AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

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IN THIS ISSUE

President's Report

Dear Colleagues:

It is late in January when I write this, but it has the feeling of the new year. For AWM, it's the beginning of a new cycle—terms on the Executive Committee end on January 31.

I would like to thank the outgoing members-at-large: Fern Hunt, Krystyna Kuperberg, Helen Moore, and Ann Trenk. Here are some of their many contributions. Fern and Ann served on the Infrastructure Task Force, and Ann served on both executive director search committees. Fern worked on the Taussky Todd lecture which came into being last summer at the International Council for Industrial and Applied Mathematics meeting. Krystyna has been (and still is) the PI for the travel and mentoring grants proposal. Helen has chaired the Long-Range Planning Committee.

Barbara Keyfitz's official term as past president ends in January. She has been a tremendous source of general and past-presidential help and wisdom. I am fortunate that it won't stop with the end of her term.

I am grateful to Bettye Anne Case, our volunteer Meetings Coordinator, for her work and amazing dedication. AWM events at meetings run smoothly, due to Bettye Anne's experience and effort and to that of Jennifer Lewis, our managing director, and the staff at STAT, our association management company. Jennifer, Dee Jay Garringo, and the STAT staff help to keep the many AWM programs running throughout the year.

Thanks also to those who serve on AWM's committees—and there are many. And thanks to all those who have contributed photos and articles to this newsletter, and to Anne Leggett, who puts it all together. Holly Gaff edits and maintains the Web site and deals with other technological matters. Maura Mast organizes Executive Committee meetings and keeps the minutes.

AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

The purpose of the Association for Women in Mathematics is

- to encourage women and girls to study and to have active careers in the mathematical sciences, and
- to promote equal opportunity and the equal treatment of women and girls in the mathematical sciences.

AWM was founded in 1971 at the Joint Meetings in Atlantic City.

The *Newsletter* is published bi-monthly. Articles, letters to the editor, and announcements are welcome.

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Welcome to our incoming members-at-large: Sylvia Bozeman, Sarah Greenwald, Ruth Haas, and Lisa Traynor. Sylvia Bozeman's name may be familiar to many because she, together with Rhonda Hughes, founded and still directs the EDGE Program. She is the 2007 recipient of the Etta Falconer Award for Mentoring and Commitment to Diversity (see the January issue of the *Newsletter*). This will be her second term as a member-at-large. Sarah Greenwald has written about mathematics and pop culture (notably *The Simpsons*) and served on the advisory board for the new film version of Flatland (see www.flatlandthemovie.com), which was shown at the Joint Meetings. Perhaps it's not coincidence that women are no longer the lowly line segments in this remake that they were in the original. You might recognize Ruth Haas as the co-author of "What Does a Mathematician Look Like?" (September 2007 *Notices of the American Mathematical Society*), which describes Smith's innovative post-baccalaureate program in mathematics. She is the chair of the mathematics department at Smith College. Lisa Traynor could be said to be the image of a woman in mathematics. Her photo came up first in the Google image search used to generate a picture for a session on university practices in the hiring and retention of women at the Joint Meetings in San Diego.

Welcome also to Georgia Benkart, our president-elect. Because she is spending part of the winter at the Mathematical Sciences Research Institute in Berkeley, I have the good fortune of being able to get to know her while she gets to know more about AWM.

At the Joint Meetings, the fascinating Noether Lecture "Fun with Zeta Functions of Graphs" was given by Audrey Terras. This was followed by a lively lunch in her honor at a restaurant with a view of the ocean. Lunchers included friends of Terras, members of the San Diego and other student chapters, and members of the Teacher Partnership.

For her contributions to mathematics education, Harriet Pollatsek received the 2008 Louise Hay Award. I know of Harriet through her work on the *CUPM Curriculum Guide 2004,* but her citation shows that her contributions extend far beyond that.

This year, the Schafer Prize was shared by Galyna Dobrovolska of the Massachusetts Institute of Technology and Alison Miller of Harvard University. Runners-up were Naomi Brownstein (University of Central Florida), Reagin Taylor McNeill (Smith College), and Mary Wootters (Swarthmore College).

Presentation of the Schafer Prize was followed by the AWM Panel on "The Unseen AWM Opportunities." These are some of AWM programs that do not occur at the Joint Meetings: the Sonia Kovalevsky Days, the Teacher Partnership, the Essay Contest, the Mentor Network, and the Travel and Mentoring Grants Program.

Bonnie Saunders, Barbara Keyfitz, and I organized a Mathematicians and Educational Reform session co-sponsored by AWM on recent reports, research, and recommendations regarding university practices in the hiring and retention of women. Ken Millett spoke on efforts at the University of California. Margaret-Ann Armour spoke on Project Catalyst at the University of Alberta. I spoke about the BIRS Report and some of its recommendations.

The AWM workshop for graduate students and post-docs was organized by Gail Ratcliff (chair), Elizabeth Allman, Megan Kerr, and Magnhild Lien. Although the workshop occurred on Wednesday, the last day of the meeting, it was very well attended! The workshop included talks by post-docs, posters accompanied by explanations from graduate students, and a panel, "Establishing a Career in Mathematics." Magnhild Lien was the panel moderator, and the panelists were Elizabeth Allman (University of Alaska, Fairbanks), Elana Fertig (Metron, Inc.), and Megan Kerr (Wellesley College).

A week later, the Mathematical Sciences Research Institute (MSRI) held a Connections for Women workshop, an introduction to current areas of research in representation theory, organized by Bhama Srinivasan and Monica Vazirani. Georgia Benkart was one of the speakers.

The number of AWM presidents (past, present, or future) at MSRI doubled during the MSRI twentieth-fifth anniversary celebration which followed the Connections workshop.

Left to right: Cora Sadosky, Lenore Blum, Bhama Srinivasan, Carol Wood, Georgia Benkart, and Cathy Kessel.

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues (Membership runs from Oct. 1 to Sept. 30)
Individual: $55 — Family (no newsletter): $30
Contributing: $125 — New member, retired, part-time: $30
Student, unemployed, developing nations: $20
All foreign memberships: $10 additional for postage
Dues in excess of $15 and all contributions are deductible from federal taxable income when itemizing.
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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 $55/year ($65 foreign). Back orders are $10/issue plus shipping/handling ($5 minimum).

Payment
Payment is by check (drawn on a bank with a US branch), US money order, or international postal order. Visa and MasterCard are also accepted.

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 Managing Director, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the* Newsletter *must be Affirmative Action/Equal Opportunity designated.* Institutional members receive 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 $12 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 book review material** to Anne Leggett, Department of Mathematics and Statistics, Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; e-mail: leggett@member.ams.org; 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; e-mail: bayer@math.ku.edu; fax: 785-864-5255. Send everything else, **including ads and address changes**, to AWM, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030; phone: 703-934-0163; fax: 703-359-7562; e-mail: awm@awm-math.org.

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Classified and job link ads may be placed at the AWM website.

Website and Online Forums
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AWM-NET

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

AWM DEADLINES

Louise Hay Award: April 30, 2008

NSF-AWM Travel Grants: May 1 and October 1, 2008

Kovalevsky High School Days: August 4, 2008

AWM Workshop at JMM: August 25, 2008

Essay Contest: November 1, 2008

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AWM

There will be several more conferences for women in mathematics this year, including the following:

April 12–13, 2008, MIT Women in Mathematics: A Celebration, Massachusetts Institute of Technology, http://www-math.mit.edu/womeninmath/index.html

May 2, 2008, Second New York Women in Mathematics Network Conference, New York City College of Technology (The City University of New York). Topics include combinatorial, geometric and computational group theory, computational complexity, finite automata theory, set theory, and model theory, http://www.nywimn.net

May 12–23, 2008, Knots, Surfaces, the Curve Complex, Foliations, and All That . . . , Institute for Advanced Study, http://www.math.ias.edu/womensprogram

November 2–7, 2008, Women in Numbers (number theory), Banff International Research Station, www.birs.ca/birspages.php?task=displayevent&event_id=08w5112

Have a wonderful 2008!

Cathy Kessel
Berkeley, CA
January 30, 2008

Reflections on the Presidency

Barbara Lee Keyfitz

On February 1, my four-year stint as president-elect, president, and past-president came to an end. It was a time to recall the changes in my life and in AWM that have taken place in those four years. The message below is the text of a short speech I gave at the AWM Executive Committee meeting in San Diego.

I asked for five minutes to give my farewell as past-president. Cathy gave me ten, which is generous since we have a long agenda. And really, I have only one thing to say: "thank you." Thank you, Cathy, for picking up many tasks, even while still president-elect; thank you, Jennifer and everyone at STAT Marketing, for giving AWM a professional level of management that is helping us become a better organization; thank you, EC members, for your work, your advice, your ideas, and your corrections to my mistaken ideas. Thank you to all the volunteers who answered our requests that they serve on committees and organize events.

