

AWM

ASSOCIATION FOR WOMEN IN MATHEMATICS

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NEWSLETTER

May-June 2003

PRESIDENT'S REPORT

Graduate students or recent graduate students: Is your graduate program one where women feel supported and encouraged? Tell us about it! Send an article (a short paragraph or something longer) to the *AWM Newsletter*. Mention your school by name and tell us what they're doing to create an atmosphere in which women students can flourish. Perhaps there's nothing in particular that they're doing to create a supportive atmosphere; perhaps it's just that the individual faculty members show a concern for the students. Still, we want to hear about it. Submit your article or note anytime. Let's keep up an ongoing discussion of graduate programs that are doing a great job. (We ask that these articles be submitted by the graduate students themselves or by recent graduates of the program.) Discussions of programs that are working well can help more graduate programs improve the atmosphere for their women students.

The AWM Executive Committee is discussing visions and possible new directions for the AWM. If you would like to share your ideas, please contact me at csgordon@dartmouth.edu.

Linda Petzold will deliver the first annual AWM-SIAM Sonia Kovalevsky Lecture on June 20 at the SIAM annual meeting. Also at the SIAM meeting, the AWM will hold a workshop for women graduate students and recent Ph.D's. The workshop will feature research presentations by the participants, as well as mini-symposia and panels on issues of career development. This year the SIAM meeting is being held jointly with the Canadian Applied and Industrial Mathematics Society.

At the Mathfest in Boulder, Louise Hay Award Winner Katherine Layton Puckett will deliver the joint AWM-MAA address. The AWM will again host a reception. At ICIAM 2003 in Sydney, Monica Hurdal and Jennifer Ryan will participate as AWM Invited Speakers in a mini-symposium on "Applied Modelling and Numerical Simulations" organized by Suzanne Lenhart, Kerry Landman, and Maeve McCarthy; the Australian speakers in this mini-symposium will be Belinda Barnes and Jane Sexton.

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AWM
ASSOCIATION
FOR WOMEN IN
MATHEMATICS

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

The *Newsletter* is published bi-monthly.

The Editor welcomes articles, letters, and announcements.

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Congratulations to AWM past president Linda Rothschild and to Salah Bouendi on being awarded the Bergman Prize!

The AWM Executive Committee has endorsed several resolutions concerning the importance of open international scientific exchange, including statements by the International Mathematics Union, the Council of the National Academy of Sciences (Statement on the Critical Importance of Continuing International Collaboration in Science), the International Council for Science, and the American Physical Society (statement against the call to boycott Israeli scientists). See pages 5–8 for the text of the resolutions.

The AWM Mentor Network, coordinated by Rachel Kuske, always welcomes new mentors and mentees. The network matches mentors (men or women) with women and girls of all levels, grade school through recent Ph.D.'s, who are interested in mathematics. For more information, see <http://www.awm-math.org/mentornetwork.html>.

Through grants from the National Security Agency and Coppin State University (pending approval), the AWM expects to continue its program of Sonia Kovalevsky High School Days. Applications to sponsor fall 2003 and spring 2004 SK days are due August 4.

I wish all of you a wonderful summer.

Carolyn Gordon

Carolyn Gordon
Dartmouth College
March 27, 2003



IN MEMORIAM: EDITH H. LUCHINS

I first encountered Edith H. Luchins when I became a subject of her NSF-sponsored research into women in mathematics. She had sent her questionnaire to about a thousand of us who were members of the AWM with such questions as: Were you the firstborn child in the family? Were you close to your father? in an attempt to find the factors that contributed to women becoming mathematicians. At that time only about seven percent of the doctoral degrees awarded in mathematics went to women. On the faculty of Rensselaer Polytechnic Institute in Troy, New York, Edith Luchins saw it as one of the few schools which had an emphasis on historical-cultural factors and problem-solving that enticed women. What she did not mention was that she was a one-person dynamo in enabling and encouraging women. With her ever-present smile and pleasant manner she always found a way to encourage students, male and female, at all levels in academia.

When I came to Rensselaer as a graduate student, it was she; President George M. Low, formerly of NASA; and Professor Ronald S. Calinger, undergraduate dean and Professor of History (of Science) who lured me. All three were leaders and achievers. George Low came from Austria. Edith Hirsch had been born in Poland on the 21st or 22nd of December—she was not sure which, but it was under a special sign. Her father Max was a poet, and her mother was a liberated woman who smoked. She and her family, including her sisters, came to this country at the end of the 20s. Professor Luchins recalled how she met and fell in love with her future husband, Abraham Luchins, when she was 15 1/2 and he at 21 was resplendent in his military uniform. She became a mathematician and he a professor of psychology. They collaborated on research and on a family of five children, all of whom are Ph.D.'s, M.D.'s, rabbis or some combination thereof. They are David, a former advisor to Daniel Patrick Moynihan; Daniel; Anne Greenfield, who learned to cook as a defense against a mother who did not, according to EHL; and son Joseph. She tried never to miss an engagement party, wedding, bar mitzvah or other family get-together. There were 22

Mary Ann McLoughlin, Chair, The College of Saint Rose

MEMBERSHIP AND NEWSLETTER INFORMATION

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Individual: \$50 Family (no newsletter): \$30
 Contributing: \$100 Retired, part-time: \$25
 Student, unemployed, developing nations: \$15
 Friend: \$1000 Benefactor: \$2500
 All foreign memberships: \$8 additional for postage
 Dues in excess of \$15 and all contributions are deductible from federal taxable income.

Institutional Members:

Level 1: \$250
 Level 2a: \$125
 Level 2b: \$125

See <http://www.awm-math.org> for details on free ads, free student memberships, and ad discounts.

Affiliate Members: \$250

Institutional Sponsors:

Friend: \$1000+ Patron: \$2500+
 Benefactor: \$5000+ Program Sponsor: \$10,000+
 See the AWM website for details.

Subscriptions and back orders

All members except family members receive a subscription to the newsletter as a privilege of membership. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for \$50/year (\$58 foreign). Back orders are \$6/issue plus shipping/handling (\$5 minimum).

Payment

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

Newsletter ad information

AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Director of Marketing, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the Newsletter must be Affirmative Action/Equal Opportunity designated.* Institutional members receive discounts on ads; see the AWM website for details. For non-members, the rate is \$100 for a basic four-line ad. Additional lines are \$6 each. See the AWM website for *Newsletter* display ad rates.

Newsletter deadlines

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

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

Addresses

Send all *Newsletter* material **except ads and material for book review and education columns** to Anne Leggett, Math Dept., Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; email: leggett@math.luc.edu; phone: 773-508-3554; fax: 773-508-2123. Send all **book review** material to Marge Bayer, Department of Mathematics, University of Kansas, 405 Snow Hall, 1460 Jayhawk Boulevard, Lawrence, KS 66045-7523; email: bayer@math.ukans.edu; fax: 785-864-5255 and all **education column** material to Ginger Warfield, Math Dept., University of Washington, Seattle, WA 98195; email: warfield@math.washington.edu. Send everything else, **including ads and address changes**, to Dawn V. Wheeler, 4114 CSS Building, University of Maryland, College Park, MD 20742-2461; phone:

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Classified and job link ads may be placed at the AWM website. Detailed information may be found there.

Website and Online Forums

<http://www.awm-math.org>

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AWM-Net

To subscribe, send mail to awm-net-request@cs.umd.edu and include your email address; AWM members only.

AWM DEADLINES

Sonia Kovalevsky High School
Mathematics Days: August 4, 2003

AWM Workshop, January 2004:
September 1, 2003

Alice T. Schafer Prize: October 1, 2003

Louise Hay Award: October 1, 2003

NSF-AWM Travel Grant: October 1, 2003
and February 1, 2004

Noether Lecturer Nomination:
October 15, 2003

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grandchildren, 11 granddaughters and 11 grandsons; and 12 great grandchildren, 6 great granddaughters and 6 great grandsons, until another came along to make 13.

At Rensselaer she became my professor, doctoral advisor and mentor as I wrote my doctoral thesis on Olga Taussky-Todd. Ron Calinger, student of Saunders MacLane at the University of Chicago, was her mentor and collaborator when it came to the history of mathematics. Like Olga at California Institute of Technology, Edith became the first woman to be appointed full professor at her institution, RPI. Olga and husband Jack Todd collaborated on mathematics. Edith and Abraham collaborated on mathematics and psychology. In 1930 Olga graduated from the University of Vienna with a doctorate, and during World War II worked at the Ministry of Aircraft Production in London. After Edith graduated from Brooklyn College in 1942 her first employment was as government inspector of anti-aircraft equipment at Sperry Gyroscope Company on Long Island.

Edith received an M.S. degree from New York University in 1944 and a Ph.D. from the University of Oregon in 1957. Both Olga and Edith wrote poetry as naturally as they did mathematics. Olga wrote "Number Theory" but also a parody of "Der Vogel auf dem Leim" by Wilhelm Busch to express her feelings toward the formidable "Miss Emmy" [Emmy Noether], both at Girton College, Cambridge, England and later at Bryn Mawr, where Emmy was a visiting professor who lectured at Princeton University. Edith wrote poetry for the holiday parties at Rensselaer at which she and Professor Joe Ecker competed with each other. For her retirement on May 19, 1993, when Ecker was Chairman, she expressed her feelings about retirement:

"With your permission I'd keep a position
In the department of math
If it doesn't incur the Chairman's wrath.
Though right now he does not know it,
He'll remain the department poet.
I'll be an Active Poet Laureate."

During her tenure at Rensselaer (1962–2002), Luchins was awarded the Rensselaer Distinguished Teaching Award, the Darrin Counselling Award, the Martin Luther King, Jr. Award and the Rensselaer Alumni Association Outstanding Faculty Award. She was Distinguished Visiting Professor of Mathematics at the United States Military Academy at West Point, 1991–92. While at Rensselaer, she established a prize in mathematics in memory of her beloved father, Max Hirsch.

