# AWM

## ASSOCIATION FOR WOMEN IN MATHEMATICS

## PRESIDENT'S REPORT

Wow! Here it is, my very last AWM President's report! These two years have passed by very quickly. The next President's Report will be brought to you by Suzanne Lenhart; the ceremonial bowl will be turned over to her at the AWM business meeting on January 10, right after the AWM Panel at the Joint Mathematics Meetings in New Orleans. That evening, we can celebrate the transition — which involves no recounts — at the AWM reception. This event is always a great place to meet others interested in encouraging women in mathematics, as well as being a lot of fun. Furthermore, it will be our 30th birthday party; AWM was begun at a caucus held at the winter Joint Mathematics Meetings back in 1971.

Thursday morning Alice Chang will present the Noether Lecture, "Nonlinear equations in conformal geometry." Thursday afternoon AWM joins the other math societies in the Joint Prize Session, where I will present the Louise Hay Award and the Alice T. Schafer Prize. Then on Saturday January 13, all mathematicians (male and female) are invited to the presentations at the AWM workshop, both the 20-minute talks by selected post-docs and the posters by selected graduate students. These presentations and the socializing around them are a good place to meet a variety of young women mathematicians, as well as to learn some excellent mathematics. On the inside back page of the last issue of the *Newsletter* and on the AWM website, www.awm-math.org, there is a full listing of the program and all AWM activities at the Joint Math Meetings.

I am writing this in early December immediately after returning from two days in Washington DC. On Friday night it was my great pleasure to be with Karen Uhlenbeck when she received the National Medal of Science. President Clinton was initially scheduled to present the medals, as he did two years ago when Cathleen Morawetz received this award, but there was a last-minute change and Neal Lane, the Presidential Science Advisor, did the honors while NSF Director Rita Colwell read the citations. As I hope most AWM members know, Karen is an outstanding champion of women in mathematics as well as an outstanding mathematician. Along with former

## IN THIS ISSUE

AWM President Chuu-Lian Terng (who was also at Karen's table), she created and has run every year the women's mentoring program of the Park City/Institute for Advanced Study Summer Institute. Three cheers for Karen!

On Saturday, I participated in the meeting of CBMS, the organization which is composed of the presidents of all the mathematics societies. I am now also a member of its Executive Committee, which had an additional meeting on Friday afternoon. My election to this committee will effectively give AWM two representatives for the next two years; additionally, several AWM members represent other societies. Quite different from the years when AWM first sought membership in CBMS!

At this meeting we primarily focused on the CBMS Mathematics Education of Teachers Project, whose report is available in draft form at www.maa.org/cbms (click on the obvious button once you are there). This report makes many recommendations for the content of college courses for prospective teachers, broken down into elementary, middle school, and high school levels. It is aimed primarily at college mathematics departments, to encourage changes in and additions to math courses. However, it was very favorably received by all the math societies and will be widely distributed, in particular through math educators and math supervisors, and may eventually affect teacher certification. I strongly encourage AWM members to download and read the document, and to bring it to the attention of others around you. Sponsor a local discussion on the topic! We also heard about the NSF National Digital Library Initiative (aimed to be an educational resource for students through college level), the Glenn Commission Report (this is Glenn as in Senator John Glenn; a wide representation of leaders from various parts of American society served on his commission that reported on the changes and resources needed for math and science teaching), and the recent AMS book *Towards Excellence: Leading a Doctoral Mathematics Department in the 21st Century* (which makes a very convincing case for establishing the following goal: The Department of Mathematics will be a model department whose mission includes a commitment to excellence in both research and educational activities; the emphasis on education is critically important).

All of this emphasis on education is of particular relevance to AWM. Within AWM we have some who focus most strongly on research and others who focus most strongly on education. Sometimes this leads to tensions within AWM, but I consider it a major strength of the association. Particularly at this time when educational issues are at the forefront of national concern, I think we in AWM bring a unique balance of interests to the situation. We can ask "is it a women-in-mathematics issue"; I think the answer is yes, because education is central to our mission "to encourage women to have active careers in the mathematical sciences." In fact, the topic of the AWM panel at January's Meetings concerns what AWM can do for K–8 education.

There are many things I'm pleased to have done as AWM President; see my two-year summary next issue. As I've said here before, one of those I'm happiest about is acting as midwife to the AWM website, which continues to grow and thrive. The on-line job ads are a particular recent success; they are generating significant revenue for AWM while providing a great service to our members who are either looking for jobs or looking for candidates for jobs. Go to www.awm-math.org and click on AWM Online Advertisements, or go directly to www.awm-math.org/ads.html.

There are also lots of things on my wish list that I have not yet managed to do. Here are a few of them, some of which I hope I can get started by February 1:

- Begin a fundraising drive. The Executive Committee decided last year to delay this until we constituted a Long Range Planning Committee and got a report from them. I'm a bit concerned that we missed the local maximum of the stock market of last spring, but on the other hand we need a clear message in order to get people who happily contribute to cultural and educational institutions to contribute happily to AWM. A parallel question is how to inform more companies of the advantages (there are many! see the AWM website for a listing) of joining AWM as an institutional member.

- Rejuvenate the Speaker's Bureau as an on-line enterprise. We need more volunteers to organize this!

- Organize a Noether lecture and other women-in-mathematics activities at the International Congress of Mathematicians, to be held in Beijing in the summer of 2002; monitor the number of female invited speakers.

- Expand AWM activities and/or resources for girls in high school and younger.

- Get more AWM members involved in AWM. Many of those who volunteered on the activities questionnaire a year ago have been contacted, or their names have been forwarded to appropriate organizers, but many more might find some time for AWM if asked. (Please, try again to volunteer if you haven't been contacted, or if you never answered the questionnaire.)

It's been a privilege to serve as your President; working with strong women and getting us all moving in the same direction is a great experience. It's been a memorable two years.



Jean Taylor
Princeton, NJ
December 3, 2000
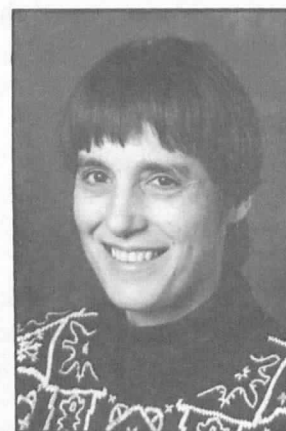
# IN MEMORIAM

We report with great sadness the death of AWM member Dr. Ruth Michler in Boston on November 1, 2000. Ruth, an Associate Professor at the University of North Texas in Denton, was spending the year as a Visiting Scholar at Northeastern University on an NSF POWRE (mid-career) grant. She died in a tragic accident with a construction vehicle while waiting to cross a busy intersection near the campus. Ruth was buried on November 10, 2000 in Essen, Germany, where she is survived by her parents and a sister.

Ruth Ingrid Michler was born on March 8, 1967, in Ithaca, NY. Her father is a mathematician and her family was visiting Cornell University at the time. From April 1968 to March 1973 Ruth spent her childhood in Tübingen. From April 1973 to March 1978 she went to primary school and high school in Giessen. Since 1978 her family has lived in Essen, and Ruth graduated from high school there in 1985. She always enjoyed learning foreign languages and had deep interests in the sciences, fine arts and music.

Ruth attended Oxford University for her undergraduate studies, receiving a BA *summa cum laude* in mathematics in 1988. Her tutors at Balliol College were Dr. K.C. Hannabuss and Dr. Frances Kirwan. While at Oxford she won a Jenkyns essay prize for her paper "Black Holes," under the direction of Roger Penrose. Ruth went on to do graduate work

*Maura Mast, University of Massachusetts Boston, and Caroline Grant Melles, the US Naval Academy, with assistance from Tony Iarrobino, Northeastern University*

at the University of California, Berkeley, under the direction of Professors Mariusz Wodzicki and Arthur Ogus, receiving her Ph.D. in 1993. Her dissertation was titled "Hodge components of cyclic homology of affine hypersurfaces." After graduating, Ruth was invited by Professor L.G. Roberts to work as a postdoctoral fellow for a year at Queen's University in Kingston, Ontario. Although her family lived in Germany, Ruth decided that her professional career would be spent in the United States. In 1994, she accepted a tenure-track position at the University of North Texas in Denton. She was promoted to Associate Professor and awarded tenure effective September 1, 2000.

As a mathematician, Ruth worked primarily in the area of cyclic homology and singularity theory and since her graduation from Berkeley she had made solid contributions to this field. She had seven articles printed or in press, with several more in preparation or submitted. In her papers on reduced isolated hypersurface singularities she showed that cyclic homology is a direct sum of Hochschild homology and de Rham cohomology. Furthermore, she gave some algorithms to compute these invariants. Ruth brought an intensity to everything she did, and her mathematical work reflected this intensity. In her research, Ruth used techniques from several different areas of mathematics and combined very abstract theory with concrete calculations of examples, using computer programs such as Macaulay and Maple. She was persistent, returning to problems again and again, approaching them from different viewpoints, and discussing variations and improvements with colleagues in related areas.

Ruth traveled considerably and gave talks at a variety of conferences, including AMS meetings in South Africa and Belgium. In 1996, she gave a talk at the AWM workshop for recent Ph.D.'s at the AMS meeting in Orlando and in 1997 she visited the Fields Institute in Toronto as a postdoctoral fellow. Ruth quickly became involved in organizing conferences and seminars, as well as attending them. She initiated a joint seminar for the University of North Texas, the University of Texas at Arlington, and Texas Christian University, which she called the AGANT (Algebraic Geometry, Algebra and Number Theory) Seminar. With Professor Caroline Grant Melles, Ruth organized three AMS special sessions on singularities in algebraic and analytic geometry and was planning two more conferences. Ruth felt strongly that a meeting should be more than just a
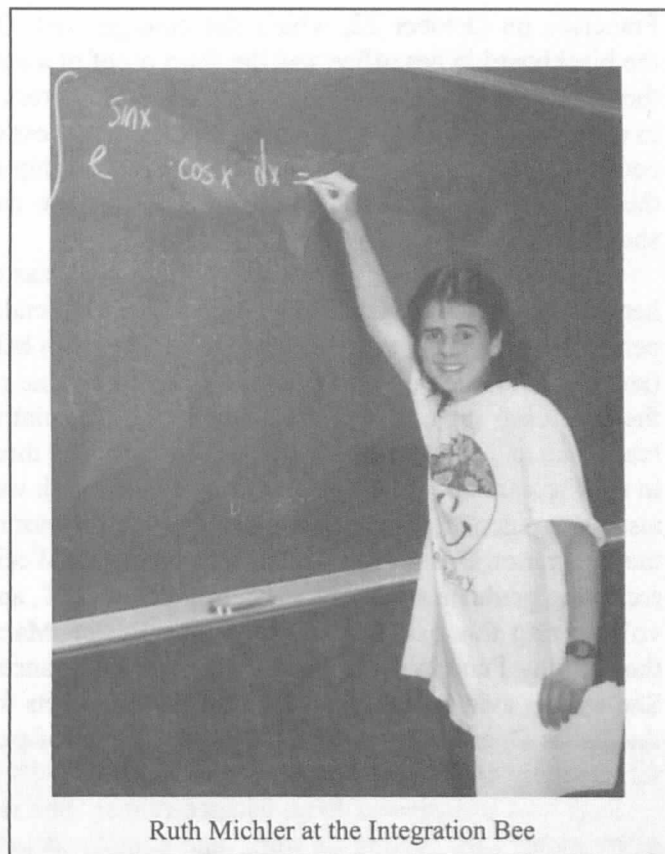


Ruth Michler at the Integration Bee

sequence of short presentations. She organized social events, and she lengthened the talks so that speakers could discuss their work in more depth. She also scheduled informal question/problem sessions in the evenings and successfully persuaded most of the participants to attend these sessions. Ruth and Caroline co-edited a book of proceedings from the first of these special sessions. This book, *Singularities in Algebraic and Analytic Geometry*, was recently published as volume 266 of the AMS Contemporary Mathematics series.

Ruth applied for and received several grants to travel and conduct research. Most recently, she received a Professional Opportunities for Women in Research and Education (POWRE) grant from the National Science Foundation. With this grant, she intended to focus exclusively on her research for the year, primarily working with Professors Tony Iarrobino and Marc Levine at Northeastern University. Ruth was tremendously excited to be in Boston for the year. In the short two and a half months since arriving in Boston, she had started new projects and had given several talks, including one at Boston University on October 30. She had also given a talk at the AMS Special Session on Singularities at San

Francisco on October 22, which she co-organized. On the blackboard in her office was the short proof of a new theorem, written October 31, 2000. Ruth was interested in extending her stay in Boston and was in the process of completing her application for a Bunting Fellowship at the Radcliffe Institute for Advanced Study on the day she died.

Ruth brought intensity and energy into other areas of her life. She was an incredibly outgoing and friendly person. She talked to everyone and, while she often held (and expressed) strong opinions, she put a high value on the friendship she had developed. She made it a point to reach out to female mathematicians, encouraging them in their research by inviting them to give talks. Ruth was also generous with her time, serving as acting director of the Integration Bee for the UNT Math Awareness Week, recruiting graduate students for the program at UNT, and volunteering this past September for the Boston Marathon Jimmy Fund Walk to benefit children with cancer. She was an avid music lover and held season tickets for the Dallas Opera and, more recently, for a series of performances by the Boston Symphony Orchestra.

Ruth was a dedicated long-distance runner. She ran daily, along with cycling to work, and completed over 23 marathons in the past six years, including the Boston Marathon. Ruth had recently begun running "ultra marathons" — extremely long distance races. She completed the 100-mile Leadville Trail in Texas in August, 1999, and was excited about running the Chancellor Challenge 100K race in Boston in October, where she came in tenth among the women. She ran the Cape Cod Marathon on October 29, 2000, barely two weeks after the 100K race.

Ruth inspired all those who knew her with her tremendous vitality and the enthusiasm which she brought to all her endeavors. Her energy, her determination, and her love of mathematics remain vividly in our memories. She is greatly missed.

More information about Ruth's work is available at two memorial web sites that have been set up in her memory. See www.math.neu.edu/~michler/Commem and www.math.unt.edu/michler1.html.

AWM is sad to announce the death on October 21, 2000 of Dirk Jan Struik at the age of 106. An MIT Professor Emeritus, he was a highly respected analyst and geometer, and an internationally acclaimed historian of mathematics. Professor Struik was educated at the

## 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. For foreign travel, U.S. air carriers must be used (exceptions only per federal grants regulations; prior AWM approval required).

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.

Target dates. There are three award periods per year. An applicant should send *five* copies of 1) a cover letter, including the conference name, conference dates and conference location (city/state/country), 2) a description of her current research and of how the proposed travel would benefit her research program, 3) her curriculum vitae, 4) a budget for the proposed travel, and 5) information about all other sources of travel funding available to the applicant to: Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. If you have questions, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted. The next deadlines for receipt of applications are **February 1**, May 1, and October 1, **2001**.

University of Leiden in Holland, where he received his doctorate in 1922 for his research on tensor analysis and differential geometry. He was passionately concerned with the rights of the oppressed and social justice. In 1975 he was awarded a Gold Medal of Achievement by the National University of Mexico "for his services to the teaching and development of mathematics in Mexico over the years." His wife, Saly Ruth Ramler Struik, died in 1993; she earned a doctorate in mathematics from Charles University in Prague in 1919 and may have been the first woman to earn a doctorate in math at that institution. Her thesis was on the axiomatics of plane affine geometry. Their daughter, long-time AWM member Ruth Rebekka Struik, has agreed to write an article about her parents for a subsequent issue of this *Newsletter*. Further information is available at the MIT web site; see web.mit.edu/newsoffice/tt/2000/oct25/struik.html.

## AWM ELECTION: CALL FOR SUGGESTIONS

The Nominating Committee is in the process of being formed. In December 2001 we will be electing the following officers: President-Elect and three Members-at-Large. Suggestions for candidates may be made to Jean Taylor or Suzanne Lenhart by **February 15, 2001**, who will pass them along to the committee. Your input will be appreciated!

## SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

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

AWM anticipates awarding at least 10 to 15 grants of up to $3,000 each to universities and colleges; more grants may be awarded if additional funds become available. Historically Black Institutions and women's colleges are particularly encouraged to apply. Programs targeted towards inner city or rural high schools are especially welcomed. If selected, institutions will receive an information packet consisting of model schedules of activities, a check list for the sorts of arrangements that need to be made, suggestions for securing additional funding and for obtaining prizes to be awarded to contest winners, recruitment and publicity material to be adapted for local use, lists of possible workshop topics for students and teachers, model problem solving contest material, and guidelines for follow-up activities and evaluation.

Applications, not to exceed five pages, should include: a) tentative plans for activities, including specific speakers to the extent known; b) qualifications of the persons to be in charge; c) plans for recruitment, including the securing of diversity among participants; d) itemized budget; e) local resources in support of the project, if any; and f) tentative follow-up and evaluation plans. The decision on funding will be made late February to early March. The high school days are to be held in Spring 2001 or Fall 2001. If selected, a report of the event along with receipts (originals or copies) for reimbursement must be submitted to AWM within 30 days of the event date or by December 1, 2001, whichever comes first. Reimbursements will be made in one disbursement; no funds can be disbursed prior to the event date.

Send *five* complete copies of the application materials to: Sonia Kovalevsky Days Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, Maryland 20742-2461. For further information: phone, 301-405-7892; email, awm@math.umd.edu; URL: http://www.awm-math.org. Applications must be received by **February 5, 2001**; applications via e-mail or fax will not be accepted.

ATTENTION APPLIED MATHEMATICIANS

# AWM WORKSHOP FOR WOMEN GRADUATE STUDENTS AND RECENT PH.D.'S

supported by the Office of Naval Research, the Air Force Office of Scientific Research,
and the Association for Women in Mathematics

Over the past twelve years, the Association for Women in Mathematics has held a series of workshops for women graduate students and recent Ph.D.'s in conjunction with major mathematics meetings.