I became president-elect—in early 2004—at a time when AWM was undertaking an introspective exercise: Who were we? What was our mission? Why did we exist? Most puzzling to some of us was the question of whether we owed our existence mainly to the negative facts of discrimination against women in our profession and underrepresentation at all levels, beginning with math courses in high school. It was a statement by Helen Moore that crystallized for me the importance of AWM. Others may have said this as well, but I remember her words: "we are building a community." Those five words have guided everything I have done as president. They have enabled me to repress my frustration when things get messed up—we are trying, but we don't always act as if we like and respect one another, and someday when I'm not trying to be solemn and presidential for the last time, I'm going to get together with some of my presidential friends for a no-holds-barred session of general cattiness and backbiting. But it's not a priority.

I suppose I could talk about "all the things I've done for AWM," but there have been relatively few, compared to other presidents who came to the job with a better idea of what they wanted to accomplish. So I would rather talk about what AWM has done for me. I accepted the nomination for president because I couldn't think of a good reason to say no. I had not sought the position, had not been particularly active in AWM, and didn't even know about most of its activities. I was slightly bored, my career was in stall, my research program was entering a dry spell, and of course I didn't know that two months later I'd become a candidate for an exacting more-than-full-time job. Things didn't start out auspiciously either. If I mention Dawn Wheeler and Larry Summers in the same sentence, it's not to suggest that they have anything in common other than that they both dropped their bombshells not long before I became president. I learned from this, though. One lesson was in how to deal with staff issues and another in how to be wary of the media—but mostly I learned how exciting it was to watch the energy of the organization and its leaders in responding to crises.

I'm glad it's not all been crises. I loved the opportunity to write—columns for the newsletter, putting together the BIRS report—even though I never met my deadlines. I loved the feeling of authority, in representing AWM to other math societies and groups. I know that the fact that I'd been selected by my peers to lead AWM played a role in my landing the Director position at Fields and in my winning the Farfel award at the University of Houston. It's helped me with my other volunteer jobs and has given me the credential to aspire to become president of ICIAM, the international applied mathematics organization.

So I am grateful.

Let me close with a few words of advice. We welcome a new crop of members at-large of the Executive Committee and a new president-elect. I hope you will get as much out of the experience as I did and that you will add to the organization, and to the community, in ways I never dreamed of. Thanks to the dedication and skill of all involved—paid and unpaid—AWM has never been in better shape or in more capable hands.

I think you don't need my advice, but if you do, just ask for it.

AWM at the San Diego Joint Mathematics Meetings

AWM Noether Lecture

The 2008 Noether Lecture, "Fun with Zeta Functions of Graphs," was delivered by Audrey Terras, University of California, San Diego. She was introduced by Cathy Kessel, AWM President.

Abstract: I will present an introduction to zeta functions of graphs along with some history and comparisons with other zetas from number theory and geometry such as Riemann's and Selberg's. Three kinds of graph zetas will be defined: vertex, edge and path. The basic properties will be discussed, including the Ihara formula saying that the zeta function is the reciprocal of a polynomial. I will then explore analogs of the Riemann hypothesis, zero (pole) spacings, and connections with expander graphs and quantum chaos. The graph theory version of the prime number theorem will be discussed. The graphs will be assumed to be finite undirected and possibly irregular. References include my joint papers with Harold Stark in *Advances in Math.*

Biographical Information

Audrey Terras is a fellow of the American Association for the Advancement of Science and has served on that organization's mathematics section nominating committee. She has served on the Council of the American Mathematical Society and various AMS committees and was an editor of the *Transactions* of the AMS. Currently she is an associate editor of book reviews for the *Bulletin* of the AMS and the chair of the Western Section Program Committee. She has served on various AWM committees in the past.

She has written three books: *Harmonic Analysis on Symmetric Spaces and Applications, Vols. I, II,* Springer-Verlag, New York, 1985, 1988 and *Fourier Analysis on Finite Groups and Applications,* Cambridge University Press, Cambridge, 1999. She also co-edited, with Dennis Hejhal and Peter Sarnak, the proceedings from a 1984 conference on Selberg's trace formula. Her research interests include number theory; harmonic analysis on symmetric spaces and finite groups along with its applications; special functions; algebraic graph theory, especially zeta functions of graphs; and Selberg's trace formula.

Current research involves finite analogues of the symmetric spaces of her Springer-Verlag volumes. This led her to work on spectra of graphs and hypergraphs attached to finite matrix groups, along with coverings of graphs and their zeta and L-functions. These functions are analogues of the Riemann and Selberg zeta functions.

AWM Prizes

Louise Hay Award for Contributions to Mathematics Education

In 1990, the Executive Committee of the Association for Women in Mathematics (AWM) established the annual Louise Hay Award for Contributions to Mathematics Education. 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.

Citation for Harriet S. Pollatsek

In recognition of her wide range of outstanding contributions to mathematics education, the Association for Women in Mathematics (AWM) presents the eighteenth annual Louise Hay Award to Harriet S. Pollatsek of the Department of Mathematics and Statistics at Mount Holyoke College.

Harriet Pollatsek received her doctorate from the University of Michigan in 1967 under the direction of Jack

McLaughlin. Throughout her career she has remained an active mathematical researcher, with contributions ranging from cohomology of linear groups to difference sets in finite groups and quantum error-correcting codes, and has held visiting appointments at the University of Oregon, University of Cambridge, Queen Mary College of the University of London, and the University of Sussex.

What has most characterized her entire career is her love of mathematics and her energy and enthusiasm for fostering a love of it in others. She believes that everyone can benefit from learning mathematics and that the way it is taught should give students multiple opportunities to be brought into the mathematical fold.

As a faculty member at Mount Holyoke College since 1970, she has expanded the department's view of what can serve as a potential entry point into the major by helping develop 100-level "explorations" courses, which students may use as prerequisites for certain noncalculus mathematics major requirements. She was one of the designers of the Five College Calculus in Context sequence, playing a large role in creating and piloting "Case Studies in Quantitative Reasoning," played a key role in a Dana Foundation effort to increase underrepresented individuals in mathematics courses, was one of the developers of a National Endowment for the Humanities-funded program to spread mathematics across the curriculum, and was critical in the design of a program to allow Mount Holyoke students to graduate with an accredited engineering major through the University of Massachusetts, Amherst.

For majors and potential majors she codeveloped an innovative mathematics laboratory course and then became a coauthor and the lead editor of a textbook for it, *Laboratories in Mathematical Experimentation.* This course has become the linchpin of the mathematics major at Mount Holyoke. Students in the course first explore interesting mathematical questions by generating examples and discerning patterns and then state and prove theorems about them. After graduation, students often report that it was the laboratory course that most influenced their decision to major in the department and that the course made them more likely to read mathematics actively, to "mess around" with a problem, and to formulate an argument clearly. Following her philosophy of finding ways to introduce students as early as possible to the richness of mathematics, she developed a course in Lie groups that has only calculus and linear algebra as prerequisites and may be taken independently of a standard abstract algebra course. In addition, she has directed many independent students and twice directed summer research groups.

Current students laud her patience, her clarity, her availability, her thoughtfulness, and her craft. It is clear from their comments that every assignment, every test, every interaction is calculated to foster their understanding and to use their

Call for Nominations: 2009 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. 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, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030. Nominations must be received by **April 30, 2008** and will be kept active for three years. For more information, phone (703) 934-0163, e-mail awm@awm-math.org or visit www.awm-math.org. Nominations via e-mail or fax will not be accepted.

growing understanding of the material to win them over. To address the range of student backgrounds and abilities, she assigns challenge problems, a certain number of which a student must tackle with some success in order to earn an A or A–. Former students are equally enthusiastic. For instance, one wrote: "The passion that Harriet has in mathematics and in the education of mathematics has always been an inspiration to me; more importantly, her faith in what I can achieve and who I can become will always remain a strong motivation to me in the days to come." Another stated: "She was great in the classroom, is incredibly wonderful to her students, seems totally unruffled all the time, is administratively and bureaucratically very successful, and just seems to 'do it all' with class and dignity." A third referred to the way she continues to help students long after they have left the campus: "She understands and is committed to the notion that education doesn't take place just in the classroom, and it doesn't take place just in a four-year window. Education can take place in every interaction, and mentoring can continue for decades."