Upon the death of my father, Frank B. Schultz, last year, she wrote me these words: "Grief over the death of a beloved parent is sustained. May you be given the strength to bear the grief. And may you be comforted by the realization that you were a very devoted daughter, and that he was so proud of you and your accomplishments. Moreover, you and your family brought much happiness to your

father. I write this after reading your words, 'How much I miss him!' My husband joins me in extending our heartfelt condolences."

Edith Luchins died at the age of four score and almost one year more on November 18, 2002. Her husband, Dr. Abraham Luchins, survives her.

References

See also *Campus News*, December 2, 2002, Rensselaer Polytechnic Institute, www.rpi.edu/Campus.News/dec_02/dec_2/luchins.html and www.dean.usma.edu/math/people/rickey/dms/Non-grads/Luchins-Edith.htm.

An obituary at www.enabling.org/ia/gestalt/gerhards/EHLuchins.html refers to Luchins as "mathematician and one of the most eminent Gestalt psychologists of the third generation." It includes a selected bibliography of her works in both mathematics and psychology, including many papers co-authored with her husband. At the same site her answer to a question on the relationship between Gestalt theory and mathematics is posted at www.enabling.org/ia/gestalt/gerhards/maths.html.

For information on the water jar measuring problem, an experiment showing how "prior experience can limit people's abilities to function efficiently in new settings," see www.nap.edu/html/howpeople1/ch3_b2.html.

OPEN SCIENTIFIC EXCHANGE

The AWM Executive Committee recently endorsed the resolutions below concerning the importance of open international scientific exchange.

Statement by the International Mathematics Union

Notwithstanding these times of heightened tension and security concerns, we urge a continuation of scientific exchange and publication. The IMU opposes efforts either by governments, organizations, or individuals to restrict contacts and interactions in the world mathematical community. Specifically we oppose holding individual mathematicians liable for the actions of their governments. The IMU endorses the principles

<http://elib.zib.de/IMU/GA-Shanghai/resolutions.html>

expressed in the Article 5 of the Statutes of the International Council for Science – ICSU, as adopted at the 1998 General Assembly, that reads as follows: "In pursuing (pursuing) its objections (objectives) in respect of the rights and responsibilities of scientists, ICSU, as an international non-governmental body, shall observe and actively uphold the principle of the universality of science. This principle entails freedom of association and expression, access to data and information, and freedom of communication and movement in connection with international scientific activities, without any discrimination on the basis of such factors as citizenship, religion, creed, political stance, ethnic origin, race, colour, language, age or sex. ICSU shall recognize and respect independence of the internal science policies of its National Scientific Members. ICSU shall not permit any of its activities to be disturbed by statements or actions of a political nature."

Statement on the Critical Importance of Continuing International Collaboration in Science from the Council of the National Academy of Sciences

Given the current Israeli-Palestinian crisis and other developments that threaten to affect scientific exchange and education, the Council of the National Academy of Sciences reaffirms the need to maintain Scientific collaborations, support science education, and enhance the functioning of scientific and academic institutions throughout the world. Our recent concerns include the deaths, injuries, and damage caused by the bombing at the Hebrew University of Jerusalem, the damage inflicted on the Palestine Academy for Science and Technology and the Palestinian Ministry of Education last April in Ramallah, the temporary forced closing in July of the administrative offices of Al-Quds University, and various petitions advocating boycotts and/or moratoria on relations with Israeli academic and cultural institutions. We are not only concerned for our scientific colleagues; we are also, of course, painfully aware that these and other events have had a tragic impact on other innocent individuals.

Our Council is unanimous in the belief that the world scientific community can and must contribute—through vigorous scientist-to-scientist and institution-to-institution interactions—to the reduction of tensions and the

<http://www4.nationalacademies.org/nas/nashome.nsf>

advancement of peace in the Middle East, as well as elsewhere around the globe. Scientists can provide a voice for rationality and moderation in political affairs. They also can easily build strong bridges of understanding between cultures—through their collaborations in science, technology, health, education, human rights, and sustainable economic development.

The National Academies have worked for many years to help establish collaboration among scientists from different countries on such issues. For example, a joint report published in 1999, titled *Water for the Future: The West Bank and Gaza Strip, Israel, and Jordan*, is the result of efforts to draw on the common culture and values of scientists to build bridges for peace in the Middle East.

The tragic events in the Middle East have increased our commitment to continuing our work with scientists in the region, where we aim to catalyze collaboration on specific water issues, to establish Frontiers of Science and Engineering programs, to promote new collaborations in the areas of nutrition and health, and to make other contributions to help achieve a lasting peace.

We are adamantly opposed to scientific boycotts, and we call upon the members of the world scientific community—many of whom we know share our concern—to actively support scientific exchanges, collaborations, and education as a wise and humane investment for peace in the future.

Israeli Scholars: ICSU/SCFCS Statement by the International Council for Science

Since its inception in 1931, the International Council for Science (ICSU) has affirmed and vigorously upheld the principle of universality of science based on the human right of scientists throughout the world to participate in scientific activity without any discrimination on the grounds of citizenship, religion, creed, political stance, ethnic origin, race, colour, age or gender. It has argued that the processes of academic research and scholarship, and the unfettered pursuit of knowledge, are for benefit to mankind as a whole. Moreover, they are dependent for their advance upon the freedom of scholars to converse, to make contact, to travel to conferences, to publish their results and to proffer advice. It is, therefore, in the interests of governments, institutions and above all individuals—whether themselves scholars or not—to support this principle of non-discrimination. *Bona fide* scholars pursuing academic activities should be free to do so without hindrance.

Recent moves to foster an academic boycott of Israeli scientists and the dismissal of two Israeli scholars from their roles on the editorial boards of two journals published in the United Kingdom are a flagrant breach of this principle and have rightly drawn substantial adverse

www.icsu.org/Library/Central/Statem/israeli-schol.html

CALL FOR NOMINATIONS: ALICE T. SCHAFFER MATHEMATICS PRIZE

The Executive Committee of the Association for Women in Mathematics calls for nominations for the Alice T. Schaffer Mathematics Prize to be awarded to an undergraduate woman for excellence in mathematics. The Schaffer Prize was established in 1990 by the Executive Committee and is named for AWM president and one of its founding members, Alice T. Schaffer, who has contributed a great deal to women in mathematics throughout her career. All members of the mathematical community are invited to submit nominations for the Prize. The nominee may be at any level in her undergraduate career. She must either be a US citizen or have a school address in the US. The fourteenth annual Schaffer Prize will be awarded at the Joint Prize Session at the Joint Mathematics Meetings in Phoenix, Arizona, January 7–10, 2004.

The letters of nomination should include, but are not limited to, an evaluation of the nominee on the following criteria: quality of performance in advanced mathematics courses and special programs, demonstration of real interest in mathematics, ability for independent work in mathematics, and performance in mathematical competitions at the local or national level, if any.

With letter of nomination, please include a copy of transcripts and indicate undergraduate level. Nominees must be undergraduates as of October 1, 2003. Any additional supporting materials (e.g., reports from summer work using math, copies of talks given by members of student chapters, recommendation letters from professors, colleagues, etc.) should be enclosed with the nomination. Send *five* complete copies of nominations for this award to: The Alice T. Schaffer Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. Nominations must be received by **October 1, 2003**. If you have questions, phone 301-405-7892, email awm@math.umd.edu or visit www.awm-math.org. Nominations via email or fax will not be accepted.

comment from scientists, newspaper columnists and human rights activists in the United Kingdom.

On behalf of the Executive Board of ICSU, we draw attention to these events to remind all our national member academies and research councils and our scientific unions and associates of the critical importance of the principle of non-discrimination and of the need for constant vigil in securing its continuing adoption. We understand the strong feelings generated by conflicts, for example that in the Middle East, and the desire of individuals and groups to avoid contact, actively boycott or otherwise demonstrate distaste or disgust for the actions of nation state governments and others. But to do so through the medium of individual scholars is to sacrifice a profoundly important principle of freedom.

We urge all scholarly communities and not least those in science and technology, to heed the words of the Leader in the London *Evening Standard* on 10 July 2002: "Intellectual communities world-wide are in the business of fostering international understanding and cooperation not of penalising each other for the shortcomings of their governments."

American Physical Society: Statement against the Call To Boycott Israeli Scientists

On November 12, 1989, the Council of the American Physical Society adopted a Statement on the international nature of physics and international cooperation, the preamble of which states: "Science belongs to all humanity and transcends national boundaries. As in the past, science can serve as a bridge for mutual understanding across political and ideological divisions and as a vehicle for the enhancement of peace. In particular, APS believes that it is important at this time to strive for more open dialogue among scientists to enhance international cooperation."

Recent calls initiated by some European academics to boycott Israeli scientists and the Israeli scientific community violate these longstanding principles. The American Physical Society reaffirms its commitment to maintaining open dialogue and promoting cooperation among scientists throughout the world. The APS

www.aps.org/statements/02.5.html

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, US 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 US (or home address, in the case of unemployed mathematicians). Anyone who has been awarded an AWM-NSF travel grant in the past two years is ineligible. Anyone receiving significant external governmental funding (more than \$1000 yearly) for travel is ineligible. Partial travel 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 location (city/state/country), and amount of support requested, 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) a list of all current and pending travel funding (governmental and non-governmental) and the amounts available for your proposed trip 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 two deadlines for receipt of applications are **October 1, 2003** and **February 1, 2004**.

strongly opposes attempts to isolate any scientific community.

The American Physical Society endorses the statement issued on August 27, 2002 by the International Council for Science: Israeli Scholars Statement by ICSU/SCFCS.

LEADERSHIP WORKSHOP

A workshop on Women of Applied Mathematics: Research and Leadership will be held October 8–10, 2003 at the University of Maryland at College Park. The workshop, consisting of research symposia and career development panel discussions, will provide a technical and professional forum for ten senior women and twenty-five early-career women in applied mathematics. The workshop has two objectives: 1) to provide advice and guidance to women who are a few years past the postdoctoral stage and are now facing new challenges as they transition to positions beyond entry-level., and 2) to provide networking among applied mathematicians who have become, or are striving to become, leaders in their fields.

