, Meredith College, 3800 Hillsborough Street, Raleigh NC 27607; knightv@ecsvax.unccecs.edu. Meredith College is an Equal Opportunity Employer; minorities are encouraged to apply.

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MICHIGAN TECHNOLOGICAL UNIVERSITY - MATHEMATICAL SCIENCES DEPARTMENT - Mathematics Education - The Mathematical Science Department at Michigan Technological University is seeking applications for a tenure track position beginning August 29, 1994. Applicants should have a Ph.D. or Ed.D in Mathematics Education with a strong background in Mathematics. The successful candidate is expected to have a sufficient background in Mathematics to teach such courses as geometry, calculus and other selected undergraduate math courses; and a sufficient background in Education to teach such courses as math methods, computers in education, and measurement & evaluation. Teaching experience at the secondary level is preferred. A commitment to quality teaching and to the development of an active research program in mathematics education is necessary. Send curriculum vitae, transcript and 3 letters of recommendation to: Alphonse Baartmans, Head, Department of Mathematical Sciences, Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931-1295. Review of applications will begin on December 1, 1993. Applications will be accepted until the positions are filled. MTU is an Equal Opportunity Educational Institution/Equal Opportunity Employer. Applications are especially invited from minorities, women and physically challenged individuals.

MILLERSVILLE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Full-time, tenure-track assistant professorship to begin August 1994, in a department of 19 faculty and 250 majors in mathematics and mathematics education. Area of expertise in Applied Analysis. Duties include 12 semester hour teaching load, scholarly activity, student advisement, curriculum development, and committee work. Ph.D. degree (or completion within one year) in mathematics is required. Must exhibit evidence of strong commitment to teaching and scholarly activity, and must be prepared to teach a broad spectrum of undergraduate courses, from college algebra through ordinary and partial differential equations and numerical analysis. Evidence of teaching effectiveness is the primary consideration. Interest in using technology in the classroom is desirable. Salary/benefits are excellent. Send application letter, vitae, copies of all transcripts, and three letters of reference (at least two of which attest to recent teaching effectiveness) to: Prof. Robert T. Smith, Staff Search Committee, Department of Mathematics, Millersville University, Millersville, PA 17551. To assure full consideration application should be received by February 15, 1994. Millersville University is an Affirmative Action/Equal Opportunity Employer.

MILLERSVILLE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Assistant Professor - Full-time, tenure-track to begin August 1994, in a department of 19 faculty and 250 majors in mathematics and mathematics education. Teaching responsibilities in number theory and algebra, as well as in a broad spectrum of undergraduate courses, from college algebra through junior/senior level mathematics. Duties include 12-semester hour teaching load, scholarly activity, student advisement, curriculum development, and committee work. Ph.D. degree (or completion within one year) with specialization in number theory or algebra is required. The Ph.D. is required for continuance beyond the first year. Candidates must exhibit evidence of a strong commitment to excellence in teaching and continued scholarly activity. Evidence of teaching effectiveness is the primary consideration. Interest in using technology in the classroom is desirable. Excellent salary and benefits. Send letter of application, vitae, copies of all transcripts, and three current letters of recommendation (at least two of which attest to recent teaching effectiveness) to: Professor Marshall Anderson, Staff Search Committee, Dept. of Mathematics/WM0194, Millersville, PA 17551-0302. Full consideration will be given to applications received by February 15, 1994. Millersville University is an Affirmative Action/Equal Opportunity Employer.

NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND CENTER FOR RESEARCH IN SCIENTIFIC COMPUTATION - The Department of Mathematics and Center for Research in Scientific Computation expect to make several post-doctoral appointments for the following positions (the availability of positions is contingent upon funding), starting July 1, 1994. 1.) Two year Visiting Assistant Professorships in the Department. The Department is interested in applicants who work in research areas of algebra, analysis, symbolic computation, and ordinary differential equations. 2.) The appointments in the Center will be in the area of applied mathematics and scientific computation. The research interests of the Center include mathematical modeling, analysis and control of partial differential equations, numerical optimization, computational fluids and flow control, high-performance computation and biomathematics. The successful applicants will be involved in research programs between the Center and other research groups at NCSU which offer a unique opportunity for post-doctoral research on mathematical projects arising in industrial/governmental laboratories. Applicants should send a vitae and brief description of research interests and have 3 letters of recommendation sent to: Professor K. Ito, Mathematics, Box 8205, N.C. State University, Raleigh, NC 27695-8205. Applications will be considered at any time after January 15, 1994, as funding becomes available. NCSU is an Affirmative Action/Equal Opportunity Employer. In its commitment to diversity and equity, NCSU seeks applications from women, minorities and the disabled.

NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics expects to make a tenure-track faculty appointment in applied analysis. Strong preference will be given to candidates in applied functional analysis, partial differential equations, or applied probability and stochastic processes. The appointment will be at the rank of Assistant Professor or above, and will start July 1, 1994. The applicant should have substantial experience beyond the Ph.D. (i.e., tangible records of significant research contributions and outstanding teaching). In addition to strong representation in pure mathematics, 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. Much of the research in these areas is analysis/functional analysis-based, and the successful applicant will be expected to interact with members of the applied mathematics group. 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. Applications should send a vitae and have 3 letters of recommendation sent to: Professor H. T. Banks, Director, Center for Research in Scientific Computation, Box 8205, N.C. State University, Raleigh, NC 27695-8205. Phone: (919) 515-5289. E-mail: crsc@math.ncsu.edu. On February 1, 1994, we will begin to select candidates from the pool of complete applications. 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.

NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics at North Carolina State University expects to make a tenure-track appointment in numerical analysis at the rank of assistant professor starting July 1, 1994. The applicant should have research experience beyond the Ph.D. The intellectual climate for a numerical analyst at NCSU is lively and challenging. Our group consists of ten faculty members (within a department of over sixty faculty) and many graduate students and postdocs. The group has research programs in 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 vitae and have three letters of recommendation sent to: C. T. Kelley, Department of Mathematics, Box 8205, N.C. State University, Raleigh, NC 27695-8205. Phone: (919) 515-7163; E-mail: Tim_Kelly@ncsu.edu. On January 15, 1994 we will begin to select candidates from the pool of completed applications. NCSU is an Equal Opportunity and Affirmative Action Employer. In its commitment to diversity and equity, NCSU seeks applications from women, minorities, and the disabled.

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NORTH DAKOTA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Two tenure-track Assistant Professor positions starting 16 August 1994. **First: Math Education** - requires earned doctorate in math or math education; strong background in math beyond the masters level; potential for excellence in teaching and in research in math education; three years experience in secondary teaching. Prefer graduate level course work in supervision, curriculum, and methods; ability to write successful grants; mathematics research ability. **Second - requires Ph.D. in math**; potential for excellence in teaching and in research in an area related to current faculty interests. Prefer research area in analysis, demonstrated excellence in teaching and research. Effective communication in English required. Salary: 33K. Two-course teaching load. To apply send letter to: Search Committee, Math Department, North Dakota State University, Fargo, ND 58105-5075. Final screening begins 31 January 1994. Women and minorities are particularly encouraged to apply. North Dakota University is an Affirmative Action/Equal Opportunity Employer.

NORTHWESTERN UNIVERSITY - MATHEMATICS DEPARTMENT - The Mathematics Department will sponsor an Emphasis Year in dynamical systems. This program will include two-year assistant professorship positions starting September 1994 and possible visiting positions for more senior mathematicians for part or all of the academic year. Applications should be sent to: Professor Clark Robinson, Northwestern University, Mathematics Department, 2033 Sheridan Road, Evanston, IL 60208-2730 and include a curriculum vitae and three letters of recommendation. In order to ensure full consideration, an application should be received by January 15, 1994. Northwestern University is an Affirmative Action/Equal Opportunity Employer committed to fostering a diverse faculty; women and minority candidates are especially encouraged to apply.