Harriet Pollatsek has made major contributions to mathematics education beyond the teaching of undergraduates. She has served for twenty years as an active and valued advisor for Mount Holyoke's SummerMath and SEARCH programs (for high school students) and for the SummerMath for Teachers program (for K–12 teachers). In describing her work with them, the program directors commented that she has "the ability to be optimistic and realistic at the same time" and "to make you feel important and valued while spurring you to look critically at your work," and that she "is never too busy to find time to listen and to give her scrupulously honest and well-thought-out feedback. If she makes a suggestion, you know it is solidly grounded and never given lightly."

At the national level, in addition to her coauthorship of mathematics textbooks and other curricular materials, she chaired the Mathematical Association of America's Committee on the Undergraduate Program in Mathematics (CUPM) and led the writing team that produced the *CUPM Curriculum Guide 2004: Undergraduate Programs and Courses in the Mathematical Sciences.* David Bressoud, current chair of CUPM and a member of the writing team, wrote: "This was an amazingly ambitious undertaking. For the first time, CUPM was looking not just at the sequence of courses that lead to the mathematics major, but at all courses offered by departments of mathematics…. The goal was nothing less than a set of recommendations that departments could use to help leverage resources and reform. Harriet Pollatsek did an amazing job of shepherding this project…. She kept the team pulling together … and helped ensure a consistently high level of work. She refused to be named first author on this report, but she should have been so acknowledged." Bressoud went on to write that the *Curriculum Guide* "has been a contribution to mathematics education with an importance that it is hard to overestimate."

By the Louise Hay Award, AWM is proud to honor Harriet S. Pollatsek for her steadfast enthusiasm and commitment to the goal of leading as many students as possible to a genuine and deep appreciation for mathematics and mathematical thinking.

Response from Pollatsek

When I arrived at Mount Holyoke in 1970, Louise Hay's absence there was still keenly felt. So I was aware of her accomplishments, and they were an inspiration to me. Therefore, it is with particular gratitude and delight that I receive this award bearing her name. In accepting it, I think of myself as a representative of the many mathematicians and educators who do the excellent and important work that the Hay Award recognizes.

In that spirit, I'd like to acknowledge some of the people who have shaped and inspired me as a mathematician and a teacher. My high school teacher, Kate Pankin, loved mathematics so much that her eyes would glisten when she taught. I was fortunate to learn calculus from Edwin Moise, a man ahead of his time as a top-flight researcher dedicating himself to improving the learning and teaching of mathematics. I fell in love with algebra in Donald Higman's classes, and Jack McLaughlin showed me the teacher-mathematician as consummate craftsman and artist. I've learned much from the research mathematicians I've worked with over the years, from my *Calculus in Context* comrades, from the mathematics educators of the SummerMath pro-

grams and their teacher-collaborators, from the Mount Holyoke faculty in other disciplines with whom I've developed curriculum and taught, and perhaps most of all from my extraordinary colleagues in mathematics and statistics. My students at Mount Holyoke have been a constant source of inspiration; they push themselves to excel, but they always try to bring others along with them. A few years ago one even came back to teach me. As the Committee on the Undergraduate Program in Mathematics prepared our *CUPM Curriculum Guide 2004,* I met—and learned from—dozens and dozens of generous and wise faculty in mathematics and in the mathematics-using disciplines, in addition to my fellow CUPM members, especially my cowriters.

Every one of us has a list like mine of people who have influenced our goals and helped us get closer to them. There is much more work for all of us to do, and I hope this award encourages others, as it does me. My profound thanks go to the Hay Award Selection Committee and to the AWM.

Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman

In 1990, the Executive Committee of the Association for Women in Mathematics (AWM) established the annual Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman. The prize is named for former AWM president and one of its founding members, Alice T. Schafer (Professor Emerita from Wellesley College), who has contributed a great deal to women in mathematics throughout her career. The criteria for selection include, but are not limited to, the quality of the nominees' performance in mathematics courses and special programs, an exhibition of real interest in mathematics, the ability to do independent work, and if applicable, performance in mathematical competitions.

AWM is pleased to present the eighteenth annual Alice T. Schafer Prize to **Galyna Dobrovolska**, Massachusetts Institute of Technology, and to **Alison Miller**, Harvard University. Also, AWM was pleased to honor the honorable mention recipients, **Naomi Brownstein**, University of Central Florida; **Reagin Taylor McNeill**, Smith College; and **Mary Wootters**, Swarthmore College.

Citation for Galyna Dobrovolska

Galyna Dobrovolska is a senior who is an outstanding mathematics major at the Massachusetts Institute of Technology. Her coursework there has been exceptional: she has exhausted the undergraduate offerings in the mathematics department while earning the highest possible grade in every class. Dobrovolska is now moving through the graduate mathematics curriculum at MIT with the same success.

Dobrovolska has further distinguished herself through her impressive and original mathematical research. Her research is focused in algebra and would be considered broad even for a mathematician much further along in her career. Her research in algebraic combinatorics has resulted in a coauthored publication solving the Support Containment Conjecture. This paper resolves a significant open problem and as such has drawn notice from researchers in the field. Dobrovolska is currently pursuing an active research program in the theory of central series quotients of an associative algebra. Here she has yet again already obtained impressive theoretical results in confirming a conjecture of Feigin and Shoikhet.

In addition to winning a gold medal at the International Mathematics Olympiad, Dobrovolska won the top prize in 2006 in the Summer Program of Undergraduate Research at MIT. Her ingenious solutions to difficult problems have earned her descriptions as "a star student" and "absolutely outstanding."

Response from Dobrovolska

I am greatly honored to be a cowinner of the Alice T. Schafer prize this year, and I would like to thank AWM for this honor.

I am thankful to Professor Pavel Etingof for doing research with me and nominating me for this prize. I would like to thank Professor Michael Artin for teaching algebra so inspirationally and for directing me to do research with Professor Etingof. I would also like to thank Professor Victor Guillemin for his support and advice to continue working on my research this summer. I want to thank Pavlo Pylyavskyy, who did research with me during the SPUR program at MIT. I am very thankful to my high school mathematics teacher, Mikhail Yakir, and his student Maksym Fedorchuk for encouraging me to apply to MIT

from Ukraine. I am also grateful to Mikhail Yakir because he taught me mathematics which enabled me to go to the IMO and win a gold medal so that I could come to study at MIT. Finally, I want to thank my parents for their support and patience with me in every stage of my life.

Citation for Alison Miller

Alison Miller is a senior at Harvard University and has already published important research in number theory. She was a member of the 2004 United States International Mathematical Olympiad team and was the first-ever U.S. female to win a gold medal at the IMO. She won the Elizabeth Lowell Putnam award for outstanding performance by a woman in the Putnam Competition in 2005 and 2006.

In the summer of 2006, Miller participated in an REU at the University of Wisconsin, where she coauthored two papers on infinite product expansions of modular forms. The first of these papers, which answered a deep and difficult question originating in the Fields Medal work of Borcherds, has appeared in the *Proceedings of the American Mathematical Society.* The second paper, currently in preprint form, is expected to be very influential in this area of number theory.

In the summer of 2007, Miller wrote an independent research paper on the superpattern problem as part of an REU program at the University of Minnesota, Duluth. In this paper she developed a new technique and used it to solve a problem that had been open, and widely discussed, since 2002. Her work has been cited as "the best thing that happened to our field since November 2003."

Response from Miller

I am very honored to have been chosen as a cowinner of the AWM Schafer Prize. I wish to thank the AWM, not only for this prize, but for everything else they have done to encourage women in their mathematical endeavors.

I have been blessed with many teachers and peers from whom I have learned much, and I would like to thank the many people who have helped me get this far on my mathematical journey. First my parents, who encouraged my mathematical explorations from the beginning. I also thank my instructors and classmates at the Math Olympiad Program, who showed me so much mathematics as a high school student. I thank Joe Gallian for giving me an engaging problem to spend a summer thinking about and for his ongoing encouragement. I also thank Ken Ono for an unforgettable REU experience from which I learned a lot. I must also thank all my advisors and peers at both REUs, particularly my coauthors at the Madison REU, Carl Erickson and Aaron Pixton. As well, I thank everyone in the Harvard math department for their inspiration and support and for all I have learned. I am especially indebted to Wilfried Schmid for providing me with a solid base from which to start my mathematical explorations and to Elizabeth Denne for her encouragement and support.

Citation for Naomi Brownstein

Naomi Brownstein is a senior at the University of Central Florida, pursuing bachelor's degrees in mathematics and actuarial science. In addition to a record of outstanding course work at the University of Central Florida, she worked on complex problems in several Research Experience for Undergraduate (REU) programs. This work has resulted in an original research publication as well as invitations to speak at conferences. Her intellectual curiosity, enthusiasm and motivation have been further rewarded with an Honorable Mention Citation from the Barry M. Goldwater Foundation.

