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On the cover: The view of San Diego from Point Loma. Photograph courtesy of the San Diego Convention and Visitors Bureau.

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China Girls Math Olympiad: Success for U.S. Teams

By Harry Waldman

Sherry Gong, from Exeter, N.H., earned a gold medal and tied for first place at the 2007 China Mathematical Olympiad for Girls, which was held in Wuhan, China, from August 11–16.

The MAA co-sponsored the participation of two four-member teams of high school girls — one made up of participants from the eastern U.S. and one from the western U.S. This was the first time the U.S. participated in that math olympiad, which has been held annually since 2002.

The East team members were Sway Chen (Lexington, Mass.), Jennifer Iglesias (Aurora, Ill.), Wendy Hou (Tampa, Fla.), and Sherry Gong. The West team members were Marianna Mao (Fremont, Calif.), Wendy Mu (Saratoga, Calif.), Colleen Lee (Palo Alto, Calif.), and Patricia Li (San Jose, Calif.). These students were chosen from the ranks of the top female finalists in the 2006 USAMO.

There were about 180 students from 42 teams in the China competition. Zhuo Chen, from Wuhan, China, tied Gong for first place with 114 points (out of 120). U.S. team member Wendy Hou received a silver medal, while Wendy Mu, Patricia Li, and Mariana Mao garnered bronze medals.

The Olympiad problems that the participants tackled are available at <http://www.msri.org/specials/gmo/files/cgmo07.pdf>.

To get ready for the contest in China, the young high school women spent July 16–Aug. 6 at the “AwesomeMath” summer program, in Dallas, which was designed to hone their problem-solving skills up to the Olympiad level; that is, to help them think creatively about mathematical concepts. This preparation gave them a chance to get to know one another, build team spirit, and develop the confidence to participate in international competition.

The teams went to Beijing, then to Wuhan, the capital of Hubei province, in central China, for the competition. For photos and messages from the girls during their travels, see <http://www.msri.org/specials/gmo>.

Coaches for the U.S. team were Melanie Matchett Wood, a graduate student at Princeton who was the first female to make a U.S. International Mathematical Olympiad (IMO) team; Alison Miller, a member of the 2004 U.S. IMO team; and Zuming Feng of Phillips Exeter Academy and director of the Mathematical Olympiad Summer Program since 2003.

Other sponsors of the U.S. teams were the IBM Almaden Research Center; Akamai Foundation; Mathematical Sciences Research Institute; Shiing-Shen Chern Foundation for Mathematical Research; and Sunlin and Priscilla Chou Foundation.

America COMPETES Act Signed Into Law

By Harry Waldman

On Aug. 9, 2007, President Bush signed into law the America COMPETES Act, now known as Public Law 110-69. As is common in legislative acts, COMPETES is an acronym that stands for “Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science.”

The measure, proposed by Rep. Bart Gordon of Tennessee and 21 co-sponsors, authorizes a 10-year doubling of budgets for the National Science Foundation (NSF), the Department of Energy’s Office of Science, and the National Institute of Standards and Technology (NIST). The legislation also authorizes a program that would try to expand low-income students’ access to Advanced Placement and International Baccalaureate coursework by training more high school teachers to lead AP/IB courses in

math, science, and critical foreign languages in high-need schools.

The legislation provides \$22 billion to NSF over fiscal years 2008–2010, putting it on a path to double its budget in approximately seven years. Particularly strong increases are provided in fiscal year 2008 for K-12 education programs at NSF. These programs, including the Noyce Teacher Scholarship program and the Math and Science Partnerships program, will help to prepare thousands of new science and mathematics teachers and provide current teachers with content and pedagogical expertise in their area of teaching.

The full text of the legislation can be found online at the Thomas congressional web site; visit <http://thomas.loc.gov> and search on COMPETES.

An Interesting Meetings Issue!

Or at least we hope so. Up to now, it has been our custom to devote the entire October issue and the entire April issue of FOCUS to material on upcoming meetings: the Joint Mathematics Meetings in October, MathFest in April. As you’ll notice from this issue’s table of contents, we’ve decided to change that. About one third of this issue contains the usual news and articles you’ll always find in FOCUS. The other two thirds are devoted to the meeting, but we have changed that part too. We’ve tried to devote more space than usual to invited speakers and other attractive events — and we have tried to do it in a way that makes for interesting reading. The rest of the meetings information is presented in fairly compressed form, with pointers to where you can find more information online. We hope this will work well for you... let us know!

Michael Henle Named Next Editor of *The College Mathematics Journal*

By Harry Waldman

At MathFest, the MAA Board of Governors approved the selection of Michael G. Henle of Oberlin College as the next editor of *The College Mathematics Journal* (CMJ). Henle will be Editor-Elect beginning in January 2008, and will become the Editor in January 2009.



Henle is a graduate of Swarthmore College and earned his PhD in mathematics from Yale University. At Oberlin since 1970, he served as mathematics department chair for ten years and has taught courses in computer science, algebra, analysis, differential equations, discrete mathematics, non-Euclidean geometry, and topology. Henle is the author of the textbooks *A Combinatorial Introduction to Topology* and *Modern Geometries: Non-Euclidean, Projective, and Discrete*. He has published articles in both *CMJ* and *Mathematics Magazine*.

Gerard Venema Elected Associate Secretary of the MAA

By Harry Waldman

The MAA's Board of Governors has elected Gerard A. Venema of Calvin College in Grand Rapids, MI, as the organization's next Associate Secretary. He begins his five-year term in January, 2009. Beginning in January 2008, he will be Associate Secretary Elect, which means he will work with the current Associate Secretary, James J. Tattersall of Providence College.



securing invited speakers for the scientific programs of the national meetings; and overseeing the organization of mini-courses, short courses, social events, and other activities held in conjunction with these meetings. Additional responsibilities include participation in logistics and on-site support. Venema will work with the MAA's Executive Committee, with AMS officers, and with MAA and AMS meetings staff. He will chair the MAA's MathFest Management Committee and alternate chairing the Joint Meetings Committee with the Associate Secretary of the AMS.

Venema, a specialist in topology, has been a member of the MAA for more than three decades. Currently an associate editor of *The American Mathematical Monthly*, Venema has served as a member of the CUPM Subcommittee on Research by Undergraduates; as a consultant to Project NExT; and as Chair of the Michigan Section. He has an impressive record of publications and invited talks and extensive experience in organizing workshops and conferences.

As the MAA's Associate Secretary, Venema will oversee the scientific programs of the MAA's two national meetings: the Joint Mathematics Meetings, held in conjunction with the American Mathematical Society (AMS); and the MAA's summer meeting, MathFest. Venema's primary responsibilities will include putting together sessions and

Kauffman Will Be Pólya Lecturer

By Fernando Gouvêa



Louis H. Kauffman of the University of Illinois at Chicago was elected Pólya Lecturer for 2008–2010 by the Board of Governors. Kauffman is an expert on knot theory. He has a very broad view of the subject, including its connections with statistical mechanics, quantum theory, algebra, combinatorics, and logic. He is an accomplished lecturer, having, in particular, given talks at MSRI in Berkeley and the Adler Planetarium in Chicago. He writes a regular column on "Virtual Logic" for *Cybernetics and Human Knowing*, an interdisciplinary journal dedicated to "new understandings of self-organizing processes of information in human knowing." His lectures "combine deep mathematics, stunning pictures, and surprising and provocative connections." Kauffman's web site is at <http://www.math.uic.edu/~kauffman>.

As Pólya Lecturer, Kauffman will be available to speak at meetings of Sections of the Association in the 2008–09 and 2009–10 academic years. Named for George Pólya, who "embodied the high quality of exposition that the MAA seeks to encourage," the Pólya Lectureship has made great speakers available to MAA sections since 1991. For more information on the Pólya Lecturers, visit the MAA web site at <http://www.maa.org/awards/polyalecutors.html>.

Teaching Time Savers: Modular Curriculum Files

By Larry Lesser

When I first started to teach (as a graduate student) in 1988, I began keeping files for each class I taught. The files contained organizational information specific to the institution, course, and textbook involved and included slides for particularly interesting activities or examples that I knew I would want to use again. As my teaching career unfolded (it has spanned three universities before my PhD and another three since my PhD), it became clear that it was not efficient to look for that cool statistics activity by going through files labeled STA 309, MAT 52-213, Math 20, BADM 34, Stat 150, Math 2200, Stat 1380, etc. (Even worse, my original filing system simply said “notes on Ch. 8,” as if I would always teach or think in terms of that textbook I happened to use the first two years of my career.)

While struggling to keep up with one semester’s particularly high teaching load (14 hours, four different preparations, including two new ones), I sought advice from my colleague Susan Ouzts. She kindly showed me how her file cabinets were full of materials (resource notes, camera-ready handouts or activity sheets, etc.) that were grouped by self-contained topics that could be quickly grabbed for a variety of classes. I adopted and adapted her idea and it has paid off. If I develop a neat lesson or activity on, say, the line of best fit, then a “line of best fit” folder with this activity is now ready to go whether I am teaching a college algebra course, a math modeling course, an introductory (or some other) statistics course, or some “math for teachers” course.

If I encounter a great clipping or graphical display in the newspaper that illustrates a commonly-taught mathematical or statistical topic, I can put the clipping in the file folder I already have on that topic rather than in some folder with a generic name like “clippings” which would be inefficient to search. Such files

not only made it easier to teach these topics in a way that was more interactive and connected to the real-world, but also facilitated writing scholarly articles that connect a “broad net” of topics (e.g., [1]). This modular, topical filing system has also proven handy for quickly putting together talks on specific interesting topics for the local student math club or for local high schools.

I don’t bother creating files for material that is common in textbooks, but rather I focus on particularly insightful metaphors or demonstrations (e.g., [2], [3]) or “beyond the book” connections to compelling but atypical realms (e.g., art, music, lottery, culture, ethics, social justice, etc.) that I want to have available for my teaching whether or not they are in the textbook I happen to be using. This naturally helps make my teaching more and more activity oriented as my repertoire grows. Another benefit is that by viewing what I teach in a modular, topical way, I am less tied to any particular textbook and therefore expend less time or emotional energy when a departmental committee decides to change a textbook or is charged with dissolving and reconfiguring a collection of courses to address credit hour mandates.

I have not completely abandoned my original by-course filing system, because it is still helpful to keep a skeletal file for each course with information such as the syllabus, exams, and grade sheet. But I have significantly reduced my class preparation time as well as time spent searching for items. And I have reduced the amount of paper I store because those activity sheets that once went into files for all the courses for which that activity was relevant or used now can be stored in just one file folder for that topic itself.

Time spent: minimal; a more-or-less one-time selection of key topics or ap-

plications that will have file folders created for them as you create and collect materials the first time you use them.

Time saved: roughly half of the time you spend preparing for any particular class which draws upon your collection of folders and the savings only seems to increase throughout your career.