We are soliciting applications from early-career women in applied mathematics to attend the workshop. Participants will receive travel expenses. After the workshop, early-career participants are expected to lead an activity promoting women in mathematics and submit a report detailing that activity. Early-career is roughly five to twelve years past the Ph.D., where one is nearing or just past promotion and facing an increase in leadership responsibilities (e.g., leading research teams, being PI or co-PI on large proposals, and/or pursuing opportunities in management or administration). Application instructions are available at <http://csmr.ca.sandia.gov/~tgkolda/workshop2003>, and applications received by July 1, 2003 will receive full consideration.

This workshop is organized by Dianne P. O'Leary (University of Maryland) and Tamara G. Kolda (Sandia National Labs). *Pending* funding has been generously provided by the Mathematical, Information, and Computational Sciences program in the Office of Science at the U.S. Department of Energy. The Computer Science Department of the University of Maryland at College Park will provide facilities for this

workshop. Please address any questions to Tamara Kolda (tgkolda@sandia.gov) or Dianne O'Leary (oleary@cs.umd.edu).

AWARDS AND HONORS

CONGRATULATIONS to those listed below for their meritorious achievements.

LINDA PREISS ROTHSCHILD and M. SALAH BAOUENDI, professors of mathematics at the University of California at San Diego, have been awarded the 2003 Stefan Bergman Prize. Established in 1988, the prize recognizes mathematical accomplishments in the areas of research in which Stefan Bergman worked. For one year each awardee will receive half of the income from the prize fund. Currently this income is about \$22,000 per year.

The prize citation for Professors Baouendi and Rothschild states that they are being honored "for their joint and individual work in complex analysis. In addition to many important contributions to complex analysis they have also done first-rate work in the theory of partial differential equations. Their recent work is centered on the study of Cauchy-Riemann (CR) manifolds to which their and their collaborators have made fundamental contributions.... The work of Baouendi and Rothschild has had and continues to have tremendous impact on the theory of several complex variables."

From the citation:

For the basic problem of when CR functions are boundary values of holomorphic functions Baouendi and Rothschild made a number of fundamental contributions. In addition, Baouendi, jointly with F. Treves, showed that any CR function on a smooth CR submanifold of C^n is a limit of holomorphic functions and that any CR function on a smooth hypersurface of finite type extends holomorphically to at least one side.

Rothschild, in a joint paper with E. Stein, introduced Lie group methods to prove L^p and Hölder estimates for the sum of squares operators as well as the boundary Kohn Laplacian for real hypersurfaces. In later joint work with L. Corwin and B. Helfer, she proved analytic hypoellipticity

for a class of first order systems. She also proved the existence of a family of weakly pseudoconvex hypersurfaces for which the boundary Kohn Laplacian is hypoelliptic but does not satisfy maximal L^2 estimates.

For further information, see the April AMS *Notices*.

THELMA E. BRADFORD was inducted into the Tougaloo College Hall of Fame in 2002. A '42 graduate of Tougaloo, she was honored for her dedication and commitment to her profession and to Tougaloo College.

The 2003 Ruth Lyttle Satter Prize was awarded to ABIGAIL THOMPSON at the recent Joint Meetings in Baltimore. The Prize is awarded every two years in recognition of an outstanding contribution to mathematics research by a woman in the previous five years. Joan S. Birman donated the funds to establish the prize to honor the commitment of her sister, Ruth Lyttle Satter, to research and to encouraging women in science.

Thompson is a faculty member at the University of California at Davis and directs the California State Summer School in Mathematics and Science at UC Davis, a month-long residential program for talented high school students.

Her citation reads:

The Ruth Lyttle Satter Prize is awarded to Abigail Thompson for her outstanding work in 3-dimensional topology. As a consequence of her work,

the concept of thin position, first introduced by Gabai for the study of knots in the 3-sphere, has emerged as a major tool for attacking some of the fundamental problems in the study of 3-manifolds. Her paper "Thin position and the recognition problem for S^3 ," *Math. Res. Lett.* **1**(1994), 613–630, used the idea of thin position to reinterpret Rubenstein's solution to the recognition problem of the 3-sphere in a startling way. Her papers with Martin Scharlemann, "Thin position for 3-manifolds," *Geometric Topology* (Haifa, 1992), 231–238, *Contemp. Math.* **164**, Amer. Math. Soc., Providence, RI, 1994; and "Thin position and Heegaard splittings of the 3-sphere," *J. Differential Geom.* **39**(1994), 343–357, provide remarkable applications of thin position to Heegaard splittings of 3-manifolds. Her 1997 paper "Thin position and bridge number for knots in the 3-sphere," *Topology* **36**(1997), 505–507, gives a completely unexpected connection in the case of knots in 3-spheres between thin position and the much more classical notion of bridge position.

Dartmouth senior HEIDI WILLIAMS was named a 2003 Rhodes scholar. At Oxford, she plans to study for the Masters of Science degree, specializing in the mathematical foundations of computer science.

At Dartmouth, Williams is a math major interested in algebra and number theory as well as math education. Her work with mathematician Dorothy Wallace on the Math Across the Curriculum program, which brings

CALL FOR NOMINATIONS: THE 2004 NOETHER LECTURE

AWM established the Emmy Noether Lectures to honor women who have made fundamental and sustained contributions to the mathematical sciences. This one-hour expository lecture is presented at the Joint Mathematics Meetings each January. Emmy Noether was one of the great mathematicians of her time, someone who worked and struggled for what she loved and believed in. Her life and work remain a tremendous inspiration.

The mathematicians who have given the Noether lectures in the past are: Jessie MacWilliams, Olga Taussky Todd, Julia Robinson, Cathleen Morawetz, Mary Ellen Rudin, Jane Cronin Scanlon, Yvonne Choquet-Bruhat, Joan Birman, Karen Uhlenbeck, Mary Wheeler, Bhama Srinivasan, Alexandra Bellow, Nancy Kopell, Linda Keen, Lesley Sibner, Ol'ga Ladyzhenskaya, Judith Sally, Olga Oleinik, Linda Rothschild, Dusa McDuff, Krystyna Kuperberg, Margaret Wright, Sun-Yung Alice Chang, and Lenore Blum.

The letter of nomination should include a one page outline of the nominee's contribution to mathematics, giving four of her most important papers and other relevant information. *Five* copies of nominations should be sent by **October 15, 2003** to: The Noether Lecture Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: 301-405-7892; email: awm@math.umd.edu.

together more than 50 Dartmouth faculty members who integrate mathematics into everything from music to architecture, convinced her to pair her burgeoning interest in math theory and research with teaching.

Williams has published a paper in *Cryptologia* and attended the Semester in Mathematics program in Budapest, Hungary, where she says she "witnessed the beautiful interplay among group theory, field theory, geometry and number theory" which she hopes to study further. She co-authored a chapter for a calculus textbook, was chosen as the winner of a national cryptology undergraduate paper competition, and has received several scholarships for her research.

Williams recently organized a "Sister-to-Sister Conference" which brought more than 100 middle-school girls from Vermont and New Hampshire to Dartmouth for a day of discussions and interaction with Dartmouth women. The conference was wholly organized and run by students under Williams's supervision.

Williams also works as a writing tutor at Dartmouth's Composition Center and is active in ballet and modern dance. She serves as a mentor for Dartmouth Women in Science Project (WISP) and is a member of numerous organizations, including AAUW and AWM.

James Donnelly, Dartmouth College press release

COMMITTEE ON THE PARTICIPATION OF WOMEN

More than fifty people attended the MAA Committee on the Participation of Women session on the Persistence of Women in Graduate School at the 2003 Joint Mathematics Meetings in Baltimore, MD. The session's goals were to highlight the factors that drive attrition/retention of women in graduate programs and to communicate the hallmarks of successful programs.

The first part of the program was a presentation by a panel whose experience included being involved with successful graduate programs, successfully mentoring

Organizers: Ruth Favro, favro@ltu.edu; Kristen Moore, ksmoore@umich.edu; sarah-marie belcastro, smbeltas@cs.xu.edu

students into graduate programs, and doing research on women in graduate programs.

Ray Johnson, University of Maryland, whose success with attracting and retaining African-American Ph.D. candidates is well known, was moderator.

Abbe Herzig, Rutgers University, used her research on women in graduate school as a background to outline the concept of apprenticeship and how doctoral study could be configured to provide true apprenticeship experiences. She pointed out that aspects of apprenticeship, missing from many graduate programs, would help women overcome the obstacles they face in graduate school. She gave some statistics on the percentage of female Ph.D. candidates and female faculty.

Ivelisse Rubio, University of Puerto Rico, spoke on her work with a primarily Hispanic undergraduate research program. She also discussed aspects of Hispanic culture, such as close-knit families, which affect these students when going away to grad school. The success of her mentoring showed in the posters displayed by the 22 students she brought to the meetings.

Jim Lewis, University of Nebraska, gave a history of Nebraska's success with retaining graduate students, especially women. He noted that when the atmosphere was better for women, it was better for all students, and presented statistics showing their retention. Ray quipped when introducing Jim, "We were always chasing Nebraska."

Audience members paired up to discuss case studies of actual graduate students that had been assembled by the organizers. They looked for common themes in the positive and negative experiences of the students in the studies and discussed strategies and interventions that departments could implement to address negative situations. Abbe Herzig led the lively discussion that followed. Some of the points and issues were:

- There should be a clear expectation of what it takes to graduate.
- Quality and quantity of advising, feedback in classes, and mentoring are important.
- Graduate students should not be isolated from each other and the faculty.
- A major factor in modifying and implementing policies is strong leadership from the department chair.
- How does the preparation of US students vs. foreign

students affect attrition?

- How can the sometimes “disconnect” between undergraduate work and graduate school be handled?

There was also a lively discussion about the incidence of sexual harassment and sexist behavior faced by women in graduate school and the difficulties that some women have had in having their complaints and concerns addressed.

We were gratified at the turnout and the interest in the subject. A related session sponsored by NAM on African-American women’s experiences, and Ray Johnson’s talk at the NAM banquet, reinforced the commonality of success in some programs and showed that there is a long way to go in others.