During her REU experience at the University of North Carolina, Brownstein investigated properties of partial words; in particular she and her co-author explored the concept of unavoidability. Their original and ingenious work resulted both in a published paper and a preprint that has been submitted to a refereed journal. Brownstein demonstrates great enthusiasm and excitement towards mathematics, as well as an impressive amount of intellectual curiosity and drive. In the words of one of her recommenders: "Brownstein was born to do mathematics."

Response from Brownstein

First of all, I would like to thank the Association of Women in Mathematics for recognizing outstanding female mathematicians. I am honored to be one of this

year's Honorable Mention recipients. It is humbling to be recognized among so many talented female undergraduate mathematicians. I would like to acknowledge the University of Central Florida for its generous financial, academic, professional, and emotional support throughout my undergraduate career. Thank you to Lisa Sklar and Kelly Astro of the Burnett Honors College for guiding me into these research opportunities. I would also like to recognize Dr. Pensky for her constant academic and personal support throughout our research over the past two and a half years. Her patience and guidance has undoubtedly been a critical component of my mathematical development. Thank you to my REU professors, Dr. Doytchinov and Dr. Blanchet-Sadri, for challenging and supporting me throughout the summers. Further, thank you to Dr. Blanchet-Sadri for pushing me to always work hard, persist, and especially to apply for this very award. Finally, I am grateful to my family for their constant unconditional love and encouragement, now and always.

Citation for Reagin Taylor McNeill

Reagin Taylor McNeill is a senior mathematics and astronomy major at Smith College, where she is writing an undergraduate honors thesis on knot theory.

During her time at Smith she has impressed her professors with the depth of her understanding, her mathematically adventurous spirit, and her rapid progress through and beyond their curriculum. Her recommenders describe watching McNeill "fall in love with mathematics" during her undergraduate years and confirm that her performance has matched her ambitions. She plans to enroll in a Ph.D. program in mathematics next year.

In the summer of 2007, McNeill was selected to participate in the Oregon State University REU in mathematics. There she was one of a group of three students who found explicit constructions of normal subgroups of the free group on two generators avoiding certain words. These results have been described as "enormous progress" towards the goal of finding finite index covers of the figure-eight space in which a given word does not lift to a loop. McNeill spent the summer of 2006 doing research as well, but in astronomy, at an REU at the Lowell Observatory. There she did exploratory data analysis for several different projects; her advisor describes her as a "real colleague," and two papers co-authored by McNeill have been accepted for publication.

Response from McNeill

I am incredibly pleased to receive honorable mention for the Alice T. Schafer Prize. Having been an undergraduate at a women's college I have seen the difference having a community of women doing mathematics has made in the confidence I have in my mathematical ability. The importance of promoting women in the sciences and mathematics is greatly underestimated. I would like to thank the AWM for providing encouragement to women in math, particularly to those women just starting their mathematical careers. I am very grateful for their support. I would like to thank my family in the Smith College math department. My professors and peers have consistently challenged me to attempt beyond what I believed I was capable of achieving and have been endlessly supportive in seeing that I accomplish what I set for myself. I have been extraordinarily lucky to live and work in such an ideal environment these four years. I would also like to thank my research advisors. Their excitement and creativity with their work has truly inspired me. These research experiences have not just showed me how to do mathematics. They have shaped the way I communicate about mathematics, both in my enthusiasm for the subject and my appreciation the views of others.

Citation for Mary Wootters

Mary Wootters is a senior at Swarthmore College, where she is in the honors program in both mathematics and computer science. She has taken many upper-level mathematics classes and has impressed her instructors with her insight, creativity, and diligence, as well as her love of thinking and doing mathematics. She spent Fall 2006 in the Budapest Semesters in Mathematics program.

In the summer of 2006, Wootters was awarded a research fellowship from Swarthmore College and obtained some ingenious original results on configuration spaces of linkages. She presented this work in a talk at the 2007 Conference for Undergraduate Women in Mathematics at the

University of Nebraska. In the summer of 2007, she was selected to participate in the SMALL REU at Williams College. There she worked on three projects in knot theory, all of which are being written up for publication in mathematics research journals. She presented her work on alpha-regular stick knots at MathFest 2007 in San José, where she won a prize for the quality of her research and its presentation.

Response from Wootters

I am honored to be selected as an honorable mention for this year's Schafer Prize, and I thank the Association for Women in Mathematics for everything they do to encourage and support young women in mathematics. I would also like to thank the Swarthmore math department, which has been supportive and inspiring throughout my math education; in particular I would like to thank Professor Don Shimamoto and also Professor Colin Adams at Williams College for giving me opportunities to do research and for guiding me through it.

AWM Workshop

The workshop talks, poster session and panel were open to the entire math community attending the Meetings. Selected graduate students and recent Ph.D.'s presented and discussed their research and met with other mathematicians. Thanks to Gail Ratcliff (Chair), East Carolina University; Elizabeth Allman, University of Alaska, Fairbanks; Megan Kerr, Wellesley College; and Magnhild Lien, California State University, Northridge for organizing this successful workshop. We thank the Office of Naval Research, the National Security Agency, and the Department of Energy for their support of the AWM Workshop. Thanks also to the volunteers who served as mentors, discussion group leaders and panelists.

Research talks by recent women Ph.D.'s were:

Laura Bauman, University of California, Los Angeles
"Random Effects Models for Quantitative Trait Locus (QTL) Mapping with Inbred Strains"

Konstantina Christodoulopoulou, University of Wisconsin, Madison
"Imaginary Whittaker Modules for Affine Lie Algebras"

Jenny Fuselier, United States Military Academy
"On Hypergeometric Functions over F_p and Ramanujan's T-Function"

Beth Hetrick, Penn State, Harrisburg
"Continuous Dependence on Modeling for Nonlinear Ill-Posed Problems"

Alison Marr, Southwestern University
"Graceful Labelings Meet Directed Graphs"

Deniz Sezer, York University
"Conditioning Super-Brownian Motion on its Exit Measure"

Janet Striuli, University of Nebraska, Lincoln
"Growth of the Bass Numbers"

Diana White, University of South Carolina
"Comparison of Relative Cohomology Theories"

Poster presentations by women graduate students were:

Juliana Belding, University of Maryland, College Park
"Computing Cryptographic Curves Using the Canonical Lift of Supersingular Elliptic Curves"

Stacy Bean, North Carolina State University
"On the Classification of Orbits of Minimal Parabolic k-Subgroups Acting on Symmetric k-Varieties of SL(n,k)

Oksana Bihum, University of Missouri, Columbia
"Minimal Distortion Bending and Morphing of Compact Manifolds"

Elizabeth Bouzarth, University of North Carolina, Chapel Hill
"Using Regularized Singularities and Spectral Deferred Corrections Methods to Model Fluid Flow Generated by a Precessing Rod"

Christina Eubanks-Turner, University of Nebraska, Lincoln
"Prime Ideals in Rings of Power Series over the Integers"

Heidi Feller, University of Nebraska, Lincoln
"Solving Boundary Value Problems Using Critical Point Theory"

Jennifer Froelich, University of Iowa
"Universal Deformation Rings Related to the Symmetric Group S_3"

Andrea Jedwah, University of Southern California
"Representations of Some Hopf Algebras Assocated to the Symmetric Group"

Karen Lange, University of Chicago
"The Relative Strength of the Atomic Homogenous Model Theorems"

Livia Miller, University of Nebraska, Lincoln
"Redefining Gorenstein: Toward a Theory of Non-Noetherian Gorenstein Rings"

Megan Owen, Cornell University
"Computing Distance in the Space of Phylogenetic Trees"

Christine Sample, Northwestern University
"Nonlinear Dynamics of a Double Bilipid Membrane"

Cornelia Van Cott, Indiana University
"Cabling Homomorphisms and the Knot Concordance Group"

Xinyi Zhang, University of Delaware
"Expected Length of Random Minimum Splitting Tree"

The workshop panel discussion was "Establishing a Career in Mathematics." The moderator was Magnhild Lien, California State University, Northridge; the panelists were Elizabeth S. Allman, University of Alaska, Fairbanks; Elana J. Fertig, Metron, Inc., and Megan M. Kerr, Wellesley College.

The Association for Women in Mathematics is grateful to the American Mathematical Society and the Mathematical Association of America for their efforts on behalf of all the AWM activities. AWM also wishes to thank all the members who volunteered their time and expertise for these meeting events.

Welcome to AWM's new sponsor, Metron, Inc. A special thank you is extended to the National Institute of Standards and Technology, ExxonMobil Foundation, and the National Science Foundation for their generosity and support over the years.