OFFICE OF NAVAL RESEARCH - MATHEMATICIAN - The Office of Naval Research (ONR) is seeking a highly qualified individual to plan and manage sponsored basic research programs in new areas of applied analysis. The sponsored research is conducted principally at U.S. universities and industrial laboratories. This is a Civil Service position at the GS/GM-13/14/15 level (\$47,920 - 86,589), depending on qualifications. The individual selected will establish goals for and conceive, organize, and direct basic research programs in applied analysis with a special emphasis and partial differential equations including convection-diffusion equations, inverse problems and other areas related to Navy applications. Because of the Navy's unique interest in waves and flows, special emphasis is on convection-diffusion with particular interest in shock capturing, inertial manifolds, vortex-free surface interaction, and control of fluids. Acoustics, electromagnetics, modeling the ocean bottom and the ocean medium, and nondestructive evaluation motivate research in inverse scattering and mathematical inverse theory. The incumbent will identify new research opportunities, evaluate and select research proposals for funding, manage funding resources, communicate ONR's interest to the scientific community and represent the program within the Navy and DoD. This position provides the challenge and opportunity to have a creative and significant impact on the direction and quality of research conducted at the national level. Additionally, the opportunity exists to establish or maintain an individual research program at an academic institution or government laboratory. Applicants must have on year of specialized experience although a Ph.D. or equivalent training in mathematics or a related field and one year of specialized experience is preferred. To be qualifying, this experience must have been at a level of difficulty and responsibility equivalent to that of the next lower grade level in the Federal Service. Demonstrated research experience in the disciplines listed above is desired. Interested persons should send a Standard Form 171, Application for Federal Employment (available at Federal Job Information Centers or from the address below), resume (optional); a list of publications to: Office of Naval Research, Human Resources Office, ONR Code OOHR, ATTN: Announcement #93-38 (AWM), 800 North Quincy Street, Arlington, VA 22217-5660. Express Mail: 4015 Wilson Blvd., Room 103, Arlington, VA 22203. Applications will be accepted through 28 March 1994 and must be received by that date. Applicants are requested to complete the appropriate supplemental forms. To request a copy of the vacancy announcement and supplemental forms, please call (703) 696-4654 or TDD (telecommunication device for the deaf) (703) 696-2681; for further information please call (703) 696-4163 or (703) 696-4653. U.S. Citizenship Required. ONR is an Equal Opportunity Employer.

OHIO STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics of The Ohio State University hopes to have available several junior positions, both temporary and tenure track, effective Autumn Quarter 1994. Candidates in all areas of applied and pure mathematics are invited to apply. Significant mathematical research accomplishments or exceptional promise, and evidence of good teaching ability, will be expected of successful applicants. Please send credentials and have at least three letters of recommendation sent to: Professor Dijen Ray-Chaudhuri, 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. Qualified women and minority candidates are encouraged to apply.

OHIO STATE UNIVERSITY, MANSFIELD CAMPUS - DEPARTMENT OF MATHEMATICS - Tenure track assistant professorship in mathematics. Ph.D. required. Preference for candidates specializing in algebraic geometry or Lie algebras. Strong commitment both to undergraduate teaching and to math research is essential. The successful candidate will hold rank in the Ohio State University's Department of Mathematics. To apply, send letter, vitae, and 3 letters of reference to: Dr. Gary Kennedy, OSU Mansfield, 1680 University Drive, Mansfield, OH 44906. To ensure full consideration, arrange for all materials to arrive by February 15, 1993. The Ohio State University is an Equal Opportunity/ Affirmative Action Employer. Ohio State University, Mansfield has identified diversity of its faculty, staff, and students to be a very important goal. Qualified women, minorities, Vietnam-era veterans and individuals with disabilities are encouraged to apply.

POMONA COLLEGE - DEPARTMENT OF MATHEMATICS - Pomona College seeks applicants for a tenure track position, at the assistant professor level. Candidates from all fields of mathematics will be considered. The strongest candidates will have post-doctoral experience and be excited about teaching our culturally and intellectually diverse student body, of which about a third of the mathematics majors are women. They should also be committed to continuing a strong research program. Send application materials to: The Search Committee, Department of Mathematics, Pomona College, Claremont, CA 91711-6348. Include a curriculum vitae and 3 letters of recommendation (which include evaluations of teaching), graduate school transcripts, and a description, written for the non-specialist, of research accomplishments and plans. Applications will be reviewed starting January 7, 1994. Let us know if you will be at the January AMS meeting. We especially encourage applicants from traditionally under-represented groups. Pomona College is an Affirmative Action/Equal Opportunity Employer.

PURDUE UNIVERSITY, CALUMET - DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE AND STATISTICS - Assistant Professor of Mathematics - Responsibilities: This full-time, tenure-track position requires teaching service courses as well as courses for majors, requires maintaining an active program of research or comparable scholarship, and requires service to assignments, curriculum development, etc. Requirements: The successful candidate must have a Ph.D. in mathematics or applied mathematics. Of particular interest are candidates with areas of specialization in applied mathematics, broadly interpreted, including numerical analysis, modeling, combinatorics, graph theory, etc. The successful candidate must be able to document strong teaching abilities. Salary is commensurate with experience and qualifications. Submit a letter of application, curriculum vitae, and three letters of reference (at least one of which addresses teaching ability) to: Jay A. Wood, Chair, Mathematics Search Committee, Department of Mathematics, Computer Science and Statistics, Purdue University, Calumet, Hammond, IN 46323-2094. Review of applications will begin January 24, 1994, and will continue until the position is filled. Located in Northwest Indiana close to Chicago, Purdue University, Calumet enrolls more than nine thousand students in more than 80 associate, bachelor's and master's degree programs in 16 academic departments. The 12 building, commuter campus is situated on 180 wooded acres, less than one hour by car or train from Chicago. Purdue University is an Equal Opportunity/Affirmative Action Employer and applications from women and minorities are especially encouraged.

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PURDUE UNIVERSITY, CALUMET - DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE AND STATISTICS - Coordinator of Basic Mathematics Programs, and Assistant or Associate Professor - Responsibilities: Coordinate mathematics courses and develop curriculum for underprepared, entering students. Teach undergraduate mathematics and/or mathematics education courses. Appropriate scholarship is required. Requirements: The successful candidate must have a doctorate with at least a Masters in Mathematics. Also required is experience teaching mathematics to, and program development for, underprepared students. Submit a letter of application, curriculum vitae, and three letters of reference (at least one of which addresses teaching ability and at least one of which addresses required experience working with underprepared students) to: Nancy L. Johnson, Chair, Mathematics Search Committee, Department of Mathematics, Computer Science and Statistics, Purdue University, Calumet, Hammond, IN 46323-2094. Review of applications will begin January 24, 1994, and will continue until the position is filled. Located in Northwest Indiana close to Chicago, Purdue University, Calumet enrolls more than nine thousand students in more than 80 associate, bachelor's and master's degree programs in 16 academic departments. The 12 building, commuter campus is situated on 180 wooded acres, less than one hour by car or train from Chicago. Purdue University is an Equal Opportunity/Affirmative Action Employer and applications from women and minorities are especially encouraged.

QUEEN'S UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department will be making a renewable (tenure-track) appointment in Applied Mathematics at the Assistant or possibly Associate Professor level to begin July 1994. Membership or eligibility for membership in a Canadian professional engineering association is required. The successful applicant will have excellent research promise and a demonstrated potential to give leadership in promoting scholarly activities within the Department. Salary will be commensurate with qualification and experience. Interested candidates are requested to arrange that a curriculum vitae and letters of recommendation from three or more referees be received by February 1, 1994. At least one letter should comment on the candidate's teaching ability. Send to: Professor Leslie Roberts, Associate Head, Department of Mathematics and Statistics, Queen's University, Kingston, Ontario K7L 3N6. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Queen's University has an employment equity programme and encourages applications from all qualified candidates, including women, aboriginal peoples, people with disabilities and visible minorities. Queen's University is willing to help the spouse of a new appointee seek suitable employment. Fax: (613) 545-2964; E-mail: mathematics.department@queensu.ca.

RHODE ISLAND COLLEGE - MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT - Mathematics Faculty - Rhode Island College anticipates three tenure-track (and/or 3 year term) faculty positions available at Assistant Professor rank. Duties: Teach undergraduate and graduate courses, participate in college and departmental committee work, curriculum development, student advisement and scholarly work. Requirements: Ph.D. in mathematics, or a doctorate in mathematics education, statistics or computer science with at least a master's level mathematics background; ability and interest in teaching a wide variety of courses. Desirable: College teaching experience and expertise in integrating technology into the college math classroom. Salary competitive; excellent benefits. Applications must be received by March 4, 1994. Send letter of application, resume, copies of transcripts, and three letters of reference to: Office of Personnel Services, Rhode Island College, Providence, RI 02908. Attention: Math/CS Search. Rhode Island College is an Affirmative Action/Equal Opportunity Employer.

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 Professor position beginning September 1994. Candidates must have a Ph.D., have a strong research record, and be able to demonstrate outstanding promise, as well as a commitment to effective teaching. Preference will be given to candidates with research interests in one or more of the following areas: algebraic geometry, representation theory, automorphic forms and number theory. Applicants should arrange for a curriculum vitae and at least four letters of recommendation, including one which addresses teaching, to be sent to: Mark Feighn, Associate Chair, Department of Mathematics and Computer Science, Rutgers University, Newark NJ 07102. Responses may also be e-mailed to math@andromeda.rutgers.edu. Processing of applications will begin January 15, 1993. Rutgers University is an Equal Opportunity/Affirmative Action Employer.