References:

- [1] Lesser, L. M.; “Critical Values and Transforming Data: Teaching Statistics with Social Justice,” *Journal of Statistics Education*, 15(1), March 2007, <http://www.amstat.org/publications/jse/v15n1/lesser.html>.
- [2] Martin, M. A.; “‘It’s like... you know’: The Use of Analogies and Heuristics in Teaching Introductory Statistical Methods,” *Journal of Statistics Education*, 11(2), July 2003, <http://www.amstat.org/publications/jse/v11n2/martin.html>.
- [3] Sowe, E. R.; “Striking Demonstrations in Teaching Statistics,” *Journal of Statistics Education*, 9(1), March 2001, <http://www.amstat.org/publications/jse/v9n1/sowe.html>.

Larry Lesser is an Associate Professor at The University of Texas at El Paso and his home page is <http://www.math.utep.edu/Faculty/lesser/>.

Teaching Time Savers are articles designed to share easy-to-implement activities for streamlining the day-to-day tasks of faculty members everywhere. If you would like to share your favorite time savers with the readers of FOCUS, then send a separate email description of each activity to Michael Orrison at orrison@hmc.edu. Make sure to include a comment on “time spent” and “time saved” for each activity, and to include pictures and/or figures if at all possible.

FOCUS on Students: Applying for an Academic Job

By Robert W. Vallin

Once again we are at hiring season. Hundreds of applicants are each sending out triple-digit numbers of applications, trying to find a post-doctoral, tenure-track, or temporary position. This time-consuming process keeps the applicants worried and guessing about their future. It is a hair-pulling experience also for the department committee looking for that elusive “best fit.” Departments are well aware that a wrong move could end up being a 40-year mistake. Having served on several search committees as well as having compared notes with colleagues about their own adventures, I have decided to put pen to paper and give some help to those looking for employment. If you would like to find some more complete thoughts on the process I recommend going to the American Mathematical Society’s page on advice for new PhDs at <http://www.ams.org/employment/job-articles.html>.

Each job has its own nuances and it is important that you research these. This department emphasizes research. That one refers to excellence in teaching in its advertisement. Perhaps department A has someone who does research in analytic number theory just like you. Maybe department B has someone who is an officer in a group in which you wish to be active. This type of information can easily be found via the department web site. Departments are looking for a colleague who will be a good fit for them, and showing that you know details about their mission or faculty makes a good impression. It is easy to write one cover letter and just keep changing the address of the department, but such generic letters may get pushed to the bottom of the pile. Try to tailor each application to the situation. Also, even though you are the one looking for a job, this is not all about you. It is about those doing the hiring, too.

True Story: He was about to graduate. Very sure of himself, he would tell anyone and everyone who would listen how organized he was. He also complained

about how unnecessary and unfair it was to make each packet meet the needs of each school. “Too busy with his other stuff,” he told his friends. In the end, all the tenure-track jobs passed him by. Near the end of the school year he was lucky enough to find a temporary job. The moral: The requirements for your packet and department web site are there for a reason.

Schools can, for the most part, be sorted into one of three categories: Research Institutions, Liberal Arts Schools, and “the Rest.” When I was at a “the Rest” university and a cover letter said how the applicant’s goal was to teach at a liberal arts school, my only thought was, “Then why are you wasting my time?” Unwanted material will have the same effect, such as sending a teaching or research statement to a school which did not request one. That says you either didn’t read the ad or just don’t care.

Cover Letter

This is the first thing the committee will look at. It is your pitch, telling them why you are exactly what they’re looking for. These are much different from non-academic cover letters in that the readers are not the people you will work for, they are the people you will work with, your potential future colleagues. Any letter that is bland enough to be sent to every place you apply will not help you make any short lists. As with anything you sign your name to, make sure someone else (really at least two someones) reads it. Typos must be corrected. If your letter refers to the school by name, make sure that it is spelled correctly. Now is not the time to impress with fancy fonts or over-the-top gushing enthusiasm. Instead impress them with your professionalism. Remember, if you are sending out 100 applications, the committee is reading at least twice that many.

True Story: The cover letter read well. However, in the first paragraph, the first

letter of every line was a larger font-size than the rest. Bold-faced, they stood out. Put together, these letters spelled out the name of the applicant. Funny? Yes. Hiring material? No. The moral: You’re trying to be my colleague, not my entertainer/cheerleader.

Curriculum Vitae

As the Latin translation implies, this is your life. Like a résumé, this should be a history of your work. Unlike a résumé, this does not have to be short. Usually a CV starts at two pages and then grows. Everything should be included: personal information, education, dissertation title and advisor, teaching experience, research experience, papers (research, pedagogical, and expository) published or submitted, talks given, awards, service work, grants and fellowships received, workshops or mini-courses taken, meetings attended, and professional memberships. The page http://www.resumesandcoverletters.com/Academic_CV.pdf is a good sample of an academic CV. It’s a bit long, but it shows the numerous items that can go on a CV. Be warned though, a CV means something different in Europe. It is more of a résumé. When looking to the web for help, you’ll find lots of information that may be true in other countries (such as including a photograph), but that is not correct for an academic job in the U.S.

True story: The committee member could not tell you if she was qualified. He did not know how her CV read. He couldn’t get past the pink paper. Neither could anyone else. The moral: Stand out with your hard work and thoughtful presentation, not with the eye-catching trappings.

Teaching and Research Statements

Read the ads carefully to make sure these are requested. Again, when they are included but not asked for, they can give the impression that the applicant is using an assembly line approach and not

paying attention. After the first 100 or so applications the committee does not desire anything extra to read.

If you are required to write a teaching or research statement, be concise and be honest. If you have experience using applets to teach or have taken a minicourse on group work in discrete math courses, talk about it. Any involvement in reform movements should be noted. But if you haven't done any of these, don't despair. Just talk about what you do in the classroom and what you'd like to do in the future. Do not talk negatively. Saying how much you dislike "the sage on the stage" will immediately put you on the no list if the person reading your statement prides himself on his lectures. Similar ideas hold for research statements. Begin with some background to put your thesis problem in context. However, don't go into excruciating detail. The readers are not experts at what you study and lots of terminology and notation show that you are not judging your audience well. Start with your thesis, then any additional work you have done. Finally, talk about what you hope to explore in the future.

True Story: His research was good. His interests meshed well with the department without duplicating what the faculty already did. Next up on his agenda, he was going to take a stab at that Riemann Hypothesis he'd heard about. The moral: Too ambitious to be reasonable puts your application in the round file.

References

You need to have at least four references lined up. One should be your thesis advisor. One should specifically address your teaching. The others should depend on the specifics of the job. Are they more interested in your research or your teaching? Remember to pay attention to the skills of your letter writers. Before you ask someone to write a letter, ask yourself (and selected others), "Will the potential letter writer write me a good reference?" One short paragraph where your reference writes yes, you were in her class, and you did well, is not helpful. On the other hand, a three-page technical paper on your thesis will be

unintelligible for most of the committee. Finally, it is helpful if the writer is someone people will know, but only if what that person has to say is both substantive and positive.

True Story: This was a letter from someone who was well-known regardless of what field you were in. Even the envelope was impressive. Too bad the contents were not. They said, "I met this person once when he gave a talk in a session on our mutual interest. His presentation was good. I'm sure he'll do an excellent job teaching whatever class you give him." The consensus among the hiring committee was that the applicant probably thought the name on the letter would carry such cachet the contents didn't matter. The moral: The contents matter a lot.

Second True Story: No need to elaborate on this. In part the letter read, "Student evaluations show his English is improving, but I can't tell."

Transcripts and AMS Cover Sheet and MathJobs.org

More universities are now requiring official transcripts and a copy of the most recent AMS cover sheet. There is very little to say about these. Most schools will accept copies of your transcript until the last step and to be hired you will then need the official ones. If your undergraduate institution is in another country and the transcript is written in another language you would do well to start early getting an official copy and having it translated into English.

The AMS cover sheet (available for download at <http://www.ams.org/cover-sheet/>) is a one-page synopsis of your contact information, year of PhD, research interests, and references. Use the most current version because the older version does not ask about eligibility to work in the United States. Using this old version implies the answer to that question is no, which may not be a problem, but it may imply that the applicant is trying to hide that fact, and a less than honest applicant is definitely a problem. Some universities are asking applicants to apply through mathjobs.org, spon-

sored by the AMS. Visit this site and think about using it to put together your application packet.

Still to come will be the phone interview, the on-campus interview, and negotiating the deal. We'll cover those in a later article. One last tip: Seeking a job is a long river to navigate and not all of its twists and turns are clear. At no point should you argue with the committee about the paperwork or the process in general. Be accommodating and be collegial. Hopefully you now have some help in getting the process started. Good luck to everyone searching to be that perfect fit.

Robert W. Vallin is the MAA Associate Director for Student Programs. He welcomes questions and comments by email at rvallin@maa.org.

This is the second in a series of short articles for students. The overall title for the series will be **FOCUS on Students**. Some of these articles will be for undergraduates, others for graduate students, and many for all students. These articles will also be posted in the Student section of the MAA web site.

Distinguished Teaching Award Winner



*Bob Wilson
University of Wisconsin at Madison
Wisconsin Section*

In Memoriam

Victor Klee, 1925–2007

Victor Klee, who was MAA President from 1971–72, died August 18 at Lakewood Hospital in Lakewood, Ohio. He was Professor Emeritus of Mathematics at the University of Washington, Seattle, where he had spent nearly his entire career.

Born in San Francisco in 1925, Klee received his PhD in mathematics from the University of Virginia in 1949. Accepting an appointment at the University of Washington in 1953, Klee specialized in convex sets, functional analysis, analysis of algorithms, optimization, and combinatorics. He wrote more than 200 research papers and posed what came to be known as Klee's Measure Problem and the Art Gallery Theorem. In 1990, in honor of Klee's 65th birthday and the broad range of his mathematical interests, Peter Grizmann and Bernd Sturmfels edited a volume in his honor, entitled *Applied Geometry and Discrete Mathematics*.

Klee was the recipient of the MAA's Award for Distinguished Service to Mathematics in 1977 and co-author of *Old and New Unsolved Problems in Plane Geometry and Number Theory*, published by the MAA in 1991. In 1972, he won the Lester R. Ford Award for his article "What Is a Convex Set?" in the *American Mathematical Monthly*, and, in 1999, the Carl B. Allendoerfer Award for his article (with John R. Reay) "A Surprising but Easily Proved Geometric Decomposition Theorem" in *Mathematics Magazine*.

A longer article on Klee's life and work will appear in the November issue of FOCUS.

Atle Selberg, 1917–2007

Norwegian number theorist Atle Selberg died on August 6, 2007. He was 90 years old. Selberg, who had long been a permanent member of the Institute for Advanced Study in Princeton, was known for his work in analytic number theory, including important results on

the zeros of the Riemann zeta function and an elementary proof of the Prime Number Theorem. As happens to many great mathematicians, one can see the impact of his work in the way his name has been attached to important ideas, from the Selberg trace formula to the Rankin-Selberg method.

Selberg was born on June 14, 1917, in Langesund, Norway. He received his PhD in 1943 from the University of Oslo and became a member of IAS soon afterward. In 1950, he received the Fields Medal (together with Laurent Schwartz), and he continued to be influential and productive for many years. He retired from IAS in 1987, but remained an active mathematician. For example, he participated in several conferences on the Riemann Hypotheses organized by the American Institute of Mathematics over the last few years, even giving the keynote address at one of them.