More Next Issue

Citations and responses for prizes and awards given by other societies at the JMM will appear next time, as will photos from the workshop.

QuestBridge 2008 College Prep Scholarship

The QuestBridge College Prep Scholarship levels the playing field of college admissions. It equips outstanding low-income high school juniors with the knowledge necessary to compete for admission to the nation's most selective colleges. The College Prep Scholarship application is available at www.questbridge.org. The application is free of charge and is due **March 31, 2008**.

AWM at JWM

Schafer honorees Naomi Brownstein, Reagin Taylor McNeill, Alison Miller, and Galyna Dobrovolska surround AWM President Cathy Kessel

Hay Award winner Harriet S. Pollatsek with Schafer winner Alison Miller

Noether Luncheon

Schafer winner Alison Miller between her mentors Ken Ono and Joe Gallian

AWM Past President Barbara L. Keyfitz, Noether Lecturer Audrey Terras, and AWM President Cathy Kessel

AWM Reception

Noether Lecturer Audrey Terras

Schafer honorable mention Reagin Taylor McNeill

Georgia Benkart and Mark Logan at the AWM Reception

Education Column

Ginger Warfield, University of Washington

What is Mathematics

At a very early age, I was made aware of the discrepancy between the views of mathematics held by those inside and outside of the field by watching my father attempt to maintain his civility in responding to "You're a mathematician—you add the bridge score!" More gradually, I became conscious of the fact that most people regard mathematics in the same light in which they regard snakes. But it was only much later, as I immersed myself ever more deeply in mathematics education, that I realized how deeply and disastrously the two are connected.

Looking back from my current vantage point, I can see as the tip of the iceberg a pair of symptomatic situations where no gracious reply was available, which prevented me from adding my tiny tidbit to people's mistaken vision of the field: "I've always loved mathematics, because every question has one answer and it's either right or wrong and you're done" and "You're a mathematician? You must be brilliant!" I've smiled and nodded at the first, figuring the "I love mathematics" was worth the misapprehension—but I could at least have said, "It's certainly an aspect of one part of mathematics." That brilliance, although certainly a property of some mathematicians, doesn't pertain to all of us is even harder to convey, especially with the specter of false modesty lurking about. Nonetheless, it is an image that does us all a lot of harm. Why? Because the belief that being a mathematician requires that one be brilliant underlies a fact we are all painfully aware of: that it is socially acceptable to write off mathematics with "I never could do math." Accompanying that phrase is the (usually) implicit follow-up, "… and I've done just fine without it, thank you!"

Hans Magnus Enzensberger wrote eloquently about this situation in his long essay (or short book) *Drawbridge Up: Mathematics—A Cultural Anathema.*[1] He writes from the vantage point of a non-mathematician observing the whole field. My own vantage point is that of a mathematician who has become deeply involved with mathematics education. With that perspective, I have been looking not so much at the overall impact of the cultural anathema as at some of its causes and consequences within the educational system and some developments that offer a glimmer of a hope of counteracting it.

Public education was established in the US in the second half of the 19th century, when the mathematical needs of society were clear and straightforward: people needed to be able to carry out the basic arithmetic operations well, dependably, and reasonably swiftly. That ability met the needs of a very high proportion of careers, because the career itself would provide the templates within which to carry out the operations. Bank clerks added long columns of numbers, store clerks multiplied prices by numbers of items and added. School mathematics was perhaps boring, but it met a real need.

Then came the 20th century. The world outside of school changed—and school didn't. The number of things that could be accomplished by calculation alone diminished steadily. Meanwhile the number of opportunities to use mathematics creatively in a whole variety of job (or non-job) contexts kept increasing. Most of these opportunities still involved calculation, but as a tool for accomplishing something much more interesting. In school, one could still perhaps rationalize a focus on teaching pure arithmetic, but only in terms of its being a necessary tool for carrying out other activities—and practicing hammer strokes without any nails to hit is hard to motivate. The advent of dime store calculators put the finishing touches on even that rationale. The need to carry out calculations not blindly but with an understanding of what the calculations are doing, and how they fit together, and what can be deduced by, with, and about them became absolute.

The Sputnik era produced two new developments. One was that the mathematical community recognized that school mathematics had bogged down and diverged from what was useful or interesting. From this emerged New Math, to the joy of mathematically attuned teachers and their students and the distress of the rest who, alas, considerably outnumbered them. The other was that the public at large, and administrators in particular, realized that we had some serious deficiencies in our mathematics education. From this emerged standardized tests. They seemed innocent

[1] Hans Magnus Enzensberger, *Drawbridge Up: Mathematics—A Cultural Anathema,* A K Peters, Ltd, 2001

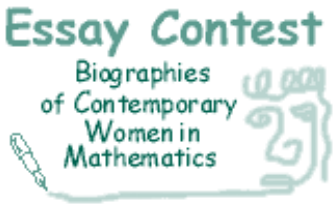
enough—after all, the need for accountability was clear. Unfortunately, what they tested was basic skills, and when that's what you test, that's what teachers focus on. If the test reveals deficiencies, the focus intensifies—now instead of just practicing hammer swings students need to practice the hand-hold, then the upswing, then the downswing, and clearly they must not be distracted by a nail. This intensity of focus fueled the back-to-basics movement and left us worse off than we were before. After *A Nation at Risk,* in which President Reagan's Commission on Educational Excellence documented that state, came the NCTM Standards, and in reaction the Math Wars and the No Child Left Behind Act—the ultimate monument to standardized testing. In many states, basic skills tests not only define mathematics, but determine whether a school will be put on probation or even closed. The logical conclusion for a student to reach is that mathematics consists of a dry and disconnected collection of skills that no one in their right mind could take pleasure in.

I suspect that if you asked N mathematicians to define mathematics you might get 1.5 N answers, but I can't imagine that any of the answers would involve dry and disconnected skills. In fact, the distance between our images and those of the world at large is sufficient to produce a communication chasm. If that chasm remains unbridged, we are at a standstill.

I promised some glimmers of hope, and there are some. A small but stellar glimmer is provided by the Math Circles that Robert and Ellen Kaplan have created, which they describe in *Out of the Labyrinth: Setting Mathematics Free.*[2] Math Circles take small groups of interested people—most, but not all, of them school children—and entice them as a group into engaging with some substantive mathematical topic, leaving them free to delve where the delving is good, but gently preventing them from wandering into any mathematical deserts. On a larger scale, since the early nineties the Netherlands has been teaching "Realistic Mathematics," where children work in genuine, real world contexts, ranging from maps to business decisions. The fact that the Netherlands does very well on the international tests on which we show poorly has gone oddly unnoted in the scramble to emulate Singapore, which comes in at number one.

To me, though, the glimmer that holds out the most hope is the fact that Standards-based teaching, for all the buffeting it has taken, continues to grow and solidify and learn from its own errors. The hope from that lies in the most fundamental of the Standards' tenets: children learn mathematics by doing mathematics—engaging with it, grappling with it, and, with guidance, arriving at their own understanding of it, which they are then able to use, build on—and enjoy. They may well then choose to go another direction, but it won't be either because "I never could do math" or because they regard mathematics with horror. It will just be because they like something else better, and that's fine!

[2] Robert and Ellen Kaplan, *Out of the Labyrinth: Setting Mathematics Free,* Oxford University Press, 2006



To increase awareness of women's ongoing contributions to the mathematical sciences, the AWM is (*pending funding*) sponsoring an essay contest for biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers. The essays will be based primarily on an interview with a woman currently working in a mathematical career. This contest is open to students in the following categories: **grades 6–8**, **grades 9–12**, and **undergraduate**.

At least one winning entry will be chosen from each category. Winners will receive a prize, and their essays will be published online at the AWM Web site. Additionally, a grand prize winner will have his or her entry published in the AWM *Newsletter*. For more information, contact Dr. Victoria Howle (the contest organizer) at vehowle@sandia.gov or see the contest Web page: www.awm-math.org/biographies/contest.html. The deadline for receipt of entries is **November 2, 2008**. *(To volunteer as an interview subject, contact Howle at the e-mail address given.)*

Book Review

Book Review Editor: Margaret Bayer, University of Kansas, Lawrence, KS 66045-7523, bayer@math.ku.edu

Math Doesn't Suck: How to Survive Middle-School Math without Losing Your Mind or Breaking a Nail, Danica McKellar, Hudson Street Press, New York, 2007, ISBN 978-1-59463-039-2, 294pp.

Reviewer: Kathy Tomlinson, University of Wisconsin–River Falls

One evening as I was relaxing with some nighttime reading, my eight-year-old daughter approached asking, "What is that? A joke book?"