The committee is planning to disseminate the results to try and effect change, including a replay of the panel at the chairs meeting in Washington, DC in the fall, and some further research.

EDUCATION COLUMN

This month’s education column is written by guest columnist Dr. Cathy Kessel, who is an independent mathematics education consultant based in California.

From Scarcity to Visibility: A non-review

This winter, I read the National Research Council report on gender differences in careers of scientists and engineers. A few findings surprised me, and some findings were consistent with those of less extensive studies. The purpose of this note is not to review the study, but to give some results that might be of interest to AWM members—and to interest you in reading more of the study. Like many National Research Council publications, it’s available as an “open book” on the Web.

From Scarcity to Visibility is a report based on a very large data set—responses to the 1973, 1979, 1989, and 1995 Survey of Doctorate Recipients supplemented with

publication and citation data and NRC’s ratings of doctoral programs. The Survey is conducted every two years, sampling about 10 percent of those who receive doctorates from US universities, complete the Survey of Earned Doctorates, and who remain in the US. So the sample includes people educated before graduate school in countries other than the US. For mathematics, this is a substantial proportion, because about half of all Ph.D.’s in mathematics granted in the US now go to non-US citizens. In contrast, about 30 percent of these Ph.D.’s went to non-US citizens in the late 1970s.

Because it’s based on surveys, *From Scarcity to Visibility* can give a lot of statistics, but may not explain them. And, because it’s based on surveys up to 1995, it does not give the most recent information. However, some of the trends are intriguing. Here are some examples. (Remember these statements are drawn from the survey data—all people surveyed received Ph.D.’s in social, life, physical, or mathematical sciences. Page numbers indicate page numbers of the report.)

- In 1995, women were 20 percentage points more likely not to be working full time (p. 81), but “*differences in labor force participation are eliminated if we compare single men to single women*” (emphasis in original, p. 92).
- Women with interruptions before receiving a Ph.D. were more likely to become faculty members, but men were less likely (p. 154).
- A larger percentage of scientists go into industry now. In 1973, 82% in mathematical sciences (i.e., mathematics, computer science, probability and statistics) were in academe. In 1995, it was 61% (p. 106).

Some of the conclusions of *From Scarcity to Visibility*:

- The transition from the Ph.D. to the full-time labor force is a critical point at which relatively more women than men are lost (p. 221).
- Throughout the career, proportionally more women than men leave science and engineering entirely (p. 221).

However, some encouraging trends were reported for mathematical sciences. For Ph.D.’s surveyed in mathematical sciences, in 1995:

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

- Approximately the same proportion of men and of women had full time academic jobs (p. 127).
- For those 15 years from the Ph.D. with academic jobs, approximately the same proportion of men and women had tenured or tenure-track faculty jobs (p. 153). In 1979, this statistic was about 9 percent larger for men.
- For those 10 years from the Ph.D. with academic jobs, 10 percent more men had tenure (p. 167).

Unfortunately, other studies are not so encouraging. More detail about tenure rates for women in mathematics comes from the research of Noreen Radke Sharpe and Gerhard Sonnert (published in *Journal of Women and Minorities in Science and Engineering*, reprinted in the *AWM Newsletter*, Vol. 31, No. 1). They studied tenure rates for female mathematics faculty members for 1988 to 1995 and found that although the proportion of women on mathematics faculties has increased at approximately 0.5 percent per year since 1990, the proportion of tenured women on these faculties shows little change with the exception of bachelor's granting institutions. The latter show increases in the ratio of tenure-track to non-tenure-track women faculty and a slight increase in the percentage of tenured female faculty. (Note that in this study, unlike the NRC study, "mathematics" does not include computer science.)

Recent testimony about hiring in the University of California system also suggests that women are not entering prestigious mathematics departments in large numbers. At hearings in 2001, Chancellor M. R. C. Greenwood stated: "I must be honest and tell you that I have no rational explanation for the data on UC's mathematics hires."

- In mathematics, UC hired 5.4% female faculty, the national Ph.D. pool is 22.1%, UC graduates 18.4% female Ph.D.'s, our comparable institutions graduate 19.6% women Ph.D.'s and even the postdoctoral pool (which in mathematics is highly competitive and is an indication of potential for future funding) has 13.2% females in it.

In particular, over the past decade the mathematics department at Berkeley hired 28 faculty members. None was female.

A member of another UC mathematics department speculated that this was due to a large percentage of applicants who received their undergraduate degrees

outside the US. At his department, for the past five years all the candidates on the short list have received their undergraduate educations outside the US. But this is not the case at Berkeley. A brief web search revealed the following: Of the six men hired in 2003, 2002, and 2001 only two received their undergraduate degrees from outside the US. Only one of three hired in 1998 received his undergraduate degree outside the US. All received Ph.D.'s in the US.

These differences in hiring may reflect different hiring methods as well as different departmental needs and aspirations. Research suggests that differences in wording and placement of advertisements, search committee composition, and decision procedures can affect applicants and hires. A recent audit of the University of California system found that different campuses used different hiring and search procedures.

From where I sit (in Berkeley, California), the statistics of the audit are considerably more salient than those of *From Scarcity to Visibility*, perhaps one reason why I found some of its findings surprising. Female faculty, at least in mathematics, seem "frozen in time," scarce rather than visible. Perhaps in another ten years things will be different.

References

Long, J. Scott. (Ed.). (2001). *From Scarcity to Visibility: Gender Differences in the Careers of Doctoral Scientists and Engineers*. Washington, DC: National Academy Press.
www.nap.edu/catalog/5363.html?onpi_topnews_111301

For details about Berkeley hiring, see: www.berkeley.edu/news/berkeleyan/2003/02/05_facdv.shtml; www.berkeley.edu/news/berkeleyan/2003/02/faculty/math.shtml; www.berkeley.edu/news/berkeleyan/002/02/faculty/math.html; www.berkeley.edu/news/berkeleyan/2001/01/31/faculty/g.html; www.berkeley.edu/news/berkeleyan/1998/0311/eisenbud.html; www.berkeley.edu/news/berkeleyan/1998/0311/frenkel.html; and www.berkeley.edu/news/berkeleyan/1998/0311/poonen.html.

M. R. C. Greenwood's testimony is posted at: www.ucop.edu/acadadv/testimony.html.

The State Auditor's report on University of California hiring is available at: www.bsa.ca.gov/bsa/pdfs/2000131.pdf.

The report on implementation of the State Auditor's recommendations is available at: www.bsa.ca.gov/bsa/pdfs/2000131b.pdf.

NON-STANDARD CAREERS

In the last issue, we announced the launching of what we hope will be a long series of biographical articles about women mathematicians who have chosen (or perhaps happened upon) non-standard career paths. The idea is to encourage women who are coming into the field by letting them see some options other than the lock-step academic tenure track, options which have provided highly satisfying careers for those that chose them.

In this issue, by way of priming the pump, we are reprinting an article I wrote for the spring, 2000 issue of the *Bryn Mawr Alumnae Bulletin*, which featured choices alumnae have made. We are publishing it with the kind permission of the editors of the *BMAB*.

Before proceeding to the article, I would like to repeat my earlier request: if you have had a career of the type described above, or know of some other woman who has, please get in touch with me at warfield@math.washington.edu, and one or the other of us will write about it.

Tracing the Impact of a Choice

In mid-August of 1970, opportunity thumped upon my door. Project SEED [Special Elementary Education for the Disadvantaged] was completing negotiations to expand to Seattle, but lacked a director. I had the background and abilities for the job: Would I take it on?

At that point a full-time job was definitely not part of my agenda, which was dominated by an unfinished Ph.D. thesis. On the other hand, the project sounded valuable, and the prospect of Seattle's losing it for lack of a director was highly distressing. I had youth, energy and, in retrospect, a fair amount of chutzpah. After brief but serious consideration and consultation with my husband, I accepted.

Upwards of a quarter century later, I am overwhelmed by the impact of that choice.

Project SEED was the brainchild of Bill Johntz, a high school teacher in Berkeley. In the 1960s, Johntz developed a theory that inner city elementary school kids, suitably taught, could learn and be excited by algebra, thereby profiting in the short run by a noteworthy

success experience and in the long run by bypassing the sheer terror of learning algebra in high school. He developed a technique that he dubbed Group Discovery and tried it in a local school during his lunch hours. His theory was completely validated: the kids soaked up the algebra and begged for more. Their self-image improved dramatically, and consequently so did their academic achievement in all their subjects. The next question was whether the technique was transmittable or whether it depended on Johntz's sparkling personality and innate showmanship. He pulled in a couple of mathematical friends, set them up and turned them loose. The effect continued. With that, he was ready for further expansion. He enlisted the aid of some outstanding mathematicians, notably Leon Henkin and Bob Davis who successfully applied for state funding for Berkeley graduate students to receive a stipend for teaching algebra in elementary schools using Johntz's methods. This was the birth of Project SEED. Johntz then expanded the program to several other cities around the country and began the work of establishing a project in Seattle.

Accepting SEED's offer was like stepping into a tornado. Within 48 hours I was in Harlem, taking part in the final three days of a summer training program. I watched my first SEED classes, taught one session (rather badly) and was bombarded with information. Then I returned to Seattle. Within four weeks the arrangements were completed, the school system had accepted Project SEED with me as its director, and we plunged in.

We? That was the key element. An absolute necessity for discovery teaching is a deep knowledge of mathematics. A fifth grader at full tilt in a discovery class can ask questions with an amazing amount of mathematical content, and the teacher must be able to deal with them confidently and with pleasure. No one without a bachelor's degree either in mathematics or a heavily mathematical field such as physics or astronomy could even be considered for the position of SEED specialist. One obvious source was the University of Washington mathematics department, both faculty members, including my husband, and graduate students. These formed our core. Around this core clustered a wonderful collection of others ranging from faculty wives to engineers released by Boeing's economic crunch.

In all, the Seattle project lasted three years: two at maximum strength with up to forty classes at a time, and one at desperate half-strength as the rules for allocating

Ginger Mc Shane Warfield '63

federal soft money began to change. By the fourth year to continue operating we would have had to run a pullout program, working separately and exclusively with the "disadvantaged" students. It was philosophically and tactically the exact opposite of what we did. For better or worse, we opted not to compromise, and SEED in Seattle closed down.

