

# AWM

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## ASSOCIATION

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## FOR WOMEN IN

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## MATHEMATICS

Volume 25, Number 1

NEWSLETTER

January-February 1995

## PRESIDENT'S REPORT

### The Joint Mathematics Meetings in San Francisco

AWM will have a full program at the Annual Meetings of the mathematical societies.

The AWM Workshop for Women Graduate Students and Post-doctoral Mathematicians (featuring posters by ten students and the talks of ten postdocs) will again be a populous (and popular) event. In 1995 the workshop will have a different place in the schedule, on the last day of the meeting, Saturday, January 7 from 9 A.M. to 5 P.M. This complicates things, since there are many alternative talks and sessions of great interest being held simultaneously. But it places the workshop at the heart of the meeting, and we expect a larger and more varied audience, including prospective employers. We invite all to attend.

The Noether Lecture will be on Thursday, January 5 at 9 A.M., and Judith D. Sally, the 1995 Lecturer, introduced by Sylvia Wiegand, will speak on "Measuring Noetherian Rings." We look forward to a great lecture on such an appropriate subject!

And to add to the homage to Emmy Noether and the Noetherian Ring, a group of Berkeley graduate students will make a short presentation on their activities at the Workshop luncheon.

Among the list of interesting speakers sponsored by AMS and MAA there are a number of women. I note the invited MAA lectures of Lenore Blum (MSRI, former AWM President), Joan Ferrini-Mundy (University of New Hampshire), Karen Parshall (University of Virginia) and Karen Uhlenbeck (University of Texas at Austin), the invited AMS lecture of Leila Schneps (Université de Besançon, France), and the AMS-MAA invited lecture of Doris Schattschneider (Moravian College).

As already announced in my previous report, the AWM panel is entitled "AWM: Why do we need it now?" and we look forward to your participation with questions and comments on our future agenda "for the end of the millennium." The panel will meet on Wednesday January 4 from 3:20 to 4:15 P.M., followed by the Business Meeting from 4:20 to 5:20 P.M.

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# AWM

## ASSOCIATION FOR WOMEN IN MATHEMATICS

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

The *Newsletter* is published bi-monthly. The Editor welcomes articles, letters, and announcements.

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### EXECUTIVE COMMITTEE

#### President

Cora Sadosky  
Department of Mathematics  
Howard University  
Washington, DC 20059  
cs@scs.howard.edu

#### President-Elect

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#### Clerk

Jenny Baglivo

#### Newsletter Editor

Anne Leggett  
Department of Mathematical Sciences  
Loyola University of Chicago  
Chicago, IL 60626  
leggett@math.luc.edu

#### Meetings Coordinator

Bettye Anne Case; case@math.fsu.edu

#### Association Administrator

Dawn V. Wheeler; awm@math.umd.edu

#### Executive Director

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

Wednesday will culminate with The Party, our usual wonderful gathering of members and friends of AWM — and Bettye Anne promises live music by The Unstable Attractors!

### Hay Award

One of our most significant events at the meeting will be the presentation, at the Joint Prize Session, of the AWM Hay Award for contributions to mathematics education. This award is important on two counts. It recognizes outstanding achievements by a woman, while highlighting the importance of math education. And it honors the memory of one of our most accomplished members, Louise Hay, a mathematician whose mentoring of young women and men left its mark on the American education of mathematicians and is an inspiration to us all.

The award presentation is a splendid occasion to celebrate our best. Our 1995 awardee is particularly inspiring. (One of the perks of my office is to have already called her with my congratulations!) Thanks are due to the Hay Award Committee, Naomi Fisher (chair, University of Illinois at Chicago), Deborah Tepper Haimo (University of Missouri at St. Louis) and Carolyn Mahoney (California State University at San Marcos), for performing the difficult task of selecting among the outstanding 1994 nominees.

I hope all of you attending the San Francisco meeting will join us for the Prize Session.

### Discordant Note

The MAA has a long, fruitful tradition of excellent minicourses that greatly enhance the Joint Mathematics Meetings. Enrollment is necessary limited and a fee is required to cover expenses.

Surprisingly, this year Minicourse #22 has the same characteristics (limited enrollment and required modest fee), but the subject is "Learning about today's job market for mathematics Ph.D.'s." Recent graduates looking for work have told us they feel that it is mighty inappropriate to be charged for guidance on this subject. We share their uneasiness on the matter.

By now it is well-known to all that our young colleagues are suffering from an extremely tight job market. We are sure — both because this minicourse is sponsored by the MAA and because it is being taught by people keenly interested in being part of the solution — that it was organized with the best of intentions. But, in a concert of voices seeking an answer to the problem, its mode produces a discordant note.

Let us hope that in the future our big sister organizations will find a way to guide our new colleagues without exclusion, and without asking for money, even a minimal amount.

### Daubechies Received the Steele Prize

A sign that I missed the 1994 Mathfest is that I did not include in my previous report AWM's congratulation to Ingrid Daubechies

(Princeton) for the Steele Prize she was awarded by the AMS for expository writing.

Daubechies won the award for "Ten Lectures on Wavelets," a wonderful, useful book that has helped many people to start on the right path in this important, attractive subject.

The ten lectures of the title were delivered at a pivotal CMBS conference on wavelets in June 1990 at the University of Massachusetts at Lowell. The brainchild of Mary Beth Ruskai (University of Massachusetts at Lowell), the conference was one of many excellent examples of how federal funding can be well spent.

It is a special pleasure to congratulate, once again, on yet another richly deserved honor, one of our most accomplished and committed members!

(And, by AMS election results, one of the most well-regarded mathematicians in the U.S. as well!)

### Women in Probability

Organized by Molly Hahn and Ruth Williams, the Workshop for Women in Probability met at Cornell University on 16–18 October 1994 under the auspices of the Mathematical Science Institute and the AMS. More than twenty-five participants attended, ranging from established senior researchers to rising young stars and beginning graduate students.

There were several panels, one with representatives of the professional organizations (AMS, AWM, IMS, SIAM), the funding agencies (NSF, NSA), and women probabilists working outside academia. I represented AWM on this panel, while Cathleen Morawetz and Joyce McLaughlin represented AMS and SIAM, respectively.

In 1994 or 1995, three main organizations for probabilists, AMS, ASA and SIAM, have women as Presidents-Elect: Morawetz, Lynne Billard and Margaret Wright.

The workshop included a dinner with Alexandra Bellow as speaker. She gave one of her outstanding talks, this time on several of the personal experiences that shaped her professional life.

Teaching duties did not allow me to attend the whole meeting, but I had enough time to be impressed with the high quality of the talks. The young women probabilists that have made their way (finally!) to the faculty of some of the leading research universities are not there by any act of charity, nor to fulfill any "affirmative-action quotas." They are there because they are undoubtedly

among the best young people these universities can get. To have such a truism demonstrated once again is really fulfilling.

Congratulations to Molly Hahn and Ruth Williams for superbly organizing a very useful event!

### Press Coverage on Women's Mathematical Disabilities

In the Los Angeles *Times* — and in her syndicated column in many other newspapers across the country — Joyce Brothers asserted (in an article entitled "Just How Wide Is the Gap Between the Sexes?") that, while it is "false" that "the average boy almost everywhere in the world is far better at math than the average girl," it is "true" that "men have an innate superiority in math." Where did she get the knowledge to make such an imperial assertion against so much empirical evidence? From Camilla Benbow, "a psychologist at Iowa State University, [who] has concluded that boys' superiority at math is mostly innate." And that's that. It sounds very scientific, doesn't it?

Larry Shepp (AT&T Bell Labs) sounds equally serious in a Letter to the Editor that appeared in the October *Notices* of the AMS. He supports his militant rejection of the 1972 AMS resolution "to include more women on Society programs and panels" on the grounds that these words "are being interpreted as justifying a quota system." Who is the interpreter here? Shepp goes on with his by now familiar theme that the inclusion of *more* women will inevitably lower standards.

And to think that in my November/December Report I wrote that with the 100% increase (by the addition of one person) in the number of women plenary speakers since the last International Congress, the IMU had not only given the participants of ICM 94 the privilege to hear Ingrid Daubechies and Marina Ratner, but had finished forever with the sexist slander of women "lowering standards!"

No, that slander is not dead, it is alive and kicking. And it is still our enduring responsibility to crush it against hard reality.

### Jaime Escalante and Teaching Mathematics with "Ganas"

In November I attended part of the three-day-long Third Annual Conference of the SUMMA Consortium. The Consortium is sponsored by MAA

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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).

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

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

**Deadlines**

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

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

**Addresses**

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

to strengthen the participation of underrepresented minorities in the mathematical professions.

The keynote address to the group was from Jaime Escalante, the high school teacher of "Stand and Deliver" fame.

Mr. Escalante is as inspiring in person as he is in legend. He is a middle-aged Bolivian who had to struggle hard to be able to teach in California and who personally performed real miracles with and for his students from a deprived Hispanic ghetto in Los Angeles. Now he has moved to Sacramento, where he goes on with his methods and his miracles in a high school with a more varied population of African American, Vietnamese, Korean and Latino students.

Mr. Escalante spoke with grace, a sense of humor and oodles of wisdom about, among other things, the need to do one's work with "ganas." To work with "ganas" means to work willingly — even more, to work with passion. His speech was very effective, as his teaching is, because we could sense his passion. For teaching, for learning, for giving deprived kids, as talented as the rest, the opportunities to do what they want with their lives.

For me it was particularly refreshing to listen to him in the dining room of a big Washington hotel where — as in most other restaurants in this city and in many big American cities — all the waiters, and very few of the keynote speakers, are, like us, "messakins."

It was a good reminder that to fight decisively against California's Proposition 187 and the similar aberrations that will be springing up around the country is a duty of all teachers. Starting with those of mathematics, the most empowering of all school subjects.

**Dorothy Crowfoot Hodgkin (1910–1984);  
Linus Pauling (1901–1994)**

Last summer two of the most remarkable scientists of our times died too soon, yet at advanced ages. Both were chemists — thus, both were also applied mathematicians. The contributions of each of them had seminal impact on molecular biology. Both were leading lights in humankind's quest for peace and justice.

Dorothy Crowfoot Hodgkin won a Nobel Prize for Chemistry thirty years ago "for her determination by X-ray techniques of the structures of biologically important molecules." The molecules in question were vitamin B<sub>12</sub>, insulin, penicillin and

cholesterol iodide, and the resolution of each of these structures represented a milestone in structural chemistry. She worked in the heroic era of X-ray crystallography, mostly in pre-computer times, and invented and developed many of the techniques which allowed the emergence of macromolecular structure analysis. Modern structural molecular biology is based on the pioneer work of Crowfoot Hodgkin and her contemporaries.

Professor Hodgkin engaged in many good causes. She is best known as the founder of Pugwash, the association of scientists for peace, nuclear disarmament and the development of the Third World that had a decisive role at the height of the Cold War.

Max Perutz (Nobel Laureate) wrote in her obituary in *Nature* (vol. 371, p. 20, 1 September 1994): "Dorothy Hodgkin radiated love: for science, her family, her friends, her students and her crystals. That love was combined with a brilliant mind and an iron will to succeed."

Linus Pauling is widely regarded as the greatest chemist of the twentieth century. He was the only person to have won two Nobel Prizes (for Chemistry and for Peace) on his own. And he missed a third one (for the structure of DNA) by a hair. (Marie Sklodowska Curie also won two Nobel Prizes, one in Chemistry and another in Physics, but the first was shared with Pierre Curie and Henri Becquerel.)

Pauling, a prodigy since his student days at Oregon Agricultural College, remained prodigious throughout his life. He established the nature of the chemical bond (when he published his book under that name he revolutionized the discipline of chemistry), recognized the central role of hydrogen bonding in determining macromolecular structure, conceived the idea of the helical structure of polypeptides, and did fundamental work on enzymology and genetics. His lecturing was bold and passionate.

Pauling cared deeply about justice for all. With his wife Ava Helen Pauling, he was at the forefront of the antinuclear campaigns during the entire Cold War. He did important work on the harmful effects of radioactive fallout which had essential impact on the Test Ban Treaties.

He was a most inspiring teacher and was highly regarded by his peers. Alexander Rich (biology, MIT) recalls in *Nature* (vol. 371, p. 285, 22 September 1994) that when he visited Albert Einstein at the IAS in Princeton in 1951, introducing

himself as a postdoctoral fellow of Pauling, Einstein's comment was "Ah, that man is a real genius!"

Unfortunately such recognition was not always bestowed on him by the popular press. On the occasion of his death last August, we reread the disparaging comments on Pauling made by *The New York Times*, among other newspapers of the day, when he demonstrated in front of the White House in support of nuclear disarmament. He was labeled a freak, an anti-American, and a Communist dupe. All the while he was a shining example of commitment to science and to scientific responsibility.

As a freshman at the University of Buenos Aires I had the privilege to meet Pauling during his visit to Argentina and to accompany him around town. I will never forget his enthusiasm and the glow of his fantastic clear eyes, nor the uplift his visit gave to all of us. He certainly was on our side for education!

At a time when the shining lights of science appear to be fading in a horizon of increasing ideological confusion, the moral and intellectual influence of Dorothy Hodgkin and Linus Pauling will be greatly missed.

### AWM at AAAS 1995 in Atlanta

AWM will have a session at the 1995 Annual Meeting of the American Association for the Advancement of Science (AAAS) in Atlanta, Georgia, on "What works: successful programs for women in the mathematical sciences." This fits the theme of the meeting, which is "Unity in diversity."

On the morning of 20 February we will focus on the Spelman-Bryn Mawr and the Mills Summer Mathematics Programs for undergraduates, the Computer Science Distributed Mentor Project, the Program in Mathematics Education of American University, and the AWM Workshops for Women Graduate Students and Postdoctoral Mathematicians. Highlighting our institutional experiences and the individual initiatives of our members and allies should help expand their reach, and we invite especially all our members and friends in the area to attend this session.

Another important event at the AAAS meeting will be the presentation of the AAAS 1994 Mentor Award to Mary Gray (American University, first AWM President), "honoring exemplary leadership to increase the participation of women, minorities and people with disabilities in mathematics, science

and engineering." We are proud of Mary and her achievements, and we rejoice over this new and important recognition.

### CBMS Task Force on Minorities

The coming December meeting of CBMS will focus on a new Task Force on Minority Participation and Achievement in Mathematics, of which I am a member. The main order of business will be to prepare the agenda for a May 1995 meeting on ways and means to improve the inclusion in mathematics of *all* underrepresented groups.

Since its beginnings, AWM has pursued the goal of extending to *all* people the right to mathematics. We invite all our members to join in this effort wherever they work.

### New AWM President

Chuu-Lian Terng will start her term as AWM President on 1 February 1995. She brings a rich personal experience to the job. Both her human and intellectual qualities make it easy to predict her success at the helm of this peculiar and important organization.

Chuu-Lian's mathematical abilities are widely recognized by her colleagues, and her students regard her as an inspiring teacher. She is the product of a diverse education, having started as a student of mathematics in her native Taiwan and having earned her Ph.D. in the States. Her teaching and research career is wholly American. And she is the third AWM President to come from a country outside the First World and is from a group historically underrepresented in mathematics.

We are very proud of Chuu-Lian's achievements, and it is my personal pleasure to welcome her to the responsibility she now undertakes.

### Thanks to All

When I assumed the AWM presidency almost two years ago, I thanked a lot of friends. I acquired many more on the road. Each and every one of them has made a difference.

Some of them have made a difference every day. All that may be good in what I did at AWM during these two years is marked by the advice and help of Mary Gray, Judy Green, and Carol Wood.

I worked on particular projects with many people. Very few experiences compare with working

with people as effective, committed and professional as Anne Leggett and Rhonda Hughes.

On the international scene I had the good fortune to collaborate with Eva Bayer and Asia Weiss.

And there are the old, constant friends who continued to support, criticize and supply new ideas to work on: Bettye Anne Case, Chandler Davis and Lee Lorch. And the marvelous new friends, too many to mention by name.

At the start I embarked on an uncharted road.

The road itself is now paved. The greatest change at AWM is having a real office, with wonderful, professional people in charge of it. None of the many projects we are undertaking would even be conceivable without Joanna Schot, Dawn Wheeler and Angie Beach. To the three of them, as well as to Ginny Reinhart, my appreciation and gratitude.

### What a Learning Experience It Has Been

This is my twelfth and last president's report.

Two years have passed very quickly, but have been extremely full. It seems as if I started yesterday for the time actually available to accomplish anything. It seems like a million years for all that happened, for all I've learned. I cannot even begin to tell how much I've learned.

I had never met so many women mathematicians, so many math teachers, so many graduate and undergraduate math students. How wonderful it has been. The brightest of all: those precious, unique marvels that are the Schafer Prize awardees. And all the young people that participate in the workshops. And all the people at meetings, scientific conferences, and funding agencies, who collaborate and contribute in so many ways in paving the roads for women to travel into mathematics.

To hear our multiple voices, to perceive our diversity, to see it in the flesh and in the papers — what a privilege.

A couple of days ago I had to answer on our behalf a questionnaire on AWM's commitment to minority inclusion into mathematics. I was so proud to write that our work for the right of women to mathematics is intertwined with our total commitment to the struggle for the right of *all* people to mathematics.

As a woman, as a Latin American, as a mathematician, I am so proud of our struggle. Much has been gained, it is true, and we should be happy about it. What women mathematicians in the U.S.

## AWARDS AND HONORS

CONGRATULATIONS to the women listed below for their meritorious achievements.

JOYCE McLAUGHLIN has been elected to the SIAM Board of Trustees. McLaughlin is Ford Foundation Professor of Mathematics at Rensselaer Polytechnic Institute.

LYNNE BILLARD is President-Elect of the American Statistical Association (ASA). Billard is a professor of statistics at the University of Georgia. Among her publications are "The Past, Present, and Future of Academic Women in the Mathematical Sciences," [AMS Notices, Vol. 38, No. 7, pp. 707-714] and "Twenty Years Later: Is There Parity for Women in Academia?" [NEA Journal of Higher Education, 1994].

from the AMS Notices, October 1994:

INGRID DAUBECHIES received the 1993 Steele Prize for expository mathematical writing.

**Citation:** The expository award goes to Ingrid Daubechies for her book *Ten Lectures on Wavelets* (CBMS 61, SIAM, 1992, ISBN 0-89871-274-2). The concept of wavelets has its origins in many fields, and part of the accomplishment of Daubechies is finding those places where the concept arose and showing how all the approaches relate to one another. The use of wavelets as an analytical tool is like Fourier analysis — simple and yet very powerful. In fact, wavelets are an extension of Fourier analysis to the case of localization in both frequency and space. And like Fourier analysis, it has both a theoretical side and practical importance.

Daubechies' lectures have been important in educating the mathematical community about wavelets; many of us first learned about wavelets through hearing her speak. But not that many people can be reached by any one lecture. The CMBS course format, with its week-long series of main lectures and its requirement that the lecturer produce a book once again proves its worth, allowing a wider community to gain access. Daubechies' is an invaluable resource for the novice interested in learning about "The What, Why, and How of Wavelets," to borrow the title of the first chapter. It is entirely self-contained; if a desired result or application is not in the text, one is certain to find several references to where it can be found. It

have conquered in our quest for equity is unmatched in the world. Still, so much remains to be done. Until all deserving people find opportunities that correspond to their abilities and their contributions. Until we are able to foster those abilities to obtain those contributions.

We must not tire. We cannot cease to care. To go to a classroom and be in touch with the bright young people striving to do mathematics is enough reminder of our duty to open doors for them.

Sofia Kovalevskaia said it better, more than a hundred years ago: "... is it really possible not to stretch out one's hand, is it possible to refuse to help someone who is seeking knowledge and cannot help herself reach its source? After all, on woman's road ... so many difficulties pile up. I myself encountered many of them. Therefore I consider it my duty to destroy whatever obstacles I can in the paths of others."

Contrary to the despicable joke about women mathematicians, Sofia Kovaleskaia and Emmy Noether were both women *and* mathematicians. We cannot be like them by mere will. But we can empower others to be like them. And better still. Let's do it.



Cora Sadosky  
22 November 1994  
Washington, DC



strikes an excellent balance between theory and application, effectively showing how each influenced the development and understanding of the other. The book also weaves in the history of wavelets, relating developments in disparate fields which converged to become wavelets.

Daubechies has, of course, made major contributions to the subject herself. Haar wavelets (where the "mother wavelet" is the characteristic function on  $[0, 1/2]$  minus the characteristic function on  $[1/2, 1]$ ) have been known since 1910; they were thought to be a curiosity but not very useful. With Daubechies' work, Haar wavelets have been shown to be the first in a whole family of compactly supported nonsmooth wavelets: beautiful examples of functions with fractal higher derivatives. This book contains original results of hers as well as presents previous work by her and others.

**Biographical Sketch:** Ingrid Daubechies was born on August 17, 1954, in Houthalen, Belgium. She received her Ph.D. from Free University, Brussels (1980). Professor Daubechies is presently a member of AT&T Bell Laboratories' staff (until December 31, 1994). In January 1995 she will assume the position of professor of mathematics at Princeton University.

Professor Daubechies has served on the AMS Short Course Subcommittee and on the AMS Committee on Committees since 1993. She has given numerous addresses, including the following: Invited Address, SIAM (Chicago, 1990); Principal Lecturer, CBMS Regional Conference (Lowell, 1990); Invited Address, MAA (Baltimore, 1992); Invited Address, AMS (Bethlehem, April 1992); and Organizer and Speaker, AMS Short Course on Wavelets and Applications (San Antonio, January 1993). She presented a Plenary Lecture at the International Congress of Mathematicians in Zürich in August 1994.

In 1992 Professor Daubechies was awarded a five-year MacArthur Fellowship.

**Response:** I feel greatly honored that the AMS has chosen to award a Steel Prize to my work. When I set out to organize my CBMS lectures and later *Ten Lectures on Wavelets*, I wanted to convey the many links that exist between this new mathematical development and ideas in physics, electrical engineering, computer vision, and, of course, other fields in mathematics. The interaction with applications has been a constant source of inspiration for my own work, and I find it deeply gratifying that

this mix of mathematics and applications is so well received.

NSF Mathematical Sciences Postdoctoral Research Fellowships have been awarded to [name (doctoral institution), fellowship institution, area of research]: SARA BILLEY (University of California at San Diego), Massachusetts Institute of Technology, Schubert polynomials and other bases related to diagonal harmonic spaces; TANYA CHRISTIANSEN (Massachusetts Institute of Technology), Johns Hopkins University and the University of Pennsylvania, spectral and scattering theory for the Laplacian on manifolds with cylindrical ends; NADINE KOWALSKY (University of Chicago), Institute for Advanced Study and Stanford University, actions of noncompact simple algebraic groups on noncompact Lorentz manifolds; SARAH PATCH (University of California at Berkeley), Institute for Mathematics and its Applications at University of Minnesota, an inverse problem in diffuse tomography; RACHEL ROBERTS (Cornell University), University of Texas at Austin, pure mathematics; SUSAN TOLMAN (Harvard University), Massachusetts Institute of Technology, pure mathematics; and TATIANA TORA (Stanford University), University of Chicago, the relationship between geometric measure theory and partial differential equations.

NSF Graduate Fellowships for 1994 were awarded to [name, mathematical area, baccalaureate institute, and proposed graduate institution (which may be different from the one actually chosen)]: VICTORIA Z. AVERBUKH, operations research, New York University (Cornell University); CLAIRE ELIZABETH CATES, applied mathematics, University of Alabama (Cornell University); AMY CAROL GALTMAN, analysis, Brooklyn College, CUNY (Stanford University); LAURA ANN GLENN, analysis, University of Wisconsin, Madison (Princeton University); REBECCA FREJA GOLDIN, geometry, Harvard University (Massachusetts Institute of Technology); SUSAN WENDY GOLDSTINE, algebra, Amherst College (Harvard University); SHANNON MARIE KELLY, statistics, University of Washington (Cornell University); TANYA LARISA LEISE, applied mathematics, Stanford University (Texas A&M University); CATHERINE HELEN O'NEIL, algebra, University of California, Berkeley (Harvard University); ERICA LEE PLAMBECK, operations research, University of Wisconsin, Madison (Massachusetts Institute of Technology); JULIA JOY REHMEYER, topology, Wellesley College



(Massachusetts Institute of Technology); JOHANNA FRIEDA STOECKLER, applied mathematics, Brown University (Harvard University); MONICA JOY VAZIRANI, algebra, Radcliffe College (University of California, Berkeley); KELLY LYNNE WIEAND, no field given, University of Wisconsin, Madison (Harvard University); and YIHAO LISA ZHANG, applied mathematics, Wesleyan University (Massachusetts Institute of Technology).