"No, sweetie. It's mathematics."

She wandered off satisfied that all is right with the world (mom reads math all the time) but still a little bit perplexed (what's so funny about math?).

Danica McKellar, Winnie on the 90s hit television show *The Wonder Years,* has exploited her own popularity and knowledge of the world of glamorous fashion towards the laudable goal of helping girls learn math. *Math Doesn't Suck* is part middle school math text, part inspirational guide, part teen magazine, always conversational and often very funny.

Sonia Kovalevsky High School Mathematics Days

Through a grant (*pending final funding approval*) from Elizabeth City State University 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 12 to 20 grants ranging on average from $1500 to $2200 each ($3000 maximum) 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 welcome.

Applications, not to exceed six pages, should include: a) a cover letter including the proposed date of the SK Day, expected number of attendees (with breakdown of ethnic background, if known), grade level the program is aimed toward (e.g., 9th and 10th grade only), total amount requested, and organizer(s) contact information; b) plans for activities, including specific speakers to the extent known; c) qualifications of the person(s) to be in charge; d) plans for recruitment, including the securing of diversity among participants; e) detailed 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. The grant does not permit reimbursement for indirect costs or fringe benefits. Please itemize direct costs in budget.); f) local resources in support of the project, if any; and g) 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 2008 and Spring 2009. If selected, the organizer(s) must submit a report of the event along with receipts (originals or copies) for reimbursement to AWM within 30 days of the event date or by May 15, 2009, 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, 2009 for Spring 2009 only if funds remain after the August 2008 selection cycle.

Send *five* complete copies of the application materials to: Sonia Kovalevsky Days Selection Committee, Association for Women in Mathematics, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030. For further information: phone 703-934-0163, e-mail awm@awm-math.org, or visit www.awm-math.org. Applications must be received by **August 4, 2008**; applications via e-mail or fax will not be accepted.

After interviewing middle school math teachers, McKellar selected a range of topics that cause students the most difficulty and that persist as issues for these students as they progress through their mathematical careers: fractions, decimals, percents, word problems and basic algebra. I am impressed by this choice of topics because my own experience in the university classroom confirms that even calculus students face roadblocks resulting from knowledge gaps in precisely these areas.

Each chapter begins with a captivating motivational discourse. For example, compound fractions are introduced with an illuminating metaphor of a tangled necklace in "your jewelry box." "Before you can even try it on and see if it works, you'll have to untangle it … there's a cleanup step you must take care of before you can do anything with the necklace."(p. 95) After the introduction, McKellar gives a detailed explanation of the concepts involved, written in a friendly style, appealing to both adolescents and adults. The explanation is interrupted by boxes to help the readers focus on important points. To highlight a key term, there is a box "What's It Called?" signified by an icon of a girl receiving a call on her cell phone. To show a time saving process, we have "Shortcut Alert!" with a dashed line border and a picture of a girl with barber's shears.

The explanation of each concept is followed by an abstract description of how to work problems entitled "Step by Step," with a cute picture of two high-heeled shoes strolling across the page, and then examples. Wisely, McKellar creates repetition by working an example in her "And Action!" (denoted by a movie camera) and another in "Doing the Math," where she has exercises, beginning with "I'll do the first one for you." Each chapter finishes with a summary of core points: "Takeaway Tips" (picture of Chinese take-out box) and then some sort of inspirational piece.

The inspirational pieces may well be the strongest aspect of the book. There are testimonials by women who labored to learn mathematics and now are reaping the benefits of that labor with satisfying careers that use mathematics. There are entries in "Danica's Diary," recounting McKellar's own life experiences, struggling to learn mathematics and using mathematics in everyday living. There is a personality quiz on different learning styles that helps readers begin to understand multiple intelligences. There are quotes by young girls of how they have learned to value math and worked to succeed at math. While some readers might find these inspirational pieces cloyingly sentimental—I was certainly disheartened by some of her personality quizzes in the suffocating style of teen magazines, where the reader is confined to three choices, all of which assume that for you math is the most unpleasant activity ever encountered—for the most part, they are encouraging, charming and appealing.

At the end of the book there is a "Troubleshooting Guide" which I expected to be some sort of summary of the "Takeaway Tips" from the mathematical content of the book. Instead it is a delightful collection of excellent advice for students who are struggling with various aspects of learning mathematics. It's mostly advice I've given lots of times: read the directions; don't worry about saving paper; etc. McKellar presents this advice in such a compelling way that many adolescent girls might just follow it: "And if you end up with just one problem all by itself on a page? Well, then I guess you know you're getting the hang of it." (p. 275)

As a mathematics teacher, I am in the regular habit of introducing mathematical concepts as concretely as possible, gradually making the transition to greater and greater levels of abstraction. Thus, I am nonplussed by the placement of the sections entitled "Step by Step." These abstract explanations of how to solve problems always precede examples using the steps. It would be much easier for the reader to grasp an example, followed by "Step by Step" (an abstraction of the example just demonstrated), followed by another example. In McKellar's defense, she emphasizes that her book is not meant to be read linearly. She even gives helpful navigation references to assist non-linear readers.

McKellar does a nice job of emphasizing the role of multiple approaches to solving mathematics problems. For example, she explains two techniques for reducing fractions to lowest terms: "the GCF method" (divide numerator and denominator by the greatest common factor) and "the Divide and Conquer method" (repeatedly divide the numerator and denominator by common factors, until there are no more common factors). She contrasts the two methods and

concludes, "And of course there is always the golden math rule: since every problem is different, use whatever method seems easiest and fastest." (p. 72)

In the same vein, three techniques are given for finding the greatest common divisor of two whole numbers with witty titles: "Greatest Crush Factor," compare lists of all the divisors; "Multiplying Monkeys," use prime factorization; and "Birthday Cake," do sequential division. This is a wonderful way to highlight creativity in mathematics. It could only be improved by some sort of mention of Euclid's Method when using larger numbers.

McKellar is clearly concerned with the important idea of teaching for understanding. She gives an exceptional explanation of why division by a fraction is equivalent to multiplication by a reciprocal. In the context of distributing coffee drinks to actors, McKellar first explains why $6 \div 2 = 3$, 6 coffee drinks, 2 drinks for each actor, how many actors? In the same setting she explains $6 \div 1 = 6$. Using this subtractive notion of division as a foundation, McKellar returns to the same coffee drink context to explain $6 \div \frac{1}{2} = 12$. Finally, she completes her deeply conceptual explanation by demonstrating how one can count out $6 \div \frac{1}{2} = 12$ (p.58):

$$1 + 1 + 1 + 1 + 1 + 1 = 6$$

$$\overbrace{\tfrac{1}{2}+\tfrac{1}{2}} + \overbrace{\tfrac{1}{2}+\tfrac{1}{2}} + \overbrace{\tfrac{1}{2}+\tfrac{1}{2}} + \overbrace{\tfrac{1}{2}+\tfrac{1}{2}} + \overbrace{\tfrac{1}{2}+\tfrac{1}{2}} + \overbrace{\tfrac{1}{2}+\tfrac{1}{2}} = 6.$$

Unfortunately, this focus on teaching for understanding loses priority later in the book as McKellar explains how cross-multiplication works, but does not explain why it makes sense. In discussing comparison of decimals, there is a cute mnemonic involving gymnastics judging to remember an algorithm, but there is no explanation of why the algorithm is valid. Thus, the reader has little hope of developing her own intuition about how decimals work.

There are a few places where it seems that the publishers were in such a rush to get the book to press, they neglected editorial duties. In an example of successively multiplying by ten and thus moving the decimal to the right, there are equal signs between expressions that are clearly not equal. McKellar wants to keep her style conversational—which I appreciate—but she does a disservice to students with inaccurate mathematical exposition.

This is an excellent book for parents and teachers, with many ideas to help us explain mathematics in ways that girls relate to and enjoy. However, the book is marketed for an audience of middle-school and high-school aged girls. McKellar makes a strong effort to connect to girls who are interested in fashion, make-up, jewelry, shopping and dating. She makes some effort to connect to girls who are interested in gymnastics, dance or acting. However, she almost completely ignores most of the girls I know, girls who love the outdoors, team sports, creating artwork, singing, and playing musical instruments. (She does have a track meet and some craft ribbon in some of her exercises.) I was especially surprised that McKellar didn't put more focus on knitting, sewing or cooking, activities many girls enjoy, that are rife with mathematics. Those girls who are devoted to glamour to the exclusion of other interests and who struggle in their math classes would benefit from and enjoy this book. The rest of the adolescent girl population may want to keep waiting for a book that engages them and teaches them math simultaneously.