WHEN: An AWM WORKSHOP is scheduled to be held July 8–10, 2001 (*pending final funding approval*), with an introductory dinner on July 8, in conjunction with the 2001 Society for Industrial and Applied Mathematics (SIAM) Annual Meeting (July 8–13, 2001) at the Town and Country Hotel in San Diego, California.

FORMAT: The workshop will consist of a poster session by graduate students and two or three minisymposia featuring selected recent Ph.D.'s, plus an informational minisymposium directed at starting a career. The graduate student poster sessions will include all areas of research, but each minisymposium for recent Ph.D.'s will have a definite focus selected from the research areas of Mathematical Biology, Modeling, Control, Optimization, Scientific Computing, and PDEs and Applications. AWM will offer funding for travel and two days subsistence for up to 20 participants. Departments are urged to help graduate students and recent Ph.D.'s obtain supplementary institutional support to attend the Workshop and the associated meeting. All mathematicians (female and male) are invited to attend the entire program.

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

ELIGIBILITY: To be eligible for selection and funding, *graduate students* must have begun work on a thesis problem. Applications should include a cover letter, a summary of their work (1–2 pages), a title of the proposed poster, a curriculum vitae, and a supporting letter of recommendation from a faculty member or research mathematician. Applications from *recent Ph.D.'s* should include a cover letter, a title and abstract (75 words or less) of the proposed talk, summary of their work (1–2 pages), and curriculum vitae; a letter of recommendation from a faculty member or research mathematician who knows their research is recommended, but not required. Additional letters of support are encouraged. A recent Ph.D. should have received her Ph.D. within approximately the last five years, whether or not she currently holds a postdoctoral or other academic or non-academic position. All non-U.S. citizen applicants must have a current U.S. address. All selected and funded participants are invited and strongly encouraged to attend the full AWM two-day program. Those individuals selected will be notified by the AWM Office and will need to submit a title and abstract (75 words or less) with name, affiliation, address, etc. by mid-February to SIAM for the meeting program; AWM will provide instructions when notified. For some advice on the application process see the AWM website.

Send *five* complete copies of the application materials (including the cover letter) to:

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

Phone: 301-405-7892
Email: awm@math.umd.edu    URL: http://www.awm-math.org

APPLICATION DEADLINE: Applications must be received by **January 23, 2001**.
Applications via email or fax will not be accepted.

# UHLENBECK RECEIVES NATIONAL MEDAL OF SCIENCE

Dr. Karen K. Uhlenbeck, a professor of mathematics at The University of Texas at Austin, has been awarded the National Medal of Science. She was one of 12 renowned American scientists and engineers who received the honor at an awards dinner, December 1, 2000 in Washington, D.C.

In announcing the Year 2000 National Medal of Science winners, President Bill Clinton paid tribute to this group of scientific leaders, who have set new directions in social policy, neuroscience, biology, chemistry bioengineering, mathematics, physics and earth and environmental sciences.

"These exceptional scientists and engineers have transformed our world and enhanced our daily lives," President Clinton said. "Their imagination and ingenuity will continue to inspire future generations of American scientists to remain at the cutting edge of scientific discovery and technological innovation."

Uhlenbeck, who holds the Sid W. Richardson Foundation Regents Chair in Mathematics, conducts research in geometry and partial differential equations and studies applications of geometry to large-scale problems in high-energy physics. She also is interested in the ways that new complex mathematical concepts find uses in research in other areas of science, such as ecology, molecular biology and the structure of materials.

"I am grateful to both the mathematics department of The University of Texas and to the generous benefactors who endowed the Regents Chair. With this support and money, I have been able to accomplish quite a lot, both in the subject of mathematics and in supporting and encouraging the next generation of mathematicians," Uhlenbeck said.

The National Medal of Science is sometimes referred to as America's Nobel Prize. Uhlenbeck received her medal for her pioneering contributions to global analysis and gauge theory that resulted in advances in mathematical physics and the theory of partial differential equations. Spokesmen for the National Science Foundation, which administers the National Medals of Science for the White House, said Uhlenbeck stands out as one of the founders of geometry based on analytical methods.

The NSF also cited her leadership as a mentor for women and minorities in mathematics education. She and her coworker, Chuu-Lian Terng, are the organizers of a mentoring program for women mathematicians which is held at the Institute for Advanced Study each spring.

"I feel very humble, as many greater scientists have received this award. I hope that my acceptance will serve as encouragement to young women scientists and mathematicians," Uhlenbeck said. Uhlenbeck said it is not easy to describe her work in geometry in non-technical language, a problem she has in common with most research mathematicians.

"Mathematics is a discipline which takes ideas from all branches of science and extends, constructs and develops further these ideas into a body of results that we usually refer to as theorems. These ideas can be used independently as a language to describe new processes that have nothing to do with the original source," she explained. "For example, I study bubbles, that originate with soap bubbles. But I use them in abstract contexts, where they can be used to investigate the shape of space or to study the structure of martials. A basic idea in high-energy physics is part of the description of color and charm (gauge theory). I study this abstractly, and have found ways to use this in the study of waves and magnetic materials. Other mathematicians have used my work in the study of space-time and in string theory," she said.

Uhlenbeck said the group she works with at UT Austin "specializes in looking for new ideas in mathematics in the work of other sciences. While our primary work is theoretical physics, we have a member who thinks about how DNA coils. I have been fascinated by a number of equations I learned about from physicists who study plasma and fluid flow." She added that "in common with all basic researchers, mathematicians do not expect immediate applications, although we do expect the ideas we develop to be around for centuries. The kinds of mathematics that are used in applications have become diverse, and we don't try hard to second guess what will be useful next year."

Uhlenbeck, who was awarded a MacArthur Foundation Fellowship in 1983, has taught at UT Austin since 1987. She was born in Cleveland and grew up in New Jersey. She graduated from the University of Michigan and earned her Ph.D. at Brandeis University, with a

National Science Foundation graduate fellowship. Ten of the 12 science medallists this year, including Uhlenbeck, received NSF support for portions of their academic or research careers. She was a Woodrow Wilson Fellow, a Sloan Fellow and a recipient of the Common Wealth Award for Science and Invention and is a member of the American Academy of Arts and Sciences and the National Academy of Science. Uhlenbeck is co-author of *Instantons and Four-Manifold Topology*, published in 1983, and her work has contributed to the discovery of a new four-dimensional space-time. She is a member of the Texas Institute for Computational and Applied Mathematics.

Below you will find Karen's introduction to her invited address "Geometric Partial Differential Equations: From Hilbert's 23$^{rd}$ Problem to Nonlinear Waves" delivered at the conference Mathematical Challenges of the 21$^{st}$ Century. For the complete text of her address (and the others from the conference), visit www.ams.org.

The time scale of millenia is beyond what I can comprehend. My own intelligence, gleaned from experience and from family and friends, is good for about fifty years in the past, and the one lesson of the past is that predictions for the future are problematic at best. I keep in mind that the past fifty years has seen unprecedented progress in mathematics and many other fronts. However, most of us in cities can no longer see the glories of the night sky, which, if we think in terms of millennia, certainly motivated a great deal of mathematics. The loss could hardly be called progress.

While I believe that if I were to start over again, I would most likely be drawn into the kind of mathematics which might help restore the sight of the stars, or the purity of water, this talk is more mundane. I hope to underline the advances which made the theory of time stationary (technically referred to as "elliptic") partial differential equations and systems so successful in applications in geometry, topology and applied mathematics. By way of looking to the future, I would like to point out by the wayside that comparatively little is known about wave equations, and identify specific problems in this area as fruitful areas of research.

Hilbert's famous problems, delivered at the International Congress of Mathematicians in 1900 and published in full in 1901, give us today an idea of the great changes which have come about in mathematics in this century. Problems 19, 20 and 23 state quite clearly

fundamental questions of elliptic linear and non-linear equations and boundary values, most of which are reasonably well understood today. They give no hint of the marvelous developments in theory and applications which have made this subject so relevant to core mathematics. Interestingly enough, if one examines as well the list of problems published in 1976 in a volume of the AMS dedicated to reporting progress on Hilbert's problems, questions posed by geometers and topologists are as indicative of the future of partial differential equations as those posed by specialists.

Insofar as I can discover, little appears in these past lists of problems about wave equations despite their importance in physical phenomena. It is true that the related subjects of turbulence, integrability in the form of KdV, and general relativity appear in the 1976 volume. We can safely report that KdV has been one of our success stories, but both turbulence and general relativity would gain a great deal from some basic understanding of non-linear wave phenomena in dimensions above one. This subject has a wealth of open, hard problems. Hilbert mentions in several places the importance of geometric applications, and one lesson from the past is to look to the solution of equations of interest outside the field for hints as to what is profitable. Hence my insistence that the "geometric" or "physical" equations are those to be emphasized, and that perhaps something can be learned from the successes of the elliptic theory.

Changes in society have been even more dramatic than the changes in mathematics, and one of those changes has been most important to me in my career. Up until the 1970s, it was essentially impossible, or at least highly unusual, for a woman to have a mainstream career in science. While many of the standard philosophical objections to including women in scientific endeavors do not apply to mathematics, the successful female mathematicians of earlier generations were as remarkable for their success in battling society as for their legacies of theorems. Women also were called upon to do a great deal of scientific work during World War II, but were generally sent home when male manpower became available. In the US, the launching of the Russian spaceship Sputnik resulted in a major effort to educate and train scientists, and women were not excluded from this effort. This began what has been a golden age of mathematics in the US. Even better for me, in the early 1970s discrimination on the basis of race, and somewhat incidentally sex, became illegal. Most

observers hoped (or feared) that the gates of scientific research would be thronged with those previously excluded by legal means.

A look at personnel taking part in any major mathematical conference demonstrates the fallacy of this premise, whether made in hope or fear. In the US, we have been noticeably unsuccessful in recruiting both women and minority students to academic research mathematics on equal numbers with white or oriental males. Moreover, in contrast to the years after Sputnik, we have been relatively unsuccessful in recruiting and educating the products of our own public school system into the academic research arena. We know less and have been less successful in this than in studying wave phenomena. The numbers of tenured women and minorities in research mathematics departments are both an embarrassment and a discouragement.

May the next few decades bring progress on all fronts! I'm getting to be an old lady, and hope to see the upward trend before I die.

# EDUCATION COLUMN

In the course of the nineties I took part in many conversations and discussions about "*the Standards*" (the NCTM's *Curriculum and Evaluation Standards*, published in 1989). Out of all of the commentary, one line resounds most clearly in my memory. It was uttered by a speaker at the first of the MER (= Mathematicians and Educational Reform) fora to which mathematicians and mathematics educators were invited together. "*The Standards*," he said plaintively, "are being regarded as Holy Scripture when they were meant to be a subject for hot debate."

Certainly there was plenty of evidence to support his statement. From the moment the *Standards* hit the press, no self-respecting publisher would put out a K–12 textbook without claiming that it was *Standards*-based, even if the statement of that claim was the only thing that distinguished the text from its previous edition. Eventually, though, I came to the realization that the lack of debate

should not simply be blamed on those whose reaction to the *Standards* was to genuflect. A lot of the blame belonged to those whose reaction was to yawn, and that comprised almost the entire of the community of mathematicians, with the exception of a few in the sparsely populated domain where the mathematics and mathematics education communities intersect.

I was not alone in this perception. When the time came for a new edition of the *Standards*, an entire process was set up for involving the mathematical community and eliciting the maximum amount of feedback possible. A number of mathematics organizations, including the AWM, were asked to set up ARGs (Association Review Groups). A bunch of interesting, thorny and provocative questions were then hurled at the ARGs, and the responses taken very seriously. A dedicated collection of writers representing a broad range of backgrounds spent huge amounts of time and effort sorting through the ARGs' ideas and each other's and arriving at a coherent document. The document was printed up in draft form and widely circulated through many communities with repeated requests for feedback. And finally, out of all this came, last April, the *Principles and Standards for School Mathematics*.

The story doesn't end there, though. All the communities involved, and in particular the mathematical community, are very much invited to continue the conversation thus begun. And although most of us are probably more experienced than we like to admit at sounding intelligent on the strength of very small knowledge (one of the more dubious of the skills honed by academia), we do even better when we actually know something. So here is a thumbnail (or possibly pinkynail) sketch of the document and a set of pointers to further information and to some of the related articles that I have especially enjoyed. Following those leads will lead you, if you like, to more articles. Many, many more articles.

For a start, observe the change in title. This is not a chance event. One entire chapter is devoted to the statement of a set of six principles which underlie the recommendations in the whole document. Probably the one which would receive the loudest "Yes!!" from AWM members is the leading one, which states that excellence

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

in mathematics education requires equity — high expectations and strong support for all students. The next four, on curriculum, teaching, learning and assessment would also be hard to argue with (and their content generally applies far beyond mathematics itself). The last one will undoubtedly stir up wrath in some quarters, since it states that technology is essential in teaching and learning mathematics. It was not casually arrived at, and a good deal of effort is made in the rest of the book to support and clarify the statement.

Beyond the principles come the standards, clearly derived from the 1989 standards but with some notable modifications. One that leaps to the eye is an attempt to repair an extremely prevalent misinterpretation of the earlier version: from the statement that brute computation should be de-emphasized many leapt to the conclusion that it would be better yet to omit it altogether. This was never the intention of the original writers, but with that interpretation loose in the community, the writers felt the need to make quite explicit certain skills which should unambiguously be mastered by certain stages. It was also observed that the original division into K–4, 5–8 and 9–12 lumped far too many developmental stages into the first set, so the new standards are divided into four levels: pre-K–2, 3–5, 6–8 and 9–12.

Each of ten standards is carried through each of the levels, with indications of reasonable expectations for a student at that level and types of problems and activities that support the learning of the standard. Five of the standards are "process standards," dealing with problem-solving, reasoning and proof, communication, connections, and representation, and five are "content standards," dealing with numbers and operations, algebra, geometry, measurement, and data analysis and probability. As the introduction states firmly and the examples make clear, these are decidedly non-discrete topics — overlapping and integration abound.

One other comment before I launch into the list of interesting articles on the subject: something that should not be lost to sight in the midst of the significance of the book's impact and the seriousness of the process of writing it, is that the book is fun to read. It is full of mathematical situations that are intriguing to think about and activities one would love to try out with kids, as well as classroom vignettes that give flashes of insight into how children think and learn. Not that it should be read from cover to cover at a sitting, but reading from it should certainly not be regarded as an onerous task.

Now about the references: for a start, the document itself and a lot of surrounding information are available at the NCTM web site: www.nctm.org. Also on the web is a National Education Association article, found at www.nea.org/teaching/mathstds.html. And available either on the web or in hard copy, two that I particularly enjoyed are in the AMS *Notices*. One by Joan Ferrini-Mundy entitled "Principles and Standards for School Mathematics: A Guide for Mathematicians" appeared in Volume 47, Number 8 (September, 2000) and another entitled "Four Reactions to Principles and Standards for School Mathematics" appeared in the following issue (October, 2000). Both can be found online at www.ams. org/notices.

So please go and find out some more about this. It is unlikely that you will agree with all of it (how boring would that be, anyway?) but you will be much better attuned to the discussions of a profoundly important issue: the mathematical education of all of our children, present and future.

# HRUMC

The eighth annual Hudson River Undergraduate Mathematics Conference will be held on April 28, 2001, at Skidmore College in Saratoga Springs, NY. The conference includes presentations on mathematics by both faculty and students, and both are encouraged to participate. Conference sessions are designed so that some presentations are accessible to undergraduates in their first years of study, and others are accessible to third or fourth year undergraduate mathematics majors. The keynote speaker will be Ingrid Daubechies.

You can find out more about HRUMC by visiting the conference website: www.skidmore.edu/academics/mcs/ hrumc.htm. Those wishing to make a presentation at the conference should submit an abstract electronically by **March 2, 2001**. Abstracts may be submitted via the website.

Look for more undergraduate conference listings on the student page at www.maa.org/students/conf.html.

# WOMEN MATHEMATICS FACULTY: RECENT TRENDS IN ACADEMIC RANK AND INSTITUTIONAL REPRESENTATION

*This article examines how women's representation on the faculty of mathematical science departments has changed across ranks and institutional settings in the 1990s. Data from the annual surveys distributed by the American Mathematical Society indicated that, within each institutional group, the proportion of women faculty has been increasing at an average rate of approximately 0.5% per year since 1990. However, for the institutions in Group I (the most selective doctorate mathematics programs), a substantial rise in the percentage of non-tenure-track women faculty contributed to this increase, whereas the proportion of tenure-track and tenured women has not grown. Moreover, women's representation continues to be inversely correlated with the prestige of the institutional groups. Women had the greatest representation in the least prestigious institutional settings, and the lowest representation in the most prestigious mathematics departments.*

## INTRODUCTION

Since the early 1970s, there has been an enormous influx of women into the sciences, but this influx has clearly been uneven, and certain patterns of gender segregation have emerged. Much larger numbers of women have entered the social sciences and the biological sciences than the other natural sciences and mathematics (Babco, 1997; Radke Sharpe, 1995; Radke Sharpe & Fuller, 1995; Vetter, 1987, 1994). Even within a given discipline, the genders have tended to segregate into subspecialties (Babco, 1997; National Science Foundation, 1996). In addition to this "horizontal" gender segregation by subdisciplines, a "vertical" gender segregation by professional hierarchies has been observed. Women have been found to be least represented in the top ranks at the most prestigious institutions, even when controlling for professional age (e.g., Chamberlain, 1988; Fox, 1996; Long & Fox, 1995; Sonnert & Holton, 1995a, 1995b, 1996). Patterns of internal gender differences have also been documented for the mathematical sciences (Billard, 1991; Jackson, 1991; Radke Sharpe & Sonnert, 1999; Ruskai 1994), and ample anecdotal

evidence suggests that gender disparities are heightened at the foremost mathematics departments. What is lacking, however, is a comprehensive empirical analysis of the situation of women on mathematics faculty that considers the factors of both institutional type and academic rank.