CRISTINA LEUBA PEREZ, applied mathematics, University of North Carolina, (University of Maryland) is an NSF Minority Graduate Fellow for 1994.

JANE M. DAY (San Jose State University), LISA A. MANTINI (University of Oklahoma), and MILDRED JANE JOHNSON (Western Washington University) have received 1994 MAA Section Awards for Distinguished Teaching.

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

The Executive Committee of the Association for Women in Mathematics calls for nominations for the Alice T. Schafer Mathematics Prize 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. The nominee may be at any level in her undergraduate career.

The Schafer Prize was established in 1990 by the Executive Committee of the AWM and is named for AWM former president and founding member, Alice T. Schafer, who has contributed a great deal to women in mathematics throughout her 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 courses and special programs, demonstration of real interest in mathematics, ability for independent work in mathematics, and performance in mathematical competitions at the local or national level, if any.

Supporting materials (e.g., reports from summer work using math, copies of talks given by members of student chapters, transcripts) should be enclosed with the nomination. Send *five* complete copies of nominations for this award by **April 1, 1995** 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.

For more information, contact AWM by phone (301-405-7892) or email ([awm@math.umd.edu](mailto:awm@math.umd.edu)). Nominations via email or fax will not be accepted.

#### NSF-AWM TRAVEL GRANTS FOR WOMEN

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

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

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

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

For more information, contact AWM by phone (301-405-7892) or email ([awm@math.umd.edu](mailto:awm@math.umd.edu)). Applications via email or fax will not be accepted.

## ICM PANEL

First let me point out that, before retirement, I felt the best I could do for the cause of women in mathematics was to demonstrate the competence of such a specimen, both in teaching and in research. Had I been endowed with political and administrative skills I certainly would have, among other issues, devoted them to the cause. As it was, I used whatever clout I had to protect the odd student or colleague, male or female, from occasional bureaucratic injustice. Now that I have slipped from the gender "minority" into the last one, that of the "senior citizen" (yech!!), it is time to sit back and think about the "women's issue."

Not having any statistics at my fingertips, nor any inclination to go out and gather such (often rather dubious) data, I can only offer musings based on my own and a few friend's experiences. Mine are not exactly typical because: I had a domineering feminist mother and a warm but weak father, the discrimination I suffered was circumstantial, and I strongly feel that what went wrong with my career has been my own doing. If I had any role models at all, I picked them myself. Leonardo da Vinci and Albrecht Dürer were later joined by the unlikely pair of Gottfried Wilhelm Leibniz and Thomas Alva Edison. Still a few years later I read biographies of Mme. Curie and of Sonja Kowalevskaya, both very romantic accounts in German. The problems of my own doing include my marriage to a physicist looking for a house wife at the Institute for Advanced Studies in Princeton. Early on I developed a knack for squandering my talents on only half understood or lost causes. Many counterproductive adventures: I was always prepared to take the consequences, count my losses and — enjoy them (the adventures, not the losses). The resources seemed inexhaustible, but that of course was a delusion.

As I was anticipating this panel discussion I felt so much at a loss that I called two friends: Trudi Frey, a retired mathematician who had been a student at the Uni Züri in the late forties, and John of Pender Island who has remained true to the socialist ideals for which he fought on the forefront of the CCF in Canada during the Depression. The first result of these conversations was: "What is all the fuss about? In comparison to the hardships of

battered women in financial straits with a brood of kids, do *we* have problems?" Of course that is wrong reasoning. Others being so much worse off is no reason for us not to look out for ourselves. To be sure there is still discrimination and inequality in opportunities. However, women in academia are better off now than we were.

In view of how much academic women's lot has improved I jotted down the following note to myself: "Our Cold War is over. What do we do next? — Roll up our sleeves and Start Doing Mathematics." The Noether Lecture Series is a great beginning. We may be ready to broaden the scope of the *AWM Newsletter* to include reviews of books and short survey papers on topics other than feminist problems. A fine illustration is Barry Mazur's Fermat letter in the September-October 1993 issue.

Reading the *AWM Newsletter* on the two-body problem reminded me of the incident when, after a term or two of teaching at Cornell, my then husband declared that he did not much like teaching and muttered to himself "maybe I should have accepted that offer from Oxford." This shook me out of my domestic slouch. In Birmingham I had been told that we were going to Cornell; Oxford had never been mentioned. Of course I was sorry I had not been consulted and wondered whether "things" might have been different in Oxford.

Discrimination, injustice and victimization are easier to pinpoint and counteract in the marketplace than in the privacy of a home. But it must be emphasized that the bulk of the two-body problem resides in the centroid of the double body. Our task therefore is not only the enlightenment of our employers, peers and colleagues, but even more so the liberation of our spouses, sons and lovers from obsolete prejudices.

The pros and cons for a department involved in hiring a single versus a married applicant arose in a recent issue of the *AWM Newsletter*. It depends on what an employer is looking for. Hiring a single person involves less risk, since "sooner or later she will get married and move away, anyway" (quoting verbatim an indiscreet friend), hence "no great deal about commitments in the form of tenure and such." If, on the other hand, a department is serious about filling a position and wants stability, the married status is preferred, at least in an optimist's "family value" perspective. I do not believe that this scenario is particularly gender-related.

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*revision of remarks by Dr. Verena Huber-Dyson, Canada*

When the problems, mathematical or professional, are closing in on you, a suitor who otherwise might not qualify may appear as a savior; this is marriage as an escape route. This, at least in my time, was no escape for a man. He would have to face the professional challenge, no matter what his personal circumstances.

This strategy may not work out. At this point, a bit late, talking it out becomes imperative, and a mutually meaningful agreement must be reached. Anyway, a marriage based on an ulterior motive is endangered from the outset.

Of course there are plenty of *good* reasons for commitment to a life-long companionship. The two-body problem is indeed a very difficult problem in situations where, for economic reasons, both partners must have a paid position, or where both feel they can only fulfill their potential within the confines of a full academic career with all its paraphernalia and responsibilities. However, there is the possibility of one partner being just as glad to forego all these trimmings provided that partner is granted the freedom and resources to pursue mathematics (or whatever) for its own sake.

Indeed I used to consider Julia Robinson very fortunate: she had a chance to teach the occasional graduate course or seminar in her specialty without having to grade linear algebra exams by engineers; she could devote herself to her research in the middle of the day without having to rush off to meetings. She was respected by the mathematical community, inspired students, collaborated fruitfully and held the presidency of the AMS. But not until very late in her life was she offered a regular position at U.C. Berkeley where her congenial husband, working in a closely related field of mathematics, was a professor. How Julia herself felt about the situation I do not know. I knew her, but I never heard her discuss the issue. Other women have done that for her. The far-reaching significance of her work remains untouched by these debates. Hers was a very special vocation, no mere career.

Obviously one effect of women's liberation is the transition of mathematics-for-women from a hobby to a profession. While losing some of the glamour we are gaining respect, a professional respect that, among other obligations, demands that we face the challenges of competition *and* the vagaries of academic shenanigans.

Small children can be great companions in pure research. They are eminently congenial to total

absorption in a project. Give them a chance to immerse themselves in building something of their own invention from blocks, brick, stones and sticks, and you can sit right there at the picnic table next to them contemplating the decision problem for free groups or whatever *you* happen to be obsessed with. They may succeed with their project, while you have to abandon yours to the calls of common sense. Incidentally I believe this is a good rational reason for women with young children to avoid administrative commitments, be it in societies or in their academic institution. Staying home with your kids and working on the mathematical problem you are hooked on is much easier — and fruitful and fun — than sitting on a panel.

When you are deeply involved with a problem a spouse may be more distracting than small kids. So may be teenagers and neighbors. As a rule of thumb, the older a person the more difficult it is to reach in that person's presence the state of total absorption demanded by a mathematical problem. Grandmothers are an exception.

### Women Mathematicians in Switzerland: An Inquiry

In spring 1994, the European Mathematical Society (EMS) committee on Women and Mathematics sent out letters to all Swiss universities and polytechnic schools asking about their opinions on the low number of women mathematicians in Switzerland and about programs to improve the situation. It was announced that the results of the inquiry would be presented at the International Congress of Mathematicians in Zürich, August 1994. Indeed, the inquiry was discussed at several events of the ICM.

Answers came in from all institutions except for the University of Neuchatel (in some cases, even two from one place). With one exception, everyone shared our concerns about the underrepresentation of women among the mathematicians in Switzerland and expressed some desire to improve the situation. But only a few institutions actually reported on programs for achieving this.

The University of Geneva at least has a law saying that persons of the underrepresented sex are to be preferred if they have equivalent scientific and teaching qualifications. We are also glad to mention

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*Christine Bessenrodt, Germany*

that recently a woman mathematician, Viviane Baladi, has been appointed to a tenured position.

At Lausanne, the Swiss Federal Institute of Technology has recently decided on a special program to advance equality between the sexes. For women scientists, this program includes the following points: financial help for graduate students with children; the creation of doctoral fellowships reserved for women; the creation of a few assistant professor positions reserved for women; and making it easier for women to obtain part-time employment, even as scientists on jobs with large responsibilities.

These propositions seem very promising, and it is to be hoped that they will serve as a model for other institutions.

In some replies, the low number of women students was given as an explanation — but this seemed to be specific to only a few institutions. In some others, 30% women in mathematics were reported from the student up to the Ph.D. level. Also, the low number of applications for positions from women was mentioned, and one response deplored the fact that there are very few Swiss

candidates. This is perhaps a structural problem: young Swiss mathematicians may feel that the successful applications come either from very local candidates or from internationally renowned scientists from abroad, and hence they may be discouraged from applying. It is well-known that women are especially apt to have this reaction.

As a follow-up, we plan to make a more detailed study of the statistics on women Ph.D.'s in mathematics. As a first step, we obtained rather extensive data from the university of Geneva. We now want to investigate the number of Ph.D.'s in mathematics obtained at the Swiss institutions between 1975 and 1990, and in particular the number of women among these. Also, we want to suggest to the Swiss mathematics departments that it might be useful to invite young non-tenured Swiss mathematicians (and in particular as many women as possible) to give talks at institutions different from the one where they graduated. This would be interesting for everybody and would be the basis of useful contacts. Inviting women mathematicians to give talks is also important from the point of view of providing women students with positive role models.

## WOMEN IN MATHEMATICS AND COMPUTER SCIENCE: A conference review

Why is mathematics called the “New Latin?” Because it is the language of the educated, the tool of upward mobility. So it was natural that Kean College, located in an urban area of New Jersey with a sizeable population of Hispanic and other minorities, would sponsor a conference on “Women in Mathematics and Computer Science.” Why the emphasis on women? Because the challenges of encouraging girls and women to persevere with mathematics and become comfortable with computing are still with us. Long after the problem was recognized, defined and documented in the scholarly literature, it is still difficult to convince many women that they will need mathematics and computing, no matter what careers they choose.

Though it is years since *Overcoming Math Anxiety* by Sheila Tobias was first written and Sally Hacker did her pioneering work on the culture of technology, it was obvious that the concern was not of historical interest only. The response to the invitation to attend the conference was overwhelming. We had a sell-out crowd of almost two hundred people consisting of high school teachers of mathematics and computer science, community college and university professors, and community activists.

Patricia Kenshaft, a mathematics professor from Montclair State University, was our keynote speaker. Pat's activism started about 1980 when she saw that women in the MAA seemed invisible: there but not speaking and rarely spoken to. Men were on the agenda almost exclusively, and women were not even included in the question and answer period. She organized the New Jersey chapter of AWM, became its first president and set about to change the perception, both in the mathematical organizations and in the media, that there “were no qualified women in mathematics.”

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*Danielle R. Bernstein, Computer Science Department, Kean College of New Jersey, dbernste@pilot.njin.net*

In her talk, Pat dealt directly with the problem of low math scores for women on the SAT's and other standardized tests. Boys are socialized to give quick answers and compete. And success on these multiple choice tests demands instantaneous, confident answers. Girls tend to contemplate problems from many points of view, slowing them down and making them doubt themselves. But are these tests good indicators of college performance? In college, women do better in mathematics courses. To get the same college grades in math, boys have to get 40 points more than girls on the SAT. M.I.T. tried to equalize the grades in math between males and females. They said, "Let's accept girls with up to 40 points less than boys on the math SAT on the same basis." The reaction to that was horror at "lowering standards."

So Pat asks what we can do to equalize the playing field. As instructors in the classroom at any level, we can call on females and not get distracted by the males that take up more air time. We can praise women when they do well. We can point out that people of both genders truly enjoy mathematical careers. But the most important commodity we can give to anyone is their attention. Pat was funny, wise, energetic and full of real information. She supplied a page of references to those eager to pursue her ideas.

The panel session which followed, entitled "Bringing about change: What do I do Monday morning? A perspective from different positions" reinforced the theme of the conference. Kathy Detrano, a director at AT&T, showed the variety of jobs available in her company for people with math and CS backgrounds. Systems analysts, testers, designers, marketers: we must show students that they can do much more with these subjects than teach and become programmers. Kathy Ciociola served as a good example, as she is Director of Telecommunications at Rutgers University. Her background, Catholic high school followed by a degree in chemical engineering, was not the standard route to her current position. But in 1963 when she finished high school, the system forgot to tell her that women did not go to engineering school. Her prior single-sex education had given her the confidence to just plunge in when she discovered that she was the only woman in her classes.

Suddenly, both the panel and the audience picked up on single-sex education. All the women on the panel had been educated in an all-female setting at some point; most in Catholic schools

(because that's where the majority of single-sex education occurs in the U.S.) and one in an academically powerful women's college, which now has become coed. Was this a coincidence? Was this good? What about the real world? The only man on the panel, Gus Rogers, an African-American who is head of computer security at Merck, saw many parallels between this discussion and that concerning the wisdom of schools for African-American males only. The single-sex issue dominated the conversation at most tables during lunch.

The afternoon started with seven break-out groups on topics ranging from "Collaborative Learning," a hot issue in computer science, to "Challenges Facing Hispanic Women." Eileen Edelman, a high school teacher, attracted large participation with her catchy title of "Honey, your polynomials are so neat. Strategies in the high school classroom." That group spent time discussing classroom management. Discipline in high school is part of the gender issue; boys take up more of the teacher's time.

The last presentation was on Math Options, a program developed by Penn State and generously funded by industry, which brings twelve-year-old girls to the college campus for a day to show them what fun math and science can be. They have a large pool of industry women who are eager to show these girls the kind of careers that they can aim for, from chemical engineering to veterinary medicine. The theme of that day is parallel to that of the conference: to keep their options open, girls have to stick with math and science. It is a program that we at Kean College plan to offer next year.

## 1995 AWM ELECTION

The members of the Nominating Committee are Mary Gray (American University), Rhonda Hughes (Bryn Mawr College), and Carol Wood (chair; Wesleyan University). The offices to be filled this year are President-Elect, Treasurer, and two Members-at-Large of the Executive Committee. If you have any suggestions for nominations, please send them to our new President Chuu-Lian Terng (Math, Northeastern University, Boston, MA 02115; terng@neu.edu) by **February 15, 1995**. She will forward them to the Nominating Committee.

## ARE WOMEN GETTING ALL THE JOBS?

Are women getting all the jobs? Of course the literal answer is no, but that is not really the question we want to answer, is it? There is certainly a perception among many that women have an unfair advantage at the entry level, at least a perception among young and not so young (male) mathematicians. Most stories I have heard, though, come from sources that may not be reliable, e.g., fellow students or candidates, competing candidates, possibly faculty at hiring schools who didn't get their personal favorites hired. Certainly some deans are pressuring some departments to increase "minority representation," and maybe some are cutting corners. Certainly this is wrong. Lowering standards not only demeans and hurts the very persons it supposedly helps, but it demeans and hurts the profession as well. Anecdotal evidence does seem to indicate that some departments are responding to this pressure by making more campus interviews with women, but the sole purpose of this seems to be to tell the dean that  $x\%$  of the ones they interviewed were women. If this is true, it is wrong because it misleads and hurts the women being exploited in this way.

So, what if statistics arise that might give some "proof" that women have an advantage at the entry level? (I have no doubts that they don't have an advantage when it is time to grant tenure.) Well, as trained mathematicians and critical thinkers, we know that we cannot take statistics at face value. Consider that I can argue that the average female entry-level candidate is better qualified than the average entry-level male candidate (of course, since I am on the job market this year, I feel a need to interject a claim that I am above average!). Think about the difference in the paths that men and women take to become mathematicians. Along the way, women face the challenge of the myth that men are better at mathematics. This myth shows itself in less encouragement and even discouragement for women pursuing mathematics. The myth has resulted in fewer same-gender role models for women. If the mathematically talented woman makes it to graduate school, she usually finds

herself in front of a classroom facing undergraduates, a few of whom are either consciously or subconsciously thinking that their teacher cannot know math as well as her male peers, so she cannot be that good a teacher. The result is that she must work harder or better to get the same respect and admiration from these myth-influenced students that her male peers may be given from the moment that they step in front of the class. I believe this process results in letting only the stronger survive. A similar process is probably true for other minorities. Raw statistics are often deceptive.

Though we might not get a true answer to the question raised here today, we must agree to attack the perception of reverse discrimination by reviewing the anecdotal evidence critically. We need to work diligently to eliminate both discrimination and reverse discrimination. We must set and maintain standards, and not lower them just to meet some sort of "quota." Otherwise, we end up pitting ourselves against each other in a battle with no real winners, a battle where not just the profession but mathematics in general suffers.

A report on the talks of all four panelists appeared in the April 1994 *AMS Notices*. The subhead of the two-page article by Allyn Jackson was "Panel Discussion Tries to Defuse Mounting Tensions over 'Reverse Discrimination.'"

The myth refuses to disappear. In a recent issue of the newsletter of the Young Mathematicians Network, a respondent to a survey on the job market said: "I have been told repeatedly that being a white male is not to my advantage."

Beth Ruskai (University of Massachusetts, Lowell; chair of the Joint Committee on Women) has written a provocative article, "Time for Advancement," which will appear in the December 1994 *MAA Focus*. This article deals not only with the initial hire but also with what happens further along the career path. Additional information on employment patterns in the 90's is summarized. She has also sent us the report below.

At the BMS math chairs meeting on Saturday, John Fulton reported on the most recent AMS-IMS-MAA survey which appeared in the November 1994 *Notices*. Unfortunately, there was an overemphasis on an apparent gender differential in the percentage of '93 Ph.D.'s who are unemployed, with the repeated claim that the burden fell most heavily on U.S. citizen men.

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*panel talk, Cincinnati meeting, January 1994; Mark Winstead, University of California, San Diego*

In fact, the more detailed data revealed a far more complex picture, suggesting that other factors may be responsible for the difference. In particular:

- women are much more likely to get Ph.D.'s in statistics, where the unemployment rate is significantly lower;
- women are *not* getting positions at Ph.D. math departments in excess of their proportion in the pool; and
- U.S. citizen women are much, much more likely to get first positions at M.S. and Bachelor's math departments than either U.S. citizen men or non-citizens;

Some facts for 1993 Ph.D.'s are:

- 18% (75/420) of Ph.D.'s *from* group I math departments went to women;
- 14% (11/78) of those getting positions *at* group I were women;
- 33% (52/157) of Ph.D.'s *from* group IV (statistics) departments went to women;
- 42% (10/24) of those getting positions *at* group IV were women;
- 7.4% (17/228) of Ph.D.'s in probability/statistics were reported as unemployed;
- 22% of all math Ph.D.'s went to women;
- 26% of all math Ph.D.'s to U.S. citizens went to women;
- 21% of those getting positions *at* groups I-III (math Ph.D.) were women;
- 19% of those getting positions *at* group I or a research institute were women;
- 37.5% of those getting positions *at* master's departments were women;
- 34% (10/24) of those getting positions *at* 4-year colleges were women; and
- 16% of those reported as unemployed were women.

Looking at the data slightly differently:

- 15% of U.S. citizen men were reported unemployed;
- 8% of U.S. citizen women were reported unemployed;
- 12% of non-citizen men were reported unemployed;
- 11% of non-citizen women were reported unemployed;
- 20% of U.S. citizen men got positions in Ph.D. math departments;

- 20% of U.S. citizen women got positions in Ph.D. math departments;
- 29% of U.S. citizen men got positions in non-Ph.D. math departments; and
- 45% of U.S. citizen women got positions in non-Ph.D. math departments.

Clearly there are many causes for concern, including high unemployment and underemployment for *all* groups of new Ph.D.'s. Those who are interested should read the full report in the November *Notices* rather than jump to simplistic conclusions on the basis of partial data.

## DISCRIMINATION ISSUES

The list below of contacts, addresses and phone numbers may be useful with respect to discrimination issues.

NOW Legal Defense and Education Fund, 99 Hudson Street, New York, NY 10013; 212-925-6635.

NELARS (National Employment Lawyers Association Referral Service), 880 3rd Avenue, 13th Floor, New York, NY 10022; 212-603-6491.

Women's Legal Defense Fund, 1875 Connecticut Avenue NW, Suite 710, Washington DC 20009; 202-986-2600.

National Women's Law Center, 1616 P Street, NW, Washington DC 20036; 202-328-5160.

American Association of University Women, 111 16th Street NW, Washington DC 20036; phone: 202-785-7788; fax: 202-872-1425; Martha Lukham, Manager of AAUW Legal Advocacy Fund, 202-785-7744; Caroline Head, AAUW Legal Advocacy Fund, 202-785-7767.

Robert Kreiser, Equal Opportunity Investigator, American Association of University Professors, 1012 14th Street NW, Suite 500, Washington DC 20005.

American Psychological Association, Committee on Legal Affairs (includes an EEOC Judge), Donna Beavers, Legal Affairs Office, 202-336-5500. Beavers can send key amicus briefs submitted by APA on the *Harris v. Forklift Systems* (recent well-known sexual harassment case) case and the *Hopkins v. Price-Waterhouse* case (well-known discrimination case), plus other materials.

## EDUCATION COMMITTEE

This article is a continuation of a series by Regina Brunner on ideas for activities during Math Awareness Week. Here she reports on last year's celebration at Cedar Crest College and summarizes suggestions made in previous articles.

### Math Awareness Week Is Coming (April 23–29, 1995)

The 1994 nationwide theme for Math Awareness Week was "Mathematics and Medicine." MathConn 94, the sixth Mathematics Awareness Day held at Cedar Crest College in Allentown, PA provided activities for 300 seventh and eighth grade girls from 64 schools in Pennsylvania, New Jersey and Delaware. They heard presentations and engaged in hands-on sessions such as "Mathematics and Contact Lenses," "How Math Helps Your Doctor Determine What Makes You Sick," "Demonstrations of Electrochemistry in the Human Body," "Kitchen Chemistry," "Nursing, Math, and Kids," "Mathematical Analysis of Facial Form," and "Orthodontics: A Career of Beautiful Proportions." Teachers attended workshops and MathConnDialogue sessions on topics such as "Statistics: Good Math Medicine," "Does Video Game Violence Adversely Affect Young Girls' Interest in Computers?" "Let's Talk Math with Fizz and Martina," and "Exploring' Fractions with a Fraction Calculator."

The keynote address for teachers by Mary Ann Matras of East Stroudsburg University was titled "Is There a Crisis in Math Education in Pennsylvania?" Mary Ann is active in the reform movement in mathematics education and serves as Chair of the Pennsylvania Mathematics Coalition.