Models in Developing Mathematics Education

The Mathematics Education into the 21st Century project and The University of Applied Sciences (FH), Dresden (Germany), announce the 10th (Anniversary!) International Conference, "Models in Developing Mathematics Education," to be held September 11–17, 2009, in full cooperation with the Saxony Ministry of Education. The international organizers are Dr. Alan Rogerson, Coordinator of the Mathematics in Society Project (Poland) and Professor Fayez Mina, Faculty of Education, Ain Shams University (Egypt). The chair of the local organizing committee is Professor Doctor Ludwig Paditz of the Dresden University of Applied Sciences. You are warmly invited to attend this conference in the heart of the historic and beautiful city of Dresden. For all further conference details and updates, please e-mail alan@rogerson.pol.pl.

AWM Workshop for Women Graduate Students and Recent Ph.D.'s at the 2009 Joint Mathematics Meetings

Application Deadline: August 25, 2008

For many 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. We anticipate support from the Office of Naval Research and the National Security Agency for the AWM Workshop to be held in conjunction with the Joint Mathematics Meetings in Washington, D.C. in January 2009.

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 dinner with a discussion period, a luncheon, and a panel discussion on areas of career development. Workshop 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 talks, posters, and panel. Departments are encouraged to help graduate students and recent Ph.D.'s who are not selected for the workshop to obtain institutional support to attend the presentations and panel.

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 suport are welcome to apply. All non-US citizens must have a current US address.

All applications should include:

- a cover letter
- a title of the proposed poster or talk
- an abstract in the form required for AMS Special Session submissions for the Joint Mathematics Meetings
- a concise description of research
- a curricultum vitae
- at least one letter of recommendation from a faculty member or research mathematician who knows the applicant's work. In particular, a graduate student should include a letter of recommendaiton from her thesis advisor.

Submission details will appear in the May/June issue of the AWM *Newsletter* and on the AWM website (www.awm.math.org/workshops.html). To be considered, applications must be complete, in the form specified by the forthcoming announcement, and received by **August 25, 2008**.

AWM Conflict of Interest Policy

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

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

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

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

A copy of this conflict of interest statement passed by the AWM Executive Committee, Vancouver, 8/16/1993, shall be published once a year in the AWM *Newsletter,* and any member serving as an officer or on a committee shall be advised of the policy upon undertaking her duties.

Opportunities

Project NExT

Project NExT (New Experiences in Teaching) is a professional development program for new and recent Ph.D.'s in the mathematical sciences (including pure and applied mathematics, statistics, operations research, and mathematics education). It addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors as they assume these responsibilities. Each year, about seventy faculty members from colleges and universities throughout the country are selected to participate in a workshop preceding the Mathematical Association of America (MAA) summer meeting, in activities during the summer MAA meetings and the Joint Mathematics Meetings in January, and in an electronic discussion network.

Faculty for whom the 2008–2009 academic year will be the first or second year of full-time teaching (post-Ph.D.) at the college or university level are invited to apply to become Project NExT Fellows. The application deadline is Friday, **April 18, 2008**. In 2008, we will be accepting applications in two formats: online and hard copy. For more information, see the Project NExT website, http://archives.math.utk.edu/projnext/.

Project NExT is a program of the MAA. It receives major funding from the ExxonMobil Foundation, with additional funding from the Dolciani-Halloran Foundation, the Educational Advancement Foundation, the American Mathematical Society, the American Institute of Mathematics, the American Statistical Association, the National Council of Teachers of Mathematics, Texas Instruments, the Association of Mathematics Teacher Educators, the Association for Symbolic Logic, the W.H. Freeman Publishing Company, Maplesoft, John Wiley & Sons, MAA Sections, and the Greater MAA.

HRUMC XV

The 15th annual Hudson River Undergraduate Mathematics Conference will be held at St. Lawrence University in Canton, NY on April 19, 2008. The conference includes presentations on mathematics by both faculty and students, and both are encouraged to participate. Conference sessions are designed so that some presentations are accessible to undergraduates in their first years of study, and others are accessible to third or fourth year undergraduate mathematics majors.

The keynote speaker for this year will be Jeff Weeks, a MacArthur "genius award" winner who will be talking about the shape of space. You can find out more about HRUMC by visiting the conference website http://www.skidmore.edu/academics/mcs/pages/hrumc.

Career Mentoring Workshop

The second annual Career Mentoring Workshop for Women will be held July 27–29, 2008 at Wheaton College in Norton, Massachusetts (funding pending). The goal of the workshop is for each participant to leave with a good understanding of the job search process together with mentors and a group of peers from across the nation who can assist her and provide additional support as she navigates the job market.

Topics of discussion include professional opportunities, an overview of the job search process and employment register, revising application materials, the interview process, and starting your postgraduate career.

Applicants should be women in the mathematical sciences entering their final year of graduate studies. Participants

NSF-AWM Travel Grants for Women

The objective of the NSF-AWM Travel Grants program is to enable women researchers in mathematics or in mathematics education 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. All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians appointed by the AWM.

Travel Grants. Two types of grants are available. The Mathematics Travel Grants provide full or partial support for travel and subsistence for a meeting or conference in the applicant's field of specialization. The Mathematics Education Research Travel grants provide full or partial support for travel and subsistence in math/math education research, for mathematicians attending a math education research conference or math education researchers attending a math conference. In either case, a maximum of $1500 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 (DMS) and the Division of Research, Evaluation and Communication (REC) of the NSF. The conference or the applicant's research must be in an area supported by DMS. Applicants must be women holding a doctorate (or equivalent experience) and with a work address in the USA (or home address, in case of unemployed mathematicians). Anyone who has been awarded an AWM-NSF travel grant in the past two years is ineligible. Anyone receiving more than $2000 yearly in external governmental funding 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.

Applications. All applications must be submitted online via the web-based system which is available through a hotlink at http://www.awm-math.org/travelgrants.html. The application requirements and a complete step-by-step process are available at the online site. If you have not already done so you must first create a user account—this will be the first screen when you access the site. During the application process you will be asked to attach one .pdf file that includes your proposal, CV and current and pending funding information, as applicable. If you have a speaker confirmation letter or e-mail notification, scan the document as an electronic file and attach it as a .pdf. In addition, please complete the application pre-survey administered by an independent evaluator. You may contact Jennifer Lewis at 703-934-0163, ext. 213 for guidance. There are three award periods per year. The next two deadlines for receipt of applications are **May 1** and **October 1, 2008**.

will receive partial funding for the workshop. The application deadline for the 2008 workshop is **May 1, 2008**. More information about the workshop, including application materials, is available at http://fileserver. wheatonma.edu/decoste_rachelle/CaMeW.html.

CAS Trust Scholarships

The Casualty Actuarial Society is once again accepting applications for its scholarship program for college students pursuing a career in actuarial science. The CAS Trust Scholarship program, funded by donations to the CAS Trust, will award up to three $1,500 scholarships to deserving students for the 2008–2009 academic year.

Applicants must be a permanent resident of the U.S. or Canada, or have a permanent resident visa, and be admitted as a full-time student to a U.S. or Canadian educational institution to be eligible. Applicants must also have demonstrated high scholastic achievement and a strong interest in mathematics or a mathematics-related field.

Recommendations, transcripts, actuarial exam results, work experience, and written essays will all be considered in selecting the award recipients. Preference will be given to applicants who have passed at least one actuarial exam. Additional details and applications are available online at http://www.casact.org/academic/index.cfm?fa=scholarship. Applications are due by **May 1, 2008** and winners will be notified in July.

The intent of the scholarships is to further students' interest in the property/casualty actuarial profession and to encourage pursuit of the CAS designation. Established in 1979, the Casualty Actuarial Society Trust affords CAS members and others an income tax deduction for funds contributed and used for scientific, literary, or educational purposes.

For questions about the program, contact Caitlin Jennings at cjennings@casact.org.

Leadership Workshop

The University of Washington has received a grant from the National Science Foundation ADVANCE program to offer a national leadership workshop for science, engineering, and mathematics department chairs and emerging faculty leaders. These workshops, called "LEAD: Leadership Excellence for Academic Diversity," are focused on providing academic leaders with the skills and resources to address issues related to departmental and university culture and the professional development of all faculty. A pre-workshop mentoring-for-leadership event will also be offered to women faculty. The workshop website is www.engr.washington.edu/lead. The 2008 workshop will be held July 21–22, 2008 in Seattle, WA. A call for registration will appear in April 2008.

Joint International Meeting of AMS and SMB

The first joint meeting of the American Mathematical Society (AMS) and the Sociedad Brasileira de Matematica (SMB) will be held at the Instituto Nacional de Matematica Pura e Aplicada (IMPA) in Rio de Janeiro, Brazil, June 4–7, 2008. The meeting, organized by representatives of both societies, will include plenary speakers from each society.