A detailed obituary can be found at the IAS web site, at <http://www.ias.edu/newsroom/announcements/view/1186683853.html>.

Lee Cohen, 1962–2007

Lee Cohen, who was Associate Professor of Mathematics at Hampden Sydney College, died on Monday, July 16, 2007, of complications related to pancreatic cancer. Educated at Emory University and the University of Virginia, he began teaching at Hampden Sydney in 1986. In 1995–96, Cohen was one of the participants in the first summer of the MAA's Institute on the History of Mathematics and Its Use in Teaching. He was a member of the Association since 1988.

Dov Tamari, 1911–2006

Dov Tamari passed away on August 11, 2006 in Jerusalem. He was 95 years old. Born Bernhard Teitler in Germany in 1911, Tamari was educated at Vienna, Giessen, and Frankfurt. He left Germany in 1933 when the Nazis came to power,

without completing his PhD, moving to Palestine. A staunch Zionist, Tamari got involved in politics, but also managed to complete his doctoral work at the University of Paris. His mathematical work, mostly in logic and related fields, led to several appointments at U.S. institutions, including a stint as chair of the Department of Mathematics at SUNY Buffalo in the 1960s.

Shortly before his death, Tamari had completed a biography of Moritz Pasch, a German mathematician of Jewish faith, to be published in Germany this November. An account of his life, emphasizing his political activities, will appear as an appendix to the book. Tamari had been a member of the MAA since 1963.

James T. Bruening, 1949–2007

Jim Bruening, who was Professor of Mathematics at Southeast Missouri State University and Governor of the Missouri Section of the MAA, passed away on September 9, 2007. Bruening received his PhD from the University of Missouri at Rolla in 1977 and had taught at Southeast Missouri State since 1985. His main mathematical interests were in algebra and combinatorics, and he especially enjoyed problem-solving. Among his many roles within the MAA, he was editor of the "Problems and Solutions" section of the *College Mathematics Journal* and Governor of the Missouri Section. He began his term as Governor in July, 2006, and had made a special effort to be at the meeting of the Board of Governors in San Jose. Martha Siegel, Secretary of the Association, says that "he wanted to be at every minute of the meeting, although I know he was tired." He was a member of the Association since 1987.

In Memoriam Online

We maintain an *In Memoriam* page at the MAA web site. Short obituaries for this page may be submitted directly to Carol Baxter at cbaxter@maa.org.

Abbott and Torrence Named Editors of *Math Horizons*

By Harry Waldman

The MAA's Board of Governors has confirmed Stephen D. Abbott of Middlebury College and Bruce F. Torrence of Randolph-Macon College as the next editors of *Math Horizons*. Their five-year term begins in 2009. Abbott and Torrence will serve as Editors-Elect in 2008.

Abbott is a graceful and engaging writer of mathematics, as exemplified in his book *Understanding Analysis* (2001). He served on the Editorial Board of *Math Horizons* from 1999 to 2003; has written for *The College Mathematics Journal* and FOCUS; and is currently on the Editorial Board of the Anneli Lax New Mathematical Library. Three articles that Abbott has written for *Math Horizons* have been about mathematics and the dramatic arts. "Turning Theorems into Plays" (September, 1999), for example, is about the mathematics in Tom Stoppard's works. Abbott is a graduate of Colgate University and obtained his PhD in mathematics at the University of Virginia.

Torrence has published in graph theory, combinatorics, topology, and recreational mathematics. His *Math Horizons* article "If Pascal Had a Computer" (November, 2001) demonstrated not only historical sensibilities but also expository skills. He is the co-author, with Eve Torrence, of the book *The Student's Introduction to Mathematica: A Handbook for Precalculus, Calculus, and Linear Algebra* (1999), which revealed an ability to write in a way that is sensitive to the needs of undergraduates. Torrence is a graduate of Tufts University and obtained his PhD in mathematics at the University of Virginia.

Chair, School of Mathematics

The Georgia Institute of Technology invites nominations and applications for the position of Chair and Professor of Mathematics. We are seeking an outstanding scholar and educator with a national presence to lead a vibrant and growing School. Candidates should have a strong commitment to promoting continued growth and quality in the research and educational activities of the School. We also seek creative leadership in faculty and staff development, and in the fostering of interdisciplinary efforts.

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Applications will be accepted until the position is filled. Candidates should send a letter of interest and current resume.

Submit by email to: science@cos.gatech.edu

Or by regular mail to: Chair of Mathematics Search Committee, College of Sciences Dean's Office, Georgia Institute of Technology, Atlanta, GA 30332-0365.

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MathFest Short Takes

By Fernando Q. Gouvêa

MathFest 2007 in San Jose, CA

The 2007 MAA MathFest happened on August 3–5 in San Jose, CA. The headquarters hotel was the Fairmont San Jose, and most of the events happened there. This time around, the meeting overlapped with a meeting of the Society for Mathematical Biology, whose members were invited to stay on and take part in MathFest. In all 1410 people attended the meeting, making it the largest MathFest ever, and the largest MAA summer meeting since 1990 (at which time the summer meeting was still held jointly with AMS). Mathematicians in attendance were 1263 (only 36 fewer than in the 1990 summer meeting!), the remaining attendees being exhibitors, staff, and guests.

In this and the following pages, we include several news items from MathFest and also four pages of photographs from the meeting. We hope this will make you want a chance to go to another meeting... so the MathFest pages are followed by all the information about the Joint Mathematics Meetings, to be held this January in San Diego.

Another Board Election

The Board of Governors elected Mary Shepherd to the Audit and Budget Committee for a term of two years. This is the key committee when it comes to the finances of the Association. Shepherd will also serve on the MAA Executive Committee. Shepherd is Associate Professor of Mathematics at Northwest Missouri State University. She has a PhD in mathematics from Washington University in St. Louis, but also, and unusually for a mathematician, holds a Master of Accountancy degree and is a CPA.

Euler Society Meets at MathFest

Since 2007 is the year of Leonhard Euler's tercentenary, it was inevitable that there would be lots of Euler-related activities at MathFest. This was all the more so because the Euler Society,

dedicated to the study of Euler's life and work, met jointly with the MAA this year. The Society sponsored several special sessions, many of which overflowed the rooms to which they had been assigned. They also sponsored a plenary talk, by William Dunham. Before the talk, the Consul-General of Switzerland briefly addressed the audience, thanking them for their interest in the greatest of Swiss mathematicians. Rob Bradley, the president of the Society, awarded the Consul a complete set of the MAA's Euler Collection, five books published to celebrate the Euler tercentennial.

High School Students Have Fun at MathFest

For many attendees, one of the highlights of MathFest was to run into a group of high school students from the nearby Pioneer High School (see their web site at <http://pioneerhigh.org/>). The students were accompanied by their mathematics teacher, Patrick Bernhardt. They made a particularly striking display in their mathematician t-shirts: Alejandro Brambila had an Einstein shirt, Gina Quan had Gauss, Stephanie Levins had Euler, Danielle Chau had Pascal, and Bernhardt had Archimedes. Each shirt had an image of the mathematician in front and, more interestingly, some formula or number associated to that mathematician on the back. (See page 14 for a picture of some of the shirts.)

The group seemed to be having a lot of fun. They attended the special showing of *Flatland*, hung around the exhibits area, passed out well-made replicas of MAA meal tickets that entitled the bearer to such things as argyle socks and piggyback rides. I saved my ticket for a "piggyback ride from a mathematician of your choice" for a future opportunity...

Special Showing: Flatland the Movie

Seth Caplan, Jeffrey Travis and Dano Johnson brought their animated version of *Flatland* to MathFest. There was a special showing of the film on Friday afternoon, with Tom Banchoff serving

as both master of ceremonies and discussion leader. Copies of the DVD were available for sale at the MAA booth. Voiced by Martin Sheen, Kristen Bell, Michael York, Tony Hale, and Joe Estevez, the animated film takes some liberties with Abbott's classic (most notably by eliminating Abbott's take on women in Flatland) but does capture some of the magic of the book.

Two New Governors

Most MAA Governors are elected by their sections, but some Governors-at-Large are elected by the Board. At MathFest, the Board elected Minerva Cordero as Governor-at-Large Representing Minority Interests and Thomas Kilkelly as Governor-at-Large Representing High School Teachers.

Minerva Cordero is Associate Professor of Mathematics and Associate Dean of the Honors College at the University of Texas at Arlington. Her research interests are in finite geometries and combinatorics, and she has directed summer research programs for under-represented minority students in those areas. She has had various roles within the MAA, both in the Texas Section and at the national level. Most recently, she was a member of the strategic planning working group on membership issues. In 2007, she received the Texas Section's Award for Distinguished Teaching.

Tom Kilkelly has been a high school mathematics teacher for the past 35 years. He was a Woodrow Wilson Fellow at Princeton, where he learned "new approaches for teaching algebra" and was one of four teachers from the program chosen to travel the country and conduct workshops for teachers. He has been very active in mathematics competitions, both locally and at a national level, has spoken many times at NCTM meetings, and has received several awards. Kilkelly teaches at Wayzata Senior High School in Minnesota.

On Being a Mathematical Citizen: The Natural NExT Step

By Lynn Arthur Steen

I am truly honored to join the distinguished list of speakers in this lecture series dedicated to the memory of my good friend Jim Leitzel. Most of you probably knew Jim through his leadership of Project NExT. Jim also led several MAA initiatives in mathematics education, including A Call for Change, MAA's pioneering recommendations for preparing teachers of mathematics. A builder of mathematical communities, Jim was a model mathematical citizen and my inspiration for this talk.

My thesis today is that by virtue of our training, mathematicians have distinctive habits of mind that can enhance public discussion of public issues. More importantly, we have a professional obligation to move beyond the boundaries of our own discipline to bring our special skills of analysis and clarification to bear on important public policy discussions.

As evidence for this proposition, I have selected a few issues in education that can benefit from mathematicians' insights. I do not mean to imply that education is the only such arena; it just happens to be the one I know best. Others may find issues in health, environment, or energy equally compelling. I surely don't need to persuade you that mathematics is ubiquitous. What I would like to convince you of is that to be a mathematical citizen, you need to use your mathematics for more than mathematics itself.

Undergraduate Education

I begin with something close to all our hearts: measuring the value of college education. The increasing importance and cost of higher education has generated mounting calls for greater public accountability. Here I will touch on just three examples to illustrate my thesis: measures of quantity (graduation rates), of quality (general education), and of readiness (alignment).

Graduation rates are widely accepted as a primary benchmark in higher educa-

tion. Yet anyone who thinks carefully about the definition and calculation of a graduation rate will see trouble. And mathematicians are among society's most expert advisors on matters of definition and calculation.

Official graduation rates are based only on students who enter in the fall term as full time degree-seeking students. Moreover, the definition counts as graduates only those who finish at the institution where they first enroll. Students who meet these conditions are now a minority in American higher education.