Kara Martin, Miss Georgia 1993 and First Runner-Up in the 1993 Miss America Pageant, was a special presenter. Kara has the ability to hold an audience spellbound. She spoke to both teachers and students at separate sessions; she easily switched audiences. Her personality sparkled throughout the day.

Kara resides in Statesboro, GA. Visitors there are greeted with a sign stating "Statesboro – Home of Kara Martin, Miss Georgia 1993." She is an only child whose mother is a homemaker and whose father is a professor at Georgia Southern University.

When Kara was ten, she wanted something challenging to do in the summer. So her mother enrolled

her in an algebra course. At this young age, Kara's promise as a lover of mathematics and science was nurtured. As she advanced in her coursework, she missed activities such as the senior prom without regret. For Kara being labelled as "smart" was better than being popular and having dates.

Kara's first love was mathematics, but an enthusiastic, exciting physics teacher changed Kara's sights to a physics career (teachers being so very important in providing guidance and encouragement to students).

In 1991, Kara graduated *summa cum laude* with a Bachelor of Science degree in physics from Georgia Southern University as valedictorian of her class. With a perfect 4.0 cumulative average, she received the Distinguished Alumni Award for highest academic average in the graduating class.

When she entered the Miss Georgia Pageant, one of her professors inquired why Kara was doing so. Kara's reply was "Why not?" When people expressed surprise that she was a physics major, Kara would answer, "What does a physics major look like?" The general public's impression of physicists and mathematicians does not include beauty queens. Kara is a perfect example of a bright, articulate woman who also happens to be attractive. Kara also told a story of the first African American woman to receive a Ph.D. in physics at MIT. Because of people's misconceptions, she was mistaken for a cleaning lady instead of a brilliant physicist.

At MathConn, Kara explained why entering a beauty pageant was beneficial to her. Kara intends to attend medical school. The scholarships she won in the beauty pageants will help her pay her expenses. Also, Kara stated that she is a problem solver. Winning a beauty pageant is a problem waiting to be solved. Students listened enthralled as Kara discussed the various competitions within a beauty pageant, the mathematics of the scoring, and the decision process in selecting the best talent for competition. As bar graphs and circle graphs were drawn to explain pageant scoring, students comprehended the serious nature of a pageant competition.

Kara's professional interests fit the 1994 national theme for Mathematics Awareness Week, "Mathematics and Medicine." Having completed postgraduate studies in physical and biological science, Kara is working at a hospital in Statesboro before entering medical school. Upon graduation, she plans to establish her practice as an allergist. Her interests include the investigation of the effects of food allergies on learning, behavior, and health.



Kara's Miss Georgia platform was "Math Literacy: No Longer an Option." She is committed to the challenge of restructuring mathematics education. In today's technological world, math literacy is more than a mastery of skills, it is a means of communication. Teaching and learning are both high priorities for Kara. She served as a volunteer and coordinator with the award-winning Top Step tutorial program, which was a 1990 national recipient of a "Point of Light" Award for Education.

Kara wants to use her ability and love for mathematics and science to educate and motivate students in mathematics. She believes that mathematics is fun and accessible to everyone. Three essential keys to math literacy are practical problem solving, integrating mathematics across the curriculum, and linking learning to life.

In 1995, the theme of Math Awareness Week will be "Mathematics and Symmetry." For detailed suggestions on planning a celebration, see the January-February 1994 issue of the *Newsletter*. Work with local school personnel and business/industry representatives. Begin on a small scale, but be a risk-taker. Be willing to spend hours making contacts for speakers and sponsors. Persevere. Ask for support and advice from others. Organization is very important in all aspects of planning. Use student helpers. Design the day to fulfill local goals. Enjoy the day itself. Good luck!

*Any questions or comments? Write to Regina Brunner, Department of Mathematics, Cedar Crest College, Allentown, PA 18104.*

Mathematics Awareness Week visuals are available from the Joint Policy Board for Mathematics, 1529 18th Street, NW, Washington, DC 20036; 202-234-9570. They are: "Mathematics & Medicine" poster, 1994, \$6; "Mathematics & Medicine" postcards, five each of two designs, 1994, \$5; "Mathematics & Manufacturing" poster, 1993, \$5; "Mathematics & Manufacturing" postcards, one each of three designs, 1993, \$1.50; "Mathematics & the Environment" poster, 1992, \$5; "Mathematics & the Environment" postcards, four of one design, 1992, \$1; "Mathematics: It's Fundamental" poster, 1991, \$4; mathematics applications postcards, 1991, one each of four designs, \$2; and all four posters, \$14. Posters are mailed in tubes. Prices include postage. All orders must be prepaid; please make your check out to AMS.

## ICIAM MINISYMPOSIUM

The Association for Women in Mathematics (AWM) is seeking four speakers for a minisymposium for women postdoctoral researchers at the Third International Congress on Industrial and Applied Mathematics (ICIAM 95), July 3-7, 1995, Hamburg, Germany. Two speakers will be chosen from women mathematicians working in the U.S. and two from other countries.

Each speaker selected will present a 30-minute talk on her research in applied mathematics. Eligible candidates (doctoral degree awarded no earlier than July 1990) should send a curriculum vitae, a concise description of research, and a letter of recommendation. Mathematicians from all countries are encouraged to apply. Pending funding through the National Science Foundation and the Office of Naval Research, travel support for U.S. speakers (U.S. citizens or foreign nationals who are working in the U.S.) only may become available.

Send *five* complete copies of the application materials (including the cover letter) by **February 28, 1995** to: Minisymposium Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, Maryland 20742-2461.

For more information, contact AWM by phone (301-405-7892) or email ([awm@math.umd.edu](mailto:awm@math.umd.edu)).

## AWM CONFLICT OF INTEREST POLICY

A conflict of interest may exist when the interest (financial or other) or concerns of any member of the Association for Women in Mathematics (AWM), or the member's immediate family, or any group or organization to which the member has an allegiance or duty, may be seen as competing or conflicting with the interests or concerns of AWM.

When any such potential conflict of interest is relevant to a matter requiring participation by the member in any action by AWM or any of its

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*passed by the AWM Executive Committee, Vancouver, British Columbia, 8/16/93*

committees to which the member belongs, the interested party shall call it to the attention of AWM or the committee and such person shall not vote on the matter. Moreover, the person having a conflict shall retire from the room in which the organization or its committee is meeting (or from a conference call) and shall not participate in the final deliberation or decision regarding the matter under consideration.

The foregoing requirements shall not be construed as preventing the member from briefly stating her position in the matter, nor from answering pertinent questions of other members, as her knowledge may be of great assistance.

The minutes of the meeting of the organization or committee shall reflect when the conflict of interest was disclosed and when the interested person did not vote. When there is a doubt as to whether a conflict of interest exists, and/or whether a member should refrain from voting, the matter shall be resolved by a vote of the organization (or its committee), excluding the person concerning whose situation the doubt has arisen.

A copy of this conflict of interest statement shall be published once a year in the *AWM Newsletter*, and any member serving as an officer or on a committee shall be advised of the policy upon undertaking her duties.

## WOMEN IN SCIENCE SUMMIT

The Women's Leadership Institute at Mills College hosted a Women in Science Summit conference from September 29 to October 1, 1994. The Summit invited fifty women scientists, including several mathematicians and computer scientists: Lida Barrett (NSF), Lenore Blum (deputy director of MSRI), Anita Borg (DEC), Sylvia Bozeman (Spelman College), Barbara Li Santi (Mills College), Cindy Palmer (LBL), Barbara Simons (IBM), Chuu-Lian Terng (Northeastern) and Margaret Wright (AT&T). Thirty young women science majors from Bay Area colleges and universities also were invited to present their individual perspectives as future women scientists and to engage in dialogue with the Summit participants.

*Chuu-Lian Terng, AWM President-Elect*

The underrepresentation of women in science is well documented. This unfortunate fact is reinforced throughout the education pipeline, where the attrition rate in study of science among women is extremely steep from the high school through Ph.D. levels. The Summit provided a forum for the participants to develop specific proposals that have the potential to facilitate positive change.

The main goals of the Summit are to create an action agenda to open leadership in science to women and to disseminate it widely to organizations and institutions, to develop proposals to improve the climate for women scientists in academia, government and industry, and to develop proposals to remove barriers so that women scientists may assume leadership positions in the scientific community.

The Steering Committee constructed a questionnaire for the participants about the supporting factors, obstacles and strategies of their career development. The participants had very diverse backgrounds: many different races, cultures, age groups, and areas of science. But a striking similarity emerged from this questionnaire: almost all had loving parents, were very good students, had faced similar obstacles and had a common strategy for dealing with them (namely, ignore the obstacles and work harder).

The Summit opened with a plenary session, followed by small group sessions to discuss specific problems and address their solutions. The plenary session included a talk by the *Washington Post* Science Writer Cristine Russel on "Women in Science: What is the current picture?" and a talk by Princeton biologist Shirley Tilghman on "Why I became a scientist."

After two days of discussion, the following five overall strategies were proposed: (1) include at least one senior women in every academic science department and every corporate science research division, (2) require all undergraduates to take at least one science and one math course that engages them in active learning, (3) provide at least eight weeks of research experience for every female science major to facilitate higher retention rates of women in science, (4) establish an advocate at the highest institutional level to support the professional development of women in science, and (5) educate scientific communities to value and foster diverse career paths to scientific leadership.

There will be a more detailed report on the Action Agenda when the final version is ready.

## SKHS DAY

The third annual Sonia Kovalevsky High School Mathematics Day was held at St. John's University on May 5, 1994. 174 young women high school students and 27 high school teachers from the greater New York area met to participate in an intensive program of workshops and discussions focused on applications of mathematics and math-based careers. The schools represented ranged from public to private and from inner city to suburban.

The program began with a panel discussion for students and teachers. The panelists were Dr. Danielle Carr, a mathematician from the Courant Institute; Ms. Staci Lublin, a CPA from Chase Manhattan, N.A.; and Ms. Elizabeth Picerno, a manager of network services at NYNEX. Each of them spoke about her education and other experiences that brought her to her present position and gave an example of the mathematical problems she deals with. Everyone found their presentations informative and inspiring and welcomed the opportunity to speak with them afterwards.

Students and teachers then attended two workshops. Six workshops were scheduled for students: "Graphs Get Around" given by Dr. John Chiaramonte of St. John's University; "Spreadsheets to the Rescue" by Ms. J. Jennifer Kim, public finance analyst with Hawkins, Delafield & Wood; "'Clouds are not Spheres, Mountains are not Cones, Coastlines are not Circles ...' Benoit Mandelbrot" by Mrs. Elyse Magram of Smithtown High School; "Is the Business World in Your Future?" by Ms. Angela Hurdle, senior research analyst at Market Statistics; "Genetically Speaking via Mathematics" by Dr. Doris G. White of the William Paterson College of New Jersey; and "Geometry and its Influence on Aesthetics" by Ms. Lesley Morgado of the Phillips Janson Group, Architects.

Two workshops were scheduled for teachers, though teachers were given the option of attending student workshops if they wished. The first teacher workshop, "Tesselations of the Plane and Wallpaper Designs," was given by Dr. Charles Traina of St. John's University, and the second, "The New SAT," was given by Ms. Marlene Supernavage of the Educational Testing Service in Princeton, NJ.

*Rora Iacobacci and Anne Hughes, Program Coordinators,  
St. John's University*

All participants then gathered for lunch, which was accompanied by puzzles and games led by Dr. Edward J. Miranda, Chairman of the Department of Mathematics and Computer Science, St. John's. This was followed by the announcement and discussion of the Summer Problem Solving Competition, "Excursions into Mathematics." Every student and teacher received a copy of the problem booklet, which proved to be so "friendly" that some of the students started work on the exercises immediately.

The keynote speaker was Dr. Clare A. Gnecco, a biostatistician with the Food and Drug Administration. In her talk "Biostatistics: A Serendipitous Route" she highlighted the pivotal features of her life of continuous growth in the field of statistics. Specifically, she spoke of the importance of gaining expertise in one or more related fields, of having a mentor, and of developing the ability to make presentations. The spirit of her speech was reflected in her closing quote from Goethe:

Whatever you can do, or dream you can do, begin it. Boldness has genius, power and magic in it. Begin it now.

As shown in the evaluations, the day was a huge success. Typical student comments are:

I definitely see mathematics in a new way. I see how it is applied to everyday life, and I see what jobs involve mathematics.

When I thought about math, I usually thought just algebra, but I now know there are many different subjects connected with math.

Hopefully, the goals of the day have taken root.

## WOMEN'S HISTORY PROJECT

You can easily introduce students to women's achievements in science and math with the colorful posters, biographies, HyperCard stacks, videos, reference books and curriculum materials available from the National Women's History Project. Computer programmer Admiral Grace Murray Hopper is among 68 women profiled in *Women in Science*, one of thirty items in the new math and science brochure available from the National Women's History Project, 7738 Bell Road, Dept. P, Windsor, CA 95492; 707-838-6000.

## BOOK REVIEW

### Gender Fictions (Part one of two)

Some months ago I set out to write a book review of *Gender and Mathematics*, a collection of papers edited by Leone Burton. I was, at the time, also reading and greatly enjoying Valerie Walkerdine's book *Schoolgirl Fictions* and had just purchased a copy of Cynthia Cockburn's *Machinery of Dominance*, which focuses on gender issues in the area of technical "know-how." The first two books deal to a large extent with what happens to girls and women in school, and particularly in the mathematics classroom, and I could not read one without constantly confronting it with the other. Indeed, the two seemed to cry out to each other. Cockburn's book, with its clear description of the gendering process and the latter's profound effect on the positioning of women *vis-à-vis* technology, provided at times a solid purchase from which to view the other two books and helped to clarify some of Walkerdine's arguments by applying a similar analysis to the issue of women and technical knowledge.

The result of this joint reading of *Gender and Mathematics* and *Schoolgirl Fictions* (with asides to *Machinery of Dominance*) cannot be called a book review of any or all of the three books. I do try to cover in some detail the content of *Gender and Mathematics*, though I have reorganized its chapters in a way that allows me to best relate their content to the themes in Walkerdine's book. There is no attempt to present a complete overview of Walkerdine's book. And since Cockburn's work serves mainly to exemplify or clarify Walkerdine's positions, references to *Machinery of Dominance* have been relegated to the notes. So that what I found I had written when I finally put a stop to this project was a paper on gender and mathematics which begins with *Gender and Mathematics*, moves on to Walkerdine's work on this theme in *Schoolgirl Fictions*, and to an inevitable confrontation of the two.

*Gender and Mathematics* is the outcome of the sessions on Women and Mathematics at the Sixth International Congress on Mathematics Education held in Budapest, Hungary, in 1988. Fourteen presentations on issues of gender and classroom practice, curriculum and achievement, as well as the

question of women's presence in mathematics, are brought together with an introduction and conclusion by Leone Burton who was, at the time of the congress, president of the International Organization of Women and Mathematics sessions. The chapters read very much like congress proceedings with all the diversity of interest, scope and ideological stance that one would expect to find at an international event.

*Schoolgirl Fictions* is also a collection of articles, all by Valerie Walkerdine, grouped into thematic sections. Part I, "Schooling for girls," is composed of seven pieces first published between 1981 and 1985 which deal with the education of girls and women. Part II, entitled "Fictioning femininity," is made up of eight pieces written between 1984 and 1989, some previously unpublished. They deal with psychoanalysis and the "fictional" representations of women. The final section, called "Working-class rooms," is the most personal part of Walkerdine's work, in which she tries to come to terms with herself as an "educated working-class woman" and with the "fictions" that produced her.

### Contributions to *Gender and Mathematics*: The "truths" about girls and women

Rather than examine the various contributions to the Burton collection under the headings she established, following her ordering, I would like to propose another organization which will allow me later to connect more profitably with Walkerdine's work. At this point, I shall, therefore, review very briefly most of the fourteen chapters of *Gender and Mathematics* under five statements or "truths" which are elements in the current "story" about girls and mathematics and which are in some chapters challenged and in other chapters reinforced by the various contributors.

### Girls are given less attention than boys in mathematics classes

Gilah Leder, in "Gender and classroom practice," reviews a range of research on the differences in teacher treatment of boys and girls and reports on a recent Australian study which confirms that the practice of calling on boys more often and for higher-level questions persists in the mathematics

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By Lesley Lee. Reprinted from *For the Learning of Mathematics* 12, 1 (February 1992), pp. 28–37 by permission of the publisher, FLM Publishing Association. Thanks to Roberta Mura for bringing this to our attention.

classroom. Leder does not blame the teachers or the schools for this. She suggests that what goes on in the classroom is a reflection (and reinforcement) of the expectations and gender beliefs of the society around it, a society which still believes that "competing in mathematics is more important for boys than for girls."

It is interesting to look at Lyn Taylor's chapter, "American female and male university professors' mathematical attitudes and life histories," in the light of this first truth. Although her research involved a group of six male and six female university professors, it is remarkable to what extent the male professors dominate the report. Males are quoted over twice as often and much more extensively. This author, who feels that "times are changing" and who says "Hopefully there is less discrimination today," seems to find, nevertheless, that what the men had to say about women's (and their own) education in mathematics is of more value or more interest than what the women had to offer.<sup>1</sup>

#### **Girls flourish in a mathematical environment which is loving, noncompetitive and supportive**

Zelda Isaacson describes a mathematics course she taught to twenty-four women re-entering a science and technology program. Group work and discussion, investigative activities and confidence-building elements, as well as an attempt "to create a light-hearted classroom atmosphere," were the main features introduced to deal with expected fears, anxieties, and lack of confidence on the part of participants. Her chapter, entitled "They look at you in absolute horror": Women writing and talking about mathematics," contains the participants' negative memories of school mathematics as a site of competition, fear, panic, and lack of encouragement, where peers and parents were not always supportive and the school organization itself discouraged them. These are followed by quotations from women after the course indicating their appreciation of group work and the confidence and positive attitudes that had developed. Conclusions are drawn for the teaching of mathematics to girls, though Isaacson feels that "probably the most significant" influences on girls and women "are outside the control of teachers and schools."

Maire Rodgers, in "Mathematics: pleasure or pain?" came to conclusions similar to Isaacson's about the importance of a supportive, "light, lively and purposeful" atmosphere. She too suspects that

"the move toward collaborative group work and language-intensive processes might benefit girls." Rodgers carried out a case study in 1987 which tried to identify "factors that had encouraged female students" to take Advanced-level mathematics (in three schools in Northern Ireland). She found that, like the boys, the girls chose A-level mathematics because they liked it and because of the "encouragement, support or enthusiasm of particular teachers." She also found that girls preferred "straight-forward types of problems where they could follow recognized patterns" rather than those that required more versatility. Through her experience teaching family math to parents and their nine- to twelve-year-old children, Rodgers found a model for providing "safe environments" in which young people, and presumably girls, could encounter "risky mathematical situations." In the context of "family math" enjoyment was found in the work being "hard." Humor, laughter, and play were considered very important elements in facilitating learning.

Beth Marr and Sue Helme describe their experience as part of a collective creating materials and methods for a course aimed at adult women with three years or less of high school mathematics studying in a "bridging program." In "Women and maths in Australia: A confidence-building experience for teachers and students," they list the criteria used in their work: confidence building, interactive and cooperative learning, practical "hands on" activities, acknowledgement and accommodation of differences, and provision of a relevant context. Also among the criteria was the need to "raise awareness about social and economic structures influencing our lives, particularly the lives of Australian women." This was not elaborated on, except to say that examples of current events would be used. The course began with "activities to generate a supportive classroom atmosphere and build students' confidence in their ability to learn mathematics." Their materials were published in book form and the response from teachers has been very positive. The book has been found useful in mixed-sex classes at the high school level as well.

It was again a question of a lower level of confidence in women and their need for support that distinguished the sexes in Joanne Rossi Becker's report of her study of 21 students in mathematics and computer science. Her report, "Graduate education in the mathematical sciences: factors influencing women and men," indicates that women and men have similar reasons for liking their respective

disciplines, that men were more motivated to attend graduate school, and that the women "seemed to need strong encouragement from at least one person to try graduate study." Becker not only recommends a more supportive attitude towards women but also giving them the information that it is possible to do a master's degree in computer science without a strong mathematics background.

### Girls do better with female teachers, female role models, and content that is more humanistic

"Humanizing calculus: A case study in curriculum development" by Mary Barnes and Mary Coupland describes a 16-hour course "designed and taught by women" which targeted adults, particularly women, outside the university with a view to giving them a chance to learn some "powerful ideas" in mathematics and science. In the case of the female students (only 40% of the enrollment), it was hoped that their interest, confidence, and opportunities for further study would be increased. An analysis of the content of the traditional calculus course led to the conclusion that its abstractness and accent on problems concerning "profits, weapons and machines" were particularly un motivating for women. The abstractness of traditional calculus was dealt with by avoiding discussion of limits and differentiation from first principles and by the use of computers and manipulatives which shift the accent from the theoretical to the experimental. Traditional problems were replaced by ones based on issues of "responsibility and care" (population growth, endangered species, spread of disease, ...), and a humanized history of the subject was presented. The traditional teaching methods were also found to be unappealing to women. Their competitiveness, individualism, and authoritarian and teacher-centered style were found to favor the confident and assertive. Lectures were therefore complemented by discussions and small-group work. Positive feedback from the women who attended has encouraged the authors to design a second course in algebra and graphs.

Attempts to bring girls' realities into the mathematics curriculum in the Netherlands led to the introduction of embroidery, cooking, and knitting work for 12- to 16-year-olds. Helen Verhage describes her experience as a member of a team (25% female) which had the mandate to revise the national mathematics curriculum, "making sure that the program will *also* be attractive to girls and that it

will provide girls, *too*, with a favorable perspective on the job market." (Italics are mine.) "Curriculum development and gender" describes the context of "realistic mathematics education" in the Netherlands. The introduction of subjects that would be of interest to "female students and immigrants" led to a long list which included the above "female arts" as well as such diverse topics as tangrams, tessellations, wallpaper, crockery, and paper folding. The question of maintaining female stereotypes is raised but not dealt with. With only 15% of teachers being female, the probability of supplying adequate female role models is low, though it does not seem to be regarded as an issue here. In fact, the author sings the praises of a male colleague who taught embroidery to his class in spite of the negative reactions of other male teachers and students.

The effect of female role models on girls' performance is just one of the many concerns examined by Gila Hanna, Erika Kündiger and Christine Larouche in "Mathematical achievement of grade 12 girls in fifteen countries," an analysis of gender issues based on the results of the Second International Mathematics Study. They hypothesized that "the ratio of female to male math teachers may be an important factor in explaining sex differences in mathematical achievement," or more precisely that "countries with negligible sex differences in achievement" would have "higher proportions of female math teachers." It is not clear how the "proportions of female math teachers" were measured. For instance, when the authors say that in British Columbia only 3% of the mathematics teachers were female, we do not know whether this is a provincial figure for all levels of mathematics teaching, whether it is the figure for the teachers in the last year of high school (the level being tested), or whether 3% of those students who wrote the test had female teachers at the time. Only the latter interpretation tells us anything about the sex of the girls' teachers at the time of the test; nothing seems to be known about the sex of their mathematics teachers throughout the rest of their schooling.

In this study the measure of mathematical achievement was taken uncritically to correspond to the global mark students got on the SIMS test. Comparing the three countries with the smallest sex differences in marks (i.e., "achievement") with the three having the greatest sex difference, the authors conclude that "our data do not support" the hypothesis. They cite the example of British Columbia where sex differences were minimal and the

percentage of female teachers low, and the example of Hungary where sex differences were high and the percentage of female teachers high also (60%). They could as well have chosen Thailand where sex differences were low and the percentage of female math teachers relatively high (52%), or Japan where sex differences were large and the percentage of female math teachers low (5%). What is important here is that the authors concluded that differences in achievement could not be attributed to the variable "sex of the teacher" nor, perhaps, to proportions of female mathematics teachers. They were careful to explain in their conclusion that "This does not mean that these variables have no influence on math learning, but rather that their influence may be exerted in interaction with other societal factors."