ST. CLOUD STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Tenure track position at rank of assistant professor to start September 6, 1994. Salary range to \$38,000. Qualifications include Doctorate in mathematics (recent Ph.D. preferred), strong commitment to and demonstrated effectiveness at quality teaching, strong potential for professional activity. The successful candidate will teach mostly undergrad mathematics courses (normally 12 hours/week), advise students, assist in curriculum development and have a program of scholarly/professional activity. To apply send a completed SCSU Application form, vitae, transcripts, statement of professional aspirations and goals, and at least 3 letters of reference directly to: Dr. Gary Buls, Chair, Math Search Committee, Department of Mathematics, St. Cloud State University, St. Cloud, MN 56301-4498. Phone: 612-255-3001. E-mail: mathsearch@tiger.stcloud.msus.edu. Women, minorities and persons with disabilities are encouraged to apply.

ST. CLOUD STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Mathematics Education - Tenure track position at rank of assistant or associate professor to start September 6, 1994. Salary range to \$38,000. Qualifications include Doctorate (or recent ABD) in Mathematics Education and Master's (or equivalent) in mathematics, commitment to quality teaching, and mathematics teaching experience at elementary or secondary level. Doctorate required for tenure. The successful candidate will teach graduate/undergraduate mathematics education courses and undergraduate mathematics courses (normally 12 hours/week), advise students, assist in curriculum development, do inservice workshops and have a program of scholarly/professional activity. To apply send a completed SCSU Application form, letter of application, vitae, transcripts, and at least 3 letters of reference directly to: Dr. Bishnu Naraine, Chair, Mathematics Education Search Committee, Department of Mathematics, St. Cloud State University, St. Cloud, MN 56301-4498. Phone: (612) 255-3001; E-mail: mathed@tiger.stcloud.msus.edu. Women, minorities and persons with disabilities are encouraged to apply.

SAINT JOSEPH'S UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - The Department of Mathematics and Computer Science seeks applicant for a one year replacement of a faculty member on leave for 1994-5. Candidates should be willing to teach courses at all levels of the undergraduate curriculum. Applications with three letters of recommendation should be sent to: Dr. J. P. E. Hodgson, Department of Mathematics, Saint Joseph's University, Philadelphia, PA 19131. Applications should be received by February 15, 1993 in order to guarantee consideration.

SAINT MARY'S COLLEGE OF CALIFORNIA - MATHEMATICS DEPARTMENT - A tenure-track position in mathematics at the Assistant Professor level will be available starting in Fall 1994. Applicants must have a Ph.D. in Mathematics, demonstrated commitment to outstanding teaching, and a strong plan/record of scholarly pursuits/research. Preference will be given to candidates in Algebra, Combinatorics and Number Theory, but not to the exclusion of excellent candidates in other fields. Ability to teach some computer science is desirable. Normal teaching load is seven courses per year (3-1-3), nine hours per week, plus student advising, committees and independent studies. Benefits include health, dental, vision and long term disability insurance. Saint Mary's College is a Catholic, predominantly undergraduate, liberal arts institution located 30 miles from San Francisco and 15 miles from Berkeley. Send letter of application, curriculum vitae, graduate transcript and three letters of recommendation, at least two of which address teaching ability, to: Lidia Luquet, Mathematics Search Committee, P.O. Box 3517, Saint Mary's College of California, Moraga, CA 94575. Review of completed applications will begin February 15, 1994 and continue until the position is filled. Saint Mary's College is an Equal Opportunity Employer.

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SONOMA STATE UNIVERSITY - MATHEMATICS DEPARTMENT - Sonoma State University is one of 20 campuses of the California State University, located 45 miles north of San Francisco. Applications are invited from Ph.D.s in Applied Mathematics, Mathematics Education, or Mathematics for one tenure-track faculty position in either Applied Mathematics or Mathematics Education, beginning in Fall 1994. Applicants must have a strong commitment to excellence in teaching and are expected to teach undergraduate major and service courses in applied mathematics or mathematics education. Please send letter of application, curriculum vitae, teaching evaluations, and three letters of reference along with names and phone numbers to: Dr. William Barnier, Mathematics Department, Sonoma State University, Rohnert Park, CA 94928. Applications review begins January 24, 1994 for applications postmarked by the date until acceptance of positions by qualified candidates. Applications postmarked after February 25, 1994 will not be accepted. Sonoma State University is an Affirmative Action/Equal Opportunity Employer.

SOUTHERN CONNECTICUT STATE UNIVERSITY - MATHEMATICS DEPARTMENT - Tenure track position at Assistant Professor rank beginning August 22, 1994 to teach undergraduate/graduate mathematics education and mathematics, and supervise secondary school student teachers. Teaching load: 12 hours/sem. Salary range: \$32,677 to \$45,786. Qualifications: doctorate (or near completion) in mathematics or mathematics education with a strong mathematics background, evidence of quality teaching, potential for scholarly growth. Secondary school teaching experience preferred. Send a letter of application, vitae, transcripts (unofficial ok), three letters of reference to: Dr. Robert Washburn, Chair, Search 93-269, Southern Connecticut State University, 501 Crescent Street, New Haven, CT 06515. Full consideration given to applications received by January 15, 1994. Southern Connecticut State University is an Affirmative Action/Equal Opportunity Employer.

SOUTHERN METHODIST UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics at Southern Methodist University invites applications for tenure-track assistant professorships, with employment beginning in the Fall semester of 1994. Suitable candidates may be considered for a more senior position. All applicants must have an excellent research record in physical applied mathematics, numerical analysis or scientific computation, and a strong commitment to undergraduate and graduate teaching. The standard teaching load is two courses (six hours) per semester. Applicants who wish to be considered for a senior position must be able to supervise doctoral dissertations and a strong grant record is desirable. The Department of Mathematics has an active doctoral program in physical applied mathematics, numerical analysis and scientific computation; research interests include asymptotic and perturbation methods, bifurcation theory, dynamical systems, fluid mechanics, mathematical biology, mathematical software, nonlinear waves, and the numerical analysis of differential equations. Fourteen of the seventeen faculty are applied or numerical mathematicians. Senior faculty include: W. E. Ferguson (numerical partial differential equations), I. Gladwell (mathematical software), R. Haberman (perturbation theory), M. Melander (computational fluid dynamics), G. W. Reddien (numerical bifurcation theory), D. A. Reinelt (fluid dynamics), L. F. Shampine (numerical ordinary differential equations). The Department of Mathematics at Southern Methodist University has access to distributed workstations, good Internet connections, and a 20 processor Sequent Symmetry. Applications will be accepted until January 7, 1994, or until positions are filled. Send a letter of application and a vitae to: Professor I. Gladwell, Chairman, Department of Mathematics, Southern Methodist University, Dallas, TX 75275-0156. (Tel: (214) 768-2506; Fax: (214) 768-4138). Applicants should arrange for three letters of recommendation to be sent directly to Professor Gladwell. SMU is an Equal Opportunity/Affirmative Action/Title IX Employer. Gladwell's E-mail addresses: igladwel@sun.cis.smu.edu or gladwell@seas.smu.edu

SOUTHWEST MISSOURI STATE UNIVERSITY - MATHEMATICS DEPARTMENT - Head - Southwest Missouri State University invites applications and nominations for the position of Head of the Department of Mathematics, effective August 1994. SMSU has an enrollment of 20,000, and the department has 250 majors and 20 masters students. The 28 faculty maintain research interests in algebra, analysis, differential equations, mathematics education, and statistics. Applicants must have a Ph.D. in a mathematical science, have a distinguished record of achievement in mathematical research and teaching, and demonstrable administrative skills. Especially important are a commitment to excellence in teaching, research and other scholarly activities, effective communication and management of resources, and visionary leadership in undergraduate and graduate education. Applicants must submit, by February 8, 1994, a letter of application, a curriculum vitae and the names, addresses and telephone numbers of five references to: Dr. John Kubicek, Chair of the Search Committee, Department of Mathematics, Southwest Missouri State University, Springfield MO 65804-0094; Phone: (417) 836-5112; Fax: (417) 836-6583. Southwest Missouri State University is an Affirmative Action/Equal Opportunity Employer. Women and minorities are especially encouraged to apply.

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

TEXAS TECH UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics at Texas Tech University anticipates two tenure track appointments at the assistant professor level, beginning Fall 1994. For one of these positions, special consideration will be given to applicants in the area of statistics. To qualify, applicants must: 1.) have a Ph.D., 2.) have a strong dedication to both teaching and research, 3.) exhibit research interests that are compatible with ongoing programs in the department, and 4.) be willing and able 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.O. Box 41042, Lubbock, TX 79409. Texas Tech University is an Equal Opportunity/Affirmative Action Employer.

TOWSON STATE UNIVERSITY - MATHEMATICS DEPARTMENT - Mathematics Education - Tenure-track assistant or associate professor in mathematics education Fall 1994. Teach 12 hours/semester of undergraduate courses. A doctorate in mathematics education and a commitment to teaching and research are required. Preference will be given to applicants with 3 years' teaching/research experience in elementary and/or early childhood education. Salary and rank are commensurate with experience and background. Send resume, 3 letters of recommendation, and all undergraduate and graduate transcripts by February 15, 1994 to: Michael Krach, Chairperson, Search Committee, Mathematics Department, Towson State University, Baltimore, MD 21204. Minorities and women are encourage to apply. Towson State University is an Equal Opportunity/Affirmative Action Employer.