Such an analysis is the objective of this article. First, we describe recent trends in the rank composition of mathematics faculty by institutional group. Second, we investigate the trends in women's overall faculty representation by institutional group, as well as the trends in women's representation at individual academic ranks, again by institutional group. Finally, we focus specifically on the tenure-track and non-tenure-track positions.

## METHODS

### Data and Group Definitions

This study covers the years 1988 through 1995. The data set was obtained from the American Mathematical Society's (AMS) annual survey of mathematical science departments in the United States. The AMS divides the departments into seven groups (Group I to V, Group M, and Group B) according to the highest degree offered in the mathematical science discipline and the academic rating of the program (see Table 1). Response rates for the survey, as reported by the AMS, are generally satisfactory and stable, with the possible exception of Group V, which represents the fields of applied mathematics, operations research, and management science.[1]

The AMS survey collects information on a variety of types and ranks of faculty. For all of our faculty variables, we are using the information for full-time faculty who possess doctorate degrees. For institutional confidentiality reasons, we were able to analyze the AMS data only after they were aggregated by institutional group. The time period covered in our study is the longest period available for statistical trend analysis using these data. The reasons for this are that the AMS began

*Norean Radke Sharpe, Associate Professor, Math & Science Division, Babson College, Babson Park, MA 02157, and Gerhard Sonnert, Research Associate, Physics Department, Harvard University, Cambridge, MA 02138.*

reporting the overall proportion of women faculty in 1988, the proportion of women in each faculty rank in 1990, and the faculty size by rank only in 1991. In addition, in 1996, the AMS changed departmental group definitions, thus making the inclusion of subsequent years difficult.

Because we were interested in the future of women's representation in academic mathematics, we particularly focused on two of the rank designations available in the AMS database: tenure-track and non-tenure track positions. Both ranks are typically held by younger mathematicians, but they differ drastically in their prospects. The first rank signifies a relatively advantageous recruitment pattern, because faculty in these positions are "promotable," and a large part of the tenure-track cohort can expect to rise to permanent faculty positions. The second rank signifies a disadvantageous recruitment pattern, because most positions at this rank offer limited job security and few chances for advancement.

To investigate the recruitment patterns and their changes, we created two measures. First, examining patterns over time *within* the population of *women* faculty at the institutions, we computed the proportions of women (among *all women* on campus) who held either tenured or tenure-track positions and compared them with the corresponding proportions for men. Second, we created a *rank ratio*: the ratio of the percent of tenure-track women (among all tenure-track faculty) to the

percent of non-tenure-track women.

## RESULTS

### Trends in Rank Composition by Institutional Group

The analysis of women's representation in academic mathematics must be placed in the more general framework of employment pattern and trends in this field. To set the stage for our gender analysis, we start with a trend analysis of academic ranks by institutional group. The AMS data show that the percentages of faculty who hold tenure-track positions steadily decreased from 1991 to 1995. In the baccalaureate institutions, which report the highest concentration of tenure-track positions, at an average of just over 27% of all faculty, this percentage dropped at the rate of approximately 1% per year over the time frame of the study. The percentage of faculty at this rank also dropped among the master's, applied, and lower-ranked doctoral mathematics departments. The proportion of tenure-track faculty remained stable at the top-rated doctoral institutions, but the average proportion (8.5%) was significantly lower than the respective proportions at all of the other types of departments.[2] Figure 1 clearly shows the paucity of tenure-track faculty at the top-rated doctoral mathematics programs, compared to the lower-rated doctoral programs and other degree programs.

In contrast, the proportion of faculty holding non-tenure-track positions increased from 1991 to 1995 in the top-rated doctoral mathematics departments, and the average (18%) over this period was significantly ($\alpha = 0.05$) greater than in each of the other types of departments (see Figure 2). The percentage of faculty at this rank also increased among lowest-ranked doctoral mathematics departments (Group III) and statistics/biostatistics departments (Group IV). Proportions of non-tenure-track faculty at applied departments (Group V) were the most variable (perhaps reflecting the

**Table 1.** Description of Departmental Groups[a,b]

| Group | Description |
|---|---|
| Group I | Composed of departments with doctoral program scores in the 3.5–5.0 range |
| Group II | Composed of departments with doctoral program scores in the 2.0–2.9 range |
| Group III | Contains the remaining U.S. departments reporting a doctoral program |
| Group IV | Contains U.S. departments (or programs) of statistics, biostatistics and biometrics reporting a doctoral program |
| Group V | Contains U.S. departments (or programs) in applied mathematics, operations research, and management science that report a doctoral program |
| Group M | Contains U.S. departments granting a master's degree as the highest graduate degree |
| Group B | Contains U.S. departments granting a baccalaureate degree only |

Source: 1994 Annual AMS-IMS-MAA Survey (Second Report)

[a] The surveys report the exact population size of the departmental groups only for Group I (39) and Group II (43). The following figures for the other groups are calculated from the number of usable responses and the corresponding response rates, given in Table 3A of the 1991 Survey (Group III: 88; Group IV: 74; Group V: 37; Group M: 260; Group B: 980). The numbers remain the same for Groups I and II from year to year, and are fairly stable for the other groups.

[b] Groups I, II, and III were established based on the quality of their graduate faculty as assessed by the conference Board of Associated Research Councils.

lower and more varied response rates among this group). The master's and baccalaureate institutions reported the most stable and lowest percentage (3% and 5%, respectively) of non-tenure-track faculty during this time period. Figure 2 clearly shows the consistent disparity in the proportion of non-tenure track faculty between the most prestigious mathematics departments and the nondoctoral programs.

In summary, the rank composition of mathematics faculty differs considerably by institutional group, owing in particular to the disproportionately large, and growing, presence of non-tenure-track faculty at the top doctoral departments. But how do the women fare within this varied and shifting framework?



**Figure 1.** Trend in percent of tenure-track faculty by institutional group.

## Trends in Women's Representation by Rank and Institutional Group

An examination of the percentage of full-time women faculty between 1988 and 1995 (see Figure 3) reveals that *all* departmental groups increased their representation of women on the faculty over this time frame. According to trend analysis, women's percentages in all groups are increasing at an average rate of approximately 0.5% per year.[3] If these trends continue, the average proportion of full-time women faculty should increase to as much as approximately 21% for baccalaureate departments and to over 10% for top-rated doctoral mathematics programs in the year 2000.

While this increasing trend is present in all groups, the average proportion of women faculty over this same time frame is markedly different across groups; the average percentages for Groups IV, M and B (approximately 13%, 14% and 18%, respectively) are significantly ($\alpha = 0.05$) greater than the average percentages for Groups I and II (6% and 8%, respectively). Women's representation is thus inversely correlated with institutional prestige; women are rarest at the top institutions.

The next question is whether this positive trend in the overall representation of women in academic mathematics, evident in all of the institutional groups, is present across all *ranks* of the faculty. We therefore
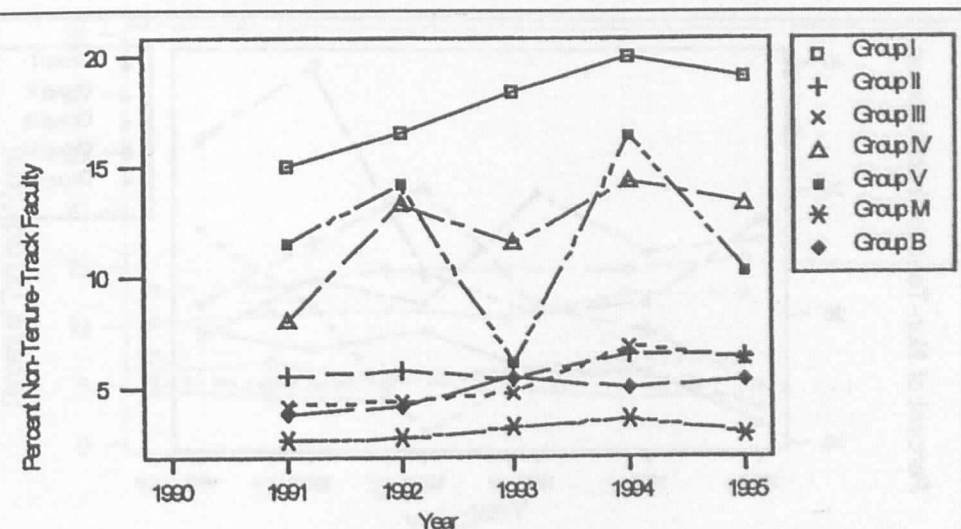


**Figure 2.** Trend in percent of non–tenure-track faculty by institutional group.
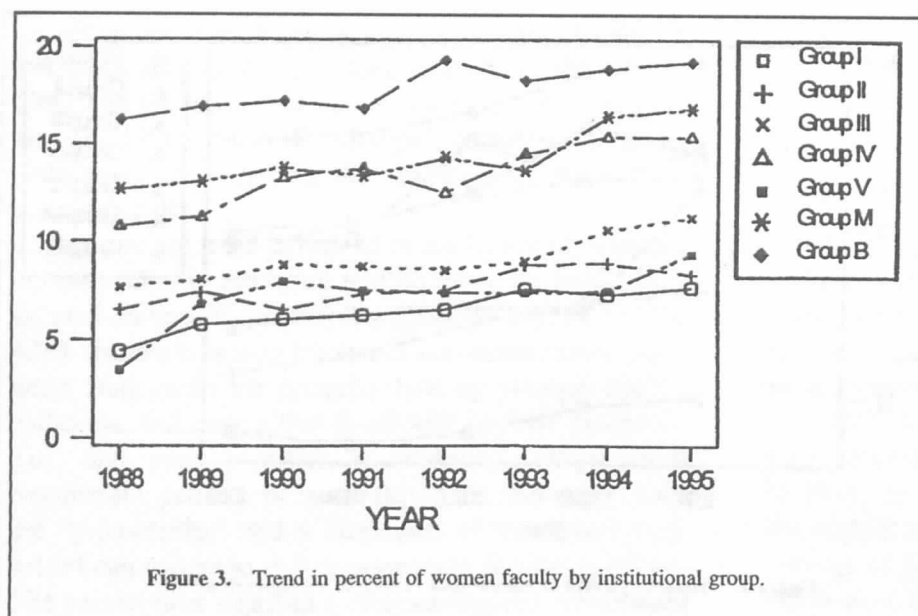
Figure 3. Trend in percent of women faculty by institutional group.

analyzed the data for women faculty separately for each rank: non-tenure-track, tenure-track, and tenured. Here, we found a less consistent picture.

The trend for the proportion of women among non-tenure-track faculty is not as clear as that for the proportion of all women faculty. Figure 4 shows the non-tenure-track percentages over time for each institutional group, except the applied fields (Group IV and Group V), to simplify the graph. However, a trend analysis and ANOVA were completed on all seven groups. The proportion of women at this rank is not significantly
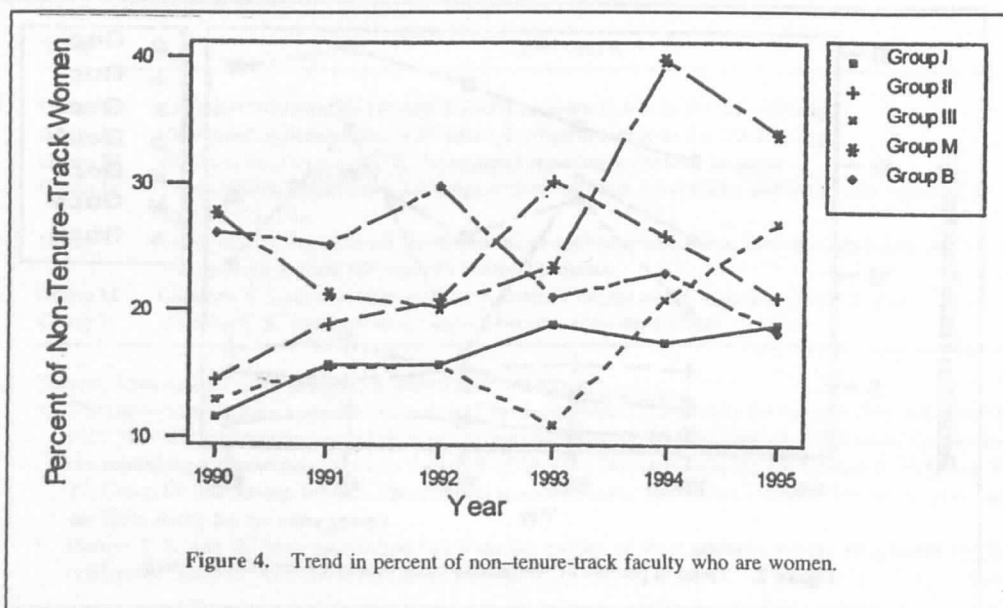


Figure 4. Trend in percent of non–tenure-track faculty who are women.

different across groups and is highly variable, ranging from 10% to 40% between 1990 and 1995. This is most likely because the creation of these positions largely depends on volatile financial, political, and environmental factors at the institutional level. One trend that is noticeable, however, is that the proportion of non-tenure-track women has *increased* significantly ($p <$ .05) in the top-rated doctoral programs and noticeably ($p <$ .10) in the lowest-rated doctoral programs. The other groups (including the applied programs) have reported variable proportions, with no significant trend.

The proportion of tenure-track positions held by women has not increased, but has remained stable in most of the institutional groups (see Figure 5). The exceptions are the second-tier doctoral programs and master's programs, which have both experienced increases in representation of women at the tenure-track rank. These increases, in addition to the general stability in the other programs, have perpetuated and accentuated substantial differences across the institutional groups. The average percentage of women at this professional rank is significantly smaller in Group I (9%) than in Group IV (29%), Group B (26%), and Group M (23%).

An examination of the trends for tenured faculty reveals that the proportion of positions at this rank held by women has remained consistently low for the top-tier doctoral mathematical science departments (see Figure 6). For Group I that proportion has been hovering around 4%. In contrast, the picture is brighter at the other mathematics departments; each of the other groups has experienced significant ($p <$ .05) growth in the percentage of women at this rank, with the exception of the applied fields. The proportions of tenured women at the nondoctoral mathematics departments (15%

and 12%, for Groups B and M, respectively) are significantly greater than each of the other groups. Finally, we note that, for each institutional group, women's representation among the tenured faculty is smaller than that among the other ranks.

## Trends in Rank Distribution Within Each Gender

In a complementary approach to gender representation, we now consider the rank distribution *within gender*, as opposed to the gender distribution *within rank*. Our initial analysis has shown that the top-rated doctoral mathematics programs have a significantly *lower* proportion of tenure-track faculty (genders combined) than the other types of mathematics departments. These same top-rated institutions also have a significantly *greater* proportion of non-tenure-track faculty (genders combined). However, questions remain. Are these rank distributions within each institutional group similar for men and women? Is there a gender main effect (e.g., a similarly inflated proportion of non-tenure-track women across all institutional groups)? Or is there an interaction of institutional and gender effects?