This raises an interesting challenge for mathematicians to ponder: how best to define graduation rate? Scholars have proposed a variety of alternatives, for example, using continued study as a measure of "success," or tracking separately different types of students (e.g., transfers in, transfers out), or comparing the difference between actual and expected rates based on student characteristics.

The definition of graduation rate is no small matter: these rates influence public perception of institutional performance and the flow of money to higher education. But parents and taxpayers also want direct evidence of quality. Several instruments now claim to assess the broad outcomes of higher education independent of major, e.g., the Collegiate Learning Assessment (CLA) and the National Survey of Student Engagement (NSSE).

A recent study raises questions that should interest a mathematical mind about the potential use of such instruments to compare colleges. It turns out that undergraduates studying the same disciplines on different campuses have academic experiences that are more similar to each other than to students studying different subjects on the same campus. So, under circumstances in which variation within institutions exceeds variation across institutions, what mischief might emerge if these instruments are used to compare institutions?

The need for clarity is also evident in the transition from high school to college. Admissions and placement tests slight the higher-level cognitive skills that are critical to success in college mathematics. Required high school exit exams assess a significantly different portfolio of skills than those found on mathematics placement exams. ACT recommends an empirically validated college readiness benchmark in mathematics that is far below the skills that standards-writers claim are expected by colleges. There seems to be a huge gap between skills that mathematicians claim are necessary for college success and the reality of many college programs in which math avoidance is common, anticipated, and perhaps even enabled.

As you may suspect, I have no intention of resolving any of these challenges. Indeed, the whole point of this talk is that working on problems such as these is your job. I turn instead to a suite of similar challenges at the secondary level, beginning, as before, with graduation rates.

Secondary Education

Until very recently, the American public believed that almost every American graduated from high school. In fact, the national high school graduation rate peaked in 1969 at about 77% and has been falling ever since. Now, apparently, only two out of three students who begin ninth grade graduate four years later.

I say "apparently" since calculating the percent of students who graduate from high school is anything but simple. At least half a dozen methods are in common use, each giving quite different results. Only recently have state governors agreed to adopt a standard method. The result has been a series of headlines warning citizens that many previously reported high school graduation rates need to be lowered. This makes officials squirm, but it is a good opportunity for mathematically-minded folks to help the

public understand why such rates are so complicated.

Recently, business leaders and educators have joined forces to urge that, to be prepared for college, all students should take algebra II. Anything else, it is said, represents “the soft bigotry of low expectations.” Consequently, enrollments in algebra II have more than doubled in the last two decades; roughly two-thirds of the states now require algebra II for graduation.

Despite all this, employers still complain that graduates cannot use percentages and graphs, mathematics scores on the 12th grade National Assessment of Educational Progress (NAEP) have hardly budged, and college enrollments in remedial mathematics are as high as ever. Why can't we see benefits from all this added study?

Here's what seems to have happened: People argued that since applied courses had little intellectual content, everyone should take academic courses. As a consequence, many of these courses then lost their intellectual bite. They became “fake” academic courses: “pseudo-algebra” delivering only a steady drill on skills required to pass state tests. It seems that we've just downshifted from cookbook calculus to automated algebra.

Social scientists recognize this effect as Campbell's law—a kind of uncertainty principle for public policy: “The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures ... “ I call it the Perversity Principle of educational reform: the more importance we place on specific results, the less likely we are to achieve them in the form we intend.

A good example is the effect on education of the way schools are judged under the No Child Left Behind (NCLB) law: by the percent of students who are proficient. When proficiency percentages are used as the primary standard for judgment, teachers gradually focus most of their effort on students whose proficiency is in doubt to the neglect of

those who are far above or far below the desired cut score. The challenge of monitoring progress without undesirable side effects is a dilemma in need of mathematicians' insight.

NCLB requires states to report the percentage of students who are proficient according to each state's own standards. When researchers compared state standards, they found enormous variation in the definitions of proficiency—and corresponding variation in the percentage of students deemed proficient. Indeed, what many states call “proficient” is closer to what the national NAEP test rates as merely “basic.”

Would mathematicians produce standards with such huge variation from state to state? I rather doubt it. As mathematical citizens, MAA members and NExT alumni should be active participants in setting these state proficiency levels. I'm sure that's what Jim Leitzel would be doing.

The NCLB law has also increased the significance of high-stakes tests. Scoring of standardized tests is a complex process that rests on several questionable assumptions, not least that the mathematical ability of students and the difficulty of test items can be placed on a common scale that operates along only one dimension. But student performance varies unpredictably depending on which items they have practiced.

Moreover, the more questions probe complex thought, the less well student performance fits the scoring theory. Consequently, test designers avoid precisely the questions that would reveal most about student proficiency. Scores on these tests are rarely meaningful enough to justify high stakes consequences. This is another arena much in need of mathematicians' thoughtful engagement.

STEMs and Flowers

I close with a different kind of challenge. It is expressed in *Beyond the Basics: Achieving a Liberal Education for All Children*, edited by Chester Finn

and Diane Ravitch. It seems that Finn and Ravitch, who have been among the most forceful advocates for aggressive state standards monitored by high stakes assessment, have just discovered the Perversity Principle. It turns out, they report, that if you test only reading and mathematics, only reading and mathematics get taught. “We didn't see how completely standards-based reform would turn into a basic-skills testing frenzy or the negative impact that it would have on educational quality.” They worry that current trends will lead to “STEMs without flowers,” to the gradual death of liberal learning in higher education and to accelerating advantage of the have-a-lots over the have-littles.

This is also a dialogue in which mathematicians should participate—not by applying mathematics, but by unfolding mathematics as part of, rather than in opposition to, the goals of liberal education. Many whose own mathematics education never revealed this face of mathematics have a hard time seeing our discipline that way. It is our responsibility to help them do so now. If Jim were here I'm sure he would eagerly take up this new challenge. STEM with flowers offers us an excellent opportunity to engage the world as mathematical citizens.

Lynn Steen is Professor of Mathematics and Special Assistant to the Provost at St. Olaf College in Northfield, MN. He was president of the MAA in 1985–86. Visit <http://www.stolaf.edu/people/steen/> to find out more about him.

Have You Moved?

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MathFest 2007: A Rock Musician Finds Mathematics

By Ryan Miller

Indie-rock musician Robert Schneider's love of mathematics didn't originate with a classic book on calculus or from a great high school teacher. No, The Apples in Stereo front man's affection for math began with a tape recorder. "Upgrading" to a broken-down 1972 Ampex MM1200 tape machine in the late 90s had an impact not only on the music that Schneider was producing but also on the way he thought about the music.

The Ampex wouldn't work reliably, Schneider recalls. But rather than continuously forking over money to get it fixed, he learned to work on the machine himself, with the help of a do-it-yourself book from Radio Shack. And, on the first page of the book, he saw the equation that changed the way he looked at the world: $V = IR$ (which expresses the relationship among voltage, current, and resistance).

"When I saw this equation, it just blew my mind," Schneider says. "This equation controls not only my tape machine, but the telephones, and the electric lights, and well . . . everything in our lives."

Since then, Schneider has become somewhat of a math buff. He reads about Leonhard Euler, takes some college math and physics classes when he's not on tour, and plays around with a new non-Pythagorean musical scale that he invented. Ho hum, right?

"Math takes up more of my mind's space than music does," Schneider says. "I think about it from when I'm feeding my kid breakfast until I go to bed."

As for inventing a new musical scale, Schneider decided to tweak Pythagoras's classic scale, which is based on whole-number ratios. He took the logarithms of the numbers used to measure frequency and came up with his own 12-note scale.

"In a standard chromatic scale, the tones are divided into equal intervals; in the



Robert Schneider performs at MathFest.

non-Pythagorean scale, the tones are much closer together as you go up the octave, to the point where they sound very similar," Schneider explains. "And to get to the next octave in my scale on the piano, you would need a keyboard with a lot more keys," he adds. That's 256 to be exact, but who's counting?

Once Schneider arrived at MathFest 2007, held in early August in San Jose, he spent his first evening participating in a public interview with MAA President Joe Gallian. Those who attended the event were greeted by the sounds of "Energy," the fourth track of his band's new album, *New Magnetic Wonder*. Little did the attendees know how appropriate the song was. Schneider spent the 45 minutes of the interview bouncing around the stage, talking about math and music like he had just opened the world's greatest Christmas present.

He talked about his musical heroes (Beatles producer George Martin and Beach Boys lead singer Brian Wilson), and his mathematical heroes (Euler and René Descartes), noting in particular why he would have liked to sit down and discuss math with Euler. "I'd like to talk with Euler because I think you could just ask, 'What are you working on to-

day, sir?'" and he would probably tell you something really cool," Schneider said. "Also, from what I understand, he was a pretty good time."

Looking back on his high school days, Schneider talked about failing algebra one year because he was being "rebellious," then getting an A in the course the very next year. He also discussed how math is now woven into most parts of his everyday life. One time, he recalled, "I was walking down the street and I saw some leaves falling off a tree and I thought, 'hey, this has something to do with the prime number theorem,' and I had a very exciting day."

After the interview, Schneider presented a CD and a vinyl copy of *New Magnetic Wonder* to Gallian, with whom he shares a common love of both mathematics and music. Gallian is known as a fanatic fan of the Beatles and even teaches a class on the group's legacy at the University of Minnesota-Duluth. "Dr. Gallian has my dream job," Schneider says. "He not only gets paid to teach mathematics but gets to teach about the Beatles, too."

After the interview, Schneider attended a number of lectures and short courses throughout the weekend, sporting his MAA lanyard the entire time. He was rarely seen without his ragged copy of William Dunham's *Euler: The Master of Us All*, and he bought several books at the MAA booth.

He then highlighted the MAA's "20th Anniversary Celebration for MAA Student Paper Sessions" with a six-song acoustic set, which drew a number of guests who had come solely to see Schneider perform. After each song, he would peer into a composition notebook on the floor to see which track he wanted to play next. Chances are that the notebook also contained plenty of mathematical scribbles, but that's just another way that Schneider mixes his obsession with his hobby. Ask him which is which, and he says, "I'm not obsessed with math, I'm just in love with it."

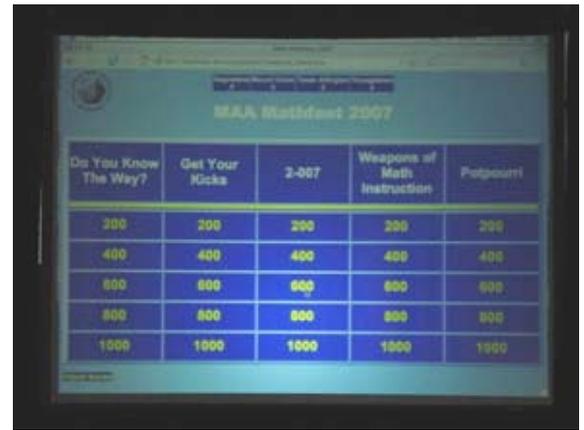
MathFest 2007 in Pictures



Mathematician t-shirts, front and back.