TRENTON STATE COLLEGE - DEPARTMENT OF MATHEMATICS AND STATISTICS - Anticipated Faculty Vacancies for Fall 1994 - Tenure track positions at the Assistant Professor level. Required: Doctorate in Mathematics Education, Statistics, or Mathematics: demonstrated commitment to quality teaching; strong research potential. All fields will be considered; openings are anticipated in Mathematics Education as well as in Statistics and Mathematics. Send vitae and three letters of recommendation to: Aigli Papantonopoulou, Chair Search Committee, Department of Mathematics and Statistics, Trenton State College, CN 4700 - Hillwood Lakes, Trenton, NJ 08650-4700. The review process will begin February 1, 1994, and will continue until all the positions are filled. Non U.S. citizens must include a statement of current visa status. The department currently enrolls over two hundred and fifty majors in Mathematics, Mathematics Education, and Statistics. A graduate program offers a master's degree in mathematics and in mathematics education. To enrich education through diversity, Trenton State College is an Affirmative Action/Equal Opportunity Employer.

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TRINITY COLLEGE, WASHINGTON, D.C. - DIVISION OF MATHEMATICS AND NATURAL SCIENCES - Trinity College invites applications for two anticipated tenure track positions in mathematics beginning August 1994. Completion, or near completion, of the Ph.D. is required. Successful candidates must demonstrate excellence in undergraduate teaching and a commitment to scholarly activity. Interested candidates should send a letter of applications, curriculum vitae, and a statement describing curricular ideas relating to the role of mathematics in a liberal arts college. They should also arrange to have three letters of recommendations sent to: Ms. Carole King-Rhinevault, Mathematics Search Coordinator, Office of Human Resources, Trinity College, 125 Michigan Avenue, N.E., Washington, D.C. 20017. Applications should be received by February 1, 1994. Trinity College, one of the nation's oldest Catholic colleges for women, is an Equal Opportunity Employer and welcomes applications from women and minority candidates.

TUFTS UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for one tenure-track position at the rank of Assistant Professor, starting September 1, 1994. A Ph.D. in mathematics with specialization in numerical analysis is required. Applicants must show promise of strong research and will be expected to excel in teaching, especially at the introductory level. The teaching load will be two courses per semester. Please have a curriculum vitae and have three letters of recommendation sent by February 15, 1994 to: Todd Quinto, Search Committee Chair, Department of Mathematics, Tufts University, Medford, MA 02155. As an Affirmative Action/Equal Opportunity Employer, Tufts encourages women and minority candidates to apply.

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

UNIVERSITY OF ALABAMA @ TUSCALOOSA - DEPARTMENT OF MATHEMATICS - The department hopes to have available, beginning August 16, 1994, a tenure-track position at the rank of assistant professor. Applicants whose research interests are in group theory, ring theory or homological algebra are preferred. Applicants in other areas may be considered. The successful candidate shall have completed the Ph.D. degree or equivalent, by August 15, 1994. Excellence in research and a strong commitment to teaching are required. Applicants should send curriculum vitae, reprints and/or preprints and at least three letters of recommendation to: Search Committee, Department of Mathematics, The University of Alabama at Tuscaloosa, Box 870350, Tuscaloosa, AL 35487-0350. Preliminary inquiries may be addressed to: Martyn Dixon; (205) 348-5154; E-mail mdixon@mathdept.as.ua.edu. The University of Alabama is an Affirmative Action/Equal Opportunity Employer. Women and minorities are particularly encouraged to apply.

UNIVERSITY OF ALASKA, ANCHORAGE - DEPARTMENT OF MATHEMATICAL SCIENCES - Four Assistant Professor tenure track positions are available for Fall 1994 in the Department of Mathematical Sciences at University of Alaska, Anchorage. These positions require teaching 12 semester hours of undergraduate mathematics each semester, including introductory and general education classes. Professional, institutional, and community service completes the position description. The Department and University place strong emphasis on excellence in teaching. Candidate must have experience teaching a variety of undergraduate college level mathematics courses, advising students, working in diverse academic environment, and participating in professional, institutional, and community service activities. Minimum qualifications are a Master's Degree in mathematics and significant teaching experience; advance ABD or Doctorate in hand strongly preferred. A Ph.D in mathematics is required for promotion to full professor. Salary is competitive and commensurate with experience. A complete Position Announcement may be obtained from the listed address. Application procedure include sending a letter of application addressing qualifications areas of teaching specialization, and teaching philosophy, curriculum vitae, official transcripts verifying degrees, three letters of recommendation and the names and telephone number of three additional references to: UAA Personnel Services Office, 3890 University Lake Drive, Anchorage, AK 99508. Telephone: Voice (907) 786-4608; TTY (907) 786-1420; Fax: (907) 786-4727. Screening of applications will begin February 15, 1994 and will continue until the positions are filled. UAA is an Affirmative Action/Equal Opportunity Employer and Educational Institution. Must be eligible for employment under the Immigration Reform and Control Act of 1986.

UNIVERSITY OF ARIZONA - DEPARTMENT OF MATHEMATICS - The Mathematics Department at the University of Arizona may have tenure-track and postdoctoral positions subject to availability of funding beginning Fall 1994. **Tenure track positions.** Excellent research record or potential, strong commitment to teaching required. Fields should complement but not duplicate existing department research strengths in arithmetic geometry, computational science, dynamical systems differential geometry, nonlinear science and number theory. **Postdoctoral Fellowships** (Research Associates). Applicants with strengths in all areas compatible with department interests are encourage to respond. In addition, special Center of Excellence Awards in nonlinear optics and fluid mechanics are available. The Mathematics Department may also have several visiting positions for next year. We encourage early application. Deadline date will be January 15, 1994 or whenever positions are filled. Women and minority applicants are especially welcome. Send application, which should include a letter of interest, curriculum vitae with a list of publications, and a minimum of three (3) letters of recommendation (enclose or arrange to be sent), to: Personnel Committee, Department of Mathematics, University of Arizona, Tucson, Arizona 85751, USA. The University of Arizona is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF CALIFORNIA, BERKELEY - DEPARTMENT OF MATHEMATICS - Charles B. Morrey Jr. Assistant Professorships - We invite applications for these special two-year (nontenure-track) positions effective July 1, 1994. Applicants should have a recent Ph.D. in the areas of algebra, analysis, applied mathematics, foundations, or geometry and topology. Applicants should send a resume, reprints, preprints and/or dissertation abstract, and ask three people to send letters of recommendation to: Vice Chair For Faculty Affairs, Department of Mathematics, University of California-Berkeley, Berkeley, CA 94720. We should receive this material no later than January 28, 1994. Applications received after the deadline will not be considered. The University of California is an Equal Opportunity, Affirmative Action Employer.

UNIVERSITY OF CALIFORNIA, BERKELEY - DEPARTMENT OF MATHEMATICS - Temporary Postdoctoral Positions - Several Temporary positions beginning in Fall 1994 are anticipated for new and recent Ph.D.'s of any age, in the areas of algebra, analysis, and applied mathematics, foundations or geometry and topology. The terms of these appointments may range from one to three years. Applicants for NSF or other postdoctoral fellowships are encouraged to apply for these positions; combined teaching/research appointments may be made for up to three years. Mathematicians whose research interests are close to those of regular department members will be given some preference. Applicants should send a resume, and reprints, preprints, and /or dissertation abstract, and ask three people to send letters of recommendation to: Vice Chair For Faculty Affairs, Department of Mathematics, University of California-Berkeley, Berkeley, CA 94720. We should receive this material no later than January 28, 1994. Applications receive after the deadline will not be considered. The University of California is an Equal Opportunity, Affirmative Action Employer.

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UNIVERSITY OF CALIFORNIA, BERKELEY - DEPARTMENT OF MATHEMATICS - Tenured or Tenure Track position - We invite applications for one or more positions effective July 1, 1994 at either the tenure-track (Assistant Professor) or tenured (Associate or Full Professor) level, subject to budgetary approval in the areas of algebra, analysis, applied mathematics, foundations, or geometry and topology. **Tenure track applicants** are expected to have demonstrated outstanding research potential, normally including major contributions beyond the doctoral dissertation. Such applicants should send a resume, and reprints or preprints, and/or dissertation abstract, and ask three people to send letters of recommendation to: Vice Chair For Faculty Affairs, Department of Mathematics, University of California-Berkeley, Berkeley, CA 94720. **Tenure applicants** are expected to demonstrated leadership in research and should send a curriculum vitae, list of publications, a few selected reprints or preprints, and the names and addresses of three references to: Vice Chair for Faculty Affairs at the above address. We should receive this material no later than January 28, 1994. Applications received after the deadline will not be considered. The University of California is an Equal Opportunity, Affirmative Action Employer.