We examined the percentage of all women faculty who are either tenure-track or tenured compared to the percentage of men who hold corresponding faculty positions, across institutional groups. This measure separates the faculty members who have already achieved, or have reason to expect, a permanent position from those with a more marginal status. The isolation of Group I is evident in Figure 7. Among all women faculty at Group I departments, a significantly *greater* proportion hold non-tenure-track positions and a significantly *lower* proportion of
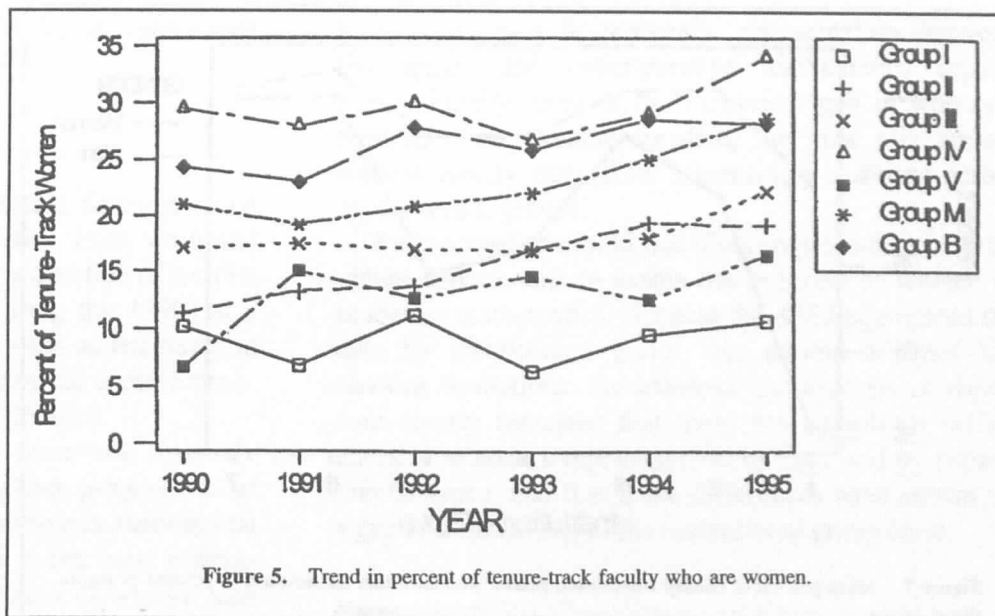


**Figure 5.** Trend in percent of tenure-track faculty who are women.

women hold either tenure-track or tenured positions, in comparison with the other groups. The groups with both the *lowest* percentage of non-tenure-track women and *highest* percentage of women who are either tenure-track or tenured are clearly the baccalaureate and master's level mathematics departments. The comparison with the corresponding figures for the men reveals a clear interaction between institutional group and gender. In the less prestigious institutions, the men and women faculty are of similar rank compositions, whereas the
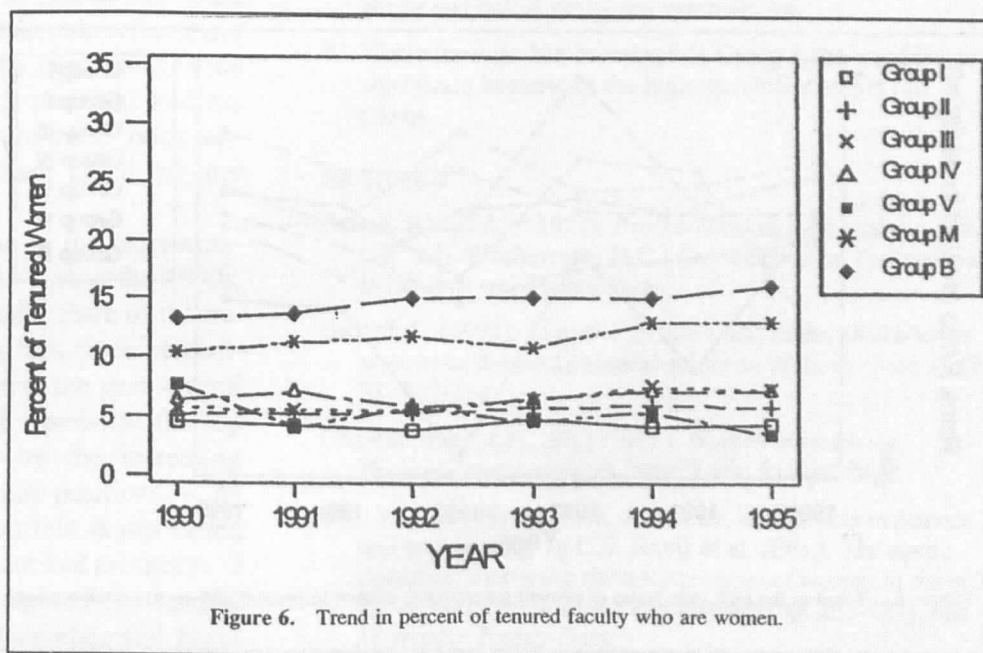


**Figure 6.** Trend in percent of tenured faculty who are women.
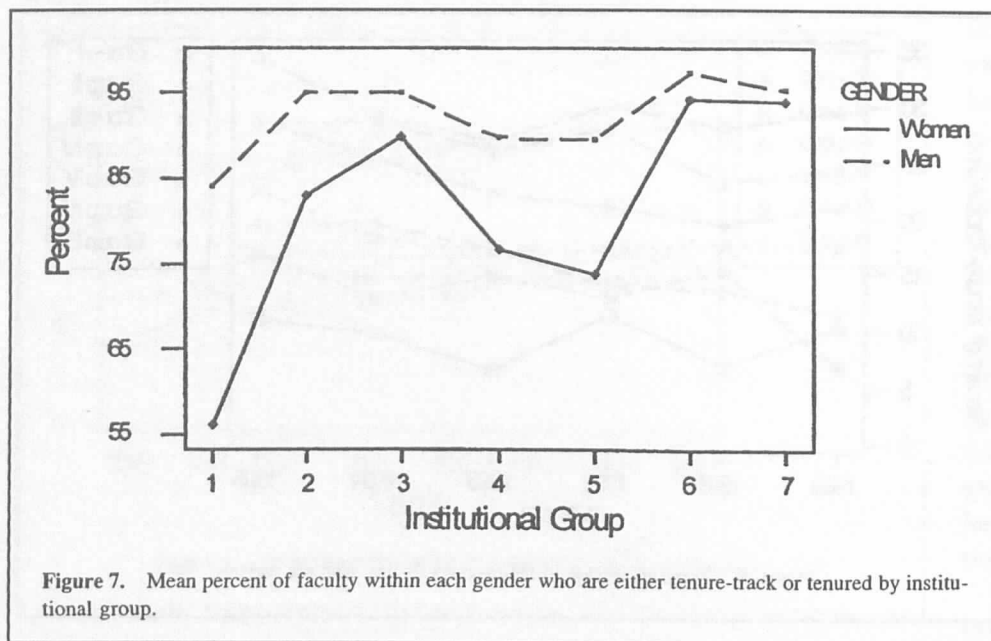
**Figure 7.** Mean percent of faculty within each gender who are either tenure-track or tenured by institutional group.

more prestigious institutions have large gender differences in this respect.

### Trends in Women's Rank Ratio

To obtain a simple measure of women's recruitment pattern that controls for both the number of men in the corresponding ranks and the different rank compositions across institutional groups, we considered the ratio of two "within rank" percentages: percentage of



**Figure 8.** Trend in the rank ratio (ratio of percent tenure-track women to percent non–tenure-track women).

tenure-track women (among all tenure-track faculty) over percentage of non-tenure track women. We call this index a *rank ratio* for convenience.[4] The more positive the value of this ratio, the more advantageous is the recruitment pattern for women. The trend in this ratio, representing the relationship of the proportion of women in "promotable" positions to the proportion of women in "nonpromotable" positions, is presented by institutional group in Figure 8.

We can see from Figure 8 that the relative differences in this rank ratio across institutional groups have not changed over the past several years, with the exception of Group B. This rank ratio of tenure-track to non-tenure-track women has improved significantly at the baccalaureate institutions ($p < .01$), while it has not shown signs of improving at the top-tier doctoral institutions.[5] As a result, the difference in the rank ratio between these two institutional types has been widening.

From Figure 8, we can also see the greater variability in the rank ratio for Groups I, IV, and V over time. The rank ratios for the baccalaureate and master's programs are the most stable over the period of this study. An examination of the data reveals that drops in the ratio are often due to a combination of an *increase* in the percentage of women in non-tenure-track positions and a *decrease* in the percentage of women in tenure-track positions in a particular year. In the case of Group I, an increase in the proportion of non-tenure-track women was the more important influence. Our analysis does not explain the causes for this recent rise of women's numbers in the marginal positions at the most prestigious departments; however, it seems

likely that nationwide factors, in addition to institutional factors, are influencing such changes.

## DISCUSSION

This study reports several important findings about women's representation in mathematics. First, we found that, for all institutional groups, the proportion of women mathematics faculty slowly rose during the 1990s at a rate of about 0.5% per year. While this is an encouraging picture, a more detailed analysis revealed a more problematic situation for women in mathematics.

The representation of women correlates inversely with institutional prestige; the highest proportions of women were found in the least prestigious institutional settings and the lowest proportions in the most prestigious ones. Moreover, the representation of women also correlates inversely with academic rank; women are most severely underrepresented among the tenured faculty. We also found an interaction between gender and institutional prestige; women are disproportionately rare at the promotable ranks at the top institutions.

Much of these current gender disparities must be attributed to the lingering effects of the historical pattern of women's underrepresentation in mathematics. For pipeline and longevity reasons, we cannot realistically expect this situation to be reversed quickly. Thus we specifically focused on positions with shorter turnover rates that are more amenable to short-term change and also have long-term effects. The top institutions were found to have the most disadvantageous recruitment pattern for women, as indicated by the ratio between the percentage of women in tenure-track positions and the percentage of women in non-tenure-track positions. Moreover, this disadvantageous pattern at the top-tier institutions has not improved.

While there has been overall gain in the representation of women at the top institutions during the 1990s, this gain is not due to a rise in women's share of tenure-track or tenured faculty positions. In fact, these percentages have remained at a low level over the past several years. The rise in the proportion of women at the top institutions is thus largely caused by the increasing numbers of women in non-tenure-track positions — an increasingly frequent type of position that is associated with marginal professional involvement and prospects. If such a pattern continues, it may heighten the vertical gender segregation in academic mathematics and result in a wider gap in women's representation between the upper- and lower-prestige mathematics departments. Finally, even if the numerical gap in women's representation remains constant, the rank mix among women faculty may grow increasingly different across departmental groups.

Future studies should use disaggregated data of individual departments to assess the progress of women in academic mathematics. Because the AMS aggregated the data by institutional group, our current analysis has obvious limitations. Nonetheless, the analysis of recent data clearly indicates that there are significant differences in women's representation by rank and by departmental types, and that these differences have shown no signs of diminishing at the institutional group level.

## Notes

1. The response rates for faculty data over the time frame of the study are over 75% for Groups I to III, over 65% for Group IV, over 50% for Group M, and over 40% for Group B. Response rates for Group V are more variable (from 33 to 74%).

2. A one-way ANOVA was used to compare means against a family error rate of 5% for each analysis by rank and gender. Tukey confidence intervals were computed for pairwise comparisons.

3. Slopes range from 0.33 for Group III to 0.55 for Group M; $R^2$ ranges from 0.72 for Group II to 0.91 for Group I.

4. The rank ratio was rescaled so that parity = 0 and ratios above and below parity are symmetrical.

5. While the ratio has decreased in Group I, the trend is not significant because of the high variability within this group.

## References

Babco, E.L. (Ed.). (1997). *Professional women and minorities* (12th ed). Washington, D.C.: Commission on Professionals in Science and Technology.

Billard, L. (1991). The past, present, and future of academic women in the mathematical sciences. *Notices of the AMS* 38, 707-714.

Chamberlain, M.K. (Ed.) (1988). *Women in academe: Progress and prospects*. New York: Russell Sage.

Fox, M.F. (1996). Women, academia, and careers in science and engineering. In C.S. Davis et al. (Eds.), *The equity equation: Fostering the advancement of women in the sciences, mathematics, and engineering* (pp. 265-289). San Francisco: Jossey-Bass.

Jackson, A. (1991). Top producers of women mathematics doctorates. *Notices of the AMS*, 38(7), 715-720.

Long, J.S. & Fox, M.F. (1995). Scientific careers: Universalism and particularism. *Annual Review of Sociology*, 21, 45-71.

National Science Foundation. (1996). *Women, minorities, and persons with disabilities in science and engineering: 1996*. (NSF 96-311). Arlington VA: National Science Foundation.

Radke Sharpe, N. (1995). Sisters Spell Success in Science. *Mount Holyoke Alumnae Quarterly*, Winter Issue, Mount Holyoke College.

Radke Sharpe, N. & Fuller, C.H. (1995). Baccalaureate origins of women physical science doctorates: Relationship to institutional gender and science discipline. *Journal of Women and Minorities in Science and Engineering*, 2, 1-15.

Radke Sharpe, N. & Sonnert, G. (1999). Proportions of women faculty and students in the mathematical sciences: A trend analysis across institutional groups. *Journal of Women and Minoritites in Science and Engineering*, 5(1), 17-27.

Ruskai, M.B. (1994, December). Time for advancement. *Focus*, 25-28.

Sonnert, G. & Holton, G. (1995a). *Gender differences in science careers: The project access study*. Rose Book Series of the American Sociological Association. New Brunswick, NJ: Rutgers University Press.

Sonnert, G. & Holton, G. (1995b). *Who succeeds in science? The gender dimension*. New Brunswick, NJ: Rutgers University Press.

Sonnert, G. & Holton, G. (1996). Career patterns of women and men in the sciences. *American Scientist*, 84, 63-71.

Vetter, B.M. (1987). Women's progress. *Mosaic*, 18(1), 2-9.

Vetter, B.M. (1994). *Professional women and minorities: A total human resource data compendium* (11th ed.) Washington, D.C.: Commission on Professionals in Science and Technology.

## NIST JOINS AWM AS INSTITUTIONAL SPONSOR

The National Institute of Standards and Technology (NIST) is a new sponsor of AWM. They have signed up at the Friend Level. Thanks, NIST!

## NSF-AWM MENTORING TRAVEL GRANTS FOR WOMEN

The objective of the NSF-AWM Mentoring Travel Grants is to help junior women to develop a long-term working and mentoring relationship with a senior mathematician. This relationship should help the junior mathematician to establish her research program and eventually receive tenure. AWM expects to award up to 5–6 grants, in amounts of up to $4000 each. Each grant will fund travel, subsistence, and other required expenses for an untenured woman mathematician to travel to an institute or a department to do research with a specified individual for one month. Any unexpended funds may be used for further travel to work with the same individual during the following year. (Applicants for mentoring travel grants may in exceptional cases receive up to three such grants throughout their careers, possibly in successive years; each such grant would require a new proposal and would go through the usual competition.) For foreign travel, U.S. air carriers must be used (exceptions only per federal grant regulations; prior AWM approval required).

Applicants must be women holding a doctorate or equivalent experience and with a work address in the U.S. (or home address if unemployed). The applicant's research may be in any field which is funded by the Division of Mathematical Sciences of the National Science Foundation.

Each applicant should submit *five copies* of each of the following: 1) a cover letter; 2) a curriculum vita; 3) a research proposal, approximately five pages in length, which specifies why the proposed travel would be particularly beneficial; 4) a supporting letter from the proposed mentor (who must promise to be available at the time of the proposed travel and may be either a man or a woman), together with the curriculum vita of the proposed mentor; 5) an approximate budget; and 6) information about other sources of funding available to the applicant.

A final report will be required from each awardee. All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians appointed by the AWM.

Send *five* complete copies of the application materials (including the cover letter) to: Mentoring Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. If you have questions, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted. The deadline for receipt of applications is **February 1, 2001**.

# SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

The Sonia Kovalevsky High School Mathematics Days below were funded by a grant awarded to AWM by Coppin State University, Microsoft Corporation, and the National Security Agency. Hearty thanks to all the funding agencies!

## Central Missouri State University

Central Missouri State University held its second Sonia Kovalevsky High School Mathematics Day on October 3, 2000. Sixty-six students and 18 teachers attended the event and thoroughly enjoyed the day.

The day started with registration and refreshments. At 8:30 A.M., the group was welcomed to campus by Central's President, Dr. Bobby Patton. Then it was off to the first workshop session. The students chose from three different workships, "Data Collection with the CBL and the Graphing Calculator: Mathematics in Motion," led by Cathy Battles of Lee's Summit High School; "Coding Theory in Your Mailbox," led by Ann Cox of the National Security Agency; and "Finding Patient Zero: Tracing Backward to Locate the Source of an Epidemic," led by Anita Salem of Rockhurst University. The teachers also attended a workshop during this time, "Principles and Standards for School Mathematics: Implications for Grades 9–12," led by Terry Goodman of Central.

After a brief refreshment break, the students formed teams of two or three for the problem-solving competition. The problems were tough, but the students were up to the challenge. Their teachers gathered in a separate room to visit and to give the problems a try themselves. At 11:00 the students chose a second workshop to attend, while their teachers attended the workshop "Perplexing Polyhedra" led by Cindy Ramey and Sue Sundberg of Central.

The afternoon proved to be just as busy and interesting as the morning. After lunch, five panelists spoke and answered questions during the career panel discussion. The panelists were Gayla Benson, Robotics Senior Applications Developer, Cerner Corporation; Ann Cox, Mathematician, National Security Agency; Mindy Harris, Actuary, William M. Mercer Consulting Firm; Elaine Jones, Associate Professor of Finance, CMSU; and Jennifer Riley, Senior Design Engineer, GE Harris Harmon Railroad Technology.

After the panel discussion, the group took tours of the Department of Mathematics and Computer Science. They saw demonstrations in a computer lab and an electronic classroom, and they visited the mathematics library, where Ed Davenport, chair of the department, spoke to the students about the programs offered by the department.

The day ended with a reception to honor all participants. Students and teachers were presented with certificates and the winners of the problem solving competition were given prizes, including t-shirts, key chains and calculators. Two calculators were given away in a drawing.

Everyone involved seemed to have a great time. One student said she was surprised to learn how "math branches into every aspect of life and to any career." Another student said, "The day was really exciting and interesting. Never a dull moment." The teachers said that they plan to use in their classrooms what they learned in their workshops. They also enjoyed watching their students get excited about mathematics. Overall, the day was very successful, and we look forward to doing it again next year.

## East Central University, Ada, Oklahoma

The attendees were greeted with donuts and juice and given their various materials for the day. Included were TI-83 Plus calculators; custom-printed commemorative polo shirts; several complimentary items from East Central University; a folder of information about the university, the use of mathematics in local industries, and the evening football game; and materials from AWM.

Dr. Ray Hamlett, Chairman of the ECU Department of Mathematics, gave a presentation on Sonia Kovalevsky to welcome the participants to campus. Shortly before the first formal session, project director Dr. Anita Walker led the attendees through an exercise which generated each person's birthday after a series of arithmetic calculations. The attendees were smiling, and the tone was set for the rest of the day!

At the Mathematical Modeling Session, the participants explored the use of their new graphing calculators through two problems led by project co-director Dr. Robert Ferdinand. The use of trigonometry in ground surveying helped explain how aerial photographs are

interpreted. Inverse proportions were used to analyze the "length" of a rugged shoreline based on the number of steps involved and the length of each step; the concept of infinity was subtly introduced in the process. Curve-fitting to a data collection was a part of the process used in the latter problem.

At the Computer Laboratory Session, the attendees were welcomed to the Department of Computer Science by Chairman Dr. Bill Walker. Then Dr. Ferdinand led the students through a linear programming problem involving numerous constraints. Mathematica was used on the Department's new UNIX machine to derive solutions to the manufacturing problem presented.

Sack lunches were enjoyed in the new University Center dining area. Invited speaker Saundra Huntly shared her personal story. There were many questions for her. There was also time for the participants to relax and visit before returning to the afternoon program.