Jennifer Chayes in action during the Hedrick Lectures.



The Math Jeopardy board.



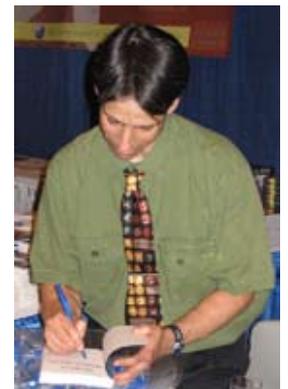
A student talk on Fibonacci's rabbit problem.



"OK, enough!" Michael Pearson, MAA Associate Executive Director, protests against your humble photographer.



Judy Grabiner asks "Why Did Lagrange 'Prove' the Parallel Postulate?"



Art Benjamin (Harvey Mudd, co-editor of Math Horizons) signs a copy of Secrets of Mental Math at the MAA Booth.



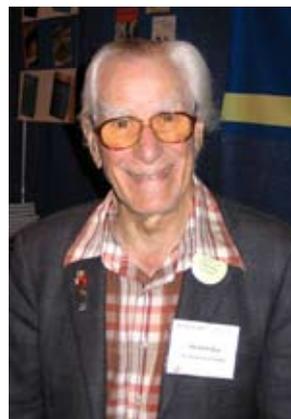
Kim Plofker and Brian Hopkins show off their Euler accessories.



Some maps on a torus require seven colors! (Designed, engineered and crocheted by sarahmarie belcastro and Carolyn Yackel.)



Rob Bradley, President of the Euler Society, gives a set of MAA's Euler Collection to the Swiss Consul.



Richard Guy may be past his 90th birthday, but he's still a regular at MAA Meetings.



Don Albers gets a phone call in the middle of emceeding the opening banquet. Apparently, it was Governor Schwarzenegger...



Frank Morgan presides over the SMALL/Williams College table at the Silver and Gold Banquet.



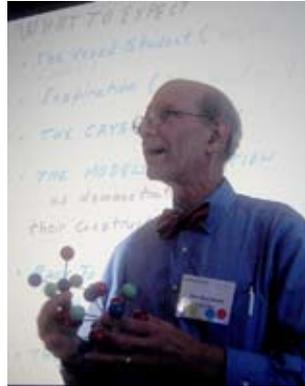
Copies of Flatland: The Movie available for purchase.



Tina Straley, MAA Executive Director, and Noam Elkies of Harvard, the speaker at the opening banquet.



A plenary talk to the Society for Mathematical Biology, which met jointly with the MAA in San Jose. Visit <http://www.smb.org>.



Bud Brown talks about challenging students to think about symmetry groups of molecules. (Photo by Colm Mulcahy)



A group of high school students from Pioneer High School in San Jose surround the creative team responsible for Flatland: The Movie.



Joe Gallian and the award winners fill the stage at the Prizes and Awards Session.



Harold Boas accepts his Lester R. Ford Award.



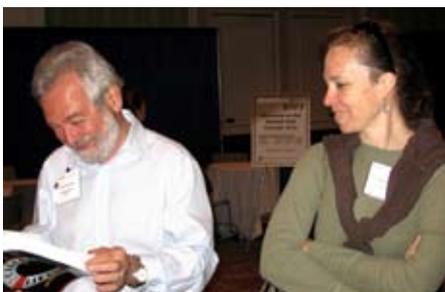
Charlotte Henderson, associate editor at A K Peters, holds the fort.



Deanna Haunsperger and Steve Kennedy discuss the MathFest program.



Barbara Faires shows off the animation cel from Flatland: The Movie, which she had just won.



Mario Martelli and Annalisa Crannell. Can a calculus book actually be funny?



The SIGMAA Arts mathematical art exhibit.



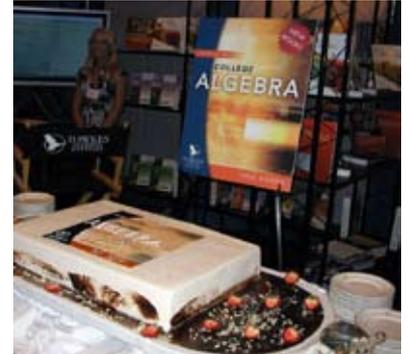
Rob Bradley, Larry D'Antonio, and Ed Sandifer at the MAA booth, ready to sign copies of Euler at 300.



Robert Carden exhibits his pen-and-ink drawings, collages, and more. See <http://www.robertcarden.com>.



Francis Su gives the Student Lecture on "Splitting the Rent."



Maybe this is the way to make College Algebra a piece of cake!



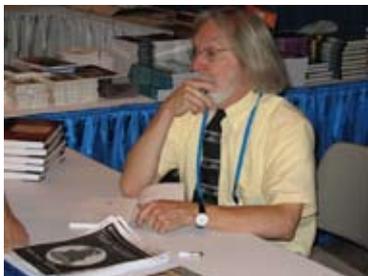
Saul Stahl and Martha Siegel celebrate his Allendoerfer Award.



Barbara Osofsky, Sanford Segal, Peter Yff, and Jean Pedersen receive their 50-year pins at the Silver and Gold Banquet. MC Jerry Alexanderson is in the background.



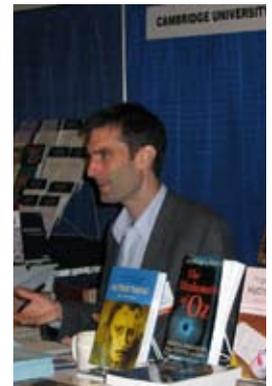
Katherine St. John the AWM-MAA Etta Z. Falconer Lecturer. She spoke on "Comparing Evolutionary Trees."



Bill Dunham signs books at the MAA booth.



Joe Gallian, Don Knuth, Sean MacRae (student winner of an MAA Student Paper Session Award), and Jean Bee Chan, at the MAA Ice Cream Social following after Knuth's talk. MacRae's award had just been announced. (Photo by Peter Stanek.)



Roger Astley at the Cambridge University Press booth.



At Math Jeopardy, the teams from UT Arlington, Youngstown State, Mount Union College, and Augustana College.



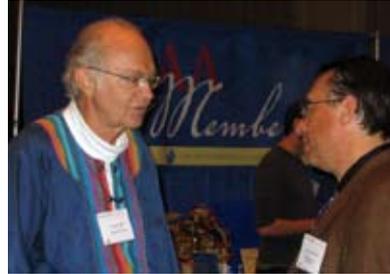
At the main lecture room, a packed house for Louis Gross's talk on Managing Natural Resources.



The Frog Publications booth has materials for teachers and for parents.



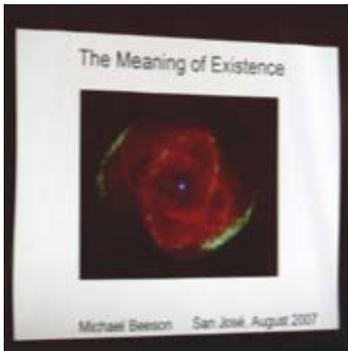
Jerry Alexanderson, former MAA President.



Don Knuth in conversation with Steven Krantz.



Rebecca Glover of Santa Clara University helps at the MAA booth.



“When one has great gifts, what answer to the meaning of existence should one require beyond the right to exercise them?” (W.H. Auden) No, that wasn’t what the talk was about.



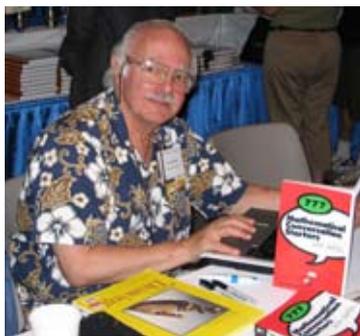
Leon Harkelroad teaches a mini-course on Music and Mathematics. (Photo by Colm Mulcahy)



Hawkes Learning Systems runs one of their several informational sessions at their booth.



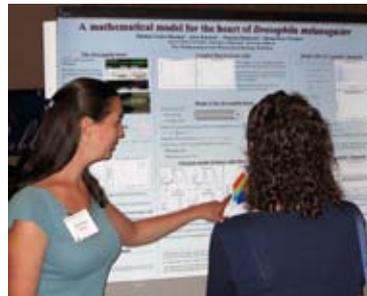
When the Silver and Gold Banquet comes along, Jim Tattersall can finally relax!



John dePillis displays a really neat book at the MAA booth.



Jennifer Beineke one of the winners of a copy of the Flatland DVD.



Pamela Reitsma of the University of Maine explains her mathematical biology poster, reporting on research done at the Mathematical and Theoretical Biology Institute.



Too much meeting? Fernando Gouvêa “rests his eyes.” (Photo by Mari Gouvêa)



Jenny Quinn of the University of Washington, Tacoma, and co-editor of Math Horizons.



Len Wapner, author of The Pea and the Sun, signs books at the AK Peters booth.



Colin Adams of Williams College holds court at the Opening Banquet.

Join Us in San Diego

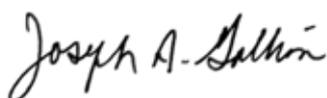
Joint Mathematics Meetings

January 6-9, 2008

Dear Colleagues,

Following in the wake of record attendance by mathematicians and students at both the Joint Meetings in New Orleans and MathFest in San Jose, the 2008 Joint Mathematics Meetings at San Diego promise to be a wonderful event. The MAA invited speakers are Carl Cowen on “The Teaching-Technology Linkage in Mathematics,” Paul Edelman on “Mathematics and the Law: The Apportionment of the House of Representatives,” Karen Parshall on “4000 Years of Algebra: An Historical Tour From BM 13901 to *Moderne Algebra*,” Carl Pomerance on “The Covering Congruences of Paul Erdős, and John Conway.” Brian Conrey will give the student lecture on “The Riemann Hypothesis.” MAA-AMS invited speakers are Fields Medalist Terence Tao and Fan Chung. Other features include the world premiere of *Hard Problems*, a 90-minute documentary film about the USA team’s participation in the 2006 International Mathematical Olympiad in Slovenia, a panel featuring mathematical Hollywood writers and mathematics faculty, and lecture/demonstration/performance about the connections between mathematics and dance.

And of course, there are the AMS lectures, the student poster sessions, the prize sessions, minicourses, special sessions, contributed paper sessions, banquets, and many receptions. Our goal is to have 4500 mathematicians, 750 graduate students and 500 undergraduate students. The Joint Mathematics Meetings provide the opportunity for the mathematics community to come together to learn new things, meet new people, and see old friends. Please attend the meetings and join the festivities. “A splendid time is guaranteed for all!”



Joe Gallian
MAA President



San Diego's Gaslamp Quarter. Photograph courtesy of San Diego Convention and Visitor's Bureau.

MAA-AMS Invited Addresses



The Mathematics of PageRank

Fan Chung
University of California, San Diego
Tuesday, January 8, 11:10 am

Fan Chung received a BS in mathematics from National Taiwan University in 1970 and a PhD in mathematics from the University of Pennsylvania in 1974. She joined the technical staff of AT&T Bell Laboratories in 1974. From 1983 to 1991, she headed the Mathematics, Information Sciences and Operations Research Division at Bellcore. In the early 1990s, she became a Bellcore Fellow and decided to return to academia. She taught for a few years at the University of Pennsylvania, then went to the University of California, San Diego in 1998. She is now Professor of Mathematics and Professor of Computer Science and Engineering at UCSD. She is also the Akamai Professor in Internet Mathematics.