UNIVERSITY OF CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - Regular Positions in Pure and Applied Mathematics - Subject to availability of resources and administrative approval, one regular position in pure and applied mathematics. The six specific search areas are as follows: 1.) statistics; 2.) applied and computational mathematics; 3.) logic and mathematical computer science; 4.) geometry and topology (including dynamical systems and geometric partial differential equations); 5.) analysis and differential equations (including mathematical physics); 6.) algebra, number theory and combinatorics (including representations). Very strong promise in research and teaching required. Positions initially budgeted at the assistant professor level. Sufficiently outstanding candidates at higher levels will also be considered. Teaching load: averaging 1.5 courses per quarter, or 4.5 quarter courses per year. To apply, send electronic mail to: search@math.ucla.edu OR write to: Thomas M. Liggett, Chair, Department of Mathematics, University of California, Los Angeles, CA 90023-1555, Attn: Staff Search. UCLA is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF CONNECTICUT - DEPARTMENT OF MATHEMATICS - The Department of Mathematics at the University of Connecticut seeks applicants for an anticipated tenure-track position in the fields of Logic, Numerical Analysis, or Combinatorics at the Assistant Professor level. We provide a stimulating research environment with large undergraduate and graduate (Ph.D.) programs. Candidates must possess a Ph.D. in one of the Mathematical Sciences and have strong research and teaching capabilities. Duties include the guidance and performance of research, and teaching at both the undergraduate and graduate levels. Salary commensurate with experience. Exceptional candidates in fields other than those designated above are also encouraged to apply. Screening of applications will begin January 14, 1994 and continue until the position is filled. For full consideration send resume and at least three letters of recommendation to: Search Chairperson, Department of Mathematics, University of Connecticut, U-9, Storrs, CT 06269-3009. We encourage applications from under-represented groups, including minorities, women and people with disabilities. (Search #4A132)

UNIVERSITY OF DELAWARE - DEPARTMENT OF COMPUTER AND INFORMATION SCIENCES - Education/Research - Visiting/Limited-Term Faculty - The University of Delaware, centrally located on the East Coast, is recruiting for up to three visiting/limited-term faculty positions in the Department of Computer and Information Sciences beginning September 1, 1994. A Ph.D. degree or its equivalent, and excellence in research and teaching are required. Applicants close to finishing their Ph.D. requirements are also encouraged to apply. Candidates are sought in all areas of computer science. The Department offers bachelor's, master's and doctoral degrees and has 15 tenure-track faculty, 4 visiting faculty, and 5 adjunct and research faculty, along with over 80 graduate students, of whom 58 are full-time. Candidates should send a curriculum vitae to: Professor Adarsh Sethi, Recruiting Committee Chair, Department of Computer and Information Sciences, University of Delaware, Newark, DE 19716. In addition, candidates should have three confidential letters of reference sent directly to the above address. All applications received by March 31, 1994 will be considered. The University of Delaware is an Equal Opportunity Employer which encourages applications from Minority Group Members and Women.

UNIVERSITY OF GEORGIA - DEPARTMENT OF MATHEMATICS - Applications are invited for one or more tenure track positions at the assistant professor level for the 1994-95 academic year. For one position the department is particularly interested in candidates in the area of applied probability. The principal qualification is excellence in teaching and research. Women and minorities are encouraged to apply. Salary will be commensurate with the applicant's abilities and experience. To apply please send curriculum vitae and four letters of recommendation to: John G. Hollingsworth, Head, Department of Mathematics, University of Georgia, Athens, GA 30602. Applications received by December 15, 1993, are assured of consideration. UGA is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF GEORGIA - DEPARTMENT OF MATHEMATICS - Applications are invited for a tenure track position at the associate professor level for the 1994-95 academic year. The principal qualification is excellence in teaching and research. Women and minorities are encouraged to apply. Salary will be commensurate with the applicant's abilities and experience. To apply please send curriculum vitae and four letters of recommendation to: John G. Hollingsworth, Head, Department of Mathematics, University of Georgia, Athens, GA 30602. Applications received by January 15, 1994, are assured of consideration. UGA is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF ILLINOIS @ CHICAGO - DEPARTMENT OF MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE - Head - The Department of Mathematics, Statistics, and Computer Science seeks applicants for the position of Head. The Department enjoys an AMS Group I classification, and has 68 faculty and over 200 graduate students. Major research programs include applied mathematics, mathematical computer science, mathematics education, probability and statistics, and pure mathematics. Located in the heart of Chicago, UIC is a research university with 16,000 undergraduate, 5,000 graduate, and 3,000 professional students. The Head is the chief administrative officer of the Department, with responsibility for instructional programs, administrative, budgetary, promotion, and recruitment matters. The Head is expected to provide leadership in the further development of research, teaching, and public service. The successful candidate will have an earned doctorate and be eligible for appointment at the rank of full professor. A strong record in research and university teaching, a demonstrated commitment to equality of opportunity, and substantial leadership and organizational skills are required. Women and minority candidates are especially encouraged to apply. The desired appointment date is August 21, 1994. Applications should be received by February 1, 1994 to receive full consideration, although the search will proceed until the position is filled. Materials, including a full curriculum vitae and names and addresses of four references, should be directed to: Professor Vera Pless, Search Committee for Department Head, c/o College of Liberal Arts and Sciences - m/c 228, The University of Illinois at Chicago, 601 South Morgan Street, Chicago, Illinois 60607-7104. University of Illinois is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY CAMPUS - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department of Mathematics and Statistics at the University of Maryland, Baltimore County has been authorized to recruit for a tenure track assistant professor position for the fall of 1994. The department has strengths in control theory and optimization, ordinary and partial differential equations and mathematical modeling, numerical analysis and scientific computing, as well as probability theory and statistics, and seeks strong applicants in these or any other related field. Interested candidates should send a curriculum vitae, list of publications, and three letter of reference to: James M. Greenberg, Chair, Department of Mathematics and Statistics, University of Maryland, Baltimore County, Baltimore, MD 21228-5398. Applicants will be considered until a suitable candidate is found. The University is an Equal Opportunity Employer and specifically invites applications from women, minorities, and disabled persons.

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UNIVERSITY OF MINNESOTA, MORRIS - DIVISION OF SCIENCE AND MATH - Applications are invited for a tenure-track position in statistics to begin September 16, 1994. Duties: teach undergraduate statistics and applied math courses, pursue research, and share in service activities. Minimum qualifications: Ph.D. in statistics expected by September 16, 1994 and two years teaching experience. (Graduate TA experience is acceptable.) Strong commitment to undergraduate teaching desired. Send resume, official transcript, and three letters of reference to: Dr. M. Korth, Chair, Division of Science and Math, University of Minnesota, Morris, MN 56267-2128 to arrive by February 15, 1994. The University of Minnesota is an Equal Opportunity Educator and Employer.

UNIVERSITY OF NEW HAMPSHIRE @ MANCHESTER - MATHEMATICS DEPARTMENT - Assistant Professor of Mathematics - Tenure Track Assistant Professor of Mathematics position to begin Fall 1994. UNH at Manchester is seeking an individual with an interest in the reform movement in mathematics, especially how students learn mathematics. Candidates should have experience in teaching mathematics education courses and be capable of teaching several of the following: College Algebra, Precalculus, Finite Mathematics, Calculus I and II, Differential Equations, Multidimensional Calculus and mathematics education courses. Additional responsibilities include working with the Learning Skills Center, the peer tutor program. Minimum qualifications: Doctorate in Mathematics Education or Mathematics (Ph.D. or Ed.D.); teaching experience at the post secondary level; commitment to the college's priority of excellent teaching and continuing engagement in scholarship. UNHM is the University's urban, commuter college composed of a diverse student body, in particular adults, located in the state's population center. Application review begins March 15, 1994. Send curriculum vitae; statement of teaching philosophy; evidence of teaching excellence (e.g. teaching evaluation); and three current letters of recommendation to: Dr. Peter Haebler, Associate Dean for Academic Affairs, Mathematics Search Committee, UNH at Manchester, 220 Hackett Hill Road, Manchester, NH 03102. Women and minorities are encouraged to apply. Hiring is contingent upon eligibility to work in the U.S. University of New Hampshire is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF NORTH CAROLINA @ GREENSBORO - DEPARTMENT OF MATHEMATICS - The Department of Mathematics seeks applications for a tenure-track position as Assistant or Associate Professor specializing in Computer Science. Initial appointment is for 4 years, 9 months per year, beginning August 1, 1994. The position requires a Ph.D. in Computer Science by the appointment date and a commitment to high quality research and teaching. Applicants with research specialties in programming languages, databases, AI, software engineering, or systems are of particular interest. The Department of Mathematics provides a congenial environment of cooperation between mathematicians, statisticians and computer scientists. Current computer science member in the department have active research programs in image processing, parallel processing, and theory. The department currently offers a B.S. in Computer Science, and is planning an M.S. degree. Send vitae, transcripts, and 3 letters of reference to: Professor J. E. Vaughan, Computer Science Search Coordinator, Department of Mathematics, UNCG, Greensboro, NC 27412. Applications received by February 1, 1994 are guaranteed full consideration. Later applications will be considered until the position is filled or until the closing date of April 15, 1994. University of North Carolina @ Greensboro is an Equal Opportunity/Affirmative Action Employer: W/M/V/D.