That ended chapter one of the story. Seattle's Project SEED was gone, and we never managed to get it back into the schools. But as chapter one finished, chapter two began. Among the University of Washington SEED specialists was Professor Steve Monk. Monk decided that the essential elements of Project SEED could be adapted to the university's remedial mathematics courses. He arranged funding for two of the graduate students who had been with Project SEED to develop a SEED-style course for students admitted to the university without the normal prerequisites in mathematics. The course proved highly successful. As it expanded, the demand for teachers exceeded the supply of graduate students. Where could extra teachers be found? SEED specialists, of course. Around a dozen erstwhile SEED members eventually took part in the remedial program. For each of us what we learned from Project SEED remained the core of our professional identity.

The remedial program is still going on. Everyone now teaching in it is taught group discovery by methods I adapted from those of Project SEED. Over the years hundreds of graduate students have learned what it is to listen to students, and to shape responses to what they hear rather than to what they expect. They have had the experience of giving to the students an appreciable amount of responsibility for their own learning and watching them respond with increasing confidence and autonomy. They have had the heady experience of dealing with a class that has really engaged with a mathematical topic.

And the students in the remedial program? They could not graduate without passing our courses. Cumulatively they number in the thousands by now. One of my former students turned up as the owner of a small business I happened into, having successfully graduated with a major in business administration. Another accosted me in a mall one day because she had been wanting for years to thank me for a career as a physical therapist, using a degree she could not have completed without the mathematics we taught her.

For the original inner city elementary students and

their teachers and parents it is difficult to measure the impact of Project SEED. It is hard to imagine, though, that the students in the class which had had the lowest standardized test scores in the state and whose test results went up an average of twenty percentile points in every subject felt no lasting effect. The same goes for the ones who came gleefully into class reporting that they were successfully tutoring their high school siblings. And so on with hundreds of other anecdotes. Over the years I have heard repeatedly of teachers permanently influenced by having had a SEED specialist in their classroom. I have also run into parents, teachers and administrators whose faces light up at the mention of the project. A few years ago a drug store clerk recognized me as her fifth grade algebra teacher. Since she was now a young adult, I was disappointed that she was not in college. "But," she added, "I might do it some day. Right now's not the time for me, but I know I could do it. Algebra and stuff was a breeze for me in high school."

The impact of that 1970 "yes" spread to a whole community of mathematicians centered around the University of Washington, and from there it expanded outwards to wherever two decades' worth of graduate students have traveled. It also reached many, many hundreds of undergraduates and thousands of elementary school students and their families and teachers.

Where did the "yes" leave me? Certainly not on a standard career path. I finished the doctorate and published the thesis, but meanwhile teaching fascinated me, and being a mother fascinated me, and there wasn't enough fascination left to do decent research with. So I stayed in the mathematics department, but as a specialist in teaching. This means I have spent my life as an anomaly. Thanks to being in a highly collegial department, I am strongly supported in carrying out a huge number of teaching/learning activities, from being one of the co-Principal Investigators on a big NSF project working with K-12 teachers in six local school districts to translating and co-authoring articles on mathematics education research by a pre-eminent French mathematics educator. But I am not a professor. I am a senior lecturer, and no, I have never totally silenced the voice within that tells me that in my field Real People are professors.

Putting all that together leads to one clear question: if, now knowing its consequences, I could go back to that mid-August afternoon in 1970, would I make the same choice? The answer is an emphatic and unambiguous "yes!"

BOOK REVIEW

Jane Margolis and Allan Fisher. (2002). **Unlocking the Clubhouse: Women in Computing**. Cambridge, MA: MIT Press.

Reviewer: Cathy Kessel

This book seems unusual in several ways. Its authors are an educational researcher and a computer scientist. It's about examining an educational problem and doing a lot to fix it. And it's about change on a fairly large scale—changing the undergraduate program for computer science majors at Carnegie Mellon. Changes occurred in recruitment of entering students, admissions policies, courses, and course design. And they worked! This is one reason to read *Unlocking the Clubhouse*: It's an example of what educational research can do to study and solve a problem.

This book, although only 172 pages, discusses many aspects of a complicated topic: women and computer science. Some of these aspects are reflected in reviews posted at Amazon from other readers, including Lenore Blum (a past president of AWM), Elaine Seymour (an educational researcher), a teacher, and a female computer science student. In this review I won't try to touch on everything that Margolis and Fisher discuss, but will instead give a brief overview of the book and some reasons why I think it is worth reading.

The book deals with the issue of women and computer science, both in general (by summarizing the relevant literature) and in the context of a particular problem. The problem was, in short, that Carnegie Mellon graduated few female computer science majors. Before 1995, between seven and ten percent of students enrolled in the computer science program were female and their dropout rate was far higher than that of men.

Lily's story exemplifies this problem:

Lily is a first-year undergraduate computer science major who entered Carnegie Mellon with a great deal of enthusiasm. Her interest was first sparked in high school, when she took an advanced placement computer science course.... "As soon as I started taking that course in programming, I realized I loved it." ... Her enjoyment

of a summer programming job solidified her decision to major in computer science.... By the end of her second college semester, though, Lily's enthusiasm for computer science plummeted.... Several semesters later, Lily transfers out of computer science into English.... Lily's experience is not unique. (pp. 77–78)

After 1995, the situation began to improve. The percentage of women enrolled and retained began to increase and the entering class of 2000 was 42 percent female. A change of this magnitude is very impressive, particularly given that in the US women receive only about 20 percent of the bachelors degrees in computer science.

So how did this remarkable change come about? Fortuitous circumstances, funding, expertise, and hard work, at least. Jane Margolis was an educational researcher visiting at Carnegie Mellon and Allan Fisher was the associate dean for undergraduate education in its School of Computer Science. They were introduced by associate provost Barbara Lazarus—who knew that Fisher was concerned about the paucity of women in computer science and that Margolis specialized in gender and education. (It is tempting to try to read between the lines and conclude that "institutional will" was not lacking in high places, but this topic is not discussed in the book.)

Between 1995 and 1999, Margolis and research associate Faye Miller interviewed male and female undergraduate computer science majors, asked first-year students to keep journals, and surveyed first-year students. Few were students of color, so few conclusions could be drawn about experiences of racial or ethnic minorities.

Here are some of the findings:

- *Confidence and interest were interwoven.* For example, in her interviews Lily "talks about her loss of confidence. Since her interest in computing doesn't seem to measure up to the all-consuming love of computing that many of her peers have, she begins to question whether she is really interested in computing after all" (p. 77).
- *Most female students had less prior programming experience than males.* The book begins by describing a student's perception of this situation. Maria, a computer science major in her first semester in college, already feels unprepared in comparison to male peers. "How come they know how to do this, but I

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don't know how to do this?" Her male peers say, "Oh, we learned all of this on our own, years ago. We have been programming like this for ages."

- *However, prior computer science experience did not predict eventual success in the computer science program.* Margolis and Fisher found that 48% of the persisters interviewed did not come from "computing families." On average, women who transferred out of the program rated their prior experience as more extensive than did those who stayed. From these and other measures Margolis and Fisher concluded, "Women who are complete novices are no less likely to persist than the most experienced students" (p. 96). One of the "counterintuitive persisters" was a woman from Thailand who took her first computing class in high school and had little initial interest in computer science. She was extremely successful and in her third year was considering graduate school in computer science. When asked, "How did you end up getting a scholarship to study computer science with no computer background?" her answer was, "I just want to study abroad, so anything is fine with me" (p. 97).
- *Problems with curriculum and teaching hurt all, but hurt women and minorities more.* One course, a large lecture course typically taken in the second semester, was a "downhill turning point" for women. Prior introductory courses had small classes and were taught by staff members who were devoted to teaching. The lecture course was staffed in the way that is common in large universities, by a faculty member and a group of teaching assistants. The obligation of teaching the course rotated throughout the faculty. A woman who transferred out said, "I get the impression that the computer science department here doesn't actually 'teach.' They just hand out the assignments, they say, 'Do them.' And they figure if you can do the assignment, then you know what's going on" (p. 83).
- *Attitudes could differ with culture.* Margolis and Fisher note that research on learning motivation has found that US students generally hold one of two views: intelligence is a fixed trait or intelligence is malleable. Students who believe intelligence is innate tend to focus on indicators such as grades, but those who see intelligence as malleable focus on

improvement and developing mastery, an attitude similar to those of Japanese and Chinese elementary students described by cross-national researchers. Margolis and Fisher found that many US women tended to express beliefs consistent with the idea of a "computer gene." Lily (who dropped out), said, "There are people born to do this, and I am not one of them. And it's definitely not one of those things that, like, 'Oh, with practice, you will become one who is born to do it' " (p. 101). In contrast, a woman from Thailand said, " 'I know it's hard, it's really hard, because I remember my freshman year. I want to give up because it's hard. But then I thought, 'That's a loser's talk.' So then I should try and work hard" (p. 99).

Margolis and Fisher drew on these findings to redesign the Carnegie Mellon program. Some of the changes were:

- *First-year students could begin the program in different ways, depending on their expertise.* Although programming experience did not predict success in the major, students with less experience were often discouraged by comparisons with their more experienced peers and found it stressful to be enrolled with them in the introductory programming course. First-year course offerings changed to include a course that would prepare students with less experience for a more advanced course, as well as a course designed for students with substantial prior experience.
- *Admissions policies were adjusted not to give strong preference to highly experienced students, and this change was communicated to prospective students.* Given that prior experience with programming did not predict success in the program, there was no reason to retain it as an important admissions criterion.
- *More attention was given to teaching.* Faculty members with more teaching experience taught the beginning courses. Teaching assistants received training in diversity, particularly gender diversity.
- *The findings were discussed with faculty members and students.* It was stressed that prior programming experience is not crucial.