All the students participated in a 45-minute mathematics examination covering material from high school algebra and trigonometry. The two teachers in attendance took the test for fun, although of course they did not compete for the awards. The top three participants were from three different schools, and as prizes they received university logo items (padfolios, pen and pencil sets, and academic-year appointment books).

The last formal session of the day was an exploration of divisibility rules for integers led by Dr. Anita Walker. Some were well-known to the participants (such as the rules of divisibility by 2, 3, and 5) while others were totally new to them. A rule for each of the integers from 2 through 16 was presented, and a written proof was constructed for each of the cases. Once the students got the feel for how to write the proofs, they were doing them without much guidance by the end of the session. For perhaps all of them, this was their first exposure to the fact that mathematical results are valid precisely because they have been have been proven to be true. They seemed to be very comfortable with this session.

To end the day, everybody gathered where they had begun. Leftover breakfast food served as snack food. The examination winners were announced and presented with their prizes. Exit evaluations/questionnaires were completed by all participants.

Several of the participants were spotted at the evening football game. Although the home team did not win, the game was entertaining and provided an enjoyable end to a busy day.

## North Carolina A&T University

The North Carolina A&T Sonia Kovalevsky High School Mathematics Day took place on Thursday, November 2, 2000. There were about 150 participants from high schools in the Greensboro area.

After registration the morning session began with opening remarks given by Alexandra Kurepa of NCA&T about the background and the history of the Sonia Kovalevsky Day. This was followed by a very energizing and inspirational welcome from the Dean of the College of Arts and Sciences, Phillip Carey. The program continued with a presentation by Giles Warrack entitled "The Life and Work of Sonia Kovalevsky." The students were visibly impressed by the importance of the work that she produced and the interesting life she led.

Our principal speaker was Sylvia Bozeman from Spelman College, Governor of the Southeastern Section of the Mathematical Association of America, who gave the lecture "The Demand for Women in Mathematics and Science." Sylvia shared some alarming statistics on the number of female and minority students in mathematics, engineering and the sciences. She also presented a suggested list of courses students should take in high school to be better prepared for careers involving mathematics and science. Mathematically the lecture focused on the application of mathematics in digital imaging. The students enjoyed the presentation.

Students and teachers were given a copy of *Careers that Count*, a publication by AWM featuring careers in mathematics. The booklet was regarded with great interest.

After a short break, sessions started. Students attended the workshop "Precollege Choices to Support Math and Science Empowerment" (conducted by G. Casterlow of the NCA&T Mathematics Department and Vallie Guthrie of the Greensboro Area Mathematics and Science Center). In the meantime, the teachers met with Sara Greenwald of Appalachian State University. Her workshop "Incorporating Women's Mathematical Achievements into the Classroom" gave an overview of a course developed at Appalachian State University that in addition to a historical component puts major focus on the mathematical achievements of women in mathematics. Useful web information was shared and problems and experiences were addressed.

*Alexandra Kurepa, North Carolina A&T*

After lunch, a one-hour workshop for all participants was given by Shannon Cobb Williams, a representative from the National Security Agency and a mathematician who is out in the "real world" doing what the students consider to be "fun things." The workshop was entitled "Decoding in your Mailbox" and required student participation. Participants were asked to decode their zip codes in the manner done by the post office. It was very interesting and entertaining, so the students almost without exception gave it high marks on the evaluation forms. The program ended in time for students to take their regular buses home from school.

## St. John's University

On Monday, May 8, 2000, 103 high school women and 14 of their teachers from 13 inner city high schools of the greater New York area met at St. Johns' University to participate in its ninth annual Sonia Kovalevsky Day. Dr. Dorothy Habben, Secretary of the University and Interim Provost, welcomed the visitors and encouraged the girls to take advantage of every opportunity available, especially scholarships, to pursue careers in math and science.

The program began with four panelists of wonderfully varied backgrounds including Mexican, African-American and Asian. Deborah Gregory, a Supervisory Survey Statistician with the U.S. Bureau of the Census inspired the girls with the following words:

Your life is only as big as your dream in whatever you do. Don't limit yourself in what you can do because you never know what life's challenges might bring you. Whatever it is, use it as a learning tool to your next experience. Learn from your mistakes and use obstacles to make you stronger as a person.

Maggie Chow, an electrical engineer at Con Ed noted:

I left my family in Hong Kong and came to the U.S. to further my studies. Since math is a universal language, it helped to make the transition easier during my first year in college. Math is like music; you can communicate it to any person with a different background and a different language. And this is why I found math so interesting.

There is no ending to learning. I completed my master's degree during my first few years at Con Ed. I continue to look for courses that are related to my technical area and managerial courses to improve myself. One of my mentors said to me, "Be a sponge; absorb as much as you can." I challenge you to go out there and learn as much as you can and ask as many questions as possible. This is the only way you will learn.

Barbara Stroz, an actuary at Met Life, shared the following thoughts:

Being good at different types of math (algebra, calculus, probability and statistics) is key, not in just the processes and techniques we learn, but in the analytical, logical and practical problem-solving skills we develop in mastering the math. A lot of times, these skills are what gets applied to real business situations.

Sometimes it's very difficult to balance your job, your career goals, and getting married and having babies. It's a major balancing act and you're human: sometimes you fail. But in the end, once you've completed your requirements, your status within the company, your pay and your personal satisfaction outweigh the years of struggle.

The forum was then opened to the audience and after a number of questions, the girls met with the panelists individually.

Students and teachers then attended two workshops of their choice. Besides the ever popular workshop, "Math Majors Tell (Almost) All," in keeping with the suggestion of MAA and AMS, a workshop involving the history of mathematics and women mathematicians, "Unsung Heroines of Mathematics," was introduced and very well received.

After lunch, all gathered to hear the day's guest speaker, Ms. Rose Marie Secada, who is Director of eBusiness Product Development at Deutsche Bank, and were rewarded with such thoughts as:

It's a great time to be a girl considering her future. Possibilities and opportunities abound. (There are now seven jobs for every person working in computers.) There are fewer people going into Computer Science today than there were 20 years ago even though there are more and higher paying jobs. I understand the reason is that people don't have sufficient math skills to enter the field.

Math skills open the door to incredible possibilities, both in life and careers. In life you will be a more analytical thinker who is more willing and able to make sound decisions. In your career you

will find a path to tremendous job opportunities in a wide variety of fields as well as very good compensation.

In each position that I held, opportunities arose because of my problem-solving skills and decision-making abilities. I simply recognized those opportunities. I noticed that there are a lot of people who question everything around them, but few bring solutions to the table. That's because there are not a lot of good problem solvers out there. To be a good problem solver you have to be a good thinker!

The future looks very promising for young women, especially in the technology fields. I encourage you to study math regardless of what field you choose to enter. Math will help you become a true *thinker.*

To end the day, students participated in three math bowls, one for freshmen and sophomores and two for juniors and seniors. It was exhilarating to see students asking in-depth question about some of the problems posed. All participants received a "golden" Sacagawea dollar enclosed in its own case, along with a short historical discussion of the coin.

St. John's would like to express its deep gratitude to AWM, Microsoft, Coppin State and NSA for their recognition of the importance of this kind of program and their generous support.

### St. Joseph's University

St. Joseph's University hosted its third Sonia Kovalevsky High School Mathematics Day (SKHSMD) on Saturday, October 7, 2000. Seventeen young women and two teachers from six high schools in the city of Philadelphia attended this event. Of the 17 students at least ten were African-American, three Asian American, and one Hispanic. The workshop leaders were all members of the faculty from the Department of Mathematics and Computer Science at St. Joseph's University.

After registration and a continental breakfast, the opening session began with a welcome from SKHSMD coordinator, Dr. Elaine Terry. Dr. Agnes Rash, Chair of the Department of Mathematics and Computer Science at St. Joseph's, talked about the life of Sonia Kovalevsky. The talk included both professional and personal aspects of Dr. Kovalevsky's life. Dr. Rash



Panelists at St. John's SKHS Day

discussed the hardships that women of Dr. Kovalevsky's generation endured. She entertained questions from the students following the twenty-minute talk.

Dr. Rachel Hall gave the first of three workshops, "Patterns and Tilings." In this workshop she explored the meaning of rigid symmetry and symmetry of scale. The students were given transparencies so that they could find the symmetries of wallpaper patterns. Finally, the pinwheel tiling was introduced as an example of a pattern that has symmetry of scale but no rigid symmetries.

Workshop II was a problem-solving contest that was conducted by Ms. Melissa Hudak, Dr. Sylvia Forman, and Dr. Katie Ambruso. Since 15 students were present, they were divided into three groups of five to work on a predetermined set of problems. Melissa Hudak chose the problems and the solutions were provided by Dr. Forman. Students were allowed forty minutes to work on the problems. Melissa graded the problems to determine first, second, and third place winners.

Workshop III was held in Barbelin Hall. Dr. Stephen Cooper led the computer workshop entitled "3-D Animation with Alice." Dr. Cooper started by giving a

brief demonstration of how to create 3-dimensional animated virtual worlds with the Alice software package (freely available from www.Alice.org). The students were then taken to a computer lab, where they worked in small teams to create their own computer programs to build virtual worlds.

Following workshop III the group headed to the Campion Student Center for a buffet lunch in the President's Lounge. Approximately twenty minutes into lunch, a career panel consisting of three professionals was convened. The three professionals were: Kathleen Jenkins, Engineer with NASA; Gina Panichelli, Actuarial Intern with Independence Blue Cross, and Dr. Deborah Lurie, Biostatistician with Cooper Center for In-Vitro Fertilization Laboratory. Each professional was given a few minutes to speak about her career and how mathematics played a role. A question and answer period moderated by Dr. Terry followed. There were many questions, including some on internships and on the daily activities of the panelists.

During the closing, certificates were presented to the participants. Also the winners of the problem-solving contest were announced. The team from Archbishop



Students discuss problems during the problem-solving contest, St. Joseph's SKHS Day

Ryan High School won first place with the most correct problems. Second place went to Multicultural Academy Charter School and third place, to University City High. Dr. Ambruso chose the prizes. First place was a lateral thinking puzzle called the IQ Logic Puzzle Game. The second place prize was a sequencing puzzle called Mastermind. For third place, rod-iron geometric puzzles were awarded. The day ended with a group photo.

As the questionnaires indicated, the third Sonia Kovalesky High School Mathematics Day at St. Joseph's University was a success. We gratefully acknowledge funding from all the donors. The University generously allowed free use of its facilities for all activities. The organizing committee feels that the day was a success and looks forward to another successful day next year.

### Ursuline College

The staff of Ursuline College was very helpful in providing assistance to produce Women in Science and Mathematics (WISM) day. The use of a voice box and a mailbox helped greatly. The people who organized WISM days in previous years provided useful information. The Admissions Department helped find the Navigator students who escorted our guests from one activity to another. They also helped with registration, freeing me up to oversee other details, and provided all the Ursuline materials which were handed out to the visitors.

We are compiling the evaluations of the ten workshops that were provided to the 165 high school freshman, sophomores, and juniors. The most obvious dislikes were the math and computer classes. We will have to look at these more closely.

Dr. Margaret Tuma, an engineer from NASA, brought "her story" to the 250+ students of local high schools and Ursuline College, as well as to the teachers and counselors who were in attendance. She presented the struggles she encountered on her life path to get where she is today. She also brought a brief video giving a snippet of her professional life. Overall, she made a very positive impact on her audience.

I believe that this event is a very worthwhile one. A large percentage of the participants said they would be likely to recommend the event to their peers. Seven urban schools participated in this year's program. This increase was due largely to the grant received, which provided the transportation for these students to get to

Ursuline College. Most of the urban schools do not have the means to send small groups of students on field trips.

A serious problem is the lack of space for workshops. There were seven schools we could not accommodate for the workshops; they were very disappointed. Three of them did attend the lunch and hear the keynote speaker. An alternative might be to have the event in May, after classes end but before faculty leave campus. Another would be to have it twice a year to accommodate more schools, but this would require more funding.

One of our admission counselors shared a story: she recently interviewed a student who was transferring from Kent State to Ursuline because she remembered her positive experience from WISM day. So this day can make a difference in these young adults' lives.

# OPPORTUNITIES

### Summer Program for Women Undergraduates

Carleton and St. Olaf Colleges will continue their NSF-funded successful, intensive four-week summer program (June 24 – July 22, 2001) designed to encourage talented undergraduate women to pursue advanced degrees in the mathematical sciences. The students will take two courses taught by women mathematicians who are excellent teachers and active professionals. In addition to the coursework there will be opportunities for recreational problem solving, discussions about graduate school and careers in mathematics, and twice-weekly colloquia.

Please encourage your talented first- and second-year female mathematics students to apply. Applications are due **February 20, 2001**. For information or application materials, email Deanna Haunsperger at dhaunspe@ carleton.edu, write to Summer Math Program, Math Department, Carleton College, Northfield, MN 55057, or visit www.mathcs.carleton.edu/smp.

### European Women in Mathematics 2001

The 10th international meeting organized by the European Women in Mathematics (EWM) will be held at the University of Tartu, Tartu, Estonia, August 24–30, 2001. The conference is open to members of EWM and

non-members. The Organizing Committee is: Christine Bessenrodt (Germany), Laura Fainsilber (Sweden), Helle Hein (Estonia), Tatiana Ivanova (Russia), Leiki Loone (Estonia), Marie-Francoise Roy (France), and Tsou Sheung Tsun (United Kingdom, chair).

The program consists of "Cohomology theories," organized by Barbara Fantechi; "Mathematics applied to finance," organized by Francine Diener (to be confirmed); "The uses of geometry," organized by Tsou Sheung Tsun, with speakers Xenia de la Ossa (UK), Marjorie Senechal (USA) and Caroline Series (UK), with a possible mini-lecture on noncommutative geometry; "Mathematics outside the classroom: Cultural differences", organized by Marie-Francoise Roy and Laura Fainsilber, with speakers Elts Abel (Estonia) and others to be announced; and a poster session, where all participants are encouraged to present their work. In addition to the scheduled sessions, we envision spontaneously generated round-tables, discussion groups, and short talks pertaining to the above sessions.

For planning purposes, we urge you to express interest in attending by sending us an email as soon as possible, so that we can make early arrangements in Tartu. The deadline for actual registration is **May 31, 2001**. Completed application forms should be sent, preferably by email, to the contact address given below. There will be an EWM registration fee of 30 euros to be paid directly to EWM on arrival; this fee may be waived if there is hardship. Participants are encouraged to investigate all possible sources of support for travel and living expenses since we cannot make any promises for financial support at this moment.

A website for the conference with up-to-date information has been created at www.maths.ox.ac.uk/~ewm01/. Information on previous meetings is available at www.math.helsinki.fi/EWM/EWM.html and full proceedings of the Trieste meeting at math.hindawi.com/ewm-97/. Contact info: Dr. Tsou Sheung Tsun (EWM01), Mathematical Institute, 24–29 St. Giles', Oxford OX1 3LB, United Kingdom; fax: +44 01865 273583; email: ewm01@maths.ox.ac.uk.

## NSF Research Equipment Solicitations

This note is to call to your attention two recently announced NSF solicitations for funding of equipment for research: SCREMS (Grants for Scientific Computing Research Environments for the Mathematical Sciences)

and MRI (Major Research Instrumentation). This year the announcements have different deadline dates: The deadline for SCREMS is **January 18, 2001**; the MRI deadline date is **February 7, 2001**.

The most recent program solicitation for SCREMS is available on the World Wide Web. It is NSF Publication NSF00-16, www.nsf.gov/cgi-bin/getpub?nsf0116. Information about the FY 01 Major Research Instrumentation (MRI) competition is available at: www.nsf.gov/od/oia/programs/mri/start.htm.

## Nebraska Conference for Undergraduate Women

The aim of this conference, held by the Department of Mathematics and Statistics at the University of Nebraska – Lincoln on February 2–4, 2001, is to give undergraduate women the opportunity to present their research and to meet other women who share their interest in the mathematical sciences. Professor Jennifer Key of Clemson University and Professor Alice Silverberg of The Ohio State University will be the two plenary speakers at the conference. See the May–June 2000 *Newsletter* for a report on last year's conference.

Partial funding is available for participants. We welcome recommendations of undergraduates who should be personally invited to attend. Please send names and contact information for such students to either womenws@math.unl.edu or Nebraska Conference for Undergraduate Women in Mathematics, Department of Mathematics & Statistics, University of Nebraska-Lincoln, Lincoln, NE 68588-0323. More information, including online registration, is available at www.math.unl.edu/~womenws.

## Budapest Semesters in Mathematics Program

This program allows third and fourth year undergraduates to spend a semester or year studying mathematics in Budapest, Hungary. Admission criteria are high, but the rewards are great. A semester immersed in the mathematical culture of Budapest is an intellectual adventure of the very first rank. A wealth of information, including pictures and an electronic application form, is available online at www.stolaf.edu/depts/math/budapest. Presently, the program can accommodate about 40 students per semester. The deadline for applications for fall 2001 is **April 30, 2001**; early applications are encouraged.

## ADVERTISEMENTS

# VIEWPOINTS 2001 Mathematics and Art Workshop

Learn from experienced instructors how to blend Math & Art in your classes at
VIEWPOINTS 2001, June 3-8, Franklin & Marshall College.
VIEWPOINTS workshops are sponsored by the Eastern Pennsylvania/Delaware
section of the MAA and the National Science Foundation.

Visit **php.indiana.edu/~mathart/viewpoints** or contact

Dr. Annalisa Crannell, Dept. of Mathematics, Franklin & Marshall College,
Lancaster, PA 17603, (717) 291-4222, a_crannell@acad.fandm.edu.