UNIVERSITY OF OREGON - DEPARTMENT OF MATHEMATICS - Assistant or Associate Professor tenure track position in pure mathematics or mathematical statistics beginning September 1994. Qualifications are a Ph.D. in mathematics, a record of research accomplishment and evidence of teaching ability. Preference given to person with research interests that complement those currently represented. Competitive salary with excellent fringe benefits. Send complete resume and three letters to: Frank W. Anderson, Head, University of Oregon, Department of Mathematics, Eugene, Oregon 97403. Closing date is January 5, 1994. Women and minorities are encouraged to apply. The University of Oregon is and Equal Opportunity/Affirmative Action/ADA Institution committed to cultural diversity.

UNIVERSITY OF SASKATCHEWAN, CANADA - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applications are invited for an Assistant Professor in Analysis, Probability, or Statistics for a three-year term starting July 1, 1994. The successful candidate will have a doctoral degree in Mathematics or Statistics, and have demonstrated excellence in both teaching and research. Researchers in applied probability models, bio-statistics, foundations of inference, harmonic analysis, or operator algebras would be particularly welcome, but those with other specializations will also be considered. Apply by January 17, 1994 by sending a current C.V. and three confidential letters of recommendation to: J. R. Martin, Head, Department of Mathematics and Statistics, University of Saskatchewan, Saskatoon, Sask., Canada S7N 0W0. In accordance with Canadian Immigration requirements, priority will be given to fully qualified Canadian citizens and permanent residents. The University of Saskatchewan is committed to the principles of employment equity. We especially invite applications from women, visible minorities, persons with disabilities, and persons of aboriginal ancestry.

UNIVERSITY OF SASKATCHEWAN, CANADA - DEPARTMENT OF MATHEMATICS AND STATISTICS - Applications are invited for a one-year position commencing July 1, 1994 at the level of Assistant Professor in Geometry or Applied Mathematics. Applicants should possess a demonstrated excellence in both teaching and research. In Geometry, particular interest in the department lies in: algebraic geometry, differential geometry, symplectic geometry, gauge theory, global analysis (geometrical aspects). In Applied Mathematics, areas of particular interest are: non-linear P.D.E. with connections to Lie theory, classical mechanics, statistical physics and applied combinatorics, quantum theory. Candidates will possess a Ph.D. and preferably some postdoctoral experience. In order to ensure full consideration, applications should be received by February 28, 1994 and will include i) reference to this position (one-year), ii) a current curriculum vitae, iii) three confidential letters of recommendation directly from the referees, sent to: J. R. Martin, Head, Department of Mathematics and Statistics, University of Saskatchewan, Saskatoon, Sask., Canada S7N 0W0. Accordance with Canadian Immigration requirements, priority will be given to fully qualified Canadian citizens and permanent residents. The University of Saskatchewan is committed to the principles of employment equity. We especially invite applications from women, visible minorities, persons with disabilities, and persons of aboriginal ancestry.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - The Department of Mathematics anticipates several tenure-track or possibly tenured positions at the Assistant and/or Associate Professor level. Applicants must show strong research promise and possess excellent communications skills for teaching undergraduate mathematics courses. Visiting positions (at all levels) and postdoctoral appointments will also be available. To apply, please submit the following materials in a single package: letter of application (including your E-mail address and fax number), and a curriculum vitae. Candidates for junior positions should also provide at least three letters of recommendation. Mail application to: Chair of Appointments Committee, Department of Mathematics DRB 155, University of Southern California, Los Angeles CA 90089-1113. USC is an Equal Opportunity/Affirmative Action Employer. Women and minorities are especially encouraged to apply.

MOVING?--WE'D LIKE TO KNOW! - Please inform us of any changes, so we can keep our database up-to-date. Let us know if you move, get a new job, change phone numbers, etc... We want to know. We don't want loose contact with you. Because we send the newsletter by third class bulk rate, the post office will not forward mail to you or notify us of address changes. Therefore, we must rely on YOU to notify US of ANY CHANGES. Just fill out the changes using the **form on the BACK COVER** or drop us a **postcard or e-mail**, and we'll take care of it. THANKS. E-MAIL: awm@math.umd.edu ADDRESS: 4114 Computer & Space Sciences Bldg., University of Maryland, College Park, MD 20742-2461

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UNIVERSITY OF TENNESSEE @ CHATTANOOGA - DEPARTMENT OF MATHEMATICS - Department Head - The Department of Mathematics invites applications for the Head of the Department of Mathematics. A Ph.D. in a Mathematical Science, at least five years of college mathematics teaching experience, and qualifications commensurate with the rank of Associate Professor or higher are required. Applicants should provide evidence of leadership in curriculum development, teaching, public service and research/scholarly activities. In this primarily undergraduate institution, the faculty is expected to exhibit excellence in teaching while maintaining a strong commitment to research and public service. The mathematics department has 23 faculty members including a Chair of Excellence in Applied Mathematics. Located in a very scenic metropolitan area of 400,000, UTC has a student enrollment of 8,300. Send applications to: Dr. DeWayne S. Nymann; Chair of the Search Committee, Department of Mathematics, University of Tennessee at Chattanooga, Chattanooga, TN 37403-2598. Screening of applicants' credentials will begin on January 3, 1994, and will continue until the position is filled. Women and minorities are encouraged to apply. UTC is an Equal Opportunity Employment/Affirmative Action/Title IX/Section 504/ADA Institution.

UNIVERSITY OF TENNESSEE @ KNOXVILLE - DEPARTMENT OF MATHEMATICS - The Mathematics Department of the University of Tennessee, in an effort to significantly improve its research position, seeks to fill a tenure-track assistant or beginning associate professorship in numerical mathematics. A Ph.D. is required. Some postdoctoral experience is preferred. Candidates should be well versed in the core areas of Numerical Analysis with research interests in the numerical solution of differential equations. Preference will be shown to those candidates working in numerical fluid dynamics. Employment begins August 1, 1994. Substantial research promise as well as dedication to teaching are paramount. Interested applicants should arrange to have a vitae, three reference letters, and a research statement sent to: Professor John B. Conway, Mathematics Search, University of Tennessee, Knoxville, TN 37996-1300. (recruit@novell.math.utk.edu) Review of applications will begin December 1, 1993 and will continue until the position is filled. UTK is an Equal Opportunity/Affirmative Action/Title IX/Section 504/ADA Employer.

UNIVERSITY OF TEXAS @ ARLINGTON - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for possibly two to three anticipated tenure-track positions beginning with the Fall Semester of 1994. We seek candidates in various areas of Mathematics which are complementary to those of the current faculty and would enhance and support the goals of the Department. Application deadline is February 15, 1994, or until positions filled. Salary and rank are commensurate with qualifications which must include the Ph.D. degree (in hand or expected by September 1994). Assistant Professor 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 preferred. The University of Texas at Arlington does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veteran status in provision of educational opportunities or employment opportunities and benefits. The University of Texas at Arlington is an Affirmative Action/Equal Opportunity Employer. Please send a resume and three letters of recommendation to: The University of Texas at Arlington, Department of Mathematics, Chairman, Recruiting Committee, Box 19408, Arlington, TX 76019-0408.

UNIVERSITY OF TEXAS @ AUSTIN - DEPARTMENT OF MATHEMATICS - Openings for Fall 1994 will definitely include several positions at the Instructor level and may include one 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, 1994. Preference will go to recent Ph.D. recipients, meaning to those at most one or two years beyond their doctorates. 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 \$32,500 for the nine-month academic year. An applicant for a tenure-track position must present a record of outstanding achievement in her or his research area and must demonstrate a proficiency at teaching. In addition to the duties indicated above for Instructor, 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 individual who fills it. Those wishing to apply are asked to send a vitae and a brief research summary to: Department of Mathematics, The University of Texas @ Austin, Austin, TX 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, 1993. The University of Texas at Austin is an Equal Opportunity Employer. Qualified women and minority group member are urged to apply.

UNIVERSITY OF TORONTO - DEPARTMENT OF MATHEMATICS - The Department of Mathematics, University of Toronto is advertising for positions at the St. George (downtown) and Erindale campuses, both tenure-stream and limited term. Details are available in the *AMS Notices*; in particular some of the positions are directed to Canadian citizens and landed immigrants. The Department places a high value on having faculty members of both genders, and would particularly encourage applications from any strong woman candidate.