I've given just a sketch of several findings and changes. These and the work of other educational researchers suggest to me some ideas about how

educational research can be used and what it takes to design successful changes. One lesson that I think may be drawn is that successful change appears to involve several related factors rather than one sweeping change, and details may be important. For example, not only was admissions policy at Carnegie Mellon changed to deemphasize prior programming experience, but care was taken to communicate the change to prospective students and to communicate its rationale to faculty members.

This example and other changes described in *Unlocking the Clubhouse* raise questions about the relationship of research and design. Research found that prior programming experience wasn't necessary for success at Carnegie Mellon and had direct implications for changes in admissions policies. But it did not specify details of course design. A more general question is whether changes similar to those at Carnegie Mellon would work in other departments and other institutions. Questions like these are discussed in the January issue of *Educational Researcher* (www.aera.net/pubs/er/toc/er3201.htm).

Margolis and Fisher's work, like some other empirical research on gender, suggests how a focus on one question—why are women dropping out of computer science?—can lead to a reexamination of something that might not appear to involve gender. In this case it was the assumption that prior programming experience is a strong predictor of successful completion of the undergraduate computer science program. Another such

reexamination was inspired by female engineering majors' difficulties with visualizing the result of rotating three-dimensional objects. The assumption implicit in their undergraduate program—that practicing engineers often need to use mental rotation—was examined by Sherry Hsi (an educational researcher) and Alice Agogino (an engineer). They found that engineers tended to deal with situations that might seem to require mental rotation in other ways, for instance by matching features of the objects. Moreover, Hsi and Agogino found that the gender gap in undergraduates' mental rotation abilities was drastically reduced by two voluntary Saturday morning training sessions.

What's currently on my mind, partly stimulated by the US government's current emphasis in the No Child Left Behind Act on "scientific research," is concern about the nature of research in education and the relationship between research and design. This review reflects that concern. However, *Unlocking the Clubhouse* has much to offer different audiences, as evidenced by the variety of reviews posted at Amazon. I suspect that the book's detail, organization, and style allow different readers to focus on the aspects that are of particular importance to them.

More information and more current information about the Carnegie Mellon project (publications, media reports, working papers, etc.) are available at its Web site: <http://www-2.cs.cmu.edu/~gendergap/>.

CALL FOR NOMINATIONS: LOUISE HAY AWARD

The Executive Committee of the Association for Women in Mathematics has established the Louise Hay Award for Contributions to Mathematics Education, to be awarded annually to a woman at the Joint Prize Session at the Joint Mathematics Meetings in January. The purpose of this award is to recognize outstanding achievements in any area of mathematics education, to be interpreted in the broadest possible sense. While Louise Hay was widely recognized for her contributions to mathematical logic and for her strong leadership as Head of the Department of Mathematics, Statistics, and Computer Science at the University of Illinois at Chicago, her devotion to students and her lifelong commitment to nurturing the talent of young women and men secure her reputation as a consummate educator. The annual presentation of this award is intended to highlight the importance of mathematics education and to evoke the memory of all that Hay exemplified as a teacher, scholar, administrator, and human being.

The nomination documents should include: a one to three page letter of nomination highlighting the exceptional contributions of the candidate to be recognized, a curriculum vitae of the candidate not to exceed three pages, and three letters supporting the nomination. It is strongly recommended that the letters represent a range of constituents affected by the nominee's work. Five complete copies of nomination materials for this award should be sent to: The Hay Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. Nominations must be received by **October 1, 2003**. For more information, phone (301) 405-7892, email awm@math.umd.edu or visit www.awm-math.org. Nominations via email or fax will not be accepted.

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

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

Over the past fourteen 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: The next AWM Workshop to be held in conjunction with the Joint Mathematics Meetings will take place in Phoenix, AZ, January 7–10, 2004 (pending final funding approval). The workshop is scheduled to be held on Saturday, January 10, 2004 with an introductory dinner/discussion group on Friday evening, January 9.

FORMAT: Twenty women will be selected in advance of the workshop to present their work; the graduate students will present posters and the recent Ph.D.'s will give 20-minute talks. AWM will offer funding for travel and two days subsistence for the selected participants. The workshop will also include a panel discussion on areas of career development, a luncheon and a dinner with a discussion period. Participants will have the opportunity to meet with other women mathematicians at all stages of their careers. All mathematicians (female and male) are invited to attend the program. Departments are urged to help graduate students and recent Ph.D.'s who do not receive funding to obtain some institutional support to attend the workshop presentations and the associated meetings.

MENTORS: 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: Applications are welcome from graduate students who have made substantial progress towards their theses and from women who have received their Ph.D.'s within approximately the last five years, whether or not they currently hold a postdoctoral or other academic position. Women with grants or other sources of support are still welcome to apply. All non-US citizens must have a current US address. All applications should include a cover letter, a concise description of research (two or three pages), a title of the proposed poster or talk, a curriculum vitae, and at least one letter of recommendation from a faculty member or research mathematician who knows the applicant's work. In particular, graduate students should include a letter of recommendation from their thesis advisors. Nominations by other mathematicians (along with the information listed above) are also welcome. For some advice on the application process from some of the conference organizers see the AWM web site.

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: www.awm-math.org

APPLICATION DEADLINE: Applications must be received by **September 1, 2003**.
Applications via email or fax will not be accepted.

WOMEN IN SCIENCE ISSUE

The *Journal of International Women's Studies*, an on-line publication, is seeking submissions for a special issue on women in science. We are seeking scholarly articles and essays written for a multidisciplinary and international readership. Although a broad range of topics relating to women in science will be considered for publication, we particularly seek submissions relating to the nature of science, the culture of science, and science education as they relate to and impact women. See <http://www.bridgew.edu/Depts/artscnce/>

jiws/ for further information about the journal.

Submissions should be sent as Microsoft Word attachments or on disk through regular mail to: Heidi FencI, NAS/ES-317, UW-Green Bay, 2420 Nicolet Dr., Green Bay, WI 54311, fencIh@uwgb.edu. Submissions for this special edition are due by **August 29, 2003**. Articles should be double spaced with endnotes with citation appropriate to your discipline. All submissions should be accompanied by an abstract of 300 words or less and three key words. Authors should also include a statement of their affiliation and any acknowledgements in the first endnote.

SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAYS

Through grants (*pending final funding approval*) from Coppin State College and the National Security Agency (NSA), 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 10 to 14 grants ranging on average from \$1500 to \$2200 each (\$3000 maximum per school) to universities and colleges; more grants may be awarded if additional funds become available. Historically Black colleges and universities are particularly encouraged to apply. Programs targeted toward inner city or rural high schools are especially welcomed. If selected, institutions will receive (upon request) 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) plans for activities, including specific speakers to the extent known; b) qualifications of the person(s) to be in charge; c) plans for recruitment, including the securing of diversity among participants; d) detailed itemized budget (i.e., food, room rental, advertising, copying, supplies, student giveaways, etc. Honoraria for speakers should be reasonable and should not, in total, exceed 20% of the overall budget. Stipends and personnel costs are not permitted for organizers. This grant does not permit reimbursement for indirect costs or fringe benefits. Please itemize direct costs in 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 in late August. The high school days are to be held in Fall 2003 and Spring 2004. 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 June 1, 2004, whichever comes first. Reimbursements will be made in one disbursement; no funds can be disbursed prior to the event date. An additional selection cycle will be held February 4, 2004 for Spring 2004 *only if funds remain after the August 2003 selection cycle*.

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; or visit www.awm-math.org. Applications must be received by **August 4, 2003**; applications via email or fax will not be accepted.

SKHS MATHEMATICS DAY

Sonia Kovalevsky High School Mathematics Days are funded through grants from the National Security Agency and Coppin State College. Thanks to our funding agencies!

The organizers of each program are asked to submit an activity report, to provide a valuable resource for others to consider when setting up their own programs.

Metropolitan State University

We held a career panel with five women from different professions that use mathematics. The occupations represented by the panelists included a mechanical engineer, a chemist, an ecologist, an actuary and an architect. Each panelist spent about ten minutes describing her profession, the education required to practice it and a typical day on the job. This was a wonderful opportunity for the participants to become informed about some of the possibilities that exist for students that enjoy mathematics. After the panel concluded, each panelist described her workshop to the students, and the students chose two workshops to attend.

The first workshop offered was presented by mechanical engineer Yvonne Ng. Her workshop was titled "Math and Mechanisms." Yvonne demonstrated the many mechanisms (pistons, wind shield wipers, etc.) that make the world go round. The students used basic geometry shapes to help them move things around and even produced pop-up books using poster board, push pins and a corkboard.

The second workshop offered was presented by chemist Amy McBroom from Ecolab. Her workshop was titled "Who knew that cleaning requires a science degree?" Amy had the students perform three experiments. The first two experiments dealt with surfactants and calculating the concentration of a solution needed using the mean and standard deviation. The second experiment dealt with rate of reaction. The students looked at how hydrogen peroxide decomposes into water and O_2 with the help of a catalyst from a potato. They performed the experiment and then balanced the equation and timed the rate of reaction.

The third workshop, "You mean it takes math to design buildings?" was presented by architect Heather Leide. Heather described briefly a few proportioning systems and then had the students each select one to

design a building façade.

Ecologist Virginia Card presented "So that's how you measure really tall things?" Virginia showed the participants the many tools available to ecologists in measuring the height and age of plants and trees. She then had the participants go outside with her to measure some trees, buildings and flag poles. They then used trigonometry to determine the heights.

When the workshops were concluded, the students worked in groups to prepare short presentations on what they had learned in the workshops that they attended. The students then gave these presentations in front of the educators, workshop leaders and other students.

OPPORTUNITIES

Math SPIRAL Program

From June 2 to July 11, 2003, The University of Maryland College of Computer, Mathematical and Physical Sciences will embark on one of many steps to address the longstanding national need to increase the number of traditionally underrepresented groups in science, technical, engineering and mathematical fields through its inaugural Math SPIRAL (Summer Program in Research and Learning) program.