## *Smith College - Department of Mathematics*

### ✧ ✧ ✧   CONFERENCE   ✧ ✧ ✧

Please join us for a **"Conference in Celebration of Smith College Alumnae Mathematicians,"** to be held at **Smith College** on **April 21-22, 2001.**

The conference website is located at **www.cs.ubc.ca/~egethner/announcement.html**, and contains information about Speakers, Participants, Events, and Accommodations.

The organizers are Debra Boutin AC '91, Karen Collins '81, and Ellen Gethner '81. For further information, please contact Ellen Gethner, **egethner@cs.ubc.ca.**

## Franklin W. Olin College of Engineering

## Faculty Position - Mathematics

The Franklin W. Olin College of Engineering is a new institution that strives to provide the best and most innovative engineering education to the world's brightest and most enterprising students. The College is seeking exceptional faculty dedicated to exemplary undergraduate teaching and committed to innovation and intellectual vitality through one or more creative endeavors.

Faculty are expected to become inspirational teachers of undergraduates, work with other faculty to develop new programs, and obtain national visibility in their field. Preference will be given to experienced candidates with a record of demonstrated excellence or with conspicuous ability and motivation. We are especially interested in candidates with backgrounds in applied mathematics or statistics, however exceptional candidates in other areas such as dynamical systems, probability theory/stochastic processes are encouraged to apply. Familiarity with current issues and approaches in teaching college mathematics are important. Experience with the issues in engineering education, and with the different approaches being taken at various institutions are also attractive.

The Franklin W. Olin College of Engineering, established in 1997 by a major commitment from the Franklin W. Olin Foundation, will provide all students a full 4-year scholarship. An entirely new campus is currently under construction in Needham, MA, adjacent to Babson College. While Olin College is a completely independent institution, access to Babson's world-class programs and other colleges near Boston's Route 128 high-technology corridor will enrich the opportunities available to Olin faculty and students.

To apply, please send an application letter describing your teaching, research and other professional goals and accomplishments with a current resume to: **Mathematics Faculty Search, c/o Dr. David V. Kerns, Jr., Provost, Franklin W. Olin College of Engineering, MS-MA, 1735 Great Plain Ave., Needham, MA 02492-1245. Email: facultysearch@olin.edu**

Applications and nominations will be considered until all open positions are filled.

*The Franklin W. Olin College of Engineering is an Equal Opportunity Employer.*

## For more information visit: www.olin.edu

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# ADVERTISEMENTS

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# ADVERTISEMENTS

**DICKINSON COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE -** Tenure-track position in Computer Science beginning Fall 2001. Applicants should have or be completing a Ph.D. in computer science or related field. Send CV, statements on teaching philosophy and research interests and three letters of reference to: **Professor Nancy Baxter Hastings, P.O. Box 1773, Dickinson College, Carlisle, PA 17013.** For further information visit http://www.dickinson.edu/departments/mathcs or email: baxter@dickinson.edu. Dickinson College is an equal opportunity, affirmative action employer.

**EAST CAROLINA UNIVERSITY - DEPARTMENT OF MATHEMATICS - Chair and Professor of Mathematics -** Applications and nominations are invited for Chair of the Department of Mathematics, College of Arts and Sciences, East Carolina University. Appointment will be at the level of Professor with permanent tenure, beginning on or before August 1, 2001. Qualifications for the position include an earned Ph.D. in the Mathematical Sciences, administrative experience, a distinguished record of research, and a demonstrated commitment to excellence in teaching and service. The Department offers a Master of Arts in Mathematics, a Master of Arts in Mathematics Education, a Bachelor of Arts in Mathematics, and a Bachelor of Science in Mathematics Education. The areas of the Department are Mathematics, Mathematics Education, and Statistics. The Mathematics Department at ECU has 27 tenured or tenure-track faculty. The recent increase in our Department's research productivity and external funding reflects the reclassification of East Carolina as a Doctoral/Research-Intensive University. Further information is available at the department website http://www.math.ecu.edu. ECU enrolls nearly 18,000 students and is the third largest institution in the University of North Carolina system. Located in the eastern region of the state, Greenville is a city of about 58,000, 91 miles east of Raleigh and a short distance to the Atlantic coast. Salary and resources will be highly competitive. Screening will begin February 1, 2001, and applications will be accepted until the position is filled. Please send letter of application, C.V., and a statement of administrative philosophy with details about personal administrative experience. Three current letters of recommendation or the names of 3 references should also be forwarded. Official graduate transcripts are required upon employment. Send all materials to: **Dr. Richard C. Kearney, Chair, Mathematics Search Committee, Department of Political Science, College of Arts and Science, East Carolina University, Greenville, NC 27858-4353.** Phone: 252-328-1066; Fax: 252-328-4134; Email: kearneyr@math.ecu.edu. East Carolina University is a constituent institution of the University of North Carolina University System; an Equal Opportunity/Affirmative Action University; and accommodates individuals with disabilities. Applicants must comply with the Immigration Reform and Control Act.

**GEORGIA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS -** The Department of Mathematics and Statistics of Georgia State University invites applications for anticipated tenure-track entry-level positions for assistant/associate professors beginning August 2001. Earned Ph.D. in Mathematics or closely related discipline, the capability of establishing a fundable program of research and publication, and excellent teaching skills are required. The Department may hire as many as three individuals to fill positions with preference for the areas of (1) biostatistics or statistics, (2) mathematical epistemology or pedagogy, and (3) analysis, algebra or applied mathematics. Applicants should send a letter of application, vita without birth date, but with citizenship status, three letters of reference, and transcripts of all graduate work to: **Chair, Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303-3083.** Initial review of applications will begin on February 1, 2001 and continue until all positions are filled. Georgia State University is a research extensive university, and an EEO/AA institution that values the diversity of its faculty, staff, and student body.

**HARVEY MUDD COLLEGE - DEPARTMENT OF MATHEMATICS - Assistant Professor of Mathematics -** Harvey Mudd College invites applications for a tenure-track assistant professorship. Preference will be given to candidates whose research is in some area of algebra (including algebraic combinatorics, algebraic number theory and algebraic geometry. Excellence in teaching is absolutely essential, as is evidence of a strong and ongoing research program. Candidates will be expected to teach courses in abstract algebra and discrete mathematics, must be willing to supervise undergraduate research, and work with others in the development of departmental programs. Harvey Mudd College is a highly selective undergraduate institution of science, engineering and mathematics; the average SAT score of entering students is over 1,480. More than one-third of the student body are National Merit Finalists, and one year of high school calculus is a requirement for admission. Each year there are over 20 graduates in mathematics, with approximately half going to graduate school. Over 40% of mathematics alumni from HMC have obtained a Ph.D. degree. The college enrolls about 650 students and is a member of the Claremont College consortium, which consists of four other undergraduate colleges and two graduate institutions, forming an academic community of about 5,000 students. There is an active and vital research community of over 40 mathematicians in Claremont. Claremont is situated approximately 35 miles east of downtown Los Angeles, in the foothills of the San Gabriel Mountains. The community is known for its tree-lined streets and village charm. It is an easy drive from Claremont to the cultural attractions of the greater Los Angeles area, as well as the ocean, mountains and deserts of southern California. Applicants should send a curriculum vitae, a description of their teaching philosophy and experience, a description of their current research program, and arrange to have three letters of recommendation sent to: **Professor Arthur T. Benjamin, Chairman, Search Committee, Department of Mathematics, Harvey Mudd College, Claremont, CA 91711-5990.** Further information about the college and department may be found at http://www.hmc.edu. Preference will be given to applications completed by January 5, 2001. Harvey Mudd College is an equal opportunity employer and is committed to the recruitment of applicants historically underrepresented on college faculties.

**INDIANA UNIVERSITY, BLOOMINGTON - DEPARTMENT OF MATHEMATICS -** One three-year visiting position will be available to start in the 2001-2002 academic year. This terminal postdoctoral position is named after our late, distinguished colleague Max Zorn, and is restricted to new Ph.D.'s. Outstanding candidates in all areas of pure and applied mathematics and statistics are encouraged to apply. Excellent research potential as well as a commitment to teaching are required. Indiana University is an equal opportunity/affirmative action employer. Applications received by January 10, 2001 will be given full consideration. Please send a letter of application to: **Search Committee, Dept. of Mathematics, Indiana University, Rawles Hall, 831 East 3rd Street, Bloomington, IN 47405-7106.**

**KENT STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Tenure-Track Position in Mathematics Education -** We invite applications for a tenure-track position in mathematics education. The position is tentatively budgeted at the assistant professor level, but candidates with a sufficiently substantial research record may be considered at a higher level. Applicants must have a Ph.D. degree in mathematics with evidence of expertise and a strong interest in the mathematics education of future teachers. Excellence in teaching and evidence of the ability to sustain a research program are required. The successful candidate will be involved in the department's development and growth in mathematics education. The department has an excellent working relationship with the College of Education. The Kent State Campus is a spacious, residential campus serving more than 20,000 students. It is situated in a small university town within 30 miles of the major metropolitan area of Cleveland. The Department of Mathematics and Computer Science is in the College of Arts and Sciences and houses programs through the doctoral level in applied mathematics, computer science, and pure mathematics. It currently consists of 24 faculty in mathematics and 15 in computer science. The department has an extensive computer network for faculty and student use. Applicants should send a cover letter and a curriculum vitae with the names of at least three references to: **Mathematics Education Search Committee, Department of Mathematics and Computer Science, Kent State University, Kent, OH 44242.** Applicants are also requested to use the AMS standardized application format, forms for which are available through the American Mathematical Society (http://www.ams.org). Applications may be submitted via email to math-ed-pos@mcs.kent.edu. Screening of applicants will begin immediately, and will continue until the position is filled. Kent State University is an Equal Opportunity, Affirmative Action Employer.

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**KENT STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Tenure-Track Positions in Applied Mathematics and Numerical Analysis -** We invite applications for one or more tenure-track positions (pending budget approval) in the areas of applied mathematics and numerical analysis. The appointments are to be at the assistant-professor level and are to begin August 18, 2001. Candidates are required to have a Ph.D. within the mathematical sciences. Preference will be given to candidates with some postdoctoral experience. Candidates are expected to have strong potential in research (including the potential to attract external funding) and in teaching. They should also be able to contribute to the interdisciplinary outreach of the department and to support established research strengths. Candidates in applied mathematics should have a strong background in classical applied mathematics. Preference will be given to candidates with some background in computation. Specializations of particular interest include (but are not limited to) mathematical biology, mathematics of finance, materials science, and optics. In numerical analysis, preference will be given to candidates with background in at least one of the following areas: numerical linear algebra, partial differential equations, optimization. The Kent State Campus is a spacious, residential campus serving more than 20,000 students. It is situated in a small university town within 30 miles of the major metropolitan area of Cleveland. The Department of Mathematics and Computer Science is in the College of Arts and Sciences and houses programs through the doctoral level in applied mathematics, computer science, and pure mathematics. It currently consists of 24 faculty in mathematics and 15 in computer science. The department has an extensive computer network for faculty and student use. Applicants should send a cover letter and a curriculum vitae with the names of at least three references to: **Applied Mathematics Search Committee, Department of Mathematics and Computer Science, Kent State University, Kent, OH 44242.** Applicants are also requested to use the AMS standardized application format, forms for which are available through the American Mathematical Society (http://www.ams.org). Applications may be submitted via email to appl-math-pos@mcs.kent.edu. Screening of applicants will begin immediately, and will continue until the position is filled. Kent State University is an Equal Opportunity, Affirmative Action Employer.

**LEHMAN COLLEGE (CUNY) - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE -** Two tenure-track positions available September 1, 2001 for Assistant/Associate/Full Professor(s) in Computer Science. One position is in any area of Computer Science and requires an earned doctorate. The other position is in any of the areas of Software Development, New Media, Internet Applications, Computer Security, Visualization, Networking. Master's degree required, Ph.D. preferred. Review of applications will start January 15, 2001 and will continue until the positions are filled. Applicants should submit a C.V., cover letter and arrange for at least three letters of recommendation to be sent to: **Prof. Robert Feinerman, Chair, Dept. of Mathematics & Computer Science, Lehman College, Bronx, NY 10468.** See Lehman College web site at www.lehman.cuny.edu (click on Job Opportunities) for additional information. EEO/AA/ADA Employer.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS - Applied Mathematics -** Applications are invited for a limited number of positions in applied mathematics starting fall 2001. Available positions include instructorships, lectureships, assistant professorships, and possibly higher levels. Appointments will be made mainly on the basis of demonstrated research accomplishments and potential. Complete applications must be received by January 3, 2001. To apply, please send a vita with a description of your recent research and research plans, and arrange to have three letters of reference sent. Address: **Committee on Applied Mathematics, Room 2-345, Department of Mathematics, MIT, 77 Massachusetts Ave., Cambridge, MA 02139-4307.** MIT is an Equal Opportunity, Affirmative Action Employer.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY - DEPARTMENT OF MATHEMATICS -** The Department of Mathematics may make appointments at the lecturer and at the assistant professor or higher levels in pure mathematics for the year 2001 - 2002. The teaching load will be nine hours for the academic year (eight hours for assistant professor appointments). Open to mathematicians with doctorates who show definite promise in research. Applications should be completed by January 15, 2001. Applicants please arrange to have sent (a) a vita; (b) three letters of reference; (c) a description of your most recent research; and (d) a research plan for the immediate future to: **Pure Mathematics Committee, Massachusetts Institute of Technology, Room 2-263, 77 Massachusetts Ave., 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, 2001. Please arrange to have sent (a) a vita; (b) three letters of reference; (c) a description of the research in your thesis; and (d) a research plan for the next year to: **Pure Mathematics Committee, Massachusetts Institute of Technology, Room 2-263, 77 Massachusetts Ave., Cambridge, MA 02139-4307.** M.I.T. is an Equal Opportunity, Affirmative Action Employer.

**MEREDITH COLLEGE - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE -** Applications are invited for one, possibly two, full-time tenure-track position(s) as Assistant Professor of Mathematics to begin in August 2001. Applicants must have a Ph.D. in mathematics and demonstrated excellence in teaching. Experience with technology, innovative teaching techniques, and/or undergraduate research is highly desirable. Meredith College is a private comprehensive college of 2,600 students offering both liberal arts and professional programs. The College is located near the world-renowned research triangle area in Raleigh, North Carolina. Applications will be reviewed beginning December 15, 2000 and continue until the position is filled. Send letter of application, resume, statements of teaching philosophy and research goals, copies of transcripts, and three letters of support to: **Dr. Virginia Knight, Head, Department of Mathematics and Computer Science, Meredith College, 3800 Hillsborough Street, Raleigh, NC 27607-5298.** Meredith College seeks to increase diversity among its faculty and staff. Minority candidates are strongly encouraged to apply. Meredith College is an Affirmative Action/Equal Opportunity Employer.

**MICHIGAN TECHNOLOGICAL UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Mathematics Education -** Applications are invited for a tenure-track position at the Assistant Professor level in Mathematics Education starting August 2001. Applicants should have a Ph.D. or Ed.D. in mathematics education with a strong background in mathematics or a Ph.D. in mathematics with a strong background in mathematics education. A commitment to quality teaching and to the development of an active externally funded research program in mathematics education is necessary. Send vita and 3 letters of reference to: **Mathematics Education Search Committee, Department of Mathematical Sciences, Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931-1295.** Michigan Technological University is an equal opportunity educational institution/equal opportunity employer.

**NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Professor and Head -** The Department of Mathematics, in the College of Physical and Mathematical Sciences at North Carolina State University (NCSU), invites applications and nominations for the position of Professor and Head of the Department. The Department has 66 full time faculty, over 100 graduate students, over 200 undergraduate majors, and a number of visiting faculty and postdoctoral research assistants. With annual research expenditures in excess of $2 million, the Department has strong research programs in both pure and applied mathematics and an exceptional record of interdisciplinary collaborations with other departments, government, industry, and other academic institutions such as Duke, the University of North Carolina, and other universities in the greater Triangle area. State-of-the-art computing and communication facilities support strong undergraduate, graduate, and outreach programs, all of which the faculty takes very seriously. Members of the Department provide leadership for the Center [ ➔ ]

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[ ← ] Research in Scientific Computation, an interdisciplinary Center that provides a focal point for research in applied mathematics and computational science and facilitates collaborations with outside departments and institutions. The Department and the Center jointly sponsor an Industrial Applied Mathematics Program that involves graduate students, postdoctoral research associates, faculty, and industrial scientists. The new Head will have an exceptional opportunity to take a leadership role in new directions for the Department. He or she will be expected to establish high standards for the teaching and research programs of the Department, to have a balanced appreciation for teaching, pure and applied research, and outreach, and to maintain a vigorous program of scholarship and professional activity. The salary and initial package for the successful applicant will be competitive and commensurate with qualifications. NCSU offers unique opportunities for industrial-academic collaborations on the new Centennial Campus, an over 1000-acre site housing both University and industrial research facilities. The nearby Research Triangle Park is home to numerous industrial research campuses, the National Institute of Environmental Health Sciences, a major Environment Protection Agency complex, the Microelectronics Center of North Carolina, and the NCSU Biotechnology Center. The Triangle area is regularly acclaimed in national publications as a great place to live. Applicants should send a letter of interest, a curriculum vita, and by arrangement at least three letters of reference to: **Dr. D. E. Aspnes, Chair, Mathematics Head Search Committee, College of Physical and Mathematical Sciences, Box 8201, North Carolina State University, Raleigh, NC 27695-8201.** The Department and its many activities are described more fully on its Web site http://www.math.ncsu.edu. Questions may be directed to aspnes@unity.ncsu.edu. Review of applications will begin 01 December 2000 and will continue until the position is filled. NCSU is an equal opportunity, affirmative action employer and especially solicits applications from women, underrepresented minorities and persons who are physically challenged.