UNIVERSITY OF VERMONT - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department of a Mathematics and Statistics solicits nominations and applications to fill a 2-year Visiting Assistant Professor position in mathematics for the academic years 1994-95 and 1995-96. Applicants should have a Ph.D. in Mathematics and demonstrated excellence in research and teaching. Strong preference will be given to researchers in algebraic number theory, arithmetic algebraic geometry and computational number theory who will contribute to the activities of the ongoing Quebec-Vermont Number Theory Seminar. Duties include teaching two courses per semester and conducting research. Applicants should send a vitae, description of research, and three letters of reference to: David Dummit, Personnel Committee, Department of Mathematics and Statistics, University of Vermont, Burlington, VT 05401-1455. Applications will be processed starting February 1, 1994; duties begin in the fall semester 1994. UVM is an Equal Opportunity/Affirmative Action Employer. Members of underrepresented groups are strongly encourage to apply.

UNIVERSITY OF WASHINGTON - DEPARTMENT OF MATHEMATICS - One or more tenure-track positions and one or more nontenure-track positions may be filled, subject to budgetary approval. Applicants should have the Ph.D. degree and be highly qualified for undergraduate and graduate teaching and independent research. Applications, including a curriculum vitae, statement of research and teaching interests, and three letters of recommendation, should be sent to: Chairman of Appointments Committee, Department of Mathematics GN-50, University of Washington, Seattle, WA 98195. Priority will be given to applications received before February 1, 1994. The University of Washington is an Affirmative Action/Equal Opportunity Employer. It is building a multicultural faculty and strongly encourages applications from female and minority candidates. Preference will be given to applicants who can serve well an increasingly diverse University community.

UNIVERSITY OF WISCONSIN, EAU CLAIRE - MATHEMATICS DEPARTMENT - A tenure track position in Mathematics. Starting August 1994. A Ph.D. in mathematics or mathematics education is required with an emphasis in elementary or middle school mathematics education preferred. In addition to teaching courses for prospective elementary and middle school mathematics teachers according to the NCTM standards, responsibilities include teaching other undergraduate courses, scholarly activity, academic advising, and service. Evidence of excellent teaching potential is required. Send letter of application, vitae, complete transcripts, and 3 letters of recommendation, including an evaluation of teaching effectiveness, to: David Lund, Mathematics Department, University of Wisconsin-Eau Claire, Eau Claire, WI 54702. Deadline for complete application is February 15, 1994. UW - Eau Claire is an Equal Opportunity/Affirmative Action Employer.

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UNIVERSITY OF WISCONSIN, PARKSIDE - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for an anticipated tenure-track assistant professorship to begin in Fall 1994. Excellence in mathematical research is required, as well as a serious commitment to excellent teaching of undergraduate mathematics, including elementary algebra, to an increasingly diverse student population. The ability to interact with research of current faculty will be positively considered; these areas include infinite and combinatorial group theory, ring theory and enveloping algebras, low-dimensional topology and set theory. Teaching duties are 9-10 hrs/wk. Women and minorities are encouraged to apply. Applications, including at least three letters of reference, should be sent to: Professor A. M. Brunner, Department of Mathematics, University of Wisconsin-Parkside, Box 2000, Kenosha, WI 53141-2000. Review of applications will commence February 12, 1994. UW - Parkside is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF WISCONSIN, PLATTEVILLE - DEPARTMENT OF MATHEMATICS - At least two tenure-track positions as assistant professor in mathematics available August 21, 1994. Qualifications: Ph.D. in mathematics or statistics required; primary responsibility is broad undergraduate teaching in mathematics or statistics; evidence of excellent undergraduate teaching experience; excellent communication skills; capable of maintaining a continuing program of scholarly activity; and indicate eligibility for continuing employment in the United States. Salary: \$31,000 - \$34,500 depending upon qualifications and experience. The Department of Mathematics has 21 faculty. The university enrolls approximately 5,000 students with programs in engineering, liberal arts, business, education, industry, and agriculture. UW - Platteville is an Affirmative Action/Equal Opportunity Employer. Women and minorities especially are encouraged to apply. The names of all finalists and of nominees and applicants who have not requested in writing that their identity not be revealed, will be released upon request. To be considered: Sent letter of application (including eligibility for employment), vitae, transcript(s), and three letters of recommendations to: Dr. Allan Richert, Chairperson, Department of Mathematics, University of Wisconsin-Platteville, Platteville, WI 53818. Deadline: January 21, 1994.

URSINUS COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - One or two possible positions, starting Fall 1994, at independent four-year liberal arts college near Philadelphia. Experience in computer science desired. Rank and salary commensurate with qualifications. Ph.D. desired. Three courses per semester teaching load, full range of courses in the mathematical sciences. Standard fringe benefits. Send letter of application, resume, and three letters of recommendation to: John Shuck, Search Committee Chairperson, Department of Mathematics and Computer Science, Ursinus College, Box 1000, Collegetown, PA 19426-1000. Ursinus College is an Equal Opportunity/Affirmative Action Employer.

VANDERBILT UNIVERSITY - DEPARTMENT OF MATHEMATICS - We invite applications for a Distinguished or Named Professor position, beginning Fall 1994. This is a tenure position and we are seeking a specialist in algebra with outstanding research credentials. The interests of our algebra group include universal algebra and lattice theory, set-theoretic algebra, abelian groups, semigroups, ring theory, and logic with applications to computer science. Evidence of effective teaching is required. To apply, send the following materials in a single mailing to: Professor Constantine Tsinakis, Chair, Department of Mathematics, Vanderbilt University, Nashville, TN 37240: a letter of application (with E-mail address if available) and a curriculum vitae with a list of publications. Additional information, including letters of recommendation, will be requested from selected candidates after the initial screening. Only solicited letters of recommendation will be considered. Vanderbilt University is an Equal Opportunity/Affirmative Action Employer.

WAYNE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Applications are invited for a tenure-track position in statistics or applied mathematics at the rank of Assistant Professor. There is also the possibility of Visiting positions for 1994-95. Ph.D. in mathematics required. Excellence in research and teaching expected. Applications should include a signed, detailed vitae, description of current research interests, and three letters of recommendation. Send to: Pao-Liu Chow, 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.

WESTERN ILLINOIS UNIVERSITY - DEPARTMENT OF MATHEMATICS - Mathematics Education Position - The Department of Mathematics invites applications for a TT position in Math Education (secondary preferred) at the Assistant Professor level beginning Fall 1994. Doctorate required. The department teaches a wide range of content and methods courses for teachers K-212 at both the undergraduate and graduate levels. Send vitae, transcripts, and 3 letters of recommendation to: Dr. M. Scott, Chair, Department of Mathematics, Western Illinois University, Macomb, IL 61455. Phone: (309) 298-1382. Screening of candidates will begin February 1, 1994. Western Illinois University is an Affirmative Action/Equal Opportunity Employer. Applications are encouraged from minorities, women, and persons with disabilities.

WESTERN MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Western Michigan University seeks applications for two tenure-track assistant professor positions in mathematics for Fall 1994, pending budgetary approval. Both positions require a Ph.D. degree, or evidence of imminent award, in the appropriate area of mathematics. The first requires expertise in the area of analysis and preference will be given to applicants with research interests in approximation theory, complex analysis, optimization or differential equations. The second requires expertise in computational/numerical mathematics. Applicants must demonstrate potential for teaching, scholarship and publication. Western Michigan University, a Carnegie Classification Doctoral I Institution, has embarked upon a vigorous affirmative action program and encourages applications from women and members of minority groups. Send a letter of applications, vitae, graduate transcripts and three letters of recommendation to: Ruth Ann Meyer, Chair, Department of Mathematics and Statistics, Western Michigan University, Kalamazoo, MI 49008. Review of applications will begin December 1, 1993 and continue until positions are filled. Western Michigan University is an Equal Opportunity/Affirmative Action Employer.

WESTERN MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Western Michigan University seeks applications for one or two tenure-track assistant professor positions in mathematics education for Fall 1994, pending budgetary approval. Position require a Ph.D. degree, or evidence of imminent award, in mathematics education, with high school teaching experience, background and interest in curriculum development, and demonstrated potential for college teaching, scholarship and publication. Western Michigan University, a Carnegie Classification Doctoral I Institution, has embarked upon a vigorous affirmative action program and encourages applications from women and members of minority groups. Send a letter of applications, vitae, graduate transcripts and three letters of recommendation to: Ruth Ann Meyer, Chair, Department of Mathematics and Statistics, Western Michigan University, Kalamazoo, MI 49008. Review of applications will begin December 1, 1993 and continue until positions are filled. Western Michigan University is an Equal Opportunity/Affirmative Action Employer.