Chung's research interests are primarily in graph theory, combinatorics, and algorithmic design, in particular in spectral graph theory, extremal graphs, graph labeling, graph decompositions, random graphs, graph algorithms, parallel structures and various applications of graph theory in Internet computing, communication networks, software reliability, chemistry, engineering, and various areas of mathematics. She was awarded the Allendoerfer Award by the MAA in 1990.

Fan Chung's talk will be on "The Mathematics of PageRank." PageRank is one of the main ways for determining the ranking of Webpages by Web search engines. In her talk, she will give an overview of recent developments on PageRank. In particular, she will discuss the interplay between several areas of mathematics and some of the surprising properties of PageRank.

MAA Invited Addresses

Three-Dimensional Crystallographic Groups: The Thirty-Five Prime Space Groups

John H. Conway
Princeton University
Sunday, January 6, 2:15 pm

According to the high school students participating in Mathcamp 2004, the following dialogue took place when John Conway was one of the visiting lecturers:

John Conway: I'll be modest. I know about ten times as much math as anyone here.

Camper: That's being modest?

John Conway: Well, not being modest, I know about a thousand times as much math as anyone here.



Structure and Randomness in the Prime Numbers

Terence Tao
University of California, Los Angeles
Sunday, January 6, 11:10 am

Terence Tao was born in Adelaide, Australia in 1975. In 1986, 1987, and 1988, he competed (for Australia, of course) in the International Mathematical Olympiad, obtaining bronze, silver, and gold medals, respectively. He proceeded to get both a BA and an MA from Flinders University in Adelaide.

Tao completed his PhD under Elias Stein at Princeton in 1996 and has been professor of mathematics at UCLA since 1999. Tao's research interests include harmonic analysis, PDEs, combinatorics, and number theory. Tao has written four books and many papers. He is a popular speaker who has given talks at many different levels to a variety of audiences.

Tao has received a huge number of awards, including the Salem Prize in 2000, the Bochner Prize in 2002, the Fields Medal and SASTRA Ramanujan Prize in 2006, and the MacArthur Fellowship and Ostrowski Prize in 2007. He currently holds the James and Carol Collins chair in mathematics at UCLA, and is a Fellow of the Royal Society and a Corresponding Member of the Australian Academy of Sciences.

For more information, including a list of talks and papers, visit

Government Speaker

MAA and AMS Science Policy Speaker

Tuesday, January 8, 4:20 pm
Speaker and title to be announced.

He's probably right! Conway's amazing mathematical career began at the University of Cambridge. He became well-known to the mathematical public when Martin Gardner wrote columns about his "Game of Life" and about his "Surreal Numbers." Over the years, he has continued to produce highly original mathematics. Who else would dare write a book called *The Sensuous (Quadratic) Form?* Now a professor at Princeton, Conway can be counted on to be original, brilliant, eccentric, and interesting.

Mathematics and the Law: The Apportionment of the House of Representatives

Paul H. Edelman
Vanderbilt University
Sunday, January 6, 3:20 pm

Paul Edelman received his PhD from MIT in 1980 under the direction of



Richard Stanley. After stints at Penn and Carnegie-Mellon, he arrived at the University of Minnesota in 1986, where he stayed until 2000. While at Minnesota, through a series of serendipitous events, he became interested in mathematical analyses of voting. More specifically, he became interested in the legal implications of the mathematical analysis.

Vanderbilt University, in a daring move, gave Edelman the opportunity to pursue these interests by offering him a unique joint appointment in the Law School and the Mathematics Department. Since moving to Vanderbilt, his interests have broadened to include apportionment, torts, and corporate voting. His many publications in this area include several papers on the Supreme Court and a paper on the problem of apportionment entitled “Getting the Math Right: Why California has too many seats in the House of Representatives.”

**4000 Years of Algebra:
An Historical Tour
From BM 13901 to
Moderne Algebra**

Karen H. Parshall
University of Virginia
Monday, January 7, 9:00 am



Karen Parshall studies the history of science and mathematics in the nineteenth and twentieth centuries, with a special focus on the history of algebra. In addition to exploring technical developments of algebra, she also works on more thematic issues such as the development of national mathematical research communities (specifically in the United States and Great Britain) and the internationalization of mathematics in the nineteenth and twentieth centuries.

Parshall has recently finished a research project on British mathematician James Joseph Sylvester, which resulted, among other publications, in two books: *James Joseph Sylvester: Life and Work in Letters*, and a full-scale biography, *James Joseph Sylvester: Jewish Mathematician in a Victorian World*. With Jeremy Gray, she has co-edited a volume, *Episodes in the History of Modern Algebra (1800–1950)*, based on a workshop on the history of modern algebra held at the Mathematical Sciences Research Institute (MSRI) in Berkeley.

Parshall is currently Professor of History and Mathematics at the University of Virginia, where she runs one of the few American graduate programs in the History of Mathematics.

**The Covering Congruences
of Paul Erdős**

Carl Pomerance
Dartmouth College
Tuesday, January 8, 9:00 am



Carl Pomerance received his BA from Brown University and his PhD from Harvard University. He joined the faculty at Dartmouth College in 2003 after

previous positions at the University of Georgia and Bell Labs. A number theorist, Pomerance specializes in analytic, combinatorial, and computational number theory. His home page currently lists 155 publications, including the well-received book *Prime Numbers: A Computational Perspective*, written with R. Crandall. The list includes 21 papers written with Paul Erdős.

Pomerance was awarded the MAA’s Chauvenet Prize (for his expository writing) and the Haimo Award (for his teaching). His expository article “A Tale of Two Sieves” won the Conant Prize from the AMS (the very first such prize, in fact, in 2001). As a lecturer, he has been both the Association’s Pólya Lecturer in 1993–95 and the Hedrick Lecturer at MathFest 1999. He is currently the First Vice President of the MAA and the chair of the Mathematics Section of the American Association for the Advancement of Science. Pomerance considers the late Paul Erdős as his greatest influence.

**The Teaching-Technology
Linkage in Mathematics**

Carl C. Cowen
Indiana University-Purdue
University Indianapolis
Wednesday, January 9, 10:05 am
(MAA Retiring
Presidential Address)



Carl Cowen has taught in junior high school, at small colleges, and at large universities. He was the President of the MAA in 2005–2007 and is just finishing his term as Past President. Cowen’s primary pedagogical interests have been in linear algebra. In fact, he has directed more than 30 undergraduate students in research, mostly on topics in linear algebra. He has also had 11 PhD students.

For many years, Cowen’s primary research interests have been in operator theory and complex analysis, but in 2002–03, he began changing his research attention to the mathematics of neuroscience. In 2003–04, he worked in the lab of Professor Christie Sahley, a biologist at Purdue, to develop a mathematical model of parts of the sensory system of the medicinal leech.

**The Riemann Hypothesis
(Student Lecture)**

J. Brian Conrey, The American
Institute of Mathematics
Tuesday, January 8
1:00 pm – 1:50 pm



Presentations by the Haimo Award Recipients

Tuesday, January 8, 2:30 pm

The Deborah and Franklin Tepper Haimo Awards for Distinguished College and University Teaching are the MAA's most prestigious award for teaching. Every year, three top teachers are honored. The awards are announced at the Joint Prize Session, but the winners of the Haimo award are also invited to give a talk "on the secrets of their success." This year there will be four Haimo talks, since last year one of the winners was unable to be present at the Joint Meetings:

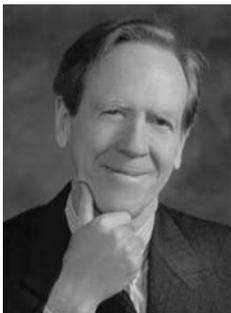


Annalisa Crannell
Franklin and Marshall College

Kenneth J. Gross
University of Vermont



Gilbert Strang
Massachusetts Institute of Technology
(2006 winner)



James Morrow
University of Washington



Prize Session and Reception

Monday, January 7, 4:25 pm

In order to showcase the achievements of the recipients of various prizes, the MAA and AMS are co-sponsoring this event at 4:25 pm on Monday. The Association for Women in Mathematics (AWM) and the Society for Industrial and Applied Mathematics (SIAM) will also be awarding prizes, as will the Joint Policy Board for Mathematics (JPBM), which is comprised of the MAA, AMS, SIAM, and the American Statistical Association. The event will be co-chaired by Joe Gallian, president of the MAA, and James Glimm, president of the AMS. A cash bar reception will immediately follow. All participants are invited to attend.

The prizes to be announced include:

Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student (jointly awarded by MAA, AMS, and SIAM)

JPBM Communications Award

MAA Prizes

Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics
Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics
Beckenbach Book Prize
Chauvenet Prize
Euler Book Prize
David P. Robbins Prize
Certificates of Meritorious Service to the MAA

AMS Prizes

Award for Distinguished Public Service
Bôcher Memorial Prize
Frank Nelson Cole Prize in Number Theory
Levi L. Conant Prize
Joseph L. Doob Prize
Leonard Eisenbud Prize for Mathematics and Physics
Leroy P. Steele Prize for Mathematical Exposition
Leroy P. Steele Prize for Lifetime Achievement
Leroy P. Steele Prize for Seminal Contribution to Research

AWM Prizes

Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman
Louise Hay Award for Contributions to Mathematics Education

AMS Colloquium Lectures

Random Conformally Invariant Pictures

Wendelin Werner
 University of Paris-Sud
Sunday, January 6
1:00 pm to 2:00 pm
Monday, January 7
1:00 pm to 2:00 pm
Tuesday, January 8
1:00 pm to 2:00 pm



When Wendelin Werner received the Fields Medal at the 2006 International Congress of Mathematicians, he was 38 years old. In an interview prepared for the ICM, he speculated about how receiving the prize might affect his work:

“I understand that the prize is for past work but also an encouragement for the future. So, it looks like a big responsibility for me and maybe a little bit of pressure to deliver nice things. I may want to tackle too difficult problems and end up being stuck... I also wonder if it will change the way students will listen in my lectures. Well, we’ll see. For now, I will first enjoy this moment with colleagues, friends and family.”

Werner was the first probabilist to receive the Fields Medal. His work has dealt mostly with problems at the interface of mathematics and physics. By combining ideas from probability theory and random processes, geometry, and complex analysis, he has been able to address some of the most important questions in the area. This summer, he was one of the instructors at the Park City Mathematics Institute’s graduate summer school on Statistical Mechanics; his course dealt with the large-scale properties of two-dimensional discrete models from statistical physics. His Colloquium Lectures will offer an opportunity to learn more about his work.

Born in 1968 in Germany, Werner is of French nationality. He received his PhD at the University of Paris VI in 1993 and has been Professor of Mathematics at the University of Paris-Sud in Orsay since 1997. His home page, at <http://www.math.u-psud.fr/~werner/>, contains links to both technical and expository papers.