**NORTHERN KENTUCKY UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Chairperson -** NKU is located in the Cincinnati metropolitan area and serves approximately 12,000 students. The Department offers undergraduate study in mathematics, statistics, computer science, & mathematics education, and recently began a master's degree program in computer science. The position begins July 1, 2001 & requires a doctorate and qualifications for associate professor or higher rank. Information about the Department, the University, the position, & how to apply may be found at **http://www.nku.edu/~math/**

**NORTHERN MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Department Head -** Fall 2001 Tenured, Full Professor. Northern Michigan University invites nominations and applications for a position as head of the Department of Mathematics and Computer Science. The department, with 24 full-time faculty members, offers undergraduate programs in mathematics, computer science, and mathematics education on a growing campus with over 8,000 students. A master's program in mathematics education is offered, and innovative majors and graduate programs in the other areas are being developed. Exceptional benefits and a competitive salary are offered. The candidate must have an earned doctorate in one of the department's disciplines, a solid record of college teaching, and a record of scholarly/creative research and publication sufficient for appointment as full professor with tenure. The candidate must provide evidence of effective administrative, program development, interpersonal, and communication skills. The multidisciplinary nature of the department has long been one of the department's strengths. Accordingly, the candidate is expected to have broad interests in the fields of mathematics, computer science, and the teaching of mathematics and computer science. Since NMU is a laptop university and an Internet II sponsored participant, the candidate should have skills in utilizing technology and in promoting its implementation by faculty and students. Initial screening of applicants will begin December 15, 2000 and will continue until the position is filled. Submit an application letter, a résumé, a vision statement, and the names (including telephone numbers, FAX numbers, and email addresses) of at least three references to: **Chair, Headship Search Committee, Department of Mathematics and Computer Science, 1001 Glenn T. Seaborg Science Complex, Northern Michigan University Marquette, MI 49855.** (906) 227-2020; (906) 227-2010 (FAX). A complete listing of qualifications for the position will be provided upon request. Visit NMU's Home Page at http://www.nmu.edu or email us at math_cs@nmu.edu. In compliance with the Jeanne Clery Act, crime statistics for Northern Michigan University may be obtained through the Campus Security Policy and Crime Statistics at http://publicsafety.nmu.edu/clery.htm. NMU is an equal opportunity, affirmative action employer and is strongly committed to increasing the diversity of its faculty.

**THE OHIO STATE UNIVERSITY – AGRICULTURAL TECHNICAL INSTITUTE – Assistant Professor in Mathematics -** Ohio State-ATI seeks a tenure-track Assistant Professor in Mathematics. Ph.D. in Mathematics or related field is preferred; Masters in math or math education with experience will be considered. Teaching responsibilities include technical, applied, and developmental mathematics. Demonstrated teaching excellence, potential for research and proven commitment to serving students desired. Experience in workforce education and working with developmental students also desired. Send letter of application and resume to: **Dr. D. Elder Stewart, OSU-ATI, 1328 Dover Road, Wooster, OH 44691.** Email: stewart.11@osu.edu. Application deadline is March 15, 2001. The Ohio State University is an Equal Opportunity, Affirmative Action Employer. Women, minorities, veterans and individuals with disabilities are encouraged to apply.

**PORTLAND STATE UNIVERSITY - DEPARTMENT OF MATHEAMATICAL SCIENCES -** Applications are solicited for a possible postdoctoral position (max 3 years) as an assistant professor in mathematical sciences, starting September 16, 2001. Applicants must have (or complete by September, 2001) a doctoral degree in pure or applied mathematics or statistics, demonstrated excellence in teaching, and evidence of outstanding research potential. Strong consideration will be given to candidates whose research interests most closely complement existing faculty and support a new professionally based Ph.D. program. Postdoctoral duties include teaching one course per term and being an active participant in the initiation of the new Ph.D. program. Further program information is available on the department's home page, www.mth.pdx.edu. Qualified applicants are invited to submit an application including (1) a letter of intent including AMS application cover page, (2) a curriculum vitae, and (3) three letters of recommendation. Send materials to: **Search Committee, Department of Mathematical Sciences, Portland State University, P.O. Box 751, Portland, OR 97207-0751.** Review of files will begin February 15, 2001 and continue until the position is filled. Portland State University is an Affirmative Action/Equal Opportunity Institution.

**PURDUE UNIVERSITY - DEPARTMENT OF MATHEMATICS -** The Purdue University Department of Mathematics is seeking applications for a full-time ten-month faculty position in Mathematics Education (open rank; joint appointment with the Department of Curriculum & Instruction). Must have a Ph.D. in mathematics, mathematics education or a related area, with a strong mathematics background and at least a master's degree (or equivalent) in mathematics. Three years of teaching experience at the secondary school level and a commitment to outreach activities in schools preferred. Review of applications will begin December 4, 2000 and will continue until position is filled. Send letter of application, CV, reprints of publications, statement of research/scholarly interests, and three letters of recommendation, including at least one that addresses teaching abilities, to: **Chair, Math Ed Search Committee, Department of Mathematics, Purdue University, West Lafayette, IN 47907-1395.** Purdue University is an affirmative action/equal opportunity employer. Women and minorities are encouraged to apply.

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**PURDUE UNIVERSITY - DEPARTMENT OF STATISTICS - Faculty Position(s) in Statistics -** The Department of Statistics at Purdue University has one or more openings for faculty positions. Screening will begin December 1, 2000, and continue until the position(s) is (are) filled. Essential Duties: Conduct advanced research in statistical sciences, teach undergraduate and graduate students and maintain service in the Statistics Department. Essential Qualifications: Require Ph.D. in Statistics or related field, in hand or expected by August 13, 2001. Candidates must demonstrate potential excellence in research and teaching. Salary and benefits are competitive and commensurate with qualifications. Rank and salary are open. Candidate for assistant professor should send a letter of application, curriculum vita and three letters of reference. For senior positions, send a letter of application or nominations, curriculum vita, and the names of three references. Purdue University is an AA/EO employer and educator. Send applications to: **Mary Ellen Bock, Head, Department of Statistics, Purdue University, 1399 Mathematical Sciences Building, West Lafayette, IN 47907-1399, USA.**

**PURDUE UNIVERSITY CALUMET - DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE, AND STATISTICS -** Applications are being accepted for a tenure-track position as Assistant Professor of Computer Science, beginning August 2001. The qualified applicant will have a Ph.D. in Computer Science or in a related field with the equivalent of a Master's degree in Computer Science. All areas of Computer Science will be considered. Candidates who have the potential to involve undergraduates in research will be given preference. The successful candidate will have a record that demonstrates effective undergraduate teaching and the ability to establish and maintain a program of research. The salary is competitive and fringe benefits are excellent. Computer Science is a young, growing Bachelor's degree program within the Department. Purdue University Calumet is located in Northwest Indiana, one of the industrial areas of greater Chicagoland, thirty minutes from downtown Chicago. As part of the Land Grant Purdue University system, this comprehensive university enrolls more than 8,000 undergraduates and 1,000 graduate students. To apply, submit a letter of application, curriculum vitae, statement of teaching philosophy, description of research, graduate transcripts, and three letters of recommendation to: **Professor Yong Chen, Chair, Computer Science Faculty Search Committee, Department of Mathematics, Computer Science, and Statistics, Purdue University Calumet, 2200 169th Street, Hammond, IN 46323.** Fax: (219) 989-2165, email: yongchen@calumet.purdue.edu. Review of applications will begin January 31, 2001, and continue until the position is filled. Purdue University Calumet is an Equal Opportunity/Affirmative Action employer.

**PURDUE UNIVERSITY CALUMET - DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE, AND STATISTICS - Mathematics Education Position -** The Department of Mathematics, Computer Science, and Statistics at Purdue University Calumet is seeking to expand an already active research program in mathematics education. The Department seeks applications for a tenure-track position in Mathematics Education beginning August 2001. **Qualifications.** A doctorate in mathematics education with the equivalent of a master's degree in mathematics or a Ph.D. in mathematics with extensive experience in mathematics education research is required. Experience with K-12 schools is highly desirable. **Responsibilities.** Duties and responsibilities include teaching a range of mathematics education and mathematics courses and working collaboratively with public schools. Candidates must have a commitment to teacher education, to excellence in teaching, and to continued scholarly activity. **Rank and Salary.** Rank is at the Assistant Professor level. Applicants with extensive research and teaching experience may be considered for appointment at the level of Associate or above. The salary is competitive and fringe benefits are excellent. **Department and Programs.** The Department of Mathematics, Computer Science, and Statistics offers Bachelor's and Master's programs in Mathematics and a Master of Arts in Teaching. The Department teaches all content courses in Mathematics Education for majors in elementary and secondary education and collaborates with the Education Department in the delivery of the methods courses. In addition, the Department collaborates with the Education Department to provide a specialization in mathematics education within the Elementary Education Master's program. The Department has approximately 75 mathematics majors, half of whom are secondary teaching majors, and serves an additional 300 elementary education majors. The Department has 22 full-time faculty, including four in Mathematics Education. **Research Interests.** Current research interests of the mathematics educators in the Department range from developing an understanding of how college students create mathematical knowledge to studying the teaching/learning process of elementary school students and teachers by using classroom teaching experiments. Faculty are engaged in collaborative research projects with mathematics education researchers at other institutions. New faculty will have an opportunity to participate in ongoing research or initiate their own research agenda. There are many opportunities to collaborate with school systems in the immediate vicinity of the campus both in research and implementation projects. **The University and Community.** Purdue University Calumet is located in Northwest Indiana adjacent to the south east side of Chicago. As part of the Land Grant Purdue University system, this comprehensive university enrolls more than 8,000 undergraduate and 1,000 graduate students. To apply submit a letter of application, statement of research interests, curriculum vitae, graduate transcript, and three letters of recommendation to: **Professor. C. Rasmussen, Department of Mathematics, Computer Science, and Statistics, Purdue University Calumet, Hammond, IN 46323.** FAX: (219) 989-2165, Phone No.: (219) 989-2705. Email: raz@calumet.purdue.edu. Review of applications will begin January 16, 2001, and will continue until the position is filled. Purdue University Calumet is an Equal Opportunity/Affirmative Action employer.

**SAINT JOHN'S UNIVERSITY - see advertisement under COLLEGE OF SAINT BENEDICT / ST. JOHN'S UNIVERSITY**

**SAN JOSE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE -** One tenure track position in math education at rank of Asst. Prof. & one at rank of Asst. or Assoc. Prof. for 2001-02 AY. Candidates must have Ph.D. in Math Education by August 2001, math background equivalent to a master's degree, K-12 experience. Preference will be given to candidates with at least one year of teaching experience in US K-12 schools, ability to develop teachers of English language learners, familiarity with the use of technology as a tool in teaching mathematics, and commitment to quality teaching. **PVIN: SCI 01-049A & B.** Two tenure track positions in mathematics. At least one will be in the area of statistics. Assistant professor rank is preferred, but appointment to associate professor is possible in exceptional circumstances. To be considered for the position, candidates must have earned their Ph.D. in mathematics by August 2001. Candidates must be committed to quality teaching at all levels. Required: Applicants should have awareness of and sensitivity to the educational goals of a multicultural population. Please send a cover letter, vita, graduate transcript(s), and three letters of reference to: **Chair Michael Burke, Search Committee, Dept. of Math/CS, San José State University, San José, CA 95192-0103.** Cover letter should address your approach to teaching and your willingness to live in an area with a high cost of housing. Later applications may be considered if the position has not been filled. Application deadline is February 2, 2001. EOE/AAE PVIN: SCI 01-048A & B.

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**SHAWNEE STATE UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Chairperson -** Shawnee State University, an open-admission undergraduate state institution which enrolls 3,500 students, is accepting applications for the position of chairperson for the Department of Mathematical Sciences. The department has eleven full-time members. Qualifications: A doctorate in the mathematical sciences or math education with the equivalent of a strong master's degree in mathematics, substantial experience in undergraduate math education, administrative experience or demonstrated administrative potential, and a strong commitment to undergraduate education. The department is seeking an individual with experience and interests that include developmental courses, general/liberal education and service courses, and upper division courses for math majors. The department values the use of a variety of approaches to teaching and learning, including appropriate use of technology, use of applications to motivate mathematical ideas, collaborative learning, and development of students' abilities to communicate mathematical ideas. A complete application file will include a letter of application, vita, and three letters of reference. Candidates should clearly and specifically address how their qualifications satisfy the requirements for the position and are encouraged to submit supporting information with their applications. Applications received by March 1, 2001 will receive full consideration. Send application materials to: **Dr. Jerry Holt, Dean, College of Arts and Sciences, Shawnee State University, 940 Second Street, Portsmouth, OH 45662.** Information about the University is available on our homepage at http://www.shawnee.edu. SSU seeks staff who share our commitment to students as our first priority. SSU is an affirmative action/equal opportunity employer.

**SWARTHMORE COLLEGE - DEPARTMENT OF MATHEMATICS AND STATISTICS -** The Department invites applications for a two-year position as Visiting Assistant Professor in mathematics, beginning in Fall 2001. It is likely that the candidate will be asked to teach several upper-division analysis courses in the next two years, such as partial differential equations or complex analysis. Thus, he/she should be highly qualified and eager to teach courses in analysis. Candidates whose field is either analysis or one which overlaps with a current departmental member are preferred. Candidates should possess a commitment to undergraduate education and promise in research. A Ph.D. in mathematics by the starting date is also expected. The annual teaching load will be three courses in one semester, two courses in the other. Please send a letter of application, resume, a concise letter about teaching in a liberal arts setting, and three letters of recommendation to: **Mathematics Search Committee, Dept. of Mathematics & Statistics, Swarthmore College, 500 College Ave., Swarthmore, PA 19081** (paper copies preferred; email: msdept@swarthmore.edu, fax: 610-690-6854). At least one letter should specifically address teaching experience. Review of applications will begin no later than January 1, 2001, and will continue until the position is filled. All completed applications received by January 15, 2001 will receive full consideration. Swarthmore College is an Equal Opportunity employer. Women and minority candidates are encouraged to apply. **http://www.swarthmore.edu/NatSci/Math/position.html**

**UNITED STATES NAVAL ACADEMY - DEPARTMENT OF MATHEMATICS -** The Department anticipates several tenure-track poitions (subject to approval & funding) at the Assistant Professor level to start in August 2001. Candidates must have a Ph.D., demonstrate a strong commitment to undergraduate teaching, and show potential to continue an active scholarly program. See web site **http://www.usna.edu/MathDept/website/Faculty/Hire/Hire.htm** for full information. Tel: 410-293-6700; Fax: 410-293-4883; Email: amg@usna.edu. The United States Naval Academy is an Affirmative Action/Equal Employment Opportunity Employer.

**UNIVERSITY OF ALABAMA AT TUSCALOOSA - DEPARTMENT OF MATHEMATICS - Director of Introductory Mathematics -** The dept. invites applications for a tenure-track position as Director of Introductory Mathematics at the assistant/associate professor level to begin in June 2000. This is a 12-month position. Candidates must possess a doctorate in mathematics or a doctorate in mathematics education with a Master's degree in mathematics (or the equivalent). The Director of Introductory Mathematics has primary responsibility for curriculum development, coordinating and scheduling introductory mathematics courses, and supervision of instructors and GTAs. Candidates must have successful teaching experience at the developmental level and post-secondary level, possess excellent communication skills, demonstrate knowledge of compensatory mathematics programs, materials, and methods, and have strong organizational skills. We are particularly interested in candidates with knowledge/experience in computer-based instruction. In addition, the Director is expected to teach at least one course per semester and to engage in scholarship in mathematics or mathematics education. Send letter of application, vita, transcripts, & at least three letters of reference to: **Recruiting Committee, Dept. of Mathematics, University of Alabama, Box 870350, Tuscaloosa, AL 35487-0350.** Review of applications begins in February and continues until position is filled. The University of Alabama is an AA/EO employer. For more information about the position or institution: http://www.ua.edu/

**UNIVERSITY OF CALIFORNIA AT SANTA BARBARA - DEPARTMENT OF STATISTICS AND APPLIED PROBABILLITY -** University of California at Santa Barbara invites applications for Lecturer in Probability and Statistics, with potential security of employment, starting July 1, 2001. Primary duties teaching and advising undergraduate students at all levels. Possible emphases include actuarial methods, applied statistics, mathematical statistics, probability. Require Ph.D. in Statistics, strong aptitude for teaching and excellent communication. Apply by January 15, 2001 for primary consideration, however, position open until filled. An EE/AO employer employer. Women and minorities are encouraged to apply. Current resume, papers and three reference letters to: **Search Committee, Department of Statistics and Applied Probability, University of California, Santa Barbara, CA 93106-3110, USA.**

**UNIVERSITY OF MICHIGAN - DEPARTMENT OF MATHEMATICS -** The Department seeks candidates for a Lecturer position beginning September 2001, involving the operation and direction of its introductory program in precalculus and calculus and the training of instructors for these courses. Duties will include the direction of one large multi-section precalculus or calculus course per semester, the teaching of one or two sections of the course being directed, assistance with our program to train and supervise new teachers in the introductory program, and general help with the planning, direction, and administration of the program. Applicants should have demonstrated excellence in the teaching of college mathematics, experience directing multi-section courses in the first two years of college mathematics, and expertise in modern pedagogical methods. Experience in working with outreach programs is also desirable. Those who do not precisely fit this description but who are very strong in several of these areas will also be considered. A Doctorate in Mathematics or a closely related area is preferred but all strong candidates will be considered. Preference will be given to candidates who are also involved in mathematical research or scholarship, including mathematics education. Rank and salary commensurate with experience. Non-discriminatory Affirmative Action Employer. Applicants should send a cv/bibliography, description of experience, a statement on teaching, and have three letters of recommendation sent to: **Professor B.A. Taylor, Chair, Department of Mathematics, University of Michigan, Ann Arbor, MI 48109-1109.** Email: mathchr@math.lsa.umich.edu. Further information is available on our home page (http://www.math.lsa.umich.edu). Applicants considered on a continuing basis.