WESTERN WASHINGTON UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for a tenure-track position in Math Education beginning Fall 1994. Responsibilities include teaching a wide range of mathematics education courses and lower division courses in mathematics, and developing inservice opportunities. In addition to being an excellent teacher, the successful candidate is expected to be professionally active and committed to the mathematics preparation (methods and content) of preservice and inservice elementary teachers. Preference will be given to candidates with recent elementary teaching experience and an appropriate advanced degree. To apply, send a letter addressing qualifications and interest in position, a vitae, transcripts, and three letters of recommendation by January 15, 1994 to: Dr. T. J. Ypma, Department of Mathematics, Western Washington University, Bellingham, WA 98225-9063. Western Washington is an Affirmative Action/Equal Opportunity Employer.

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WEST VIRGINIA UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics seeks to make a faculty appointment in Mathematics Education at the Assistant Professor level, commencing August 1994. Requirements include: a doctorate with a strong background in mathematics, preferably with an emphasis in geometry; demonstrated excellence in teaching; and an ongoing program of research in mathematics or mathematics education. The position carries with it a strong service component, and the successful candidate will have the qualifications needed to establish a leadership role in issues involving mathematics education curriculum and policy at the Departmental, University and State levels. Normal responsibilities include a two course teaching assignment per semester and a continuing expectation of quality research. The Department offers a Ph.D. in mathematics, and a Master degree which includes a program for secondary educators. The Mathematics Department has available the latest in computer software and technological resources for instruction, distributed in several laboratories. Applicants should submit a vitae and have three letters of reference sent to: Harvey Diamond, Department of Mathematics, West Virginia University, P.O. Box 6310, Morgantown, WV 26506. To ensure full consideration, all application materials and letters of reference should be received by January 15, 1994. WVU is an Affirmative Action/Equal Opportunity Employer. Qualified women and minorities are encouraged to apply.

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS - Anticipated tenure-eligible position in statistics, beginning Fall 1994, probably at the rank of assistant professor; in exceptional cases, however, more advance appointment may be considered. Excellence in teaching and statistics, including scholarship and consulting, and doctorate required. Please have a vitae and three letters of recommendation on teaching and statistics sent to: Statistics Hiring Committee, Williams College, Department of Mathematics, Williamstown, MA 01267. Evaluations of applications will begin November 15, 1993 and continue until the position is filled. As an Equal Opportunity/Affirmative Action Employer, Williams especially welcomes applications from women and minority candidates.

WILLIAMS COLLEGE - DEPARTMENT OF MATHEMATICS - Anticipated visiting position for the 1994-95 year, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research and doctorate expected. Please have vitae and two letters of recommendation on teaching and research sent to: Visitor Hiring Committee, Williams College, Department of Mathematics, Williamstown, MA 01267. Evaluations of applications will begin November 15, 1993 and continue until the position is filled. As an Equal Opportunity/Affirmative Action Employer, Williams especially welcomes applications from women and minority candidates.

XAVIER UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Assistant Professor of Mathematics - Applications are invited for a tenure track position in mathematics at the assistant professor level starting in the Fall of 1994. A candidate must be committed to outstanding teaching at the undergraduate level, to scholarly activity, and to service consistent with the mission of Jesuit higher education. Preference will be given to applicants who can teach a broad range of courses in an undergraduate mathematics curriculum. We encourage applications from women and minorities. Applications will be accepted until February 1, 1994. A completed application consists of a statement of goals and aspirations, resume, copy of graduate transcripts, and three letters of recommendation. Send to: The Search Committee, c/o J. B. Walker, Chair, Department of Mathematics, Xavier University, Cincinnati, Ohio 45207-4441. Xavier University is an Equal Opportunity/Affirmative Action Employer.

ANNOUNCEMENTS

1994 RESIDENTIAL SUMMER INSTITUTES FOR MATHEMATICALLY TALENTED UNDERGRADUATES

UNIVERSITY OF CALIFORNIA @ BERKELEY - (June 20, 1994-July 29, 1994) The sixth annual Summer Mathematics Institute (SMI) at the University of California at Berkeley (UCB) seeks applications from African American, Hispanic American & Native American undergraduate men and women who are considering research careers in mathematics and related fields. Approximately 30 students will receive room and board, a \$2,000 stipend and the cost of transportation to and from Berkeley. The SMI is a cooperative project of the Charles A. Dana Center for Mathematics and Science Education, and the University of California at Berkeley and the University of Texas at Austin (UTA) mathematics departments. It is supported by a grant from the NSF. Program organizers are Uri Treisman (UTA) and Leon Henkin (UCB and Mills College).

MILLS COLLEGE - (June 20, 1994-July 29, 1994) The fourth annual intensive mathematics program at Mills College (MC) is seeking applications from undergraduate women of all ethnic groups who are considering research careers in mathematics and related fields. Approximately 20 students will be admitted to the 1994 program; each will receive room and board, a \$2,000 stipend and a travel allowance. The SMI is supported by grants from the NSF, the NSA, and Genentech, Inc. Program organizers are Lenore Blum (Mathematical Sciences Research Institute), Steven Givant (MC), Leon Henkin (UCB and MC), and Deborah Nolan (UCB). Faculty members are asked to seek out candidates for the programs and to encourage them to apply. All applicants must have completed with distinction at least one year of collegiate mathematics beyond freshman calculus by June 1994. In addition, applicants to the Mills program must have completed at least one course that involves extensive exposure to discovering and writing proofs.

Institute Description - Participants explore in depth two areas of mathematics. Part of this exploration takes place in seminars consisting of approximately 12 students each and taught by active research mathematicians. The programs are designed as collaborative learning experiences. Students work together in small groups and in consultation with graduate students mentors to tackle challenging problems, and to carry out and present research projects. In addition, there are twice-weekly colloquia designed to provide participants with a broad view of current work in mathematics. Lastly, students participate in informational workshops that (1) assist them in making informed decisions about graduate school, (2) give them correct information about fellowship and financial aid opportunities to support their graduate studies, and (3) make them aware of career opportunities for mathematicians. The application deadline for both programs is **February 11, 1994**. Further information and application forms for the Berkeley SMI can be obtained by calling Olga Alvarez at (512) 471-3285, by electronic mailing OAlvarez@utxvm.cc.utexas.edu, or by writing to the Office of Special Projects, College of Natural Sciences, University of Texas, W.C. Hogg Building #204, Austin, TX 78712. Further information and application forms for the Mills SMI can be obtained by calling Kathy Guamieri at (510) 430-2226, by electronic mailing kathyg@mills.edu, or writing to Summer Mathematics Institute, Mills College, Oakland, CA 94613.

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University of Minnesota
The Geometry Center

The National Science & Technology Research Center for
 Computation and Visualization of Geometric Structures



The Geometry Center is the NSF Science and Technology Research Center for Computation and Visualization of Geometric Structures. The Center has created a unified computing environment centered on math and supporting:

- math and computer science research,
- mathematical visualization,
- software and tool development,
- application development,
- video animation production, and
- K-16 math education and outreach.

The Center supports an active research visitor program, a postdoc program, an expertly staffed technology development program and sponsors a variety of education and outreach activities. Additional information about the Center can be found in the anonymous ftp directory at geom.umn.edu.

Postdoctoral Research Fellowships

Up to three fellowships will be awarded for the academic year 1994-95 to individuals who have received their Ph.D. within five years of their starting date. They are for one year with the possibility of a one year renewal by mutual agreement.

Remuneration will be \$40,000/12 months if there is no other support. Applicants are expected to

demonstrate a high level of research accomplishment in mathematics or computer science, and to be at home in a computing environment.

Postdocs are expected to maintain a vigorous program of independent research. They are also expected to participate fully in the life of the Center, that is, to participate in ongoing or to initiate new activities in a combination of technology development, education, and outreach.

Center postdocs may participate in the scientific activities of the University's Computer Science and Mathematics departments, as well as the IMA and other institutes and centers at the University.

To apply please send 1) your vita, 2) a summary of your research accomplishments, 3) information concerning your computing experience, in particular details of major programs you have written, and 4) a research plan, indicating how you plan to make use of computing and graphics resources. In addition, 5) please list at least three references who are familiar with your work and whom you have asked to send separately letters of recommendation.

Applications from those with full or partial external support are strongly encouraged.

Application materials should be sent by February 28, 1994 preferably by email to postdoc_appl@geom.umn.edu, or by surface mail to Postdoc Applications at the address below.

Research Professorships

A very limited number of positions to supplement sabbatical support may be available to those with substantial research accomplishments for all or part of the academic year 1994-95. The salary will be at the rate of \$30,000/9 months or that which brings the sabbatical salary up to the full salary, whichever is less. To apply please send by February 28, 1994 a resume, and proposed research directions for the period of residence, including a detailed statement of how they will involve the computational and graphics resources of the Center. One or more letters sent on your behalf are also invited but not required.

Please send the application materials preferably by email to res_appl@geom.umn.edu, or to Professor A. Marden at the address below.

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