The Math SPIRAL program is a multi-year program funded by NSF to bring gifted college sophomores and juniors from underrepresented groups to the College Park campus. In the first year, participants are being nominated by faculty members at affiliated institutions, which include Historically Black Colleges and Universities such as Bowie State University, Morehouse College, North Carolina Agricultural and Technical University, Spelman College, Xavier University and Trinity College, located in nearby Washington, DC with predominantly women and commuter students. In future years, the Math SPIRAL program will be expanded to recruit a larger pool of applicants. Students from these institutions exhibit a strong track record in mathematics, and the curriculum is designed to prepare them for advanced study. During the six-week summer session, SPIRAL participants will participate in intensive classroom work built around applications and opportunities in the

mathematical sciences through tours and special lectures. Math SPIRAL is the first in a planned collection of SPIRAL programs in the College as part of the STAND (Science and Technology: Addressing the Need for Diversity) program.

Daniel Rudolph, Professor of Mathematics at Maryland, serves as the Faculty Director for the summer program and graduate components of the STAND program. Exploration activities for the summer program will include tours and hands-on experiments at NIST, NASA Goddard Flight Center, United States Census of Bureau, NSA Cryptology Museum, and much more! To learn more about the Math SPIRAL program and other STAND initiatives, visit www.cmeps.umd.edu/undergraduate/stand.htm or contact Joelle Davis Carter, Program Director for Diversity, Recruitment and Retention (jdcarter@deans.umd.edu).

Mathematics for All Conference

The NSF-funded MATH Connections Implementation is hosting a MATHEMATICS FOR ALL Conference at the University of New Hampshire in Durham August 7–8, 2003. Participation is limited and registration by **May 30, 2003** is required.

The conference is intended for high school math teachers, department chairs, supervisors, administrators and teacher educators. The conference features teachers, math educators and mathematicians facilitating hands-on math and technology and computer lab workshops, grade level projects and activities sessions, investigations and explorations, and an intensive leadership institute parallel program.

A brochure and registration form is available at www.mathconnections.com. Email: mathconx@aol.com.

Integrating Technology in the Classroom

The 2003 Forum on Educational Equity sponsored by the AAUW Educational Foundation will be held July 29, 2003 in Washington, DC.

Anyone interested in K–12 gender equity in education is invited to join teachers, counselors, and administrators to: network with nationally renowned educators and experts on gender equity; explore ways to integrate technology equitably across disciplines, with an emphasis on encouraging girls' use of technology; learn strategies for initiating change in the classroom, school, and beyond; and find out about the latest professional

development opportunities for teachers

The one-day forum showcases the latest research and best practices in gender equitable education. It also provides an opportunity to meet the 2003–2004 Eleanor Roosevelt Teacher Fellows who will be participating in the five-day Eleanor Roosevelt Teacher Institute. The fifth annual Forum on Educational Equity will feature interactive workshop sessions that provide concrete, take-home strategies focusing on classroom technology integration; tools for assessing equity in computer labs, classrooms, and schools; and funding opportunities for teachers and schools. For more info, visit www.aauw.org/7000/ef/forum_current.html.

Girls Summer Web Camp

Loyola University Chicago's Center for Information Management and Technology is hosting its Third Annual Girls Summer Web Camp: Creating an Internet Business. During this five-day day camp, high school women will have the opportunity to: learn how to create a web-based business; develop database and web design skills; visit a high-tech, multi-media business; and meet successful women in technology careers and women entrepreneurs. This is a great way for female high school students to be exposed to a variety of career choices as well as explore their interests and talents in business and technology.

Two sessions will be held, July 14–18 and August 4–8. To learn more about the camp, scholarships and registration, visit www.cimt.luc.edu/womenandtechnology/web_camps.html. Registration is limited and is on first come, first serve basis.

The IMA at 20: Mathematics and Its Impact

The IMA opened its doors with its first annual program during 1982–83 and now, tens of thousands of scientific visits later, we are in our 20th year. Over these two decades, the IMA has had a tremendous effect on the advancement and impact of mathematics. This two-day conference will feature talks by leading practitioners in fields of mathematics and applications where the IMA has played a major role. The overview talks will be aimed at a broad and diverse mathematical audience.

In addition, the IMA will be holding an open house and a public lecture on June 5, and a special lunch for former postdocs on June 7. See www.ima.umn.edu/ima20 for more details.

AWM IN BALTIMORE



At the Workshop: Deborah Lockhart (NSF) and Jodie Novak (University of Northern Colorado, Workshop co-organizer)



AWM Workshop Panel, "Shaping a Career in Mathematics": Jennifer McGreevy (Department of Defense), Margaret M. Robinson (Mt. Holyoke College), Mai Gehrke (New Mexico State University), Chawne M. Kimber (Lafayette College), and Alessandra O. P. Chiareli (3M Company)



Presenters at the AWM Workshop: Recent Ph.D.'s: Back: Nancy Ann Neudauer (Pacific University), Keri A. Kornelson (Texas A&M), Yana Mohanty (UC, San Diego), Karen L. Horton (North Dakota State), Lih-Ing Wu Roeger (Texas Tech); Front: Amelia Taylor (Rutgers), Jennifer A. Bruce (Maryville College), Katherine L. Hurley (University of South Carolina)



AWM Panel, "Mathematics Educators and Mathematicians Working Together": Karen Dee Michalowicz (The Langley School), Elizabeth (Betsy) Yanik (Emporia State University, moderator), Deborah Loewenberg Ball (University of Michigan), Edith Prentice Mendez (Sonoma State University), and Hyman Bass (University of Michigan)

ADVERTISEMENT

Director of Research

Leading Fortune 500 company seeks Director of Research for our **Hartford, CT** location. In this role, you will lead a team of technical professionals engaged in research, data mining and predictive modeling efforts. This includes building a strong analytics team; establishing performance metrics; mentoring and coaching staff; providing technical team leadership by translating high-level business needs into analyses that deliver results; identifying potential research areas and evaluating their usefulness; securing sponsorship and support for high-potential projects; managing multiple projects; and assisting in the implementation of analysis results. You'll also oversee vendor contracts and manage budgets and expenses.

To qualify, you must have a Ph.D. in Mathematics, Statistics and/or Engineering and related research and analysis experience in a leadership capacity. Data mining and predictive modeling experience is essential, as are excellent problem-solving, presentation and communication skills.

Please respond with your resume and salary requirements to: ccass@nyc.rr.com Relocation assistance is negotiable for this position.

We are an equal opportunity employer and invite culturally diverse applicants to join our team. We actively promote a drug-free workplace.

UNIVERSITY OF OREGON DEPARTMENT OF MATHEMATICS

Applications are invited for Instructor/Assistant to the Department Head in the Department of Mathematics, beginning August 1, 2003. Minimum qualifications are an M.S. or M.A. in mathematics or closely related field and evidence of higher education instruction ability. Administrative experience desired. Applicants from all parts of the mathematical sciences are encouraged to apply. See: <http://darkwing.uoregon.edu/~math/employment.html>.

Competitive salary with excellent fringe benefits. Mail complete vita and at least three letters of recommendation with contact information to:

**Search Committee, Department of Mathematics,
1222 University of Oregon, Eugene, OR 97403-1222**

Application materials may NOT be submitted electronically. Initial review of applications will be May 1, 2003. Closing date is July 1, 2003. Women and minorities are encouraged to apply.

*The University of Oregon is an EO/AA/ADA
Institution committed to cultural diversity.*

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

www.math.mun.ca

The Department of Mathematics and Statistics at Memorial University of Newfoundland invites applications for an NSERC University Faculty Award directed at increasing the representation of women in science. A successful candidate will be appointed as a regular tenure-track faculty member at the **Assistant Professor** level in **Applied Mathematics** in the Department of Mathematics and Statistics starting September 1, 2004. A PhD in Applied Mathematics with evidence of outstanding research is required. Duties will include teaching at the graduate and undergraduate levels.

The position is open for applications from excellent women candidates who can demonstrate experience in more than one of the "applied mathematics areas," such as Dynamical Systems, Fluid Dynamics, Mathematical Biology, Numerical Analysis or Partial Differential Equations. Expertise in scientific computation (numerical and symbolic) will be considered an asset for this position. Through their research, this individual will contribute to the advancement of computational applied mathematics in the Department of Mathematics and Statistics as well as Memorial's interdisciplinary Computational Science program.

Review of applications will begin September 1, 2003 and continue until a candidate is identified for submission to NSERC by October 15, 2003. Candidates should submit a Curriculum Vitae, a description of research interests, and selected (pre)reprints of publications. They should also arrange for three confidential letters of recommendation, at least one of which is a teaching reference, to be sent to:

MS-UFA-AMAT-01, Dr. Herbert Gaskill, Head, Department of Mathematics & Statistics, Memorial University of Newfoundland, St. John's, Newfoundland, A1C 5S7 Canada, E-mail: head@math.mun.ca

Memorial University is the largest university in Atlantic Canada. As the province's only university, Memorial plays an integral role in the educational and cultural life of Newfoundland and Labrador. Offering diverse undergraduate and graduate programs to almost 16,000 students, Memorial provides a distinctive and stimulating environment for learning in St. John's, a very safe, friendly city with great historic charm, a vibrant cultural life, and easy access to a wide range of outdoor activities.

In accordance with NSERC UFA eligibility requirements only Canadian citizens and permanent residents of Canada should apply. Partners of candidates for positions are invited to include their resume for possible matching with other job opportunities.

AWM WORKSHOP: Focus on Research & Career Experiences

held in conjunction the 2003 SIAM Annual Meeting (June 16-20, 2003)
Queen Elizabeth Hotel, Montreal, Quebec, Canada

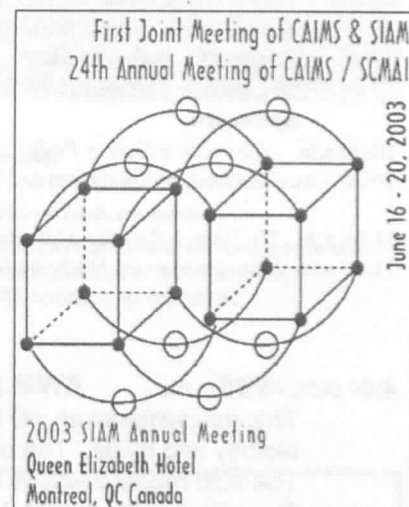
schedule as of April 18, 2003

The Association for Women in Mathematics (AWM) plans a workshop from Monday mid-day through Tuesday, June 16-17, 2003. These events are held in conjunction with the the First Joint Meeting of CAIMS and SIAM, the 24th Annual Meeting of CAIMS/SCMAI and the 2003 SIAM Annual Meeting at the Queen Elizabeth Hotel in Montreal, Quebec, Canada June 16-20, 2003. AWM and SIAM welcomes your participation.