Pat Rogers also challenges the importance of female role models in her reflections on the Potsdam phenomenon entitled "Thoughts on power and pedagogy." At the State University of New York at Potsdam, female undergraduates are in a majority and yet there is only one female in a department of fifteen mathematics teachers. Rogers was interested in how such a patriarchal system, "a group of stern but loving fathers," could produce such an astoundingly high rate of female success. She concluded that the way the teacher wielded power was the important factor and attributed female success to unbiased paternalistic teaching which aims at relinquishing authority (unlike typical patriarchy).

### Boys outperform girls in mathematics

The chapter by Hanna, Kündiger and Larouche was mentioned above in connection with the "truth" about female role models. The cited purpose of the paper was to "investigate sex differences in mathematics achievement." By means of references to the literature and tables of results from the Second International Mathematics Study, the authors "demonstrate" female inferiority in mathematics. The discussion which follows does not explore the "fact" but attempts to show that several of the "explanations" for it do not hold water according to the statistics gathered on the SIMS test. Comparing test results from the three countries with the least sex differences to the three with the greatest, the authors claim they cannot find evidence in favor of the hypotheses that girls do better in single sex schools, that they achieve more if taught by female teachers, that girls' underachievement has to do with a perception of mathematics as a male domain

and, in part, "to their lower level of educational aspiration."<sup>2</sup>

The chapter which follows takes the proof of girls' inferiority to Singapore, using a random sample of the results of 88 boys and 88 girls on the 1986 O-level mathematics examination there. Berinderjeet Kaur, in "Girls and mathematics in Singapore: The case of GCE O-level mathematics," explained that "the main purpose of the data analysis was to find sex differences in mathematics attainment." We are told at the beginning "that, on the whole, the girls were outperformed by the boys." It appears further on that this statistic was derived from the population as a whole and not from the sample, since the sample was chosen so that "there were equal numbers of the same ability (i.e., grade)." The author is very cautious in her interpretation of the test results. She warns that "To say that the present study has compared boys and girls of the type like with like by merely matching them in ability — defined by the score on an examination — is not true" and goes on to list the many other variables that might have been taken into account. She admits that the sample may not be representative and "cautions against over-generalizations and recommends that the present study be read in its context." We will return to her contribution in the next section on sex differences in achievement in various mathematical tasks since this is where the core of her study is focused.

Seven- to thirteen-year-olds were the object of a study of sex differences in Greece. Evangelie Tressou-Milonas was looking at the possibilities of applying the British School Mathematics Project (SMP) individualized mathematics program in Greek schools. Aspects of her research concerning girls' attitudes and performance are reported in her paper "True or false? Primary school girls do badly at maths." She describes the high motivation of both sexes in the program and how the girls wanted to move ahead and in fact "surpass the boys." On the tests girls did better overall but left out more questions. "A relation was detected between the social class the children belonged to and their competence in math as well as their reaction to a new work scheme" though no data or analysis of this is given. Sex differences in attitude did not appear and, as regards performance, the girls outperformed the boys. The author is very cautious in interpreting the results because of the very small sample size (21 boys and 28 girls) and the fact that the sample was not totally representative.

**Even when their overall performance is comparable, boys do better at higher-level tasks and girls at repetitive, rule-following, lower-level tasks**

All three papers dealing with the previous "truth" made at least some mention of sex-differences in areas of achievement within mathematics. Tressou-Milonas simply mentions that "Both boys and girls favored particular subjects, not necessarily the same." Kaur, in her Singapore study, actually focused on the differences in areas of achievement, which is why she selected her sample by matching test grades between the sexes with about equal numbers getting "A"s, "B"s, and so on (though it appears that the actual mean score of the boys in the sample was higher than that of the girls). She too found girls and boys had different preferences when it came to choosing problems in the choice section of the O-level exam. More girls chose the questions dealing with algebra, graphs, and two-dimensional vectors, whereas more boys chose the mensuration question. Boys in the sample performed better than girls on mensuration and statistics problems, did slightly better on probability questions, and did significantly better in arithmetic and geometry. As well, boys did better on "questions that contained a spatial element." From this, the researcher concluded that girls do better on drill questions and rote learning whereas boys outperform girls on fractions, proportionality and spatial visualization. In an attempt to get at "possible reasons for observed differences" the author quotes Wood — "It appears that rote learning is more congenial to females" — and Jones on the "female tendency to keep to methods they have been taught, to reproduce techniques, to show caution, to avoid being wrong and generally to use a method with which they feel confident and secure and which is approved by the teacher." She also raises the specter of genetic factors influencing spatial ability and possible even quantification skills. Kaur seems to feel that these "truths" have been confirmed by her study though she does raise some interesting new questions about possible interpretations of the data. For example, she wonders if the girls' problems with fractions and proportion are due to discomfort "with comparison factors" and whether there is any link between quantification and spatial abilities. We are reminded in the conclusion that one must be very careful about "over-generalizing" the results. For example, "although the examination scores have been used to

pass judgment on spatial ability, one must not rule out the possibility of pupils being drilled on examination-type questions." Caution is also advised because of the absence of consideration of such variables as motivation, intelligence, social class, teacher attitude and teaching methods, math-related experiences in other subjects, and the variations between schools.

Hanna, Kündiger and Larouche also found sex-linked differences in performance on specific questions and categories in the SIMS test. In fact, "for all but sets there were significant differences consistently in the boys' favor." In order of girls' decreasing performance with respect to boys', the topics are: sets, algebra, number systems, geometry, finite mathematics, analysis and probability. In this analysis by content and country there are no cases of the girls doing better. The authors use these statistics to select the three countries with the least sex differences and the three with the most but do not engage in any discussion on the topics as such. Boys' superiority on probability tasks with girls doing least poorly at algebra seems to be compatible with Kaur's Singapore study, though one should beware of neat comparisons since the questions asked under these topics were certainly significantly different.

In Maire Rodgers' paper, "Mathematics: pleasure or pain?" the subject of sex-related preferences in particular parts of the course (a sixth form course in Ireland) was discussed at some length.

It appeared that girls preferred what they considered to be more straightforward types of problems where they could follow recognized procedures and had most difficulty where the initial formulation of the problem was not so obvious to them. Boys preferred problems in which they encountered variety and which they found easy to visualize and disliked what they considered to be boring and repetitious. [p. 33]

Reflecting on the work of Rosalinde Scott-Hodgetts on how primary schooling "predisposes girls to develop a step-by-step serialized style of learning," Rodgers wonders to what extent girls' preferences are a part of a self-fulfilling prophecy.

--to be continued next issue--

Many thanks to Cathy Kessel for serving as book review editor since 1990. She is stepping down from the position, so we are seeking an editor or co-editors for the column.



## NEW UNDERGRADUATE RESEARCH PRIZE

The new prize for undergraduate research to be announced in the January 1995 AMS *Notices* stands to recognize and encourage the excellent mathematical research that undergraduates are already doing. Undergraduates are working on problems of current research interest, proving theorems, writing up results for publication, and giving talks on their work. They are making significant contributions to mathematics. At the same time, they find out what real mathematics is like. They gain a new perspective and a new appreciation for their courses and for their teachers. They can make more intelligent decisions about whether to go on to graduate school. And when they do not go on in mathematics, they become a new breed of politicians, business persons, magazine editors, or other members of the general populace who have an appreciation of mathematics.

Undergraduate research in mathematics is no longer a oddity. Dozens of colleges and universities sponsor summer undergraduate mathematics research programs, many supported by the National Science Foundation. The National Security Agency, the Institute for Defense Analysis, AT&T, Bellcore, and NSF Centers and Institutes have expanded or created undergraduate research programs. Many national and regional meetings now include sessions on undergraduate research. Pi Mu Epsilon and the Mathematical Association of America award prizes and support to undergraduate speakers. The Council on Undergraduate Research, which sponsors research conferences for undergraduates from all fields, now has a Mathematical and Computer Sciences Division. At the first annual Hudson River regional undergraduate mathematics conference at Siena College near Albany last year, faculty and students from calculus students to senior mathematics majors participated as equals in giving talks, chairing sessions, and discussing mathematics (see the article on page 946 of the October 1994 *Notices* by Douglas Briggs, one of the undergraduate participants).

It seems that undergraduate research can thrive in diverse locations and in diverse areas of mathematics. Good work and accessible questions are proliferating. Students cite theorems of previous

students and pose conjectures for their successors. The 1994 AMS *What's Happening in the Mathematical Sciences* features some work by undergraduates in an article entitled "Soap solution."

History: In 1990 the Association for Women in Mathematics established the Alice T. Schafer Prize for excellence in mathematics by an undergraduate woman. The Schafer prize inspired Joe Gallian, who for 17 years has run the granddaddy of modern undergraduate mathematics research programs at the University of Minnesota in Duluth, and Stan Wagon to propose an undergraduate research prize to the MAA. Joe took the idea to the CUPM Subcommittee on Undergraduate Research in Mathematics, chaired by John Greever. Stan Wagon took the idea to the MAA Coordinating Council on Awards, chaired by Henry Alder. In an astonishing tribute to our mathematical organizations and committees, the idea developed rapidly to fruition, with the help of Aparna Higgins (Chair of the MAA Committee on Student Chapters), Beth Ruskai (Chair of the Joint Committee on Women in the Mathematical Sciences), Ron Graham (AMS President), Gil Strang (SIAM Vice-President for Education), and many others throughout the mathematics community.

The prize: The prize has some interesting features. To proclaim the existence of excellent undergraduate research, there is a single prize of \$1000. To recognize the keenness of the competition, there is provision for a few honorable mentions. To recognize the important role collaboration often plays, the prize may be shared by a group of students working together.

Nominations: For the first award, research papers (submitted by the student or a nominator) and a supporting letter must be submitted by **June 30, 1995**. Undergraduates in the United States, Canada, or Mexico as of December, 1994, are eligible.

Faculty or students interested in organizing or participating in undergraduate research might contact Jack Ryff at the NSF (jryff@nsf.gov) for advice and a list of the current NSF Research Experiences for Undergraduates.

*Frank Morgan, Williams College*

## PROGRAMS AND CONFERENCES

### EWM 95: Seventh Congress of European Women in Mathematics

The Congress will be held in Madrid, Spain, September 4–9, 1995. The program will include expository mathematical talks on dynamical systems in the complex plane, classification in algebraic geometry, and mathematical topics in quantum field theory and statistical physics. Talks will be complemented by working sessions for participants. The speakers will be Bodil Branner (Copenhagen), Nuria Fagella (Boston/Berkeley), Tan Lei (Lyon), Mireille Martin-Deschamps (Paris), Margarida Mendes Lopes (Lisboa), Emilia Mezzetti (Trieste), Flora Koukiou (Paris), Alice Rogers (London), Claire Voisin (Paris). There will be a report and discussion on "Family versus career for women mathematicians." The topic will be introduced by science historian Eulalia Perez Seden (Berkeley). Also, a general assembly of EWM will be held.

For further details contact the organizers: Dr. Capi Corrales, Departamento de Algebra, Facultad de Matematicas, Universidad Complutense de Madrid, 28040 Madrid, Spain; phone: 34-1-3944657; email: capi@emducml1.sim.ucm.es; fax: 34-1-3944607; and Dr. Rosa Maria Miro Roig, Facultad de Matematicas, Departamento d'algebra i geometria, Universidad de Barcelona, Gran Via de les Corts Catalanes 585, 08007 Barcelona, Spain; fax: 34-3-4021601; email: miro@cerber.ub.es; phone: 34-3-4021101.

Closing date for applications: **May 1, 1995.**

For more information on EWM contact the EWM Office, Riitta Ulmanen, Secretary, Department of Mathematics, PO Box 4 (Hallituskatu 15), SF-00014 University of Helsinki, Finland; email: ulmanen@Sophie.helsinki.fi; fax: 358 0 191 3213.

To join the EWM email network, contact sarah.rees@newcastle.ac.uk.

### Consortium to Advance Women in Mathematics

If funded by the NSF, a consortium of seven mathematics departments will begin offering special programs designed to encourage talented women undergraduates to pursue advanced degrees in the mathematical sciences. Summer programs for freshmen and sophomores will be offered at Carleton and St. Olaf Colleges and at SUNY – Stony Brook. Summer programs for juniors will be offered

at The George Washington University, Mills College, Mt. Holyoke College, and the University of Michigan at Ann Arbor. The University of Chicago will host a junior year program.

More information about these programs and related teaching opportunities appeared in the November–December issue. For more information and application materials, write to CAWM, c/o Summer Mathematics Institute, Mills College, Oakland, CA 94613; millsmi@ella.mills.edu.

### IAS/Park City Mathematics Institute

The 1995 topic of the Mentoring Program for Women Mathematicians (held May 15–25) and the Summer School (July 9–29) is nonlinear wave phenomena. The Institute runs mathematics education programs that integrate the research and education components of the mathematics community in a unique way and in a supportive setting where education at all levels is the explicit concern. The mentoring program provides a mixture of lectures, seminars, working problem groups, mentoring and networking sessions and the opportunity to meet and interact with leading mathematicians. Application deadlines are **February 15, 1995**. Also, solicitations for research topics for future years are sought. For more information, see the display ads in the advertisement section and the article on pages 10–11 of the November–December issue of the *Newsletter*.

### Programs at the Geometry Center

1995 Summer Institute Research & Training in Computation, Visualization & Mathematics for Undergraduates

The Institute will be held June 13 to August 18, 1995 at The National Science & Technology Research Center for Computation & Visualization of Geometric Structures at the University of Minnesota. The program is offered for undergraduate students who have a strong interest in mathematics, visualization and computing and who would enjoy working in an intense environment with other students and researchers.

Students will learn about the computing environment and will be assigned a project in an area of mathematics or computer graphics. Past project

areas have included hyperbolic, Euclidean and spherical geometries; chaos and dynamical systems; differential geometry; knot theory; group theory; exploration and visualization of mathematical phenomena; mathematical exposition using technology; and educational/pedagogical videos. Assignments in 1995 will emphasize projects which support research and software development activities of current Center staff.

Professor Tony Phillips of SUNY at Stony Brook, returning for the fourth summer, will be in overall charge of the program. He is a topologist, one of the original sphere everters, who works on topological problems in quantum field theory. He has taught two math/art courses and is interested in discovering visual and musical manifestations of mathematics. Tony ensures that each student has an interesting and stimulating project; participants are welcome to suggest project ideas as well.

Students will be required to write reports and give oral presentations on their accomplishments and to be involved in making videos or hypertext documents illustrating their summer's work.

Applications from current undergraduates with a strong and demonstrated interest in mathematics and some experience in computing are welcomed. Exceptionally strong applications from graduating seniors, both high school and college, may be considered. The summer program can accommodate up to 20 participants.

All students are expected to spend the entire ten weeks in residence. The scholarship paid for the ten week program will be \$2500. Funds are not available for travel costs to Minneapolis.

Complete applications, including letters of recommendation, are due by **January 31, 1995**.

### Curriculum Materials with Computer Visualization

The Geometry Center is establishing a new program in curriculum materials and visualization for middle school and high school teachers. The goal of this program is for teachers to learn to develop new motivational and supplemental materials which their students can use within their coursework or as components of new coursework.

Teachers selected will be divided into three teams. Each team will consist of three teachers and two Center technical staff apprentices and/or summer students. In addition, a senior technical staff mentor and a Center postdoc mentor will provide technical and mathematical support.

It is the Center's expectation that each team will create a video, supplemental materials for distribution with the video, including curriculum, hands-on materials and various applications/examples, and, if applicable, software and hypertext materials.

Teachers will participate at whatever levels are suitable to their interest and background. A total of nine teachers will be invited to participate.

There will be opportunities to pilot materials being developed on talented middle school students attending summer enrichment programs.

There will be one six week session, from June 19 to July 28, 1995, which teachers are expected to attend in full. In addition, two or three half-day sessions during fall and winter will be scheduled. Local teachers are expected to attend at least two of these sessions to complete development of video and software materials and to exchange information on study units and how the course affected their teaching/students.

Program eligibility is generally limited to middle school or high school teachers. Other unusual cases may be considered. Women and underrepresented minorities are especially encouraged to apply. To guarantee full consideration, applications must be received by **February 15, 1995**.

There are no special background prerequisites for this program. However, prior background in curriculum development, some familiarity with technology, and interest in use of visualization and multimedia presentations is desirable. Review of written curricular materials to be used in the summer program will be expected prior to participation in the summer program.

A \$1500 stipend per teacher will be provided for participants in the program. Course credit will not be offered.

### Information for both programs

Room and board will be provided for all participants. Housing will be in air-conditioned, double rooms at Middlebrook Hall on the West Bank of the University of Minnesota. Food service at the dorm will be provided. Parking will be available.

For additional information and application forms, please contact: The Geometry Center, Suite 500, 1300 South Second Street, Minneapolis, MN 55454; phone: 612-626-0888; fax: 612-626-7131; email: [admin@geom.umn.edu](mailto:admin@geom.umn.edu).

Women and underrepresented minorities are especially encouraged to apply.

## Institute in the History of Mathematics and Its Use in Teaching

Would you like to teach a course in the history of mathematics? Does your college or university plan to offer such a course soon for prospective teachers to implement the recommendations of the MAA, the NCTM, and NCATE? Do you want to learn how the history of mathematics will help you in teaching other mathematics courses?

If you answered "yes" to any of the questions above, you are invited to apply to attend an MAA Institute in the History of Mathematics and Its Use in Teaching. Contingent on funding, the Institute will take place at The American University, Washington, DC from June 5–23, 1995 and for three additional weeks in June, 1996 with work continuing through an electronic network during academic year 1995–96. The teaching staff will consist of well-known historians of mathematics, including, in the first year, V. Frederick Rickey, Victor J. Katz, Steven H. Schot, Ronald Calinger, Judith Grabiner, and Helena Pycior. Activities at the institute will include reading of original sources, survey lectures, small group projects, field trips to three great libraries, and discussions of methods of conducting a history of mathematics course. Participants will be prepared to make presentations on their work at the joint mathematics meetings.

Applications are strongly encouraged from faculty at small institutions, at minority-serving institutions, or at institutions that prepare secondary teachers. Facilities at The American University are fully accessible. Dormitory space for families of participants is available.

For more information and application forms, write to V. Frederick Rickey, MAA, 1529 18th Street, NW, Washington, DC 20036; email: rickey@maa.org. Completed applications are due by **March 15, 1995**; applicants will be notified of their acceptance by early April.

## Program in Mathematics for Young Scientists

This program will be held at Boston University from July 2 to August 12, 1995.

PROMYS offers a lively mathematical environment in which high school students explore the creative world of mathematics. Through their intensive efforts to solve a large assortment of unusually challenging problems in number theory, the participants practice the art of mathematical discovery:

numerical exploration, formulation and critique of conjectures, and techniques of proof and generalization. More experienced participants may also study algebra, combinatorics and the Riemann zeta function. Problem sets are accompanied by daily lectures given by research mathematicians with extensive experience in Professor Arnold Ross's longstanding Summer Mathematics Program at Ohio State University. In addition, a highly competent staff of 18 college-aged counselors lives in the dormitories and is always available to discuss mathematics with students. Each participant belongs to a problem-solving group which meets with a professional mathematician three times per week. Special lectures by outside speakers offer a broad view of mathematics and its role in the sciences.

PROMYS is a residential program designed for 60 ambitious high school students entering grades 10 through 12. Admission decisions will be based on the following criteria: applicants' solutions to a set of challenging problems included with the application packet, teacher recommendations, high school transcripts, and student essays explaining their interest in the program. The estimated cost to participants is \$1300 for room and board. Books may cost an additional \$100.

Financial aid is available. PROMYS is dedicated to the principle that no student will be unable to attend because of financial need.

PROMYS is directed by Professor Glenn Stevens. Application materials may be obtained by writing to PROMYS, Department of Mathematics, Boston University, 111 Cummington Street, Boston, MA 02215; phone: 617-353-2563. Applications will be accepted from **March 1** through **June 1, 1995**. Women and minorities are encouraged to apply.

## Supercomputing Program for Undergraduate Research (SPUR)

This program, held at the Cornell Theory Center from June 4 to August 4, 1995, offers undergraduate students the opportunity to pursue a computational science research project while developing skills in the use of high performance computing technologies. Students may apply to work on a specific research project under the guidance of a faculty or staff member at Cornell University. The proposed projects explore current research problems in areas such as acoustics, climate modeling, chemistry, social dynamics, earthquake modeling,

pollution remediation, and fractals. Several of the projects include a strong visualization component.

An applicant must be an undergraduate student (graduating not before December 1995) who is a U.S. citizen or permanent resident. Students should have relevant coursework for the research area, as well as coursework or programming experience in FORTRAN or C. Students who participated in 1994 are not eligible in 1995.

Students will receive a \$2000 stipend, travel allowance, room (shared dorm room) and partial board (dinner allowance at campus dining facilities) during the nine week program.

Women, minorities, and persons with disabilities are strongly encouraged to apply. Students from four-year colleges with limited research facilities are also encouraged to apply.

Applications are due **February 28, 1995**. Students will be notified of their acceptance no later than March 22. For more information or an application form contact: Donna Smith, Workshop Coordinator, Cornell University, 422 Engineering and Theory Center Building, Ithaca, NY 14853; email [spur@tc.cornell.edu](mailto:spur@tc.cornell.edu); phone: 607-254-8614; fax: 607-254-8888; WWW: <http://www.tc.cornell.edu/Edu/CTC/EduUndergrad.html>.

The program is contingent upon funding by the NSF through the Research Experiences for Undergraduates Program.

### NSF-CBMS Regional Research Conferences

Contingent upon funding, seven NSF-CBMS regional research conferences will be held this summer. Support for about thirty participants is provided for each conference; the organizer invites both established researchers and interested newcomers, including postdoctoral fellows and graduate students, to attend. This summer's topics are: Numerical Linear Algebra on Parallel Processors; Approximation Dynamics with Applications to Numerical Analysis; Nondestructive Evaluation and Inverse Problems; Probabilistic Aspects of Single Orbit Dynamics; Tight Closure, Big Cohen-Macaulay Algebras and Uniform Artin Rees Theorem; Probability, Algorithms, and Combinatorial Optimization; and Index Theory, Coarse Geometry and Topology of Manifolds.

Proposals for 1996 conferences are requested; the closing date is **April 3, 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.

Information about 1995 conferences may be obtained by contacting the conference organizer (see the AMS *Notices* for more information). Information about the series and guidelines for submitting proposals for future conferences may be obtained from: CBMS, 1529 Eighteenth Street, NW, Washington, DC 20036; 202-293-1170.

### CAST

The Cooperation in Applied Science and Technology program, administered by the National Research Council, provides incentive grants to U.S. scientists to host colleagues from the newly independent states (NIS) of the former Soviet Union for six to twelve months to carry out joint research. This program, funded by the U.S. Agency for International Development, is intended to support collaborative projects with a strong potential for commercial applications or potential to improve the quality of life in the U.S. and NIS. Of particular interest are projects that will enable NIS scientists and engineers who have worked in defense-related research to apply their skills to civilian activities.

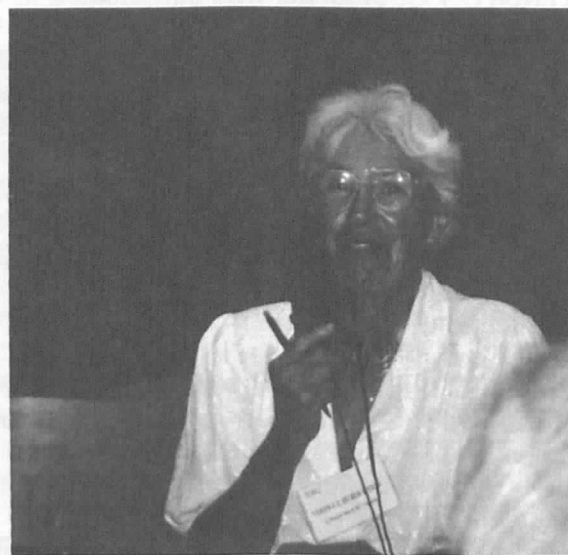
Incentive grants of up to \$3000 for travel and \$1000 per month for living expenses are provided to help defray the costs of the visit. All costs above the grant level and all administrative arrangements for the visit are the responsibility of the host or the NIS specialist. Of particular interest are applications that demonstrate a strong commitment to the collaboration on the part of the U.S. host or host institution (e.g., matching funds, supplementary in-kind support).