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# ADVERTISEMENTS

**UNIVERSITY OF PITTSBURGH AT JOHNSTOWN - DEPARTMENT OF MATHEMATICS -** UPJ, a four-year undergraduate college, seeks applicants for four positions beginning late August 2001: **1. Tenure-stream Assistant Professor.** Required: Ph.D. in Mathematics with specialization in Analysis, Discrete Mathematics, Operations Research, or Topology. **2. Tenure-stream Assistant Professor.** Required: Ph.D. in Mathematics with specialization in Algebra, Analysis, Discrete Mathematics, or Applied Mathematics. For positions 1 and 2, teach 12 credit hours per term including 2-3 sections of entry-level courses and 1 upper-level course. Strong commitment to teaching excellence, professional development, willingness to guide undergraduates in student research, and university service required. Deadline: January 1, 2001, or until positions filled. **3. & 4. Non-tenure-stream Instructors.** Three-year renewable contract. Required: Master's in Mathematics or Mathematics Education. Positions may be offered at Assistant Professor level for those with doctorate in Mathematics or Mathematics Education. Teach 12 credit hours per term of lower-level courses fulfilling University General Education requirements in Mathematics & Quantitative Reasoning. Strong commitment to teaching excellence and university service required. Deadline: January 15, 2001, or until positions filled. Send application letter (including email address), current vita, transcripts of all degrees (copies acceptable initially), statement of teaching philosophy (and of professional development for tenure-stream positions), and three original letters of recommendation (sent directly by writer or placement service) to: **Mathematics Assistant Professor Search Committee, Box 10, or Mathematics Instructor Search Committee, Box 20, 130 Krebs Hall, University of Pittsburgh at Johnstown, Johnstown, PA 15904.** Please indicate position number. Candidates applying for both tenure-stream Assistant Professor positions and the non-tenure-stream positions must submit separate application materials. The Univ. of Pittsburgh is an Affirmative Action, Equal Opportunity Employer. Women and minority group members are encouraged to apply.

**UNIVERSITY OF RHODE ISLAND - DEPARTMENT OF MATHEMATICS - Assistant Professor, Mathematics -** We anticipate a tenure-track position in Mathematics to start in the Fall of 2001, pending approval of the search and state funding. Ph.D. in Mathematics required at the time of appointment. Must have a research specialty in one of the following: 1) combinatorics, especially graph theory; or 2) applied analysis, especially numerical solution of partial differential equations, control theory, or applied harmonic analysis. Must clearly demonstrate potential for a high-quality research program, and give evidence of excellence in teaching. Interest in using technology in teaching preferred. Submit a letter of application, resume and at least three letters of recommendation, at least one of which includes a discussion of your teaching, by **02/01/01** to: **Dr. Orlando Merino, Search Committee Chair, (Log#AWM021410), University of Rhode Island, P.O. Box G, Kingston, RI 02881.** The University of Rhode Island is an AA/EEO employer and is strongly committed to achieving excellence through increased diversity of its faculty, staff and students. Women, ethnic minorities, and individuals from under-represented groups are encouraged to apply.

**UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES - DEPARTMENT OF MATHEMATICS - Computational Mathematics and Statistics Section -** The Computational Mathematics and Statistics Section of the Department of Mathematics expects one tenure-track position at the assistant or associate professor level. The search is in computational statistics and computational mathematics with emphasis on the areas of computational fluid dynamics, applied computational methods, stochastic PDEs/stochastic numerics, computational statistics, and financial mathematics. In addition, there are expected to be several visiting and postdoctoral positions. Applicants must show exceptional promise in research and teaching. To apply, please submit the following materials in a single package; letter of application (including your email address, fax number, and position applied for), the AMS Cover Sheet, and a curriculum vitae. Candidates for the positions should also arrange for three letters of recommendation to be sent. Mail all materials to: **Chair of Search Committee, Computational Mathematics and Statistics Section, Department of Mathematics, DRB 155, University of Southern California, Los Angeles, CA 90089-1113.** Applications close March 31, 2001. Additional information about USC can be found on the Web at http://www.usc.edu/. USC is an Equal Opportunity/Affirmative Action Employer.

**THE UNIVERSITY OF TEXAS AT AUSTIN - DEPARTMENT OF MATHEMATICS -** Openings for Fall 2001 include: **(a) Instructorships**, some of which have R.H. Bing Faculty Fellowships attached to them, and **(b) two or more positions at the tenure-track/tenure level. (a)** Instructorships at The University of Texas at Austin are post-doctoral appointments, renewable for two additional years. It is assumed that applicants for Instructorships will have completed all Ph.D. requirements by August 31, 2001. Other factors being equal, preference will be given to those whose doctorates were conferred in 2000 or 2001. 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 $38,000 for the nine-month academic year. Each R.H. Bing Fellow holds an Instructorship in the Mathematics Dept., with a teaching load of two courses in one semester d and one course in the other. The combined Instructorship-Fellowship stipend for nine-months is $41,000, 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 application for such a position is unnecessary. Those wishing to apply for Instructor positions are asked to send a vita and a brief research summary to: **Department of Mathematics, The University of Texas at Austin, Austin, TX 78712, c/o Instructor Committee.** Transmission of the preceding items via email (address: instructor@math.utexas.edu) is encouraged. **(b)** An applicant for a tenure-track or tenured position must present a record of exceptional achievement in her or his research area and must demonstrate a proficiency at teaching. In addition to the duties indicated above for Instructors, such an appointment will typically entail the supervision of M.A or Ph.D. students. The salary will be commensurate with the level at which the position is filled and the qualifications of the person who fills it. Those wishing to apply for tenure-track/tenure positions are asked to send a vita and a brief research summary to: **Department of Mathematics, The University of Texas at Austin, Austin, TX 78712, c/o Recruiting Committee.** Transmission of the preceding items via email (address: recruit@math.utexas.edu) is encouraged. All applications must be supported by three or more letters of recommendation, at least one of which speaks to the applicant's teaching credentials. The screening of applications will begin on December 1, 2000. The University of Texas at Austin is an equal opportunity employer.

**UNIVERSITY OF WISCONSIN, MILWAUKEE - DEPARTMENT OF MATHEMATICAL SCIENCES -** Applications are invited for a tenure-track position at the Assistant Professor level, with emphasis on financial engineering. Preference will be given to candidates in computational/numerical methods, operations research, or stochastic modeling/optimization. The successful candidate must have a strong research record, a record of extramural funding, and a commitment to excellence in teaching. Responsibilities include: teaching two courses per semester, helping build a financial engineering program, and taking an active role in the undergraduate and graduate programs. Please send vita, description of research, statement of teaching philosophy and three letters of recommendation to: **Hiring Committee, Department of Mathematical Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI 53201-0413** postmarked by February 15, 2001. The University of Wisconsin Milwaukee is an EEO/AA employer; women and minority candidates are encouraged to apply. For more information about the University and the Department please see http://www.uwm.edu/Dept/Math.

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AWM GIFT MEMBERSHIPS: If you would like to give a gift membership to a friend or colleague, please fill out the membership form on PAGE 39 with the pertinent information and indicate that it is a gift membership.

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# ADVERTISEMENTS

**UNIVERSITY OF WISCONSIN, RIVER FALLS - DEPARTMENT OF MATHEMATICS -** Applications are invited for a tenure track position in mathematics beginning Fall 2001-2002. Earned doctorate in a mathematical discipline required by August 27, 2001. Applicant must provide evidence of excellence in teaching at the undergraduate level. Teaching duties will include a range of courses, including some in the upper division in at least one of the following areas of applied mathematics: numerical analysis, differential equations, discrete math, number theory, and statistics. A strong commitment to teaching undergraduates at the freshman/sophomore level is required as well. A full-time teaching load is 12 credits per semester. The department expects a willingness to work with students in undergraduate research, as well as collaboration in research and in curriculum development with faculty from within and outside of the department. In addition to teaching and scholarly activity, this position entails campus-wide and departmental service, along with academic advising. Inquires and applications should be addressed to: **Robert Coffman, Department of Mathematics, UW-River Falls, 410 S. Third St., River Falls, WI 54022.** Email Robert.L.Coffman@uwrf.edu. Submit AMS Application cover sheet, a letter of interest, specifying 1) qualifications, and 2) statement of experience, including ability to contribute to the enhancement of student awareness and appreciation of diverse cultures. Include vitae, complete transcripts (official transcripts required for appointment), and three recent letters of recommendation, including one addressing teaching effectiveness. Also include the names, addresses and telephone numbers of at least three references who can specifically comment upon your teaching ability, experience, and professional preparation. To ensure consideration, a complete application should be received by January 31, 2001. Screening may continue until position is filled. UW-River Falls is an EO/AA employer.

**UNIVERSITY OF WISCONSIN, STEVENS POINT - DEPARTMENT OF MATHEMATICS AND COMPUTING -** Applications are invited for two tenure-track assistant professor positions in mathematics beginning August 2001. For one position, a specialty in algebra will be considered a plus. Primary duties involve teaching a variety of lower- and upper-level undergraduate mathematics courses. In addition, scholarly activity, professional growth, and university service are required for retention and tenure. A typical teaching load is twelve credit hours per semester with two preparations. Applicants should have a Ph.D. or equivalent terminal degree in mathematics by December 2001. Submit a curriculum vitae, copies of graduate transcripts, three letters of recommendation sent directly from references (at least one specifically evaluating past teaching performance), and a written statement of teaching/research experience, goals, and interests to: **Mark R. Treuden, Hiring Committee Chair, Department of Mathematics and Computing, UW-Stevens Point, Stevens Point, WI 54481.** Please indicate Position No. 01-58F23/25. For full consideration, complete applications must be received by January 15, 2001. UW-Stevens Point is an EO/AA Employer. Additional information is available at <http://www.uwsp.edu/math>.

**UNIVERSITY OF WISCONSIN, STEVENS POINT - DEPARTMENT OF MATHEMATICS AND COMPUTING -** Applications are invited for a tenure-track assistant professor position in mathematics/mathematics education beginning August 2001. A specialty or experience in mathematics education will be considered a plus. K-12 teaching experience is desirable. Primary duties involve teaching a variety of undergraduate mathematics service courses with the additional opportunity to teach courses in the mathematics education curriculum. In addition, scholarly activity, professional growth, and university service are required for retention and tenure. A typical teaching load is twelve credit hours per semester with two preparations. Applicants should have a Ph.D. or equivalent terminal degree in mathematics/mathematics education by December 2001. Submit a curriculum vita, copies of graduate transcripts, three letters of recommendation sent directly from references (at least one specifically evaluating past teaching performance), and a written statement of teaching/research experience, goals, and interests to: **Elaine Hutchinson, Chair of Hiring Committee, Department of Mathematics and Computing, UW-Stevens Point, Stevens Point, WI 54481.** Please indicate position number 01-58F24. For full consideration, complete applications must be received by January 15, 2001. UW-Stevens Point is an EO/AA Employer. Additional information is available at http://www.uwsp.edu/math/

**UNIVERSITY OF WYOMING - DEPARTMENT OF MATHEMATICS - Tenure Track Position in Applied Mathematics -** The University of Wyoming Mathematics Department (Web site http://math.uwyo.edu) invites applications for a tenure-track Assistant or Associate Professorship in Applied Mathematics to begin August 2001. We seek candidates with an earned doctorate in MATHEMATICS, proven teaching ability and strong research in areas of interest in the department, especially computational mathematics, mathematical modeling, and numerical analysis. A strong commitment to undergraduate and graduate advising, outreach instruction and service is also necessary. Preference will be given to candidates with interdisciplinary research programs. Additionally, for associate Professor, an established, externally funded research program is required. Applicants should arrange to send a vitae, research plan, teaching philosophy, and three letters of recommendation to: **Applied Search Committee, Department of Mathematics, University of Wyoming, P. O. Box 3036, Laramie, Wyoming 82071, U.S.A.** Review of applications begins February 1, 2001. The University of Wyoming is an affirmative action/equal opportunity employer.

**UNIVERSITY OF WYOMING - DEPARTMENT OF MATHEMATICS - Mathematics Academic Professional Lecturer -** We invite applications for an Academic Professional Lectureship position to begin August 2001. The position is defined by a probation period followed by extended-term, renewable appointments. Minimum requirements are three years teaching experience with evidence of exceptional dedication and success with students, a strong mathematical background and a graduate degree in mathematics or a complementary area such as Curriculum and Instruction. A strong commitment to outreach instruction and service is necessary. Preference will be given to applicants who have experience in the use of technology and innovative curriculum in mathematics instruction. Preference will be given to applicants with a strong commitment to continued scholarly and professional growth. Duties will include instruction, supervision, and staff development for instructors in two of three entry-level service courses in algebra and trigonometry. See our web site (math.uwyo.edu) for a current description of our department and these courses, Math 1400/1405/1450. Applicants should send a vitae, a statement of teaching philosophy, evidence of outstanding teaching merit, and three letters of recommendation to the **APL Search Committee, Department of Mathematics, University of Wyoming, P.O. Box 3036, Laramie, WY 82071-3036.** Review of applications begins March 1, 2001. The University of Wyoming is an affirmative action/equal opportunity employer.

**WESLEYAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE -** The department invites applications for the following positions in Mathematics to begin in the academic year 2001-2002. Candidates for these positions must have a Ph.D. in Mathematics and are expected to have strong records in both research and teaching. Assistant Professor of Mathematics: We seek candidates for two tenure-track assistant professorships, one in analysis and the other in algebra. These positions are most suitable for candidates with an established research program, typically with some postdoctoral experience. For the analysis position, we are especially interested in probability theory, Lie groups, or geometry with connections to dynamics; for the algebra position, we are especially interested in arithmetic or algebraic geometry, number theory, algebraic groups, commutative algebra, or algebraic combinatorics. Outstanding candidates in any area of mathematics are encouraged to apply. Teaching duties for each of the above positions are two courses per semester. Wesleyan University is committed to increasing the diversity of its faculty and is an equal opportunity/affirmative action employer. Applications must be submitted by January 29, 2001. Applicants should arrange for at least four letters of recommendation, including one which evaluates teaching, to be sent to the address below. All correspondence and applications should be submitted to: **Mathematics Search Committee, Department of Mathematics and Computer Science, Wesleyan University, Middletown, CT 06459.** Email enquiries may be directed to mathjobs@wesleyan.edu; please mention that you are enquiring about the assistant professorships. More information concerning the Department of Mathematics and Computer Science and about Wesleyan University can be found via http://www.math.wesleyan.edu/

# *Association for Women in Mathematics*
## 2000/2001 MEMBERSHIP FORM

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

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

The AWM Newsletter is published six times a year and is part of your membership. Any questions, contact AWM at awm@math.umd.edu; (301) 405-7892 or refer to our website at: **http://www.awm-math.org**

LAST NAME     FIRST NAME     M.I.

ADDRESS_____

❑ I DO NOT wish for my AWM membership information to be released for the **Combined Membership List.**

**Email:**       **Home Phone:**       **Work Phone:**
      ❑ **do not** publish home number       ❑ **do not** publish work number

**Date of Birth** (optional):_____ (MMDDYYYY) [the date of birth field is to strictly help prevent duplicate entries]

**PROFESSIONAL INFORMATION:**
Position:       If **student**, GRADUATE or UNDERGRADUATE (circle one)
Institution/Company:       If **not** employed, leave position & institution blank
City, State, Zip:

**DEGREES EARNED:**

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

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### 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.**

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| (NO newsletter) Please indicate regular family member: _____ | |
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Indicate if you wish for your **contribution(s)/donation(s)** to remain ANONYMOUS ⇨ ❑
Dues in excess of $15 and all cash contributions/donations are deductible from federal taxable income.

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### INSTITUTIONAL DUES SCHEDULE

| | |
|---|---|
| ❑ CATEGORY **1** (includes 10 student memberships; 1 free ad; 25% off additional Newsletter & online ads✴).. | $250 _____ |
| ❑ CATEGORY **2A** (includes 3 student memberships; 1 free ad; 10% off additional Newsletter & online ads✴).... | $125 _____ |
| ❑ CATEGORY **2B** (includes 6 student memberships; 10% off Newsletter & online ads✴)................................... | $125 _____ |

**ADVERTISING:** Institutional members on Categories 1 and 2a receive ONE FREE job link ad <u>or</u> ONE FREE Newsletter ad (up to 4 lines) for the membership year Oct. 1st to Sept. 30th. All institutional members receive discounts on other eligible✴ advertisements (25% off for Category 1 and 10% off for Categories 2a and 2b). ✴Eligible advertisements: The institutional discount applies to both classified and job link online ads as well as classified *Newsletter* ads, but it <u>does not</u> apply to *Newsletter* display ads. If institutional dues <u>have not been received</u> by the invoice date, the <u>full advertising rate</u> will be charged. *Newsletter* advertising deadlines are the 1st of every <u>EVEN</u> month. All institutions advertising are Affirmative Action/Equal Opportunity Employers. **STUDENT NOMINEES:** Institutions have the option to nominate students to receive the newsletter as part of their membership. List names and addresses of student nominees on opposite side or attach a separate page. [ADD $15 ($23 for foreign members) to the listed institutional rate for <u>each</u> student add-on over the initial 10 students for Category 1; over the initial 3 students for Category 2a & over the initial 6 students for Category 2b ]. For more advertising/membership info see **www.awm-math.org**

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❑ Indicate if GIFT membership FROM: _____       **TOTAL ENCLOSED $** _____

## ADDRESS CORRECTION FORM

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Country (if applicable)_____E-mail Address_____

Position_____Institution/Org._____

Telephone: Home_____Work_____

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

*or E-MAIL:*

awm@math.umd.edu

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## AWM
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