The AMS Colloquium Lectures are the offshoot of the Colloquium of the AMS, which was first held in 1896. From the first lectures, by James Pierpoint, to 2007 lectures by Andrei Okounkov, the Colloquium has offered AMS members an opportunity to hear some of the greatest mathematicians explain some of their best mathematics. Currently, the Colloquium is offered as a series of three lectures at the Joint Mathematics Meetings each year. A list of past Colloquium Lectures can be found at <http://www.ams.org/meetings/colloquium-lect.html>.

Josiah Gibbs Lecture

Randomness—A Computational Complexity View

Avi Wigderson
 Hebrew University of Jerusalem
Sunday, January 6, 8:30 pm



Here are a few facts (stated informally) which Avi Wigderson feels every mathematician should know. All can be formalized and rigorously proved.

- 1) Whatever new theorem you just proved, you can convince a colleague of the truth of that theorem, revealing absolutely no (new) information about your (or any other) proof!
- 2) A smart alien who mastered chess can convince you beyond any reasonable doubt, in a short conversation, whether white has a winning strategy or not (whichever is true).
- 3) The ability to solve large enough Sudoku puzzles entails the ability to resolve the truth of the Riemann Hypothesis.

Come to Wigderson’s lecture to find out more.

The goal of the Josiah Willard Gibbs lectures is to display to a general mathematical public some aspect of mathematics and its applications. More information about the Gibbs lectures, including a list of past lecturers, is available on the AMS web site at <http://www.ams.org/meetings/gibbs-lect.html>.

AMS Invited Addresses

Combinatorics and Number Theory

Wen-Ching Winnie Li
 National Tsing Hua University
 and Pennsylvania State University
Sunday, January 6, 10:05 am



Winnie Li received her PhD from the University of California, Berkeley, in 1974. Trained as a number theorist, she worked in modular forms and automorphic representations. Her research in the past decade has also included applications of number theory to spectral graph theory and coding theory.

In her invited address, she will talk about zeta functions attached to graphs and complexes, and discuss their connections to number theory. In particular, graphs and complexes with the extremal spectral property are distinguished by the fact that their zeta functions satisfy the Riemann Hypothesis.



Semisimple Groups as Universal Examples

James G. Arthur
University of Toronto
Monday, January 7, 3:20 pm
(AMS Retiring Presidential Address)

James Arthur is one of the leading mathematicians working on the Langlands Program, a vision that relates automorphic forms and representation theory with number theory. He was President of the American Mathematical Society from February 2005 to January 2007.

A New Mathematical Frontier: The Social and Behavioral Sciences

Donald G. Saari
University of California Irvine
Tuesday, January 8, 10:05 am

It is an election year, but will we elect whom the voters really want? Maybe not, but what does this have to do with mathematics? Actually, as Don Saari's work has emphasized, quite a lot. While mathematics and the physical sciences have enjoyed a symbiotic relationship for a long time, a similar opportunity is emerging with the growing mathematical sophistication of the social and behavioral sciences.

One of the topics Saari will discuss is the mathematics of voting. He will show how orbits of symmetry groups and ideas from chaotic dynamics provide new insights that may explain why your favorite candidate, even if he or she is the "best" candidate, may lose during this presidential season. Functional theoretic extensions suggest why Adam Smith's "Invisible Hand" story need not represent the wishes of consumers, for example. Expect to leave Saari's lecture recognizing how mathematicians can contribute to these important areas, and expect to be worried about what happened in your last important election or purchase.

Progress in Hyperbolic Conservation Laws

Constantine M. Dafermos
Brown University
Wednesday, January 9, 9:00 am

Constantine Dafermos is the Alumni-Alumnae University Professor at Brown University. He works on the interface between continuum mechanics and the theory of partial differential equations.



Quantum Field Theory and Generalized Cohomology

Peter Teichner
University of California, Berkeley
Monday, January 7, 2:15 pm

Peter Teichner is a topologist whose first papers were on the classification of topological 4-manifolds, partially jointly written with his advisor Matthias Kreck and his colleague Mike Freedman at UC San Diego. During his 12 happy years at UCSD, Teichner's work was mostly focused on the theory of knots in 3-space up to a 4-dimensional relation describing the existence of Whitney disks. He and his collaborators contributed ideas like Grope cobordism, Whitney towers and von Neumann signatures to this still evolving story.

In recent years, Teichner's focus shifted towards studying connections between topology and theoretical physics. In a joint project with Stephan Stolz, he is attempting to give a geometric construction of elliptic cohomology via the space of all 2-dimensional super symmetric quantum field theories. His plenary lecture will be an attempt to explain this project to a general mathematical audience. Three years ago, Teichner moved to UC Berkeley where he is helping a large group of students and postdocs to study these exciting new areas of research.



Giant panda at the San Diego Zoo. Photograph courtesy of the San Diego Visitor and Convention Bureau.

MAA Short Course

Combinatorics: Past, Present, and Future

Organized by Robin Wilson, The Open University

Part I: Friday, January 4, 8:00 am to 5:00 pm

Part II: Saturday, January 5, 9:00 am to 5:00 pm

Attend this short course to learn more about the development of a wide range of combinatorial topics, from earliest times up to the present day and beyond. The topics presented will include early combinatorics from non-Western traditions, European combinatorics during the Renaissance, the combinatorial work of Leonhard Euler, and various topics from the modern era.

Early Combinatorics (up to the 17th century):

Andrea Breard, China

Victor Katz, *Combinatorics in the Islamic and Hebrew traditions*

Europe Before and After Euler:

Eberhard Knobloch, *European combinatorics, 1200–1700*

Robin Wilson, *Early graph theory and Cayley's work on trees, to the early attempts to solve map-coloring problems*

George Andrews, *Euler's "De Partitio Numerorum"*

Lars Andersen, *Latin squares*

Robin Wilson, *Triple systems, schoolgirls, and designs*

Combinatorics Comes of Age:

Lowell Beineke, *20th-century graph theory*

Herb Wilf and Lily Yen, *Sister Celine as I knew her*

Bjarne Toft, *The game of Hex: History, results and problems*

Toward the Future:

Ronald L. Graham, *Combinatorics: The future and beyond*

There are separate registration fees to participate. See the fee schedule on the registration form on page 43 of this issue or visit http://www.ams.org/amsmtgs/2109_registration.html.

AMS Short Course

Applications of Knot Theory

Dorothy Buck, Imperial College London, and

Erica L. Flapan, Pomona College

Part I: Friday, January 4, 8:00 am to 5:00 pm

Part II: Saturday, January 5, 9:00 am to 5:00 pm

Over the past twenty years, knot theory has rekindled its historic ties with biology, chemistry, and physics. While the original motivation for understanding and classifying knots came from chemistry, knot theory remained a primarily pure field of mathematics until the 1980s, when chemists, biologists, and physicists began searching for more sophisticated descriptions of entanglements of natural phenomena — from strings to organic compounds. Attend this course for an introduction to knot theory and some of its recent applications in molecular biology, chemistry, and physics.

No prior knowledge of knot theory, biology, chemistry, or physics will be assumed. The first day will include introductory lectures by Colin Adams on knot theory, Dorothy Buck on DNA and knots, and Erica Flapan on topological stereochemistry. The second day will include lectures on particular aspects of these subjects: Lou Kauffman on applications of knot theory to physics, Ned Seeman, who uses topology for DNA nanotechnology, and Jon Simon on the statistical and energetic properties of knots and their relation to molecular biology. Speakers will highlight both their own motivation and projects, as well as describing new avenues for interested researchers (and their students) to explore. The course will conclude with a panel discussion of the putative trajectories of these applications of knot theory, and summarize the major open problems and challenges.

For more information, please see the complete article at <http://www.ams.org/meetings/shcourse.html>.

There are separate registration fees to participate. See the fee schedule on the registration on page 43 of this issue or visit http://www.ams.org/amsmtgs/2109_registration.html.

Other MAA Events

Board of Governors

Saturday, January 5, 8:30 am–4:00 pm

Section Officers

Sunday, January 6, 2:30 pm–5:00 pm

MAA Student Chapter Advisors' Meeting

Sunday, January 6, 3:00 pm to 3:50 pm

SIGMAA Officers Meeting

Monday, January 7, 8:00 am–10:00 am

Chaired by Amy Shell-Gellasch, Pacific Lutheran University

Business Meeting

Wednesday, January 9, 11:10 am–11:40 pm

Organized by MAA Secretary, Martha J. Siegel, Towson University, and moderated by MAA President, Joseph A. Gallian, University of Minnesota-Duluth.

Department Liaisons Meeting

Day and time to be determined.

Minority Chairs Breakfast Meeting

Day and time to be determined.

Joint Special Sessions

The Scholarship of Teaching and Learning in Mathematics

(MAA – AMS)

Sunday, January 6, 8:00 am to 10:50 am
and 2:15 pm to 6:05 pm

History of Mathematics

(MAA – AMS)

Tuesday, January 8, 8:00 am to 10:50 am

and 1:00 pm to 5:50 pm

Wednesday, January 9, 8:00 am to 10:50 am

and 1:00 pm to 5:50 pm

Research in Mathematics by Undergraduates

(MAA–AMS–SIAM)

Monday, January 7, 1:00 pm to 3:50 pm

Tuesday, January 8, 8:00 am to 10:50 am

Wednesday, January 9, 8:00 am to 10:50 am

and 1:00 pm to 5:50 pm

Mathematics and Education Reform

(MAA–AMS–MER)

Wednesday, January 9, 8:00 am to 10:50 am

and 1:00 pm to 5:50 pm

MAA Panels, Posters, and Other Sessions

National Science Foundation Programs Supporting Learning and Teaching in the Mathematical Sciences

Sunday, January 6, 9:00 am –10:20 am

Making the Connection Between Research and Teaching in Undergraduate Mathematics Education

Sunday, January 6, 9:00 pm –10:20 pm

Tenure (and Promotion)—You Know You Want It

Sunday, January 6, 9:00 am –10:20 am

Project NExT/Young Mathematicians'

Network Poster Session

Sunday, January 6, 2:15 pm – 4:15 pm

Mathematics and Hollywood: A Conversation with Mathematical Hollywood Writers and Mathematics Faculty

Sunday, January 6, 2:15 pm –3:35 pm

What Every Chair Should Know About NSF Funding

Sunday, January 6, 2:15 pm –3:35 pm

How to Interview for a Job in the Mathematical Sciences

Sunday, January 6, 2:15 pm –3:35 pm

Engaging Students in College Mathematics Courses

Sunday, January 6, 3:50 pm –5:10 pm

Tracking Our Students from College Algebra to Calculus: Where They Come From, Where They Go, and Where They Don't

Sunday, January 6, 3:50 pm –5:50 pm

Proposal Writing Workshop for Grant Applications to the NSF Division of Undergraduate Education

Monday, January 7, 9:00 am –10:20 am

Outreach Programs For Underrepresented Populations in Mathematics

Monday, January 7, 9:00 am –11:00 am

Exciting, Surprising, and Satisfying: Why and How to Teach Proof

Monday, January 7, 9:00 am –10:20 am

Research and Outreach Focusing on the Mathematics Education of K–8 Latino/a Students

Monday, January 7, 9:00 am –10:20 am

Using the New Technologies in Teaching Mathematics Invited Paper Session

Monday, January 7, 9:00 am –12:00 pm

Classroom Voting Comes to the Mathematics Classroom

Monday, January 7, 10:45 am –12:05 pm

Creating and Implementing a Capstone Course in Mathematics for Preservice Secondary Teachers

Monday, January 7, 1:00 pm –2:20 pm

The Political Dimension of Ethnomathematics

Monday, January 7, 1:00 pm –3:00 pm

Projects Supported by the NSF Division of Undergraduate Education

Monday, January 7, 2:00 pm –4:00 pm

Dueling Platforms: Java vs. Flash

Monday, January 7, 2:30 pm –3:50 pm

The Proof is in the Pudding: Humorous Theater of the Mathematical Variety

Monday, January 7, 6:00 pm –7:30 pm

A Quick Introduction to WeBWork, a Web-Based Interactive Homework System

Tuesday, January 8, 1:00 pm –2:20 pm

Summer Research Programs

Tuesday, January 8, 2:30 pm –3:50 pm

Current Issues in Actuarial Science Education

Tuesday, January 8, 5:00 pm –7:00 pm

Hard Problems

Tuesday, January 8, 6:00 pm –7:30 pm

Dancing Mathematics and the Mathematics of Dance

Tuesday, January 8, 6:45 pm –7:45 pm

So You Want to Teach Environmental Math, Do You?