The plenary speakers are Ruy Exel (Universidade Federal de Santa Catarina), "Noncommutative dynamics"; Velimir Jurdjevic (University of Toronto), "Integrable Hamiltonian systems on symmetric spaces"; Andre Nachbin (IMPA), "Wave dynamics: Asymptotics with differential operators and solutions"; Richard M. Schoen (Stanford University), "Riemannian manifolds of positive curvature"; Ivan P. Shestakov (University of Sao Paulo), "Automorphisms of free algebras"; and Amie Wilkinson (Northwestern University), "Partially hyperbolic dynamics." There are fifteen Special Sessions confirmed to date.

For up-to-date information on the program, timetable, accommodations, and local information, see http://www.ams.org/amsmtgs/2142_program.html. The website hosted by IMPA at http://w3.impa.br/~amssbm/home.html lists the organizing committee and has registration and travel information.

Since the AMS's first joint international meeting with the London Mathematical Society in 1992, the AMS has co-sponsored 22 meetings with sister societies in their host countries (and another 2008 meeting will be held in Shanghai, People's Republic of China, December 17–21). International meetings are a valuable component of the Society's programs that foster contacts and collaborations, and mathematicians at all levels are invited to participate.

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THE 46TH CORNELL TOPOLOGY FESTIVAL, Cornell University, Ithaca, NY, 2–5 May, 2007—This year's festival includes a concentration of talks in symplectic topology and geometry. There will be two introductory workshops and a panel discussion. Financial support is available—young researchers are especially encouraged to apply. For registration and further details see the festival web page: http://www.math.cornell.edu/~festival/.

OHIO WESLEYAN UNIVERSITY—The Department of Mathematics and Computer Science invites applications for a Visiting Assistant Professor position in mathematics to begin August 2008. This is a one-year term position. (It is possible that there will be a search for a tenure-track position in 2009.) We seek an enthusiastic instructor able to teach calculus, an advanced course, and a survey course for non-majors. A PhD (or ABD) in mathematics or a related field is required, with a preference for a completed PhD. Please send a letter of application, a statement of teaching and research interests, CV, transcripts (both graduate and undergraduate), and three letters of recommendation to: Prof. Jeffrey Nunemacher, Dept. of Mathematics and Computer Science, Ohio Wesleyan University, Delaware, OH 43015. To ensure full consideration, applications should be received by March 14, 2008. Ohio Wesleyan University (www.owu.edu) is a selective, private, undergraduate liberal arts institution of 1850 students. The university, founded in 1842, is located 20 miles north of Columbus, Ohio. Further information can be found at http://math.owu.edu. The university is strongly committed to diversity and encourages all interested parties, including women and minorities, to apply.

UNIVERSITY OF MISSISSIPPI—Tenure-track Assistant Professorships—The Department of Mathematics at the University of Mississippi invites applications for the three tenure-track positions at the Assistant Professor level beginning Fall 2008. All candidates should have a Ph.D. (or equivalent) by August 2008 in mathematics or statistics, and outstanding potential in both research and teaching. The department seeks two candidates specializing in number theory or algebra, and one candidate specializing in analysis. Outstanding candidates in other areas complementing our existing strengths, including probability theory, partial differential equations and knot theory, will also be considered. The successful applicant will teach 6 hours per semester and is also expected to conduct a vigorous research program. Applicants should complete the application form, cover letter and curriculum vitae online at https://jobs.olemiss.edu. At least one page of a statement on the application's research interest, three letters of recommendation about the applicant's research, and at least one letter of recommendation about the applicant's teaching must be sent to: University of Mississippi, Department of Mathematics, Chairman of Tenure Track Search Committee, 305 Hume Hall, University, MS 38677, USA. The letters of recommendation must be submitted directly by the referees. Inquiries about this position may be sent to mdepart@pop.olemiss.edu. Screening of applications will begin immediately and will continue until the position is filled. For information about the department please visit http://www.olemiss.edu/depts/mathematics and for information about the University of Mississippi see http://www.olemiss.edu. The University of Mississippi is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA employer.

UNIVERSITY OF NEW HAMPSHIRE, Department of Mathematics & Statistics—Assistant Professor Faculty Position: Operator Algebras—The Department of Mathematics & Statistics at the University of New Hampshire invites applications for a tenure track position, at the rank of Assistant Professor, in the area of Operator Algebras. The successful applicant will have a strong background in free probability and an outstanding record in research publications, teaching, graduate mentoring and external funding. Preference will be given to candidates who complement existing strengths and augment expertise in the Department. Information regarding research and educational interests and programs in the Department may be found at www.math.unh.edu. The Department has 25 tenure-track faculty and offers programs leading to the BS, MS and Ph.D. degrees. The University is a Land Grant, Sea Grant and Space Grant institution with approximately 13,000 undergraduate and graduate students. It is located near the New Hampshire seacoast and is within sixty miles of Boston MA, Portland ME, and the lakes and mountains of New Hampshire. The Department application review will begin immediately and continue until the position is filled. Applications and supporting materials may be filed electronically at www.mathjobs.org; applicants should provide a statement of research accomplishments and plans along with a CV and a statement on teaching and arrange for at least three letters of recommendation to be sent directly to the department. Recommendation letters may be uploaded to mathjobs.org or mailed directly to the department at the following address: Operator Algebras search committee, Department of Mathematics & Statistics, University of New Hampshire, Durham NH 03824. The University seeks excellence through diversity among its administrators, faculty, staff, and students. The university prohibits discrimination on the basis of race, color, religion, sex, age, national origin, sexual orientation, gender identity or expression, disability, veteran status, or marital status. Application by members of all underrepresented groups is encouraged.

WASHINGTON UNIVERSITY—Senior faculty position in Statistics, at the Associate or Full Professor level—Starting date: Fall semester 2008 or later. Normal teaching load: three semester courses per year. Statistics is one of several research groups within the mathematics department at Washington University. Currently, there are two senior professors and two assistant professors in the group. We intend to grow the group, and are looking for a mid-career or senior statistician to spearhead this effort. An applicant should have a proven track record of outstanding research and teaching, desire to mentor junior faculty and graduate students, and a willingness to take on a leadership role in shaping the statistics group within the mathematics department. Candidates whose research interests would include links to other departments at Washington University are particularly encouraged to apply, though we also welcome applications from individuals whose work is in pure mathematical statistics. Applicants should send a letter detailing their interests and qualifications, along with a curriculum vitae. The committee will begin reviewing applications in March 2008, and continue reviewing applications until the position is filled. Washington University is an affirmative action/equal opportunity employer and specifically invites and encourages women and minorities to apply. Employment eligibility verification required on hire.

2008-2009 Individual Membership Form

JOIN ONLINE at www.awm-math.org!

AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

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(703) 934-0163
http://www.awm-math.org
awm@awm-math.org

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

AWM Membership, 11240 Waples Mill Road, Suite 200, Fairfax, VA 22030

The *AWM Newsletter* is published six times a year and is part of your membership. Any questions, contact AWM at awm@awm-math.org; (703)934-0163 or refer to our website at: http://www.awm-math.org.

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DEGREES EARNED:

	Degree(s)	Institution(s)	Year(s)
Doctorate:	_____	_____	_____
Master's:	_____	_____	_____
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Individual Dues Schedule

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

☐ REGULAR INDIVIDUAL MEMBERSHIP (New Members ONLY).	$ 30	_____
☐ REGULAR INDIVIDUAL MEMBERSHIP.	$ 55	_____
☐ 2ND FAMILY MEMBERSHIP. (NO newsletter) *Please indicate regular family member:* _____	$ 30	_____
☐ CONTRIBUTING MEMBERSHIP.	$125	_____
☐ RETIRED or PART-TIME EMPLOYED MEMBERSHIP *(circle one)*	$ 30	_____
☐ STUDENT or UNEMPLOYED MEMBERSHIP *(circle one)*	$ 20	_____
☐ 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.	$ 10	_____
☐ BENEFACTOR [$5,000+], PATRON [$2,500] or FRIEND [$1,000+] *(circle one)*	$	_____
☐ CONTRIBUTION to the "AWM GENERAL FUND"	$	_____
☐ CONTRIBUTION to the "AWM ALICE T. SCHAFER PRIZE"	$	_____
☐ CONTRIBUTION to the "AWM ANNIVERSARY ENDOWMENT FUND"	$	_____

Dues in excess of $15 and all cash contributions are deductible from federal taxable income when itemizing.

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Volume 38, Number 2, March–April 2008

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