Application deadlines are **March 1, 1995** for visits beginning by September 30, 1995 and **October 1, 1995** for visits beginning by June 30, 1996. Complete applications must be submitted by the American host. For further information and application packets, contact: National Research Council, Office for Central Europe and Eurasia (FO2014), 2101 Constitution Avenue, NW, Washington, DC 20418; phone: 202-334-3680; fax: 202-334-2614; email: [oce@nas.edu](mailto:oce@nas.edu).

## AWM AT ICM'94: ZÜRICH



Cora Sadosky and Ol'ga Ladyzhenskaya



Verena Huber-Dyßon, Canada



Eva Bayer, France



Ol'ga Ladyzhenskaya, Russia



Christine Bessenrodt, Germany



Mary Gray, United States



Ana María Porto, Portugal



Marjatta Naatanen, Finland

## SIAM AND MATHFEST



SIAM: Julia J. Rehmeyer (Schafer Prize runner-up) and Margaret Wright (President-Elect of SIAM)



Mathfest panel: Karen Saxe, Marie Vitulli, Joan Hutchinson, and Doris Schattschneider; Jane Gilman was unable to attend



SIAM: Cathleen Morawetz (President-Elect, AMS) and Mary Catherine A. Kropinski (workshop postdoc participant) with Alice T. Schafer and Shirley Pomeranz in background



## SUPPORT AVAILABLE FOR SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

Through grants from the Alfred P. Sloan Foundation and the National Science Foundation, the **ASSOCIATION FOR WOMEN IN MATHEMATICS (AWM)** has limited funding 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 from college.

We anticipate awarding a number of grants (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.

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 Sonia Kovalevsky High School Days will be held in the Spring 1995. Reports on the high school days are to be made to AWM within 6 weeks of completion.

Send **five complete copies** of the application materials (including the cover letter) by **February 1, 1995** to: **Sonia Kovalevsky Days, Advisory Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, Maryland 20742-2461; (Applications via e-mail or fax are not acceptable.)** If you have any questions, contact Joanna Schot at 301-405-7892; awm@math.umd.edu.

## ADVERTISEMENTS



**Institute for Advanced Study/Park City  
Mathematics Institute**

The IAS/Park City Mathematics Institute runs mathematics education programs that bring together high school mathematics teachers, undergraduate and graduate students, college and university faculty, and researchers working at the most advanced levels of mathematical inquiry to participate in distinct but overlapping programs of research and education.

We are soliciting proposals for future research topics and organizers for the Graduate Summer School and Research Program. We are interested in topics not only in geometry but in other areas of mathematics as well. The proposal (at most two pages) should contain a topic and list of possible courses and lecturers. Past topics have included Geometry and Topology of Manifolds and Quantum Field Theory, Nonlinear Partial Differential Equations in Differential Geometry, Higher Dimensional Complex Geometry, Gauge Theory and the Topology of Four-Manifolds, and Nonlinear Wave Phenomena.

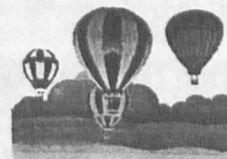
For information about the research program and graduate summer school, contact Dan Freed (dafr@math.utexas.edu), John Morgan (jm@math.columbia.edu) or Karen Uhlenbeck (uhlen@math.utexas.edu). For information about the IAS/Park City Mathematics Institute, proposal guidelines and sample proposals, contact Anne Humes (humes@math.ias.edu).

Institute for Advanced Study/Park City Mathematics Institute  
Olden Lane, Princeton, NJ 08540; telephone (609) 734-8216

**IAS/PARK CITY MATHEMATICS INSTITUTE**  
Park City, Utah July 9 - 29, 1995

**Research Topic:**  
Nonlinear Wave Phenomena

**For:** Researchers, Graduate Students,  
Undergraduates, High School Teachers



**Graduate Summer School Lecturers:** Jean Bourgain, Institute for Advanced Study; Ingrid Daubechies, Princeton University; David McLaughlin, Courant Institute; Alan Newell, University of Arizona; George Papanicolaou, Stanford University; Jeffrey Rauch, University of Michigan. **Undergraduate Program Lecturers:** Steve Cox, Rice University; Roger Knobel, University of Texas-Pan American; Dick Palais, Brandeis University.

The IAS/Park City Mathematics Institute, sponsored by the Institute for Advanced Study in Princeton, New Jersey, is a mathematics education program that integrates the research and education components of the mathematics community in a unique way and in a supportive setting where education at all levels is the explicit concern.

University-based sites for the High School Teacher Program are Clark Atlanta, Duke, Idaho State, Purdue, Rice, and the University of Louisville. Support is provided by the National Science Foundation, the Exxon Education Foundation, Geraldine R. Dodge Foundation and Xerox Corporation.

Deadline to apply is 2/15/95. Funding is available for all participants. For application forms and information, contact: IAS/PCMI, Olden Lane, Princeton, NJ 08540; phone: (609) 734-8290; e-mail: pcmi@math.ias.edu; gopher: gopher.math.ias.edu

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## ADVERTISEMENTS

**ALLEGHENY COLLEGE - DEPARTMENT OF MATHEMATICS** - We invite applications for a tenure-track position, commencing September 1995. Faculty are expected to demonstrate excellence in teaching and maintain professional and scholarly activity. Teaching load is six courses per year on a semester calendar. Allegheny has an extensive network of NeXT computers, and the college provides excellent support for use of computing in courses. Applicants must have a Ph.D. in mathematics by August 1995. Send a letter of application, a curriculum vitae, graduate transcripts, and three letters of recommendation (at least one should address teaching) in hard copy to: **Michael J. J. Barry, Department of Mathematics, Allegheny College, Meadville, PA 16335**. Candidates should indicate whether they intend to be at the January Meetings in San Francisco. Questions should be sent to [mbarry@alleg.edu](mailto:mbarry@alleg.edu). Applications received by e-mail will not be reviewed. Allegheny strongly encourages applications from women and minority candidates. We are an Equal Opportunity/Affirmative Action Employer.

**THE AMERICAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS** - Applications are invited for tenure-track and temporary faculty positions in Statistics. Appointments will be at the Assistant or Associate Professor level subject to final budgetary approval. Ph.D. and evidence of scholastic excellence required. Responsibilities include teaching Multivariate Analysis, Linear Estimation, Sampling, or Statistical Computing. Consideration of applications will begin February 1, 1995 and continue until positions are filled. Minority and women candidates are strongly encouraged to apply. The American University is an EEO/AA employer committed to a diverse faculty, staff and student body. Send curriculum vitae and 3 letters of reference to: **Nancy Flournoy, Chair, Department of Mathematics and Statistics, The American University, 4400 Massachusetts Avenue, N.W., Washington, D.C. 20016-8050**. E-mail: [mathstat@american.edu](mailto:mathstat@american.edu).

**THE AMERICAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS** - The Department of Mathematics and Statistics in the College of Arts and Sciences proudly announces a new program to begin during the Fall 1995 Semester. - **Master's of Science in Statistics for Policy Analysis** - Applications are now being accepted. Deadline is May 1, 1995 for Fall 1995 admission. Interested students may register as nondegree and take courses during the Spring 1995 semester. Credits can then be transferred into the degree program. For more information, please contact: **The Department of Mathematics & Statistics, The American University, (202) 885-3120**; E-mail: [mathstat@american.edu](mailto:mathstat@american.edu).

**BARUCH COLLEGE OF THE CITY OF NEW YORK - DEPARTMENT OF MATHEMATICS** - Tenure-track position at assistant/associate/full rank beginning August 31, 1995; salary ranges from \$29,931 to \$74,980. A Ph.D. in mathematics or mathematics education is required, as well as a demonstrated commitment to research in mathematics education. A proven record of excellence in teaching, curriculum development, computer technology, and scholarly publication is essential and past successful grant funding is very desirable. Applications must be received by January 31, 1995. Send resume, and the names of three references to: **Baruch College, Department of Mathematics, Search Committee, Box 0930, 17 Lexington Avenue, New York, NY 10010**. Baruch is an EOA/AA employer; women and minorities are encouraged to apply.

**BOISE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The department invites applications for two tenure-track positions at the assistant professor level, starting August 1995. One position is targeted for **Mathematics Education**, the other for either **Numerical Analysis** or **Low-dimensional Topology**. Receipt of a doctorate by the starting date is required. For the mathematics education position, the potential for leadership, innovation, and effective outreach, both on and beyond the campus, is essential. For the other position, emphasis will be on the potential for effective collaboration with current departmental faculty. Teaching load for new faculty is approximately two courses per semester; both research potential and teaching ability are important. To apply send an AMS Application Cover Sheet, letter of application containing a summary of research and teaching interests, vita, and graduate transcripts to: **Search Committee, Department of Mathematics, Boise State University, Boise, ID 83725** and arrange for 3 letters of reference, at least one addressing teaching ability, to be sent to the same address. Screening will begin February 1, 1995. BSU is an EEO/AA institution, and applications from women and members of minority groups are especially encouraged. For more information call 208-385-1172 (tty 208-385-1436) or send e-mail to: [office@math.idbsu.edu](mailto:office@math.idbsu.edu).

**BOSTON COLLEGE- DEPARTMENT OF MATHEMATICS** - Boston College invites nominations and applications for a tenured position in the Department of Mathematics at the level of Full, or possibly Associate, Professor. Qualifications include the Ph.D. in the mathematical sciences, a strong record of scholarship, and a commitment to teaching at the undergraduate and master's levels. An applicant's area of research should be compatible with those of the department; these include, but are not limited to, analysis, dynamical systems, number theory, probability and statistics, and topology. The position will be available on September 1, 1995. Boston College is a Jesuit University, enrolling approximately ten thousand undergraduate and four thousand graduate students. The Department of Mathematics includes twenty-one full time faculty, and offers undergraduate programs in mathematics and computer science, as well as graduate programs leading to the MA and MST degrees in mathematics. Applicants should submit a curriculum vitae along with a cover letter, and are invited to include names of references. Send all materials and inquiries to: **W. J. Keane, Chair, Department of Mathematics, Boston College, Chestnut Hill, MA 02167**. E-Mail: [keane@bc.edu](mailto:keane@bc.edu). Review of applications and nominations will begin on January 1, 1995, and continue until the position is filled. Boston College is an Affirmative Action/Equal Opportunity Employer.

**BOSTON UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics invites applications for a position in the area of Applied Statistics, with emphasis on design of experiments. This position is a tenure-track appointment at the Assistant Professor level and is pending final approval. The successful applicant should have a strong commitment to research and teaching. Applications and 3 letters of reference should be sent to: **Search Committee (Statistics), Department of Mathematics, Boston University, 111 Cummington St., Boston, MA 02215**. AA/EOE.

**BOWDOIN COLLEGE - DEPARTMENT OF MATHEMATICS** - Tenure-track Assistant Professorship starting Fall 1995. Initial appointment for three years with renewal possible. Seeking candidates with primary research interests in one of the following fields: operations research, mathematical economics, numerical analysis, or geometry (AMS subject classification numbers 51, 52, 53, 65, or 90). Ph.D. required and strong research record or potential expected. Normal teaching load is two courses per semester. A record of superior undergraduate teaching is expected. Review of candidates begins December 1, 1994, but applications will be considered until position is filled. Send completed AMS applications cover sheet, resume and 3 letters of recommendations 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 members of minority groups are urged to apply and invited to identify themselves as such.

**BROCK UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics at Brock University invites applications for two nine-month limited term positions, at the Assistant Professor level, beginning August 15, 1995. Applicants should have the Ph.D., with demonstrated research potential. Duties may include teaching either mathematics major courses or service courses. One position is in Operations Research and one in Statistics; applicants in other areas may be considered. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Applications, including a curriculum vitae and the names of three referees, should be sent to: **Dr. H. E. Bell, Department of Mathematics, Brock University, St. Catharines, Ontario, L2S 3A1 Canada**, for receipt by March 24, 1995. Brock University is an equal opportunity employer. Brock University is committed to a positive action policy aimed at reducing gender imbalance in faculty. Qualified women applicants are especially encouraged to apply.

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## ADVERTISEMENTS

**CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA - MATHEMATICS DEPARTMENT** - Tenure-track position in Mathematics Education at the Assistant Professor level, subject to funding. Doctorate in Mathematics or Mathematics Education; experience in K-12 mathematics 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 13, 1995; position starting date September 1995. Cal Poly Pomona is actively seeking to maintain its heritage and identity as a comprehensive center of education that serves a dynamic, culturally-diverse region. For information or to apply, contact: **Mathematics Education Search Committee, Mathematics Department, California State Polytechnic University, Pomona, 3801 W. Temple Ave., Pomona, CA 91768-4033. (909) 869-3467. EOE/AA.**

**CENTRAL MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics invites applications for a tenure-track position in the area of collegiate mathematics education. The position is at the assistant professor level although candidates with a strong record of teaching and research in the area may be considered for an appointment at the associate professor level. Candidates should have a Ph.D. in Mathematics, Statistics, or Mathematics Education and show evidence of having conducted research in the teaching and learning of collegiate mathematics. The successful candidate will be expected to help in the development of the Department's new Ph.D. Program in Mathematics with Concentration in the Teaching of College Mathematics. Duties include teaching and research with a usual teaching load of nine semester hours. Salary is competitive and benefits include University-paid retirement, medical, dental, disability, and group life insurance. Central Michigan University has an enrollment of 16,500 of which 1,700 are graduate students, and offers Bachelor's Master's and Ph.D. degrees. The Department of Mathematics, which includes pure & applied mathematics, statistics and mathematics education, has 32 tenure-track faculty. Please send resume, transcripts and names of three references to: **Professor Richard J. Fleming, Chair, Department of Mathematics, Central Michigan University, Mt. Pleasant, MI 48859.** Consideration of applications will begin on February 27, 1995 but applications will be received until the position is filled. CMU (an AA/EEO institution) encourages diversity and resolves to provide equal opportunity regardless of race, sex, disability, sexual orientation or other irrelevant criteria.

**CENTRAL MISSOURI STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - Applications are invited for a non-tenure-track position beginning August, 1995. A masters degree in a mathematical science is required. Training in mathematics education and public school teaching experience is preferred. A strong commitment to excellence in teaching and continued professional growth is essential. An application letter, resume, transcripts, and three professional references should be sent to: **Dr. Ed Davenport, Department of Mathematics and Computer Science, Central Missouri State University, Warrensburg, MO 64093.** Screening of applications will begin January 15, 1995, and continue until position is filled. Women and minorities are encouraged to apply. AA/EEO/ADA.

**COLLEGE OF CHARLESTON - DEPARTMENT OF MATHEMATICS** - Applications are invited for one tenure-track and an anticipated second position at the assistant professor level starting in August 1995. The Mathematics Department at the College of Charleston has 25 full-time faculty and offers the B.S. and M.S. degrees in mathematics. Preference for one position will be given to applicants in some area of computational mathematics. Candidates must have a Ph.D. in one of the mathematical sciences, a commitment to graduate and undergraduate teaching, and potential for continuing research. The normal teaching load is 9 hours per week for those engaged in research. The salary is competitive. Applicants should send a vita and have three letters of recommendation sent to: **William Golightly, Chair, Department of Mathematics, College of Charleston, Charleston, SC 29424, golightlyw@cofc.edu.** The process of evaluating applications will begin on January 9, 1995, but applications will be considered until the positions are filled. The College of Charleston is an EO/AA Employer.

**CONCORDIA UNIVERSITY - DEPARTMENT OF MATHEMATICS & STATISTICS** - The Department of Mathematics and Statistics invites applications for one tenure track position (pending budgetary approval) at the Assistant Professor level starting August 15, 1995. Highly qualified candidates holding a Ph.D. and having a commitment to research and excellent teaching are invited to apply. The position is intended to support our Ph.D. programme. Candidates whose research is in the area of Analysis, Dynamical Systems, Mathematical Physics, or Probability and Statistics are especially encouraged to apply. Applicants should send a curriculum vitae and a brief description of the field of interest and arrange for three letters of recommendation to be sent prior to February 15, 1995 to: **Dr. M. Belinsky, Chair, Department of Mathematics & Statistics, Concordia University, 7141 Sherbrooke St. West, Montreal, Quebec, H4B 1R6, Canada.** Concordia University is committed to Employment Equity and encourages applications from women, aboriginal peoples, visible minorities and people with disabilities. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents.

**DARTMOUTH COLLEGE - DEPARTMENT OF MATHEMATICS - John Wesley Young Research Instructorship** - 2 years, new or recent PhD's whose research overlaps department member's. Teach 4 ten-week courses spread over 2 or 3 quarters. \$35,000 for nine months; \$7,778 summer research stipends. Send application letter, resume, research/thesis description, graduate transcript, and 3 (prefer 4) references (1 discussing teaching) to: **Betty Harrington, Department of Mathematics, Dartmouth College, 6188 Bradley Hall, Hanover, NH 03755-3551.** Files completed by January 15, 1995 are considered first. Dartmouth is committed to Affirmative Action and strongly encourages minorities and women to apply.

**DARTMOUTH COLLEGE - DEPARTMENT OF MATHEMATICS** - tenure-track Assistant Professor, beginning 95-96. Teaching four 10-week courses over 2 or 3 terms. First priority is a modern analyst, second priority is a mathematical statistician strongly interested in signal processing. Exceptional circumstances could lead to an appointment in some third field or at a higher level. Send letter of application, vitae, research interests, four letters of recommendation, at least one on teaching, to: **Betty Harrington, Department of Mathematics, 6188 Bradley Hall, Dartmouth College, Hanover, NH 03755-3551.** Applications complete by February 1, 1995 considered first. Women and minorities are encouraged to apply.

**DENISON UNIVERSITY - MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT** - The Department invites applications for a tenure-eligible position at the rank of assistant professor beginning Fall 1995. Candidates must hold or anticipate a doctorate in mathematics and master-level competency in computer science or a doctorate in computer science and masters-level competency in mathematics. The successful candidate is expected to be able to offer some upper-level courses in computer science and introductory courses in both areas. The department is searching for a person who is an excellent teacher and has a strong commitment to the liberal arts. Continued excellence in teaching and research are required for tenure. Please have a letter of application, vita and three letters of recommendation, at least one of which addresses teaching, sent to: **Chair, Mathematics and Computer Sciences Department, Denison University, Granville, OH 43023.** Review of applications will start February 1, 1995 and will continue until the position is filled. As an AA/EEO Employer, Denison encourages women and people of color to apply.

**EASTERN ILLINOIS UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Beginning August 21, 1995. Subject to funding availability. Directing center for diagnosis/remediation of weaknesses in mathematical backgrounds of underprepared students, and teaching variety of mathematics education/mathematics courses. Released time from teaching duties will be provided for direction of diagnostic center; additional month's salary provided for running center's summer program. Excellence in teaching, as well as research/creative activity commensurate with teaching duties, is expected. Firm grounding in fundamental concepts of mathematics and methodologies used to teach them required. Must possess demonstrable expertise/experience in diagnosis/remediation. Doctorate in Mathematics Education, Mathematics, or other suitable fields required. Send application letter by January 15, 1995 stating reasons for interest in position, vita, transcripts, and three letters of recommendation to: **Ira Rosenholtz, Chair, Mathematics Department, Eastern Illinois University, Charleston, IL 61920.** Equal opportunity, equal access, affirmative action employer committed to achieving a diverse community.

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**FROSTBURG STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Assistant Professor of Mathematics** - Full-time tenure-track assistant professor, beginning Fall 1995, pending budget approval, to teach 12 credits of undergraduate mathematics per semester and share departmental duties. Salary range \$28,000 - \$32,000, depending upon credentials and experience. **Minimum Requirements:** Masters in mathematics or related field plus some doctoral work; strong commitment to undergraduate teaching. Teaching experience and quality of teaching is of prime concern. **Preferred Qualifications:** Doctorate in mathematics or mathematics education; background in applications of mathematics welcome. Direct position inquiries to: Dr. Richard C. Weimer, (301) 689-4384, and employment inquiries to: Human Resources, (301) 689-4105 (Voice/TDD). To apply, send letter of interest, resume, transcripts, and three letters of recommendation, not later than February 21, 1995, to: **Frostburg State University, Office of Human Resources, Attn: Assistant Professor Mathematics (Position #95-427-AWM), Frostburg, MD 21532.** FSU is an Affirmative Action/ Equal Opportunity Employer. Minority and woman candidates are strongly encouraged to apply.

**GEORGIA SOUTHERN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - Several positions starting September 1, 1995. Salary dependent upon qualifications. Indicated degrees are required by the position starting date. All deadlines are postmark deadlines. Send letter of application indicating position desired, curriculum vitae, unofficial transcripts of all college work, evidence of dedication to outstanding teaching, and name, address, telephone number and e-mail address of three references by the indicated deadline to: [search chair], [search number], **Department of Mathematics and Computer Science, Landrum Box 8093, Georgia Southern University, Statesboro, GA 30460-8093.** The names of applicants and nominees, resumes and other general non-evaluative information are subject to public inspection under the Georgia Open Records Act. Georgia Southern is an Equal Opportunity/Affirmative Action institution. Persons who need accommodation(s) in the applications process under the Americans with Disabilities Act should notify the search chair. **Learning Support/Mathematics.** One tenure track position. Assistant professor or instructor. Master's Degree in mathematics or mathematics education required; doctorate in one of these fields preferred. Two years developmental teaching experience required. Duties include teaching developmental and freshman-level math courses. **Search chair: Mr. Don Brown, Search #29855.** Deadline: February 1, 1995. **Mathematics.** Three tenure track positions. Instructor or assistant professor. M.A. or M.S. in mathematics required. Three years teaching experience is preferred. Duties include teaching freshmen-level mathematics courses. **Search chair: Dr. John A. Rafter, Search #29851.** Deadline: March 1, 1995. **Mathematics Education.** One tenure track position. Assistant, associate or full professor. Doctorate in a mathematical science required; Ph.D. or Ed.D. in mathematics education preferred. Primary interest in mathematics education required; experience in working with K-12 mathematics teachers preferred. At least three years teaching experience is preferred. Duties include teaching undergraduate mathematics courses and undergraduate/graduate mathematics courses for mathematics education majors. **Search chair: Dr. Ron Harshbarger, Search #29849.** Deadline: February 1, 1995. **Statistics.** One tenure track position. Instructor or assistant professor. M.A. or M.S. in statistics or in mathematics with an emphasis in statistics required. Three years teaching experience is preferred. Duties include teaching introductory statistics courses and freshmen-level mathematics courses. **Search chair: Dr. John A. Rafter, Search #29850.** Deadline: March 1, 1995. **Temporary mathematics positions.** Pending a funding decision due in April, several temporary positions may be added at the instructor level to teach freshman-level mathematics courses. Three years teaching experience is preferred. Fifteen credit hour teaching load per quarter. M.A. or M.S. in mathematics required. **Search chair: Dr. John A. Rafter, Search #19852.** Deadline: April 17, 1995.

**GEORGIA STATE UNIVERSITY - DEPARTMENT OF MATH AND COMPUTER SCIENCE** - Two anticipated tenure track positions September 1995. Rank and salary commensurate with qualifications and experience. Qualifications: Ph.D. in mathematics or computer science with preference for a strong record in publications and funded grants. Preference in mathematics is for assistant or associate professor in mathematics education or combinatorics/graph theory. Preference in computer science is for assistant professor in telecommunications or networking/communications. Send letter of application, vita without birthdate but with citizenship status, and 3 letters of reference and transcripts of all undergraduate and graduate work and postmarked by February 14, 1995 to: **Chair, Department of Mathematics and Computer Science, Georgia State University, University Plaza, Atlanta, Georgia 30303-3083.** Georgia State University, a Unit of the University System of Georgia, is an equal opportunity educational institution, and an EEO/AA Employer.