Tuesday, January 8, 7:00 pm –8:00 pm

MAA Minicourses

Minicourses are a tradition at all MAA meetings. They are usually offered as two sessions, each two hours long, and present an opportunity to learn some new mathematics, new teaching ideas, and other interesting things. For fuller descriptions, please visit the meetings information site at <http://www.maa.org/meetings/082307minicoursesjmm08.html>.

Minicourses are open only to persons who are registered for the Joint Meetings and pay the minicourse registration fee. Please enter the number of the courses in which you would like to participate when you complete the registration form. The MAA reserves the right to cancel any minicourse that is undersubscribed.

Participants in Minicourses #1 to #6 are expected to come with a laptop computer equipped with appropriate software. Instructions to download any data files needed for those courses will be provided by the organizers.

Minicourse #1

Teaching a Galois Theory Course for Undergraduates

Organized by John R. Swallow, Davidson College

Part 1: Sunday, January 6, 9:00 am – 11:00 am

Part 2: Tuesday, January 8, 9:00 am – 11:00 am

Participants will explore Galois theory from an undergraduate perspective, gaining materials and technological tools for use teaching an undergraduate course. We will use *AlgFields*, a package for use with *Maple* or *Mathematica* to facilitate computation in number fields. Laptops should be equipped with either *Maple* (version 9 or later) or *Mathematica* (version 4.2 or later), but no prior experience with these packages is required. Enrollment limit is 30.

Minicourse #2

Some Deterministic Models in Mathematical Biology and Their Simulations

Organized by Cammey Cole Manning, Meredith College; Huseyin Kocak, University of Miami; and James F. Selgrade, North Carolina State University

Part 1: Sunday, January 6, 2:15 pm – 4:15 pm

Part 2: Tuesday, January 8, 1:00 pm – 3:00 pm

Discrete and continuous models from physiology, pharmacokinetics, and population biology will be presented and analyzed. The class will be conducted in a computer lab where we will use *Phaser* (see <http://www.phaser.com>) to simulate model behavior. Knowledge of ordinary differential equations and linear algebra (at the undergraduate level) will be helpful. Participants for this minicourse are required to bring a laptop with *Phaser* installed; see the online description for minimal system requirements. Enrollment limit is 30.

Minicourse #3

Introduction to the Mathematics of Modern Cryptography

Organized by Jeffrey Ehme and Colm K. Mulcahy, Spelman College

Part 1: Sunday, January 6, 4:45 pm – 6:45 pm

Part 2: Tuesday, January 8, 3:30 pm – 5:30 pm

The mathematics of modern cryptography is of interest to anyone who registers for classes (or submits grades) on line, or pays bills or shops on the Internet. Since that includes most of our students and most of us, it is a perfect subject for adding to the standard undergraduate curriculum. It is a good way of illustrating the application to everyday life of abstract mathematics and clever modern ideas. The focus will be on the basics, assuming only a rudimentary knowledge of number theory and abstract algebra. Participants must bring laptops equipped with *Maple*, *Adobe Acrobat Reader*, and a CD drive. Enrollment limit is 30.

Minicourse #4

Wavelets and Applications: A Multidisciplinary Undergraduate Course with an Emphasis on Scientific Computing

Organized by Patrick J. Van Fleet, University of St. Thomas, and David K. Ruch, Metropolitan State College of Denver

Part 1: Monday, January 7, 8:00 am – 10:00 am

Part 2: Wednesday, January 9, 9:00 am – 11:00 am

We will provide basic introduction to wavelets and applications, developing the wavelet transform is developed in an ad hoc manner and then demonstrating its use in applications such as data compression. Participants will develop the necessary software and are encouraged to bring their own digital images or audio files to use. The minicourse content provides an excellent template for an undergraduate class in wavelets and applications. Participants are expected to have one of *Mathematica*, *Matlab*, or *Maple* installed on their laptop, as well as *Adobe Acrobat Reader*. For more information, please visit <http://cam.mathlab.stthomas.edu/wavelets>. Enrollment limit is 30.

Minicourse #5

Visualizing Abstract Mathematics with Cellular Automata

Organized by Michael J. Bardzell and Donald E. Spickler, Salisbury University

Part 1: Monday, January 7, 10:30 am – 12:30 pm

Part 2: Wednesday, January 9, 1:00 pm – 3:00 pm

Many undergraduate students are familiar with Pascal's triangle and, in some cases, Pascal's triangle mod n . The latter is a type of infinite one-dimensional cellular automaton generated over a finite group. Cellular automata, both finite and infinite, can be generated over other groups as well. Studying these dynamical systems necessitates simple techniques from abstract algebra, discrete mathematics, number theory, fractal geometry, and computer graphics. We present innovative classroom activities and undergraduate research projects and introduce the supporting computer software *PascGaloisJE* (see <http://pascgalois.org/>). Participants should download and install the software in advance. A basic knowledge of group theory is sufficient for the course. Enrollment limit is 30.

Minicourse #6

Sonification for Mathematics Instruction

Organized by Steven M. Hetzler and

Robert M. Tardiff, Salisbury University

Part 1: Monday, January 7, 1:00 pm – 3:00 pm

Part 2: Wednesday, January 9, 3:30 pm – 5:30 pm

Some students struggle to interpret standard graphic and symbolic representations of mathematics; many of these students are primarily auditory learners. At <http://faculty.salisbury.edu/~smhetzler/Minicourse2008/>, there are illustrations of how auditory graphs can be used with spreadsheets to enhance calculus instruction. This minicourse is designed to teach participants how to use nonspeech audio to improve student learning. Participants will need *Windows XP* and *Microsoft Excel 2003* or higher, with a headphone jack for the soundcard and either a CD-RW drive or USB port. Enrollment limit is 30.

Minicourse #7

Directing Undergraduate Research

Organized by Aparna W. Higgins, University of Dayton

Part 1: Sunday, January 6, 9:00 am – 11:00 am

Part 2: Tuesday, January 8, 9:00 am – 11:00 am

To facilitate research by undergraduates, we need to get students involved in research, find appropriate problems, decide how much help to provide, and help students present and publish the results. We will discuss these and more, including the similarities and differences between research conducted during summer programs and research that can be conducted during the academic year. Enrollment limit is 50.

Minicourse #8

Mathematics and Geometry of Voting

Organized by Donald G. Saari

University of California, Irvine

Part 1: Sunday, January 6, 4:45 pm – 6:45 pm

Part 2: Tuesday, January 8, 3:30 pm – 5:30 pm

By now, most of us know that voting rules can cause unexpected outcomes and delicious paradoxes. The natural next steps — which constitute the theme of this course — are to identify everything that can possibly happen and why, how to construct any number of illustrating examples, to identify which voting rule is the “best,” and to learn how to convert portions of this recent research into rich course offerings for our undergraduates. Enrollment limit is 50.

Minicourse #9

Classroom Response Systems: Teaching with Clickers

Organized by Derek Bruff, Vanderbilt University; Matthew Leingang, Harvard University; and Kelly Cline, Mark R. Parker, and Holly S. Zullo, Carroll College

Part 1: Sunday, January 6, 2:15 pm – 4:15 pm

Part 2: Tuesday, January 8, 1:00 pm–3:00 pm

Classroom response systems, or “clickers,” enable teachers to rapidly collect and analyze students’ responses to multiple-choice questions. Participants will learn how to use clickers to transform the way they use class time — promoting active participation, engagement, and discussion among students; assessing student learning in real-time during class; and adapting lessons to respond to the particular learning needs of one’s students. Also featured are a question-writing “workshop” and a mock clicker class as ways to explore the kinds of questions

and activities that make the most of teaching with clickers. Enrollment limit is 50.

Minicourse #10

The Fibonacci and Catalan Numbers

Organized by Ralph P. Grimaldi, Rose-Hulman

Institute of Technology

Part 1: Monday, January 7, 9:00 am – 11:00 am

Part 2: Wednesday, January 9, 9:00 am – 11:00 am

In many introductory courses in discrete mathematics or combinatorics, one encounters the sequences of the Fibonacci numbers and the Catalan numbers. We will see how certain properties of these sequences come about and examine where ideas related to these sequences arise in applications to geometry, trigonometry, set theory, number theory, tilings, permutations, chemistry, optics, electrostatics, probability, and graph theory. Enrollment limit is 50.

Minicourse #11

More Music and Mathematics

Organized by Leon Harkleroad, Wilton, Maine

Part 1: Monday, January 7, 1:00 pm – 3:00 pm

Part 2: Wednesday, January 9, 1:00 pm – 3:00 pm

This session will focus on an all new set of topics from the interface of math and music, such as historical geometric methods to approximate equal tempering in instrument design, group theory in contradancing, and music from space-filling curves and fractals. This minicourse will not repeat material from the original minicourse (given in Atlanta, GA, in January 2005), and it will not assume that participants attended that earlier installment. Enrollment limit is 50.

Minicourse #12

Developing Department Self-Studies

Organized by Donna L. Beers, Simmons College, and Richard Alan Gillman, Valparaiso University

Part 1: Sunday, January 6, 9:00 am – 11:00 am

Part 2: Tuesday, January 8, 9:00 am – 11:00 am

The self-study process and report are critical components of a departmental program review. Since the self-study entails honest discussion of issues confronting a department, it is both a process of reflection and a report. This minicourse enables participants to determine how a self-study, which is usually conducted in response to an administrative mandate, can be a positive opportunity for departmental renewal. Enrollment limit is 50.

Minicourse #13