The sessions focus on showcasing the research of women graduate students and recent Ph.D. mathematicians and helping individuals to prepare for careers in the mathematical sciences. Our Tuesday morning session is a minisymposium which focuses on career planning and experiences. The workshop also has two research minisymposia (Monday afternoon and Tuesday afternoon) presented by recent Ph.D. mathematicians and poster presentations by graduate students. **In addition, on Friday, June 20, 2003, (3:00 p.m.) there is AWM-SIAM Award Lecture presented by Linda Petzold, University of California, Santa Barbara.**

There is NO registration fee for this AWM workshop. The minisymposia, poster session and award lecture are **open to all SIAM meeting attendees**. Pre-registration for the AWM dinner is required. Individuals can inquire about availability by contacting the AWM Office, 4114 Computer & Space Sciences Bldg., University of Maryland, College Park, MD 20742-2461; phone 301-405-7892 or email awm@math.umd.edu. For further information on the workshop, contact the workshop chair, Suzanne Lenhart (lenhart@math.utk.edu) or Dawn Wheeler at AWM (awm@math.umd.edu).

AWM is grateful to SIAM and their Meetings Department for all their efforts on behalf of the workshop and all AWM activities. AWM also wishes to thank all the AWM members who volunteered their time and expertise for these activities. A special thank you is extended to Professors Suzanne Lenhart (University of Tennessee and Oak Ridge National Laboratory) and Elsa Schaefer (Marymount University) who kindly served as the 2003 Workshop co-organizers. AWM also wishes to express its gratitude to the Office of Naval Research (ONR) and Air Force Office of Scientific Research (AFOSR) for support of the AWM workshop.



LOCATION: [rooms location subject to change ↓]

Monday, June 16, 2003

Location: TBA

4:00 p.m. - 6:00 p.m. AWM Minisymposium on Numerical Methods and Applications of PDEs (MS7)

This minisymposium will feature talks by female recent Ph.D.'s working with partial differential equations and numerical methods. The PDE applications include finding conductivity coefficients, stability of rods, and convection models. The numerical methods include tetrahedral finite elements and discontinuous Galerkin.

Organizer: Suzanne M. Lenhart, University of Tennessee and Oak Ridge National Laboratory

Speakers:

4:00 p.m. "Variational Computation of Homogenized Coefficients"

Kirsten Boyd, University of Texas at Austin

4:30 p.m. "The Effect of Anisotropic Surface Energy and Contact Angles on the Rayleigh Instability"

Katharine F. Gurski, National Institute of Standards &

Technology

5:00 p.m. "Tetrahedral Elements in Finite Element Models with Continuous Pressure Approximation"

Kehinde O. Ladipo, Univ. of Houston / Houston Community

College

5:30 p.m. "Extension and Applications of Post-Processing for the Discontinuous Galerkin Method"

Jennifer Ryan, Brown University

Location: St. Francois Room, Queen Elizabeth Hotel

7:30 p.m. - 9:30 p.m. AWM Dinner

[see AWM staff on-site for ticket availability or email awm@math.umd.edu prior to the meeting]

- continued on next page -

AWM WORKSHOP: Focus on Research & Career Experiences

Tuesday, June 17, 2003

Location: TBA

10:00 a.m. - 12:00 p.m. AWM Minisymposium on Career Opportunities and Perspectives (MS15)

This minisymposium will feature four mathematicians with a variety of careers and experience levels. The speakers will discuss their career perspectives and give some advice and information about opportunities. The Canadian and American perspectives will be given.

Organizer: Suzanne M. Lenhart, University of Tennessee and Oak Ridge National Laboratory

Speakers:

10:00 a.m. "Alternative Career Paths"

Sue Ann Campbell, University of Waterloo

10:30 a.m. "Mathematics Institutes and Other Research Opportunities"

Helen Moore, American Institute of Mathematics
Research Conference Center

11:00 a.m. "Is There a Role for Mathematical Modeling in Drug Discovery?"

Carolyn Cho, Physiome

11:30 a.m. "Perspectives on Mathematical and Theoretical Biology:
Decisions of a Latino Mathematician"

Carlos Castillo-Chavez, Cornell University

Location: TBA

4:00 p.m. - 6:00 p.m. AWM Minisymposium on Applications in Biology and Fluids (MS22)

This minisymposium will feature talks by female recent Ph.D.'s on modeling applications of mathematics in biology and fluids. The biological applications include menstrual cycles, trophoblast tissues, and neural cells. The fluid model involves interfacial waves with two fluids.

Organizer: Suzanne M. Lenhart, University of Tennessee and Oak Ridge National Laboratory

Speakers:

4:00 p.m. "Applications of a Model for the Hormonal Regulation
of the Menstrual Cycle"

Leona Harris Clark, U.S. Environmental Protection Agency

4:30 p.m. "Modeling Development of the Trophoblast Tissue Using the
Immersed Boundary Method"

Katarzyna A. Rejniak, Ohio State University

5:00 p.m. "Automated Morphology of Neural Cells"

Christina M. Weaver, State University of New York at Stony Brook

5:30 p.m. "Fully Nonlinear Interfacial 3D Waves in a Channel"

Lyudmyla L. Barannyk, New Jersey Institute of Technology

Location: TBA

8:00 p.m. - 10:00 p.m. Poster and Dessert Reception (PP1)

AWM Poster Presentations by Women Graduate Students will be part of the SIAM Poster and Dessert Reception on Tuesday evening, from 8:00 p.m. to 10:00 p.m. AWM invites all SIAM attendees to join us.

The AWM Women Graduate Student Presenters in this session are:

"Global Hopf Bifurcations and Their Applications"

Jyoti Champanerkar, New Jersey Institute of Technology

"Optimal Design for Groundwater Flow and
Remediation Problems"

K.R. Kavanagh, North Carolina State University

"Homogenization of a Darcy-Stokes System Modeling
Flow in Vuggy Porous Media"

Heather Lehr, University of Texas at Austin

"Approximations and Sensitivities for a Class of Delay
Differential Equations"

Hoan K. Nguyen, Virginia Tech

"Nonlinear Long-Wave Stability of Two-Fluid Flow
Interface in An Inclined Channel"

Tetyana M. Segin, New Jersey Institute of Technology

Friday, June 20, 2003

Location: TBA

3:00 p.m. - 3:30 p.m. AWM-SIAM Sonia Kovalevsky Lecture

Title: TBA

Linda Petzold, University of California, Santa Barbara

Volunteers Needed: If you are interested in volunteering to help with the Workshop, contact Suzanne Lenhart, lenhart@math.utk.edu
Association for Women in Mathematics (AWM), 4114 CSS Bldg., College Park, MD 20742-2461

Association for Women in Mathematics
2002/2003 MEMBERSHIP FORM

LAST NAME _____ FIRST NAME _____ M.I. _____
 ADDRESS _____

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>

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: If student, GRADUATE or UNDERGRADUATE (circle one)
 If not employed, leave position & institution blank

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

DEGREES EARNED:

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

INDIVIDUAL DUES SCHEDULE

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

REGULAR INDIVIDUAL MEMBERSHIP.....	<i>For NEW Individual members: JOIN at the reduced rate of \$30.00 for the 02/03 membership year [valid thru 6/30/03]</i>	\$ 50	_____
2ND FAMILY MEMBERSHIP..... (NO newsletter) Please indicate regular family member: _____		\$ 30	_____
CONTRIBUTING MEMBERSHIP.....		\$100	_____
RETIRED or PART-TIME EMPLOYED MEMBERSHIP (circle one).....		\$ 25	_____
STUDENT or UNEMPLOYED MEMBERSHIP (circle one).....		\$ 15	_____
ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO).... FOR ADDITIONAL POSTAGE ADD All payments must be in U.S. Funds using cash, U.S. Postal orders, or checks drawn on U.S. Banks.		\$ 8	_____
BENEFACTOR [\$2,500] or FRIEND [\$1,000] (circle one).....		\$	_____
<input type="checkbox"/> I am enclosing a DONATION to the "AWM GENERAL FUND".....		\$	_____
<input type="checkbox"/> I am enclosing a DONATION to the "AWM ALICE T. SCHAFFER PRIZE".....		\$	_____
<input type="checkbox"/> I am also enclosing a DONATION to the "AWM ANNIVERSARY ENDOWMENT FUND".....		\$	_____

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.

INSTITUTIONAL DUES SCHEDULE

<input type="checkbox"/> CATEGORY 1 (includes 10 student memberships; 1 free ad; 25% off additional Newsletter & online ads*)..	\$250	_____
<input type="checkbox"/> CATEGORY 2A (includes 3 student memberships; 1 free ad; 10% off additional Newsletter & online ads*)....	\$125	_____
<input type="checkbox"/> 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 or 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 **does not** apply to Newsletter display ads. If institutional dues have not been received by the invoice date, the full advertising rate will be charged. Newsletter advertising deadlines are the 1st of every EVEN 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 each 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

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

ADDRESS CORRECTION FORM

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

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Address _____

City _____ State _____ Zip _____ - _____

Country (if applicable) _____ E-mail Address _____

Position _____ Institution/Org. _____

Telephone: Home _____ Work _____

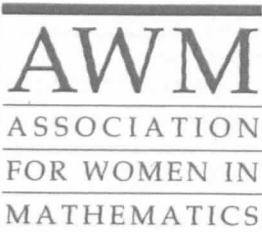
I **DO NOT** wish for my AWM membership information to be released for the **Combined Membership List (CML)**.

MAIL TO:

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

or E-MAIL:

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