**GETTYSBURG COLLEGE - DEPARTMENT OF MATHEMATICS - One-Year Sabbatical Replacement** - Gettysburg College invites applications for a one-year assistant-professor position in mathematics beginning August 1995. A Ph.D. in mathematics, excellence in teaching, and a commitment to continued scholarship are essential. Gettysburg College is a highly selective liberal-arts college of about 2,000 students in a beautiful and historic area of south-central Pennsylvania. It is conveniently located within an hour and half drive of the Washington-Baltimore area. Send letter of application, curriculum vitae, statement of teaching interests in a liberal-arts environment, and the names of three references (at least one of whom is qualified to address teaching effectiveness) to: **James P. Fink, Chair, Department of Mathematics and Computer Science, Gettysburg College, Gettysburg, PA 17325.** Please do not send letters of recommendation with your application. Review of applications will begin on February 1, 1995 and will continue until the position is filled. Gettysburg College is an Equal Opportunity/Affirmative Action Employer with a Partner Assistance Program. Women and minority candidates are encouraged to apply.

**GRAND VALLEY STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS** - Grand Valley State University, an institution committed to teaching excellence, solicits applications for a tenure track assistant professorship to begin August 1995. Doctorate in an area related to the teaching of mathematics required. *Candidates should have a sincere desire to teach courses from pre-algebra through pre-calculus with opportunities to teach in the area of math education.* Candidates must have a strong mathematical background. A complete application must include a cover letter, curriculum vita, a copy of graduate transcripts, at least three letters of recommendation (at least two of which focus on the applicant's teaching ability and potential), and a personal statement that addresses the applicant's teaching philosophy, experience with and expectations regarding the use of technology in teaching at this level. Send these materials to: **Faculty Search Committee, Department of Mathematics and Statistics, Grand Valley State University, Allendale, MI 49401.** Applications will be accepted until January 13, 1995. EEO/AA/ADA

**GRAND VALLEY STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS** - Grand Valley State University, an institution committed to teaching excellence, solicits applications for the position of a tenure-track assistant professorship to begin August 1995. Ph.D. in mathematics required. Applications from individuals working in all areas of mathematics will be considered, but *preference shall be given to applicants working in the areas of discrete mathematics, operations research, dynamical systems, or applied mathematics.* Responsibilities include teaching twelve hours per week at the level of precalculus and above, maintaining an active program of professional development, and student advising. A complete application must include a cover letter and curriculum vita, a copy of graduate transcripts, at least three letters of recommendation (at least one of which focuses on the applicant's teaching ability and potential), and a personal statement that addresses the applicant's teaching philosophy, experience with and expectations regarding the use of technology in teaching, and experience with and/or interest in conducting a program of undergraduate research. Send these materials to: **Faculty Search Committee, Department of Mathematics and Statistics, Grand Valley State University, Allendale, MI 49401.** Applications will be accepted until January 13, 1995. EEO/AA/ADA

**DO YOU HAVE A NEW ADDRESS?** Please inform us of any changes, so we can keep our database up-to-date. Just fill out the changes using the form on the BACK COVER or drop us an e-mail. THANKS. E-MAIL: awm@math.umd.edu

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**GRAND VALLEY STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Assistant Professor of Statistics - Ph.D. in Statistics** required. Candidates must have a commitment to teaching and undergraduate research, have strong teaching recommendations, be professionally active, and be interested in the use of technology in the classroom. Extensive SAS experience required. *Preference given to candidates in Statistical Quality Control or Applied Statistics.* Teaching 12 hours per week, professional development, and student advising. Reduced teaching loads and/or grants are available for research and professional development. Send a cover letter and curriculum vita, three letters of recommendation, and a letter describing your teaching philosophy and experience by January 13, 1995 to: **Statistics Search Committee, Department of Mathematics and Statistics, Grand Valley State University, Allendale, MI 49401.** Grand Valley State University is an EEO/AA/ADA Employer.

**GUSTAVUS ADOLPHUS COLLEGE - MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT** - Applications are invited for two visiting positions in mathematics. These are one-year positions with the strong possibility of renewal for a second year. A Ph.D. in mathematics is expected for these positions. Preference for one of the positions will be given to those candidates with special interests in applied mathematics and/or mathematical physics. Teaching load is three courses per semester and one course in the January term. Candidates should have a record of effective undergraduate teaching. Review of applications will begin February 15, 1995 and continue until the positions are filled. Send letter of application, vita, graduate transcripts, and three letters of recommendation to: **Mike Hvidsten, Chair, Department of Mathematics and Computer Science, Gustavus Adolphus College, St. Peter, MN 56082.** (Phone: 507-933-7480, e-mail: hvidsten@gac.edu) At least one letter should specifically address teaching. The mathematics and computer science department has 13 members. The department is located in the recently constructed Olin Hall of Science and has state-of-the-art high-teach classrooms and computer facilities. It is the policy and practice of Gustavus Adolphus College to provide equal educational and employment opportunities for all. We specifically encourage applications from women, minorities and persons with disabilities.

**HUNTER COLLEGE OF THE CITY UNIVERSITY OF NEW YORK - DEPARTMENT OF MATHEMATICS AND STATISTICS** - Two tenure track Assistant Professor faculty positions available September 1995. Salary Range: \$29,931 - \$52,213 depending on experience. Doctoral degree required. We are interested in mathematicians (all fields) and statisticians (all fields). Send curriculum vita and three letters of reference by March 17, 1995 to: **Professor Richard Churchill, Chair, Department of Mathematics and Statistics, Hunter College, 695 Park Avenue, New York, NY 10021.** Hunter College is an Equal Opportunity/Affirmative Action Employer.

**INDIANA STATE UNIVERSITY, TERRE HAUTE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - Applications are invited for two tenure track positions at the Assistant Professor level beginning August 1995. The first is an **entry level tenure track position in Computer Science.** Applicants are expected to have a Ph.D. in Computer Science, potential for research, and an interest in teaching. Please send a letter of application, curriculum vita, and a list of three references to: **Chair, Computer Science Search Committee, Mathematics and Computer Science Department, Indiana State University, Terre Haute, IN 47809.** Applications received after February 10, 1995 cannot be guaranteed consideration. The second is an **entry level tenure track position in Mathematics.** Applicants are expected to have a Ph.D. in Mathematics, potential for and interest in developing their research areas, and an interest in teaching. Please send a letter of application, curriculum vita, and three letters of reference to: **Chair, Mathematics Search Committee, Mathematics and Computer Science Department, Indiana State University, Terre Haute, IN 47809.** Applications received after February 10, 1995 cannot be guaranteed consideration. The Department has 15 full-time faculty members. The University, a state-supported institution, has an enrollment of approximately 12,000 students. Indiana State University is an AA/EO Employer.

**INDIANA UNIVERSITY, BLOOMINGTON - DEPARTMENT OF MATHEMATICS** - Several tenure track and 3-year visiting positions will be available in the 1995-96 academic year. Outstanding candidates in all areas of pure and applied mathematics and statistics are invited to apply. Excellent research potential as well as commitment to teaching are required. Indiana University is an Affirmative Action/Equal Opportunity Employer. Please send a letter of application to: **Professor John Ewing, Chairman, Department of Mathematics, Indiana University, Bloomington, IN 47405-5701.**

**INDIANA UNIVERSITY OF PENNSYLVANIA - DEPARTMENT OF MATHEMATICS** - Indiana University of Pennsylvania invites applications for a tenure-track position in Statistics to begin in the Fall of 1995. The appointment is anticipated at the Assistant Professor level. Associate Professor is possible in the case of exceptional qualifications. **Responsibilities:** 1. To teach undergraduate and graduate courses with emphasis on courses in statistics. 2. To provide leadership in the development and implementation of statistics courses. 3. To direct students in a graduate internship program and to direct graduate student projects in statistics. 4. To help establish an academic and professional relationship between the undergraduate and graduate programs at IUP and local and regional business/industrial organizations. **Required qualifications:** 1. Ph. D. in Statistics or a Ph.D. in a mathematical area with emphasis in statistics. 2. Teaching and/or field experience preferred but not required. 3. Experience in using statistical packages such as SAS and SPSS. Review of applications will begin January 2, 1995 and will continue until the position is filled. Send letter of application, resume, undergraduate and graduate transcripts, and three current letters of reference (one of which should address teaching potential) to: **Search Committee S, Mathematics Department, Indiana University of Pennsylvania, Indiana, PA 15705;** telephone 412-357-2608, internet: addavis@grove.iup.edu, bitnet: addavis@iup. IUP is an Affirmative Action/Equal Opportunity Employer.

**KNOX COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - Tenure-track assistant professorship beginning in the Fall of 1995. Responsibilities: two courses a term for three ten week terms, departmental and college service, high level of professional activity. Candidates should have a Ph.D. in mathematics. Some preference to those who can collaborate with faculty in other disciplines. Knox College is an Affirmative Action/Equal Opportunity Employer. In keeping with the College's 150 year commitment to equal rights, Knox College particularly invites applications from women and minorities. Send curriculum vitae, graduate transcript, and three letters of recommendations to: **Kevin J. Hastings, Chair, Department of Mathematics and Computer Science, Knox College - Box 84, Galesburg, IL 61401.**

**LEBANON VALLEY COLLEGE OF PENNSYLVANIA - DEPARTMENT OF MATHEMATICAL SCIENCES** - Are you interested in teaching a variety of undergraduate courses in Mathematics and Statistics? Become part of a dynamic department of 6 faculty and 90 majors in Mathematics, Actuarial Science, and Computer Science. Applications are invited for a tenure-track position beginning in August 1995. Teaching load is 12 hours per semester. Ph.D. required. Salary competitive. Benefits include health and life insurance, TIAA-CREF, dependent tuition, and recreation center. Lebanon Valley College is a Liberal Arts College of 1050 full-time undergraduates and 70 faculty. Located in central Pennsylvania, LVC is within three hours of New York, Philadelphia, Baltimore and Washington, D.C. To assure consideration, application materials, to include cover letter, resume, three letters of reference, and transcripts, should be sent by January 31, 1995 to: **Bryan V. Hearsey, Chairman, Department of Mathematical Sciences, Lebanon Valley College, Annville, PA 17003-0501,** hearsey@acad.lvc.edu. Will be available in San Francisco.

**LYNDON STATE COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - Tenure track position in Mathematics and Computer Science. Pending Funding. Teach 12 credits per semester; beginning and advanced computer science courses; PC and Macintosh platforms. Master's degree in computer science; Ph.D. and teaching experience preferred. Ph.D. required for tenure award. Starting date August 30, 1995. Send letter of application and vita (listing names and phone numbers of at least three references) to: **Chair, Faculty Search Committee, c/o Dr. Rex C. Myers, Academic Dean, Lyndon State College, Lyndonville VT 05851.** Lyndon State College complies with state and federal laws related to equal opportunity and nondiscrimination. For further information, contact Dr. Rex Myers at myersr@king.vsc.lsc.edu or above address.

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## ADVERTISEMENTS

**MARYMOUNT UNIVERSITY, ARLINGTON, VIRGINIA - DEPARTMENT OF MATHEMATICS - Chair** - Marymount University is seeking a chair of the Department of Mathematics at the associate or full professor level beginning in the fall of 1995. Ph.D. in mathematics, strong teaching skill and research accomplishments required. Administrative experience preferred. The Department includes five full-time faculty and twenty-three majors. Marymount University is an independent, comprehensive University related to the Catholic Church. The University enrolls 4,000 students in 33 undergraduate and 20 master's programs. The main campus is located on a hillside in residential Arlington, Virginia, ten minutes from Washington, D.C. Review will begin on February 1, 1995 and continue until the position is filled. Applicants should submit a letter of application, a curriculum vitae, and five references with telephone numbers to: **Chair, Search Committee for Mathematics, c/o Office of the Dean of School of Arts and Science, Marymount University, 2807 N. Glebe Road, Arlington, VA 22207-4299**. Marymount University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly urged to apply.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS** - One or two assistant professor or higher levels in applied mathematics will probably become available in Fall 1995 for persons typically about two or more years beyond their doctorates. This time we are looking especially for unusual new talent in the area of **dynamical systems**. Applications should be completed by January 15, 1995. 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 1995 - 1996. The teaching load will be six hours per week in one semester and three hours per week in the other, or other combinations totaling nine hours. Open to mathematicians with doctorates who show definite promise in research. Applications should be completed by January 15, 1995. Applicants please arrange to have sent (a) a vitae; (b) three letters of reference; (c) a description of your most recent research; and (d) the research that you plan for the next few years, to: **Pure Mathematics Committee, Massachusetts Institute of Technology, Room 2-263, Cambridge, MA 02139-4307**. M.I.T. is an Equal Opportunity, Affirmative Action Employer.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - C.L.E. Moore Instructorships in Mathematics** - Open to mathematicians with doctorates who show definite promise in research. Teaching loads are six hours per week during one semester, and three hours per week during the other. Applications should be completed by January 1, 1995. Please arrange to have sent (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 January 15, 1995 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.

**MERRIMACK COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - Four (4) tenure-track positions in mathematics at Assistant or Associate level beginning September 1995. Candidates must possess a doctorate in mathematics or mathematics education. Candidates should be able to contribute to the mathematics major by teaching in some of the following areas-analysis, algebra, geometry, combinatorics, mathematics education, number theory. Candidates should also have experience with or interest in calculus reform, graphing calculators, computer algebra systems or innovative teaching strategies. Excellence in teaching and continued scholarship are expected. Teaching load is 12 credit hours per semester. Send resume and three letters of reference to: **Professor Mary G. Noonan (mnoonan@merrimack.edu), Chair, Department of Mathematics and Computer Science, Merrimack College, North Andover, MA 01845**. Review of applications will begin February 1, 1995 and continue until the positions are filled.

**MILLERSVILLE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Assistant Professor**. Full-time, tenure track to begin August 1995. Area of expertise in Mathematics Modeling. Duties include a 12 semester-hour teaching load, scholarly activity, student advisement, curriculum development and committee work. Ph.D. degree (or completed doctorate will be required for continuance beyond first year) in mathematics, with a specialization in a field of applied mathematics and significant experience in mathematical modeling are required. Must exhibit evidence of a strong commitment to excellence in teaching and continued scholarly activity and be prepared to teach a broad spectrum of undergraduate mathematics courses. Must demonstrate an interest developing coursework in mathematical modeling. Evidence of teaching effectiveness is the primary consideration. Appropriate industrial, governmental, or interdisciplinary experience is highly desirable. Full consideration will be given to applications received by February 1, 1995. Send letter of application, curriculum 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 Math/NWM195, Millersville University, P.O. Box 1002, Millersville, PA 17551-0302**. AA/EOE.

**MISSISSIPPI UNIVERSITY FOR WOMEN - DIVISION OF SCIENCE AND MATHEMATICS - Distinguished Professorship of Mathematics** - MUW, the nation's first public college for women (1884), invites applications for a distinguished professorship in mathematics (specialty in numerical analysis preferred). The position is tenure-track at the assistant or associate professor level depending upon qualifications. The individual will serve as teacher and researcher as well as a mentor to students, with particular emphasis on encouraging women students to enter the sciences, and will guide student research in an interactive fashion. A Ph.D. is required. A highly competitive salary and benefits package are available. MUW is a coeducational institution of over 3,000 students and has been ranked by *U.S. News and World Report* (1995 Guide) as #1 in value, #2 in efficiency, and #3 in academic reputation among Southern regional liberal arts schools. MUW is an Equal Opportunity/Affirmative Action Employer. The position is open until filled. Applicants should send letter of application, curriculum vita, transcripts, and names and addresses of five references to: **Mississippi University for Women, Office of Personnel Services, Box W-1609, Columbus, MS 39701**.

**MOUNT HOLYOKE COLLEGE - DEPARTMENT OF MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE** - Three-year, non-renewable Assistant Professorship in statistics beginning Fall 1995, subject to budget approval. The department, whose members are active in both research and funded curricular development, has two statisticians and offers six statistics courses plus an interdisciplinary course in quantitative reasoning. The position will involve teaching some mathematics as well as statistics. Qualifications: Ph.D. in statistics, commitment to teaching and scholarship in a liberal arts environment, and evidence of classroom effectiveness. Send curriculum vitae and arrange for three letters of recommendation to arrive by March 1, 1995 to ensure full consideration. Reply to: **Statistics Search Committee, Department of Mathematics, Statistics and Computer Science, Mount Holyoke College, South Hadley, MA 01075**. Mount Holyoke College is committed to fostering cultural diversity and multicultural awareness in its faculty, staff, and students, and is an Affirmative Action/Equal Opportunity Employer. Women and minorities are especially encouraged to apply.

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**NAZARETH COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - Nazareth College invites applications for a tenure-track position in mathematics, effective Fall 1995. Doctorate in mathematics or mathematics education, and demonstrated interest and excellence in teaching required. Responsibilities include 4 courses per semester (at various levels), and continued scholarly growth. Preference to qualified candidates committed to the "reform" movement in undergraduate mathematics, and the preparation of mathematics teachers. Nazareth College is a thriving, independent, coeducational, liberal arts college with an undergraduate student body of approximately 1,400. The College is located near Rochester, New York, the third largest city in the state. Rochester is noted for its cultural diversity. Salaries are competitive. Send letters of application, resume, transcripts, and the names and addresses of three references to: **Professor Nelson Rich, Nazareth College, 4245 East Avenue, Rochester, NY 14618-3790**. E-mail: rich@naz.edu. Applications will be considered as received until the position is filled. Nazareth College is an Equal Opportunity/Affirmative Action Employer.

**NORTH CAROLINA STATE UNIVERSITY - CENTER FOR RESEARCH IN SCIENTIFIC COMPUTATION** - The Center for Research in Scientific Computation at N.C. State University expects to make several post-doctoral appointments starting July 1, 1995 (availability of the positions is contingent upon funding). The appointments will be in the area of applied mathematics and scientific computation. The research interests of the Center include mathematical modeling, analysis and control of partial differential equations, numerical optimization, computational fluids and flow control and high-performance computation and biomathematics. The successful applicants will be involved in research programs between the Center and other research groups at NCSU that offer a unique opportunity for post-doctoral research on mathematical projects arising in industrial/governmental laboratories. Applicants should send a vita and brief description of research interests and have 3 letters of recommendation sent to: **Professor K. Ito, Department of Mathematics, Box 8205, North Carolina State University, Raleigh, NC 27695-8205**. Applications will be considered at any time after January 15, 1995, as funding becomes available. NCSU is an AA/EOE. In its commitment to diversity and equity, NCSU seeks applications from women, minorities and the disabled.

**NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics expects to make a tenure-track faculty appointment in applied probability, subject to budgetary approval. Strong preference will be given to candidates whose interests lie in financial or biological applications of stochastic differential equations and control. The appointment will be at the rank of assistant professor or above, and will begin on July 1, 1995. Applicants should have substantial experience beyond the Ph.D. (i.e., tangible records of significant research contributions and outstanding teaching in postdoctoral appointments). The Department of Mathematics has an outstanding group of applied mathematicians, with interests in numerical analysis, control and optimization, differential equations, and probability and stochastic processes. Research in probability at NCSU is highly interdisciplinary, encompassing the work of members of the Mathematics, Statistics, Electrical and Computer Engineering, and Industrial Engineering Departments, as well as members of the interdisciplinary Programs in Operations Research and Biomathematics. The successful candidate will be expected to interact with applied probability researchers across the campus, and to participate in innovative instructional programs such as the Applied and Industrial Mathematics Seminar, in which students solve "real world" problems posed by scientists and engineers from industry and government labs. The successful candidate will have the opportunity to become a member of the Center for Research in Scientific Computation, which facilitates interdisciplinary graduate education and research collaboration among applied mathematicians, scientists, and engineers from academia, industry and government labs. Applicants should send a vita and have three letters of recommendation sent to: **Ben Fitzpatrick, Department of Mathematics, Box 8205, North Carolina State University, Raleigh, NC 27695-8205, (919) 515-7552, crsc@math.ncsu.edu**. The selection of candidates from the pool of completed applications will begin February 1, 1995. NCSU is an AA/EOE. In its commitment to diversity and equity, NCSU seeks applications from women, minorities, and the disabled.

**NORTH CAROLINA STATE UNIVERSITY - DEPARTMENTS OF MATHEMATICS AND PHYSICS - Mathematical Physics** - The Departments of Mathematics and Physics invite applications for a joint tenure track Assistant Professor appointment in the intersecting area between mathematics and theoretical physics. The NCSU math/physics community is very active and consists of mathematicians who are investigating gauge field theory, classical and quantum gravity, and symplectic techniques in physics, and physicists conducting research in relativistic quantum field theory, emphasizing quantum chromodynamics for hadronic systems, and theoretical high energy astrophysics. In addition, interactions and joint seminars are conducted with nearby UNC at Chapel Hill and Duke University. Candidates are expected to demonstrate excellence, documented in part by publications, and post-doctoral or equivalent research experience is desirable. Preference will be given to applicants having backgrounds in mathematical physics with expertise in the above mentioned areas. The successful candidate, aided by start-up funds, is also expected to interact and strengthen relations between the two departments. Teaching responsibilities will be split between both departments. For full consideration, applicants should submit by February 1, 1995 a curriculum vitae, visa status, description of research interests and at least three letters of recommendation, one addressing teaching qualifications, to: **Search Committee, c/o Jennifer Tuten, Box 8205, North Carolina State University, Raleigh, NC 27695-8202**. NCSU is an AA/EO Employer.

**NORTH DAKOTA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Tenure track position starting August 16, 1995. Minimum qualifications: earned doctorate in mathematics or mathematics education; strong background in mathematics beyond the masters level; potential for excellence in teaching and in research in mathematics education; commitment to mathematics education as evidenced by professional and scholarly activity; three years experience in full time secondary teaching (7th through 12th grade); demonstrated effective written and verbal communication skills; ability to work well with students and colleagues. Preferred qualifications: graduate level course work supervision in curriculum and methods; ability to write successful grant proposals; ability to conduct research in mathematics. Rank: Assistant Professor. Teaching load: at most 2 courses per semester. Send letter of application, resume, 3 letters of reference to: **Search Committee, Math Department, North Dakota State University, Fargo, ND 58105-5075**. Final screening will begin January 31, 1995. Women and minorities are particularly encouraged to apply. NDSU is an Affirmative Action/Equal Opportunity Employer.

**NORTHEAST MISSOURI STATE UNIVERSITY - DIVISION OF MATHEMATICS AND COMPUTER SCIENCE** - Applications are invited for an anticipated tenure-track position in Mathematics Education to begin in August 1995. Qualifications include an expected Ph.D. or Ed.D. completion date prior to August 31, 1995; and Ed.D. must be accompanied by a strong mathematics background. Candidates must be committed to the preparation of beginning secondary teachers and have the potential to continue the development of an excellent, innovative graduate program with this mission. Duties include supervising interns which requires substantial driving. Candidates should supply evidence of potential for excellence in teaching, advising and scholarship. To apply, send a vita, statement of teaching philosophy, transcripts of undergraduate and graduate study, and three letters of reference to: **Dr. Eric Howard, Division Head, Mathematics and Computer Science, Northeast Missouri State University, Kirksville, MO 63501**. Review of applications will begin January 16, 1995 and continue until the position is filled. Northeast is a highly selective public liberal arts and sciences university and an AA/EO/ADA Employer.

**NORTHEAST MISSOURI STATE UNIVERSITY - DIVISION OF MATHEMATICS AND COMPUTER SCIENCE** - Two positions are expected to be available in August 1995: tenure-track Assistant Professor of Mathematics, and temporary Instructor. The tenure-track position requires a scheduled Ph.D. completion date prior to August 31, 1995. Expertise in numerical analysis or computer science is preferred but not required. Duties include a teaching load of nine semester hours, research/scholarship, advising, and service. The position of Instructor requires at least a masters degree and involves a 12-hour teaching load. This is a one-year replacement for a faculty member on leave, and reappointment will depend on having other positions available. Evidence of potential for excellence in teaching is essential for both positions. To apply, send a vita, statement of teaching philosophy, transcripts of undergraduate and graduate study, and three letters of reference to: **Dr. Eric Howard, Division Head, Mathematics and Computer Science, Northeast Missouri State University, Kirksville, MO 63501**. Review of applications will begin January 16, 1995 and continue until the position is filled. Northeast is a highly selective public liberal arts and sciences university and an AA/EO/ADA Employer.

## ADVERTISEMENTS

**NORTHEASTERN UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Applications from outstanding candidates are invited for the Stone Professorship of Applied Statistics, effective September 1, 1995 at the Full Professor level. Necessary qualifications include a Ph.D. in mathematics or statistics, a distinguished career of teaching, proven ability to collaborate across disciplines, and internationally recognized research with extensive grant success. Northeastern University is an Equal Opportunity Employer. Applicants should be prepared to have letters of reference sent upon request and should send a vita, description of research, teaching, and collaborations. Nominations and applications should be sent to: **Donna Marlowe, Northeastern University, Department of Mathematics, 567 Lake Hall, Boston, MA 02115**, to arrive by January 15, 1995.

**NORTHERN MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Computer Science** - The Department of Mathematics and Computer Science invites applications for an anticipated tenure-track position in computer science at the rank of Assistant Professor beginning with the 1995-96 academic year. The successful applicant must possess a Ph.D. in computer science by August 1995, be prepared to teach the range of courses in an undergraduate curriculum as well as some undergraduate mathematics courses and demonstrate the potential to become an effective teacher and an active scholar. Applicants with specialized interest in any area of computer science are encouraged to apply; however, preference will be given to applicants whose special interests are in one or more of the following areas: networking, computer systems, and software design and engineering. Additional desirable qualifications include a willingness to contribute to the development of our computer science program and work with business and industry to develop career opportunities for our graduates. Applications should include a complete resume, letter of application, transcript, and names, addresses, and telephone numbers of three references. Nominations are welcomed, and should be submitted as early as possible. Application material should be sent to: **Terrance L. Seethoff, Head, Mathematics and Computer Science Department, Northern Michigan University, 1401 Presque Isle, Marquette, MI 49855-5340**, (906) 227-2020. E-mail Address: tseethof@nmu.edu. Inquiries may be sent to: **Meredith A. Kulisheck, Mathematics and Computer Science Department, Northern Michigan University, 1401 Presque Isle, Marquette MI 49855-5340**; e-mail address: mkulishe@nmu.edu. Applicants review will begin February 14, 1995, and will continue until the position is filled. Northern Michigan University does not discriminate on the basis of race, color, national origin, gender disability, or age in its programs or activities. Persons having civil rights inquiries may contact the Affirmative Action Office at (906) 227-2420. Persons having inquiries regarding American with Disabilities Act (ADA) may contact the ADA Coordinator at (906) 227-2970.

**OBERLIN COLLEGE - DEPARTMENT OF MATHEMATICS** - A full-time, tenure-track position beginning 1995-96. Responsibilities include teaching undergraduate courses (5/year), supervising honor students, academic advising, committee service, and sustained scholarly production. Ph.D. degree (in hand or expected by September 1995) required. All specialties considered but discrete areas such as combinatorics or graph theory particularly desired. Candidates must demonstrate potential excellence in teaching. Ability and willingness to teach elementary statistics also desirable. Send letter of application, curriculum vitae, academic transcripts, and 3 letter of reference to: **Susan Colley, Department of Mathematics, Oberlin College, Oberlin, OH 44074** by February 3, 1995. Use of AMS Application Cover Sheet appreciated. Oberlin College admitted women since its beginnings in 1833 and has been historically a leader in the education of blacks. AA/EOE.

**OBERLIN COLLEGE - DEPARTMENT OF MATHEMATICS** - A two-year, full-time, non-continuing position beginning the 1995-96 academic year. Responsibilities include teaching undergraduate courses (5/year), supervising honors students, academic advising, committee service, and sustained scholarly production. Ph.D. degree (in hand or expected by September 1995) required. All specialties considered, but those qualified and willing to teach elementary statistics preferred. Candidates must demonstrate potential excellence in teaching. Send letter of application, curriculum vitae, academic transcripts, and 3 letters of reference to: **Susan Colley, Department of Mathematics, Oberlin College, Oberlin, OH 44074** by February 3, 1995. Use of AMS Application Cover Sheet appreciated. Oberlin College admitted women since its beginnings in 1833 and has been historically a leader in the education of blacks. AA/EOE.

**OCCIDENTAL COLLEGE - DEPARTMENT OF MATHEMATICS - Tenure-track position** - Applications are invited for a tenure-track position in the Department of Mathematics at the Assistant Professor level. Occidental College is a selective college of the liberal arts and sciences which serves a diverse student body of 1,600 in an undergraduate teaching environment which encourages curricular innovation, interactive learning techniques, and methods and programs for providing students access to a range of professional and intellectual pursuits. The Mathematics Department consists of nine full-time faculty members. The normal teaching schedule is five semester courses per year, and faculty members receive a sabbatical semester every four years. The college is located in northeast Los Angeles, easily accessible to a number of research institutions. Salary is competitive. An excellent benefits package includes a choice of health care plans, tuition grants for children of faculty, and a mortgage subsidy program. Only applications which contain the following information will be considered: a current resume, three letters of reference (at least one evaluating teaching experience, performance, and potential), a statement of commitment to teaching in a liberal arts college environment, and a statement of professional goals including a description of current research plans. All materials must be received by January 23, 1995. Address all materials to: **Faculty Search Committee, Department of Mathematics, Occidental College, 1600 Campus Road, Los Angeles, CA 90041**. E-mail address: mathsearch@oxy.edu. Occidental College is committed to equity and excellence in education and strongly encourages applications from women and minorities.

**OHIO STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics of The Ohio State University hopes to have available several positions, both visiting and permanent, effective Autumn Quarter 1995. 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 Robert Brown, Department of Mathematics, The Ohio State University, 231 W. 18th Avenue, Columbus, OH 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.

**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 students. Teach undergraduate and master's level courses in mathematics and/or mathematical education. Appropriate scholarship required. **Requirements:** Candidates must have curriculum or program development experience pertaining to underprepared students, or have done research in this area. A doctorate in Mathematics Education with a Master's in Mathematics is preferred; however, a Ph.D. in Mathematics with considerable experience working with underprepared students at the pre-college or junior college level will be considered. 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: **Peter Turbek, Chair, Mathematics Search Committee, Department of Mathematics, Computer Science, and Statistics, Purdue University Calumet, Hammond, IN 46323-2094**. Review of applications will begin January 23, 1995, 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 Calumet is an Equal Opportunity/Affirmative Action Employer and applications from women and minorities are especially encouraged.

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## ADVERTISEMENT

**RENSSELAER POLYTECHNIC INSTITUTE - DEPARTMENT OF MATHEMATICAL SCIENCES** - Applications are invited for a tenured or tenure-track position in applied mathematics, to begin in September 1995. Requirements included a Ph.D., strong research and teaching potential for junior level appointments, and a demonstrated outstanding record of senior-level appointments. Applicants should submit a letter of application, a curriculum vitae, a description of research interests, and arrange to have three letters of recommendations sent to: **Mark H. Holmes, Chair, Department of Mathematical Sciences, Rensselaer Polytechnic Institute, Troy, NY 12180.**

**ROSE-HULMAN INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS** - We anticipate one or more tenure track openings at the Assistant Professor, or possibly higher, rank for the fall of 1995. Applicants should have a Ph.D. in mathematics or statistics, and a strong commitment to teaching at the undergraduate level, in addition to scholarly activity. Candidates with a background in applied mathematics or statistics are preferred, although exceptional candidates in other areas of mathematics will be considered. A letter of application, resume, and three letters of recommendation (with at least one of them addressing the applicant's teaching ability) should be sent to: **Professor Allen Broughton, Department of Mathematics, Rose-Hulman Institute of Technology, Terre Haute, IN 47803.** Applications from women and minorities are especially encouraged. We will begin reviewing applications March 1, 1995; later applications will be accepted until the positions are filled. Rose-Hulman Institute of Technology is an 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 1995. 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. Research interests of the department include the following: representation theory, automorphic forms, number theory, low dimensional topology, Riemann surfaces, and algebraic geometry. Applicants should arrange for a curriculum vitae and at least four letters of recommendation, including one which addresses teaching, to be sent to: **William Keigher, 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 in December 1994. Rutgers University is an Affirmative Action/Equal Opportunity Employer.

**SAINT JOSEPH'S UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - The Department of Mathematics and Computer Science seeks applications for a tenure track position at the Assistant Professor rank. Candidates should be able to teach a broad range of Computer Science courses at undergraduate and master's level, particularly architecture as well as mathematics courses at a lower level. A resume and 3 letters of recommendation should be sent to: **Dr. J.P.E. Hodgson, Chair, Math/CSC Department, Saint Joseph's University, 5600 City Avenue, Philadelphia, PA 19131.** Consideration of applications will begin on January 15, 1995. Applications from women and minorities are encouraged. Saint Joseph's University is an Equal Opportunity/Affirmative Action Employer.

**SAINT MICHAEL'S COLLEGE - DEPARTMENT OF MATHEMATICS** - Applications are invited for a tenure-track position at the Assistant Professor level to begin Fall 1995. Qualifications: Ph.D. in Mathematics or Statistics; evidence of the potential for excellence in undergraduate teaching; commitment to scholarly activity. Preference given to candidates with expertise in Statistics, Applied Mathematics, or fields which can be made accessible to undergraduates. Saint Michael's is a selective, Catholic liberal arts and sciences College of 1,700 students located near Burlington, Vermont. Duties include teaching 3 courses per semester, research or professional development in mathematics, and service to the department and the College. Send application, including resume and 3 letters of recommendation, at least one which addresses teaching, to: **Dr. Z. Kadas, Chair, Department of Mathematics, Saint Michael's College, Colchester, VT 05439.** Screening of applicants began December 15, 1994 and continues until the position is filled. Saint Michael's College is an affirmative Action/Equal Opportunity Employer.

**SANTA CLARA UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Tenure track position at the Assistant/Associate Professor level, beginning September 1995. Ph.D. Required. Fields considered: probability and statistics/applied mathematics. The Department is in a College of Arts and Sciences in a comprehensive university. The Department emphasizes excellent teaching and continuing research commitment from faculty. Undergraduate teaching only. The course load is seven courses per year on a quarter calendar; adjustments possible for research. Send to: **G.L. Alexanderson, Chair, Department of Mathematics, Santa Clara University, Santa Clara, CA 95033.** The location in the heart of "Silicon Valley" offers many opportunities for contact with local "high-tech" industry. Santa Clara University, a Jesuit institution emphasizing education in the liberal arts and sciences, is an Equal Opportunity/Affirmative Action Employer - Title IX M/F/H.

**SOUTHWEST MISSOURI STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Mathematics Education** - The Department of Mathematics at Southwest Missouri State University anticipates an Assistant Professor position in Mathematics Education beginning August 1995. This is a tenure-track position. Applicants must have a Ph.D. or Ed.D. in Mathematics Education, evidence of excellence in teaching, potential for research, commitment to professional activities, and effective communication skills. For this position, preference will be given to applicants with elementary or secondary experience, and research interest compatible with those of the current faculty. Duties include teaching, research, and service. Send application (resume, three letters of reference, transcripts, and a letter of interest) to: **Dr. Yungchen Cheng, Head, Department of Mathematics, Southwest Missouri State University, Springfield, MO 65804-0094.** To ensure consideration, application materials should be received by February 1, 1995. AA/EOE

**SUNY COLLEGE AT FREDONIA - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE** - The Department of Mathematics and Computer Science invites applications for a tenure-track position in computer science, preferably at the rank of full or associate professor. A Ph.D. in computer science is required. Candidates must exhibit a commitment to excellence in teaching and to continued scholarly activity along with demonstrated leadership in curriculum development. Candidates with experience or expertise in teaching courses in operating systems, software methodology or database management are likely to be ranked higher in our selection process. Review of applications will commence February 15, 1995 and will continue until the position is filled. Fredonia actively encourages applications from women and minority candidates and is an Affirmative Action/Equal Opportunity Employer. Send a letter of application, a curriculum vita and three letters of reference to: **Computer Science Search Committee, Mathematics and Computer Science, SUNY College at Fredonia, Fredonia, NY 14063; cssearch@cs.fredonia.edu.**

**SUNY AT STONY BROOK - DEPARTMENT OF MATHEMATICS** - The Department anticipates the possibility of a senior level appointment starting Fall 1995. All areas of mathematics considered, but those closely related to the areas of research at Stony Brook will be given preference. Candidates must have achieved positions of leadership in their field, and must have excellent teaching credentials. Please send curriculum vitae and have at least 4 letters of recommendation sent to: **the Appointments Committee, SUNY at Stony Brook, Department of Mathematics, Stony Brook, NY 11794-3651.** Application Deadline: February 28, 1995 (on rolling basis thereafter). For more information, write, or preferably send e-mail (the body of the message may be blank). E-mail Address: hiring@math.sunysb.edu, **Subject: INFORMATION.** SUNY at Stony Brook is an Equal Opportunity/Affirmative Action Employer.

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## ADVERTISEMENTS

**TEXAS TECH UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics anticipates two tenure track appointments in mathematics or statistics at the assistant professor level, beginning Fall 1995. To qualify, applicants must: 1. have an earned doctorate by the starting date; 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, Hiring Committee, Department of Mathematics, Texas Tech University, P.O. Box 41042, Lubbock, TX 79409.** Texas Tech is an Equal Opportunity/Affirmative Action Employer.

**TRENTON STATE COLLEGE - DEPARTMENT OF MATHEMATICS AND STATISTICS** - Anticipated Faculty Vacancy for Fall 1995. Tenure track position at the Assistant Professor level (salary \$33,732-\$50,609). Required: Ph.D. in Statistics or Probability; demonstrated commitment to quality teaching; strong research potential. Preference will be given to candidates with post-doctoral experience in teaching and research. Send vita and three letters of recommendation including at least one letter regarding candidate's teaching ability to: **Chair, Search Committee, Department of Mathematics and Statistics, Trenton State College, CN4700 Hillwood Lakes, Trenton, NJ 08650-4700.** Deadline for application: March 1, 1995; review process will begin February 1, 1995. Non-US citizens must include a statement of current visa status. The Department currently enrolls over 250 majors in Mathematics, Mathematics Education and Statistics. To enrich education through diversity, TSC is an AA/EOE.

**TRINITY COLLEGE, HARTFORD - DEPARTMENT OF MATHEMATICS** - Applications are invited for a tenure-track assistant professorship, duties of which commence late August 1995. Requirements: Ph.D. in mathematics, strong evidence of research potential and successful classroom instruction, and commitment to undergraduate education in a liberal arts setting. Preference given to specialists in algebra, logic, or geometry. Computer expertise and experience in laboratory calculus settings are desirable. Send a cover letter, curriculum vitae, statements on teaching and research interests, and three letters of reference (at least one of which addresses teaching) to: **Search Committee, Department of Mathematics, Trinity College, Hartford, CT 06106.** We also anticipate filling two one-year slots, specialization open. Interested parties should so indicate in the cover letter, and check the e-MATH listings in early December. Review of applications will begin January 9, 1995, and will continue until positions are filled. Trinity College is an Equal Opportunity/Affirmative Action Employer. Women and members of minority groups are especially encouraged to apply.

**TRINITY COLLEGE, WASHINGTON, D.C. - DEPARTMENT OF MATHEMATICS** - Tenure Track Assistant Professor position, contingent upon funding, starting August 1995. Qualifications include Ph.D. in the mathematical sciences and a strong commitment to teaching in a liberal arts setting. Background in statistics preferred; background in computer science desirable. Send cover letter, resume, a statement on teaching mathematics in a liberal arts setting, and 3 letters of recommendation by February 25, 1995 to: **Mathematics Search Committee, Department of Human Resources, Trinity College, 125 Michigan Avenue, N.E., Washington, DC 20017.** Trinity College is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and minority candidates.

**UNITED STATES MILITARY ACADEMY - DEPARTMENT OF MATHEMATICAL SCIENCES - Assistant Professor** - One position anticipated. A 3-year, non-renewable (non-tenure track) appointment, to begin 1 July, 1995. Applicant must: (i) hold an earned doctorate in mathematics, applied mathematics, operations research, statistics, or mathematics education, (ii) possess the ability to teach mathematics courses in the USMA core program (elementary discrete dynamical systems, calculus, differential equations, linear algebra, probability and statistics), (iii) have the desire and ability to participate in the Center for Faculty Development, a three-year teaching-research program, and (iv) have the desire to contribute to USMA and cadet environment as a role model for future leaders of the nation. In order to receive full consideration, applications must contain a curriculum vitae, transcripts, a statement of teaching philosophy and career goals, and 3 letters of recommendation. The Ph.D. must be completed by time of appointment. Applicants must be citizens of the United States. Closing date is 1 December, 1994. Send applications to: **U.S. Military Academy, Attention: Ms. V. Nunally, West Point, NY 10996-1995; (914) 938-2212/2215.**

**THE UNIVERSITY OF ALABAMA AT BIRMINGHAM - DEPARTMENT OF MATHEMATICS** - Applications are invited for an anticipated tenure track position at the junior level to begin September 1995. Applicants should have strong research potential as well as a commitment to teaching undergraduate and graduate students. Applicants with post-doctoral experience are especially welcome. Preference will be given to candidates whose research is compatible with that of our current faculty: this includes dynamical systems, differential geometry, mathematical physics, nonlinear analysis, partial differential equations including numerical p.d.e., and topological dynamics. To apply please send a curriculum vitae, selected reprints, and at least three letters of reference. Send applications to: **Search Committee, Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL 35294-1170.** University of Alabama at Birmingham is an Affirmative Action/Equal Opportunity Employer.

**UNIVERSITY OF CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS Temporary Positions** - Subject to availability of resources and administrative approval: (1) **Two E.R. Hedrick Assistant Professorships.** Applicants must show very strong promise in research and teaching. Salary \$39,600. Three year appointment. Teaching load: four quarter courses per year, which may include one advance course in the candidate's field. Preference will be given to applications completed by January 1, 1995. (2) **One or two Research Assistant Professorships in Computational and Applied Mathematics.** Applicants must show very strong promise in research and teaching. Salary \$39,600. On year appointment, probably renewable up to two times. Teaching load: at most four quarter courses per year, which may include one advanced course in the candidate's field. Preference will be given to applications completed by January 1, 1995. (3) **One Adjunct Assistant Professorship or Lectureship in the Program in Computing (PIC).** Applicants for the Adjunct position must show very strong promise in teaching and research in an area related to computing. Teaching load: four quarter programming courses and a more advance quarter courses per year. One year appointment, probably renewable once. Salary range \$39,600-\$47,000. Applicants for the Lectureship must show very strong promise in the teaching of programming. An M.S. in Computer Science or equivalent degree is preferred. Teaching load: six quarter programming courses per year. One-year appointment, probably renewable one or more times, depending on the needs of the program. Salary is \$34,248 or more, depending on experience. Preference will be given to applications completed by February 1, 1995. (4) **An Adjunct Assistant Professorship.** One year appointment, probably renewable once. Strong research and teaching background required. Salary \$35,900 - \$40,500. Teaching load five quarter courses per year. (5) **Possibly one or more positions for visitors.** To apply, send electronic mail to: [search@math.ucla.edu](mailto:search@math.ucla.edu) or write to: **John B. Garnett, Chair, Department of Mathematics, University of California, Los Angeles, CA 90024-1555.** Attn: Staff Search. UCLA is an Equal Opportunity/Affirmative Action Employer.

**UNIVERSITY OF COLORADO AT DENVER - DEPARTMENT OF MATHEMATICS** - Applications are invited for an entry level tenure track position to begin August 1995. Applicants are expected to show strong potential for research and teaching and have a commitment to professional service. Applicants must have, or expect to receive by August, a Ph.D. in mathematics or a related discipline that covers at least one of: computational mathematics, discrete mathematics, engineering mathematics, operations research, probability, and statistics. We are particularly seeking someone that interfaces operations research and computational or discrete mathematics, notably in optimization. To apply, send a current vita, list of publications, a statement of research plans and goals, a statement of teaching philosophy, and arrange to have three letters of recommendation sent to: **Harvey Greenberg, Search Committee Chair, Mathematics Department - Campus Box 170, University of Colorado at Denver, P.O. Box 173364, Denver, CO 80217-3364 (fax: 303-556-8550).** We shall begin screening applications January 15, 1995, and we shall continue to accept applications until the position is filled. UCD is an Equal Opportunity Employer; women, minorities, and people with disabilities are encouraged to apply.

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## ADVERTISEMENT

**UNIVERSITY OF CONNECTICUT - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics at the University of Connecticut invites applications for an anticipated tenured or tenured-track position at the rank of assistant or associate professor beginning September 1995. In exceptional cases, an appointment at a higher rank may be considered. Candidates should have a strong research record as well as a commitment to excellence in teaching. Duties include the guidance and performance of research, and teaching at both the undergraduate and graduate levels. Salary commensurate with experience. Screening of applications will begin immediately and continue until the position is filled. For full consideration send resume and arrange for at least three letters of recommendation to be sent 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 #5A128)

**UNIVERSITY OF GEORGIA - DEPARTMENT OF MATHEMATICS** - Applications are invited for four postdoctoral positions (with title Visiting Assistant Professor) to begin fall term of the 1995-96 academic year. Two of the appointments will be for one year, and two for two years. Two of these positions will be in number theory, the other two may be in any other area, though applicants are encouraged to identify a member of the current faculty with whom they would like to work. Applicants must exhibit the potential for significant research, and the communication skills necessary to be an excellent teacher. Women and minorities are especially welcome in our department. Duties consist of teaching one course per quarter and conducting original research. To apply, please arrange for a curriculum vitae with a list of publications, and four letters of recommendation to be sent to: **John G. Hollingsworth, Head, Department of Mathematics, University of Georgia, Athens, GA 30602**. We encourage early applications, though those received by February 1, 1995 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 assistant professor level for the 1995-96 academic year. The principal qualification is excellence in teaching and research. Women and minorities are especially 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**. We encourage early applications, although those received by February 1, 1995 are assured of consideration. UGA is an Equal Opportunity/Affirmative Action Employer.

**UNIVERSITY OF IDAHO, MOSCOW - DEPARTMENT OF MATHEMATICS AND STATISTICS** - The Department of Mathematics and Statistics has an opening for a tenure track faculty position at the rank of Assistant Professor of Mathematics, with a specialization in one of the following areas: Algebra, Applied Probability, or Mathematics Education, beginning August 1995. The responsibilities for this position include teaching two to three undergraduate or graduate mathematics courses per semester in addition to conducting research in the area of specialization leading to publications in scholarly journals. Active participation in the Ph.D. programs in mathematics is also expected. Applicants must have a Ph.D. degree in mathematics or mathematics education with a broad background and research specialization in Algebra, Applied Probability or Mathematics Education. Strong research promise and excellent communication skills for teaching undergraduate mathematics courses. To apply, please send curriculum vita, three letters of reference, and transcripts to: **Erol Barbut, Chair, Department of Mathematics, University of Idaho, Moscow, ID 83844-1103**. The closing date is February 1, 1995 (May be extended until a suitable pool of applicants is obtained.) Women and minorities are especially encouraged to apply.

**THE UNIVERSITY OF IOWA - THE DEPARTMENT OF MATHEMATICS** - The Department of Mathematics invites applications for the following positions: Pending availability of funds, one or more visiting positions for all or part of the 1995-96 academic year. Selection will be based on research expertise and teaching ability. Preference will be given to applicants whose scholarly activity is of particular interest to members of the current faculty. Women and minority candidates are especially urged to apply for the above positions. The University of Iowa welcomes the employment of professional couples on its faculty and staff, permits the appointment of faculty couples within the same department, and permits the sharing of a single appointment by a faculty couple. Formal screening will begin January 16, 1995; applications will be accepted until the positions are filled. To apply, send a complete vita and have three letters of recommendation sent to: **Professor Bor-Luh Lin, Chair, Department of Mathematics, The University of Iowa, Iowa City, IA 52242**. The University of Iowa is an Equal Employment Opportunity and Affirmative Action Employer.

**UNIVERSITY OF KENTUCKY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics at the University of Kentucky invites applications for at least two tenure-track assistant professorships to begin in the Fall 1995. In particular, we are interested in applicants in the areas of numerical analysis, PDE's, topology, and combinatorics/combinatorial optimization. Send application materials to: **Chair of the Recruiting Committee, Department of Mathematics, 715 POT, University of Kentucky, Lexington, KY 40506**, or by e-mail to [recruit@ms.uky.edu](mailto:recruit@ms.uky.edu).

**UNIVERSITY OF MARYLAND BALTIMORE COUNTY - DEPARTMENT OF MATHEMATICS AND STATISTICS** - The Department of Mathematics and Statistics invites applications for an anticipated tenure track Assistant Professor position in STATISTICS beginning Fall 1995. Only candidates in the areas of applied statistics such as statistical computing, industrial statistics, biostatistics, and applied probability need to apply. A strong background in applied research, commitment to excellence in teaching, and a genuine interest in developing inter-disciplinary innovative applications both on and off campus are required. Please address applications with vita, transcripts, reprints and preprints to: **Search Committee, Department of Mathematics and Statistics, University of Maryland Baltimore County, Baltimore, MD 21228**. This is no need to arrange for recommendation letters now. The deadline for applications is February 15, 1995. AA/EOE.

**UNIVERSITY OF MARYLAND, COLLEGE PARK - DEPARTMENT OF MATHEMATICS** - Applications are invited for possible tenure, tenure track, and multiyear post-doctoral positions in all areas of mathematics (pure, applied, and statistics) to begin in August 1995. Rank and salary depend on qualifications. Joint appointments with other units, in particular with the Institute for Physical Sciences and Technology, are possible. An exceptionally strong research program is necessary. Send an AMS Application Cover Sheet, Curriculum Vitae, description of current research, and a self-addressed envelope, and arrange for at least three letters of recommendation to be sent to: **the Hiring Committee, Department of Mathematics, University of Maryland, College Park, MD 20742**. E-mail: [dept@math.umd.edu](mailto:dept@math.umd.edu). Applications should be received by February 1, 1995. The University of Maryland is an Equal Opportunity/Affirmative Action Employer.

**UNIVERSITY OF MICHIGAN-DEARBORN, DEPARTMENT OF MATHEMATICS AND STATISTICS - Math Education Position** - The University of Michigan-Dearborn plans to fill a tenure track position in math education starting in September 1995. The position is at the Assistant or Associate Professor level and requires a doctorate in math education. A focus in early elementary or in elementary math methods, as well as teaching experience in grades K-8 is preferred. Demonstrated capability in teaching courses in math education at the university level is required, as well as demonstrated research capability in math education. The teaching load is 9 credit hours per term, and includes teaching general lower division math courses. To apply, send vita, transcript, and have 3 letters of recommendation sent to: **Ronald P. Morash, Chairman, Department of Mathematics and Statistics, University of Michigan-Dearborn, 4901 Evergreen Road, Dearborn, MI 48128**. To ensure full consideration, all applications materials must be received by January 15, 1995. The committee will continue to accept application materials until the position is filled. The University of Michigan-Dearborn is dedicated to the goal of building a culturally diverse and pluralistic faculty committed to teaching and working in a multicultural environment, and strongly encourages applications from minorities and women. The University of Michigan-Dearborn is an Equal Opportunity/Affirmative Action Employer.

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## ADVERTISEMENTS

**UNIVERSITY OF NORTHERN COLORADO - DEPARTMENT OF MATHEMATICAL SCIENCES** - As part of UNC's commitment to foster ethnic and gender diversity, the Department of Mathematical Sciences is soliciting applications under our TARGET OF OPPORTUNITY program for a tenure track assistant professorship in mathematics. We require a Ph.D. in mathematics, a strong commitment to teaching, continued scholarly activity, willingness to participate in our Educational Mathematics Ph.D. program, calculus and algebra reform and our teacher education programs. The teaching load is 9 hours/semester; entry level salary is \$31,000. Send letter of interest, graduate transcripts (unofficial are acceptable), statement of teaching philosophy and three letters of recommendation (one must address teaching) to: **Professor Richard Grassl, Mathematical Sciences, Chair, Search Committee, University of Northern Colorado, Greeley, CO 80639**. Applications received by January 20, 1995, will receive fullest consideration. Filling this position is contingent upon funding.

**THE UNIVERSITY OF OKLAHOMA - DEPARTMENT OF MATHEMATICS** - Applications are invited for two anticipated visiting positions at the Assistant Professor level for the 1995-96 academic year. Pending performance evaluation and availability of funds, either position could be extended through the 1996-97 academic year. The salary is competitive and based on prior experience. Duties consist of teaching two courses per semester and carrying out research on an interactive basis with the Department's permanent faculty. An earned doctorate, potential or demonstrated excellence in research, and prior successful undergraduate teaching experience are required. Candidates from all areas of mathematics will be given full consideration, but preference will be given to candidates whose research interests overlap with those of the permanent faculty. The Department has 30 regular faculty members and approximately 60 graduate students. Virtually all of our faculty members have active research programs, and the scholarly environment of the Department is further enhanced by a conveniently located branch library and a regular series of colloquium lectures funded by a Departmental endowment. Candidates should send a cover letter, vita, and direct three letters of reference (with at least one evaluating the candidate's teaching abilities) to: **Visitor Search Committee, Department of Mathematics, University of Oklahoma, Norman, OK 73019-0315**, Phone: 405-325-6711. Screening will begin on March 15, 1995, and continue until both positions are filled. The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply. OU has a policy of being responsive to the needs of dual-career couples.

**UNIVERSITY OF OREGON - DEPARTMENT OF MATHEMATICS** - Postdoctoral position in pure mathematics or mathematical statistics beginning September 1995. Appointment will be made for two years, with a third year possible if funding permits. This is a research position with a reduced teaching load. Qualifications are a Ph.D. in mathematics within the last two years, research accomplishment, and evidence of teaching ability. Preference will be given to candidates with research interests that complement those currently represented. Competitive salary and excellent fringe benefits. Send complete resume and three letters of recommendation (applicants who applied for our regular tenured position will be automatically considered for this position, do not send new materials). Send to: **Gary M. Seitz, Head, Department of Mathematics, University of Oregon, Eugene, OR 97403**. Closing date is February 1, 1995. Women and minorities are encouraged to apply. The University of Oregon is an EO/AA/ADA Institution committed to cultural diversity.

**UNIVERSITY OF PENNSYLVANIA - DEPARTMENT OF MATHEMATICS - Junior Positions in Mathematics** - Several positions will be available beginning July 1, 1995. Candidates should have strong research credentials and be recognized as potentially successful teachers of undergraduate and graduate students. Send resume and three letters of reference to: **Personnel Committee, Department of Mathematics, University of Pennsylvania, Philadelphia, PA 19104-6395**. These are due by December 15, 1994. The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.

**UNIVERSITY OF PENNSYLVANIA - DEPARTMENT OF MATHEMATICS - Tenure Positions in Mathematics** - We anticipate that commencing July 1, 1995, there may be one or more tenure positions available in the following areas: algebra, analysis, geometry/topology and discrete mathematics. These positions are for candidates with outstanding, internationally recognized research achievements who are successful teachers of undergraduate and graduate students. Rank and salary will depend upon experience. Write to: **Personnel Committee, Department of Mathematics, University of Pennsylvania, Philadelphia, PA 19104-6395**. The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.

**UNIVERSITY OF SASKATCHEWAN - DEPARTMENT OF MATHEMATICS AND STATISTICS** - The Department of Mathematics and Statistics invites applications for a tenure-track Assistant Professorship in Geometry or Topology (95T 2-15-13, subject to budgetary approval) beginning July 1, 1995. Candidates must have a very strong research record and have demonstrated excellence in teaching. Applicants should send a current curriculum vitae and arrange for three referees to send letters of reference to: **the Head, Department of Mathematics and Statistics, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0, Canada**. For full consideration, applicants' files should be complete by January 15, 1995. 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 and welcomes applications from all qualified candidates. Women, people of aboriginal descent, members of visible minorities, and people with disabilities are invited to identify themselves as members of these designated groups on their applications.

**UNIVERSITY OF SOUTH FLORIDA - DEPARTMENT OF MATHEMATICS** - We invite applications for a tenure-track assistant professorship in the area of topology/geometry effective August 1995, contingent on availability of funds. Applicants must have or expect to have a Ph.D. in mathematics upon assuming the position, and must show evidence of strong research potential. The duties include research activity and both graduate and undergraduate teaching. The University of South Florida is the second largest state university in the Southeast, with more than 36,000 students enrolled. The Mathematics Department offers B.A., M.A., and Ph.D. degrees. Further information on the Department can be found on the home page of <http://www.math.usf.edu>. To apply, send a letter of application and a curriculum vitae, and arrange to have at least three letters of recommendation sent to: **Dr. W. Richard Stark, Chair, Department of Mathematics, University of South Florida, 4202 East Fowler Avenue, PHY 114, Tampa, FL 33620-5700**. E-mail: [mathdept@math.usf.edu](mailto:mathdept@math.usf.edu) Fax: (813) 974-2700. Applications, which may be submitted by e-mail or fax, must be submitted by January 20, 1995. USF is an Equal Opportunity/Affirmative Action Employer and follows ADA guidelines. Applicants who need a reasonable accommodation because of a disability in order to participate in the application/selection process, must notify Dr. W. Richard Stark at the above address five days in advance.

**UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics anticipates several visiting and post-doctoral positions. Applicants must show strong research promise and possess excellent communications skills for teaching undergraduate mathematics courses. To apply, please submit the following materials in a single package: letter of application (including your e-mail address and fax number), the AMS Application Cover Sheet, and a curriculum vitae. Candidates for postdoctoral positions should also arrange to send 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**. Review of applications will begin January 15, 1995. USC is an Equal Opportunity/Affirmative Action Employer. Women and minorities are especially encouraged to apply.

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

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## ADVERTISEMENTS

**UNIVERSITY OF TEXAS AT AUSTIN - DEPARTMENT OF MATHEMATICS** - Openings for Fall 1995 include five Instructorships, two of which have R.H. Bing Faculty Fellowships attached to them, and two or more positions at the Assistant Professor 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, 1995. Preference will be given to those whose doctorates were conferred in 1994 or 1995. 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. Each R.H. Bing Fellow holds an Instructorship in the Mathematics Department, with a teaching load of two courses in one semester and one course in the other. The combined Instructorship-Fellowship stipend for nine-months is \$36,000, which is supplemented by a travel allowance of \$1,000. Pending satisfactory performance of teaching duties, the Fellowship can be renewed for two additional years. Applicants must show outstanding promise in research. Bing Fellowship applicants will automatically be considered for other departmental openings at the post-doctoral level, so a separate applications for such a position is unnecessary. An applicant for an Assistant Professor position must present a record of exceptional achievement in her or his research area and must demonstrate a proficiency at teaching. In addition to the duties indicated above for instructors, such an appointment will typically entail the supervision of M.A. or Ph.D. students. The salary will be commensurate with the qualifications of the individual who fills it. Those wishing to apply for the aforementioned Instructor/Bing Fellowship positions are asked to send a vitae and a brief research summary to: **The University of Texas at Austin, Department of Mathematics, Austin, TX 78712, c/o I-Recruiting Committee** or to the e-mail address, [i-recruit@math.utexas.edu](mailto:i-recruit@math.utexas.edu). Those wishing to apply for the aforementioned Assistant Professor positions are asked to send a vitae and brief research summary to the above address, c/o AP-Recruiting Committee, or to the e-mail address [ap-recruit@math.utexas.edu](mailto:ap-recruit@math.utexas.edu). In both cases application via e-mail are encouraged. Applications must be supported by three or more letters of recommendation, at least one of which speaks to the applicants' teaching credentials. Please include in your vitae one primary and one or more secondary two digit AMS subject classification numbers that describe your research interests. The screening of applications will begin on December 1, 1994. The University of Texas at Austin is an Equal Opportunity Employer. Qualified women and minority group members are urged to apply.

**UNIVERSITY OF TORONTO - DEPARTMENT OF COMPUTER SCIENCE - Research Associates and Limited Term Faculty Positions** - The Department of Computer Science, University of Toronto, has received funding from various granting agencies. Funding permitting, Research Associate positions and Limited Term Faculty positions are available in all areas of Computer Science. Applications should be sent by January 31, 1995 to: **Professor Wayne H. Enright, Chairman, Department of Computer Science, University of Toronto, Toronto, Ontario, M5S 1A4 Canada**. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada. In accordance with its Employment Equity Policy, the University of Toronto encourages applications from qualified women or men, members of visible minorities, aboriginal peoples, and persons with disabilities.

**UNIVERSITY OF TORONTO - DEPARTMENT OF COMPUTER SCIENCE - Postdoctoral Fellowships** - The Department of Computer Science, University of Toronto, has received funding from various granting agencies. Funding permitting, Postdoctoral Fellowships are available in all areas of Computer Science. Applications, including a curriculum vitae and the names and addresses of three references, should be sent by January 31, 1995 to: **Professor Wayne H. Enright, Chairman, Department of Computer Science, University of Toronto, Toronto, Ontario, M5S 1A4 Canada**.

**UNIVERSITY OF WISCONSIN, EAU CLAIRE - MATHEMATICS DEPARTMENT** - Tenure track and temporary positions in Mathematics. Starting August 1995. For one tenure track position, a Ph.D. in mathematics education is required with an emphasis in elementary or middle school mathematics education preferred. Ability to teach according to NCTM standards desired. For other positions, preference will be given to applicants with specialties in algebra or geometry. Ability to contribute to computer science offerings and to the use of technology in teaching will also be considered. All position responsibilities include teaching undergraduate courses, scholarly activity, academic advising, and service. Evidence of excellent teaching potential is required. Send AMS Application Cover Sheet, 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 all application materials is January 15, 1995. The University of Wisconsin, Eau Claire is an Equal Opportunity/Affirmative Action Employer.

**UNIVERSITY OF WISCONSIN-PLATTEVILLE - DEPARTMENT OF MATHEMATICS** - Two assistant professor tenure-track positions available August 27, 1995. **Position 1:** Ph.D. or Ed.D. in mathematics education or Ph.D. in mathematics with considerable background in mathematics education is required. Must have undergraduate degree in mathematics, and course work equivalent to Masters Degree in mathematics is preferred. Must have thorough knowledge of education literature and teaching practices. Primary responsibilities include teaching integrated content and method courses for prospective elementary teachers, active involvement with elementary and secondary teachers in southwest Wisconsin, seeking grants for the purpose of improving mathematics instruction in the elementary and secondary schools, being professionally active within the mathematics education community, and teaching other curriculum offerings. **Position 2:** Ph.D. in statistics or mathematics is required. Preference will be given to candidates with emphasis in statistics or applied mathematics. All candidates must be active in university service and furnish evidence of excellent teaching experience, excellent communicative skills, scholarly activity, and eligibility for continuing employment. Salary: approximately \$34,000 depending upon qualifications and experience. The university enrolls approximately 5,000 students with programs in agriculture, the arts, business, communication, education, engineering, the humanities, industry, mathematics (21 faculty), and the sciences. UW-Platteville is an Affirmative Action, Equal Opportunity Employer. Women and minorities especially are encouraged to apply. The names of all applicants who do not request confidentiality, and of all finalists for the position, will be released upon written request. Applicants should send letter of application (including eligibility for employment), curriculum vita, transcript(s), and three letters of recommendation to: **Dr. Allan Richert, Chair, Department of Mathematics, University of Wisconsin-Platteville, Platteville, WI 53818**. Deadline: January 20, 1995.

**WASHINGTON STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - The Department of Mathematics invites applications for a tenure track Assistant Professorship position starting August 16, 1995 from individuals specializing in discrete mathematics with an active research interest in theoretical, algorithmic and applicable aspects of combinatorics, combinatorial optimization, or optimization over graphs. Applicants should have significant research accomplishments and strong commitment to teaching. Ph.D. required. Applicants should send curriculum vitae, statement of research interests, application cover sheet (see recent AMS Notices), and arrange for three letters of reference to be sent to: **Professor Bill Webb, Search Committee, Department of Pure & Applied Mathematics, Washington State University, Pullman, WA 99164-3113**. Screening of applications begins February 10, 1995. WSU is an EO/AA Educator and Employer. Protected group members are encouraged to apply.

**WAYNE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS** - Applications are invited for an anticipated tenure-track position at the rank of Assistant or Associate Professor. There is also the possibility of Visiting positions for 1995-96. Ph.D. in mathematics required. Excellence in both research and teaching is expected. Applications should include a signed, detailed vita, description of current research interests, and three letters of recommendation, at least one of which addresses the applicant's teaching. Sent to: **Pao-Liu Chow, Chair, Wayne State University, Department of Mathematics, Detroit, MI 48202**. Wayne State University is an Equal Opportunity/Affirmative Action Employer and applications from female and minority candidates are particularly encouraged.

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## ADVERTISEMENTS

**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 1995. 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 scholarly activity 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 continuing scholarly activity with significant professional impact. The Department offers a Ph.D. in mathematics, and a Masters degree which includes a program for secondary educators. The Mathematics Department has available the latest in computer software and technological resources in support of instruction, distributed in several laboratories. Applicants should submit a curriculum vita and a statement of interest and qualifications, and have three letters of reference sent to: **Mathematics Education Search Committee, 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 February 15, 1995. WVU is an Affirmative Action/Equal Opportunity Employer. Qualified women and minorities are encouraged to apply.

**YORK UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Faculty Position in Statistics** - Applications are invited for a tenure track appointment at the Assistant Professor level in the Department of Mathematics and Statistics, to commence July 1, 1995, subject to budgetary approval. The successful candidate will be expected to have established a record of research excellence in statistics, and must have a completed Ph.D. and proven teaching abilities. The application deadline is 30 January 1995. Applicants should send resumes and arrange for at least three letters of recommendation to be sent directly to: **Georges Monette, Chair, Department of Mathematics and Statistics, York University, 4700 Keele Street, North York, Ontario, M3J 1P3 Canada** Fax: (416)-736-5757; E-mail: chair@mathstat.yorku.ca. York is implementing a policy of employment equity, including affirmative action for women faculty. The Department of Mathematics and Statistics encourages applications from qualified women and men, members of racial minorities, people with disabilities and Native Peoples. In accordance with Canadian immigration requirements, preference will be given to Canadian citizens and permanent residents.



## NEW MEXICO STATE UNIVERSITY

## DEPARTMENT OF MATHEMATICAL SCIENCES

New Mexico State University in Las Cruces has:

- 29 energetic mathematics faculty who are active in research and in education reform.
- 36 mathematics graduate students, 11 of whom are female.
- teaching assistantships available.
- about 15,000 students altogether, with 5,400 from minority groups.
- good weather, mountains, and red or green chile.

Fellowships may also be available, depending on a student's qualifications and on the availability of funds.

For further information, please write to the Graduate Committee at the Department of Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003.

## ASST OR ASSOCIATE PROFESSOR

The Dept of Mathematics anticipates making one or more tenure track appointments for Fall 1995 at the level of Asst or Associate Professor. Applicants must have a Ph.D in mathematics and at least 1 year experience in teaching and research after the doctorate. Potential for outstanding achievements in research and evidence of excellence in teaching are expected. Preference will be given to applicants in active areas of departmental research: algebra and algebraic geometry, computational group theory, combinatorial and differential geometry, dynamical systems, partial differential equations, probability, statistics, and topology. Position requires both the interest and skills for effective interaction with students of multi-ethnic backgrounds in an urban setting. Women and minority candidates are particularly encouraged to apply.

The closing date for applications is February 1, 1995. Applicants should submit an AMS Application Cover Sheet, a resume, a description of current research interests, and a statement of teaching philosophy. Applicants should also arrange for 4 letters of reference, including one relating to teaching ability, to be sent to: **Professor Jack Barshay, Chairman, Department of Mathematics.**

**CITY COLLEGE OF NEW YORK**  
138th Street and Convent Avenue  
New York, NY 10031



The City College of New York has a strong institutional commitment to the principle of diversity. In that spirit, we are particularly interested in receiving applications from a broad spectrum of people, including women and under-represented groups. Reasonable accommodations provided for individuals with disabilities upon request.

## LAST CHANCE TO RENEW YOUR MEMBERSHIP FOR 1994-95!

AWM's membership year officially started OCTOBER 1, 1994. Those members who have not sent in their 1994-95 membership dues will receive a 2nd renewal notice in January.

If you do not receive your renewal notice in the mail, you can still send your dues in **NOW** using the form on **PAGE 47** (see form for dues structure).

Unfortunately, if we do not receive your 1994-95 dues by February 1st, then this will be the **LAST ISSUE** of the newsletter you will receive.

Also, we could always use your help in recruiting new members. Copy our membership form on **PAGE 47** and encourage a colleague to join AWM.

**SEND MEMBERSHIP DUES AND/OR CONTRIBUTIONS TO:**  
AWM Membership, 4114 Computer and Space  
Sciences Bldg., University of Maryland, College  
Park, MD 20742-2461. Questions: 301-405-7892,  
awm@math.umd.edu

# ASSOCIATION FOR WOMEN IN MATHEMATICS

## 1994/1995 MEMBERSHIP FORM

LAST NAME	FIRST NAME	M.I.
ADDRESS		

AWM's membership year is from October 1, 1994 to September 30, 1995. Please fill-in this information and return it along with your DUES to:

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

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

**Home Phone:** \_\_\_\_\_ **Work Phone:** \_\_\_\_\_

**E-mail:** \_\_\_\_\_

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

**PROFESSIONAL INFORMATION:**

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

**If student, GRADUATE or UNDERGRADUATE (circle one)**

**DEGREES EARNED:**

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

### INDIVIDUAL DUES SCHEDULE

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

REGULAR INDIVIDUAL MEMBERSHIP.....	\$ 40	_____
2ND FAMILY MEMBERSHIP..... (NO newsletter) Please indicate regular family member: _____	\$ 30	_____
CONTRIBUTING MEMBERSHIP..... Indicate if you wish for this contribution to remain anonymous: _____	\$100	_____
RETIRED or PART-TIME FACULTY (circle one).....	\$ 20	_____
STUDENT or UNEMPLOYED MEMBERSHIP (circle one).....	\$ 10	_____
ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO).... <b>FOR ADDITIONAL POSTAGE ADD</b>	<b>\$ 8</b>	_____

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

### INSTITUTIONAL DUES SCHEDULE

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

INSTITUTIONAL MEMBERS RECEIVE TWO FREE JOB ADVERTISEMENTS (up to 8 lines) IN OUR NEWSLETTER PER YEAR. Ad deadlines are the 1st of every EVEN month. All institutions advertising in the *Newsletter* are Affirmative Action/Equal Opportunity Employers. Also, Institutions have the option to nominate students to receive the newsletter as part of their membership. NOTE: List names and addresses of student nominees on opposite side or attach separate page. [ADD \$10 (\$18 for foreign members) for each additional student add-on over initial 10 students for Category I; over initial 3 students for Category II]

**TOTAL DUES ENCLOSED**      \$ \_\_\_\_\_

**ADDRESS CORRECTION FORM**

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

Name \_\_\_\_\_

Address \_\_\_\_\_  
 \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ - \_\_\_\_\_

Country (if applicable) \_\_\_\_\_ E-mail Address \_\_\_\_\_

Position \_\_\_\_\_ Institution/Org. \_\_\_\_\_

Telephone: Home \_\_\_\_\_ Work \_\_\_\_\_

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

**MAIL TO:**

Database Corrections  
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 Sciences Bldg., University  
 of Maryland, College Park  
 Maryland 20742-2461

**or E-MAIL:**

awm@math.umd.edu

**AWM**  
 ASSOCIATION  
 FOR WOMEN IN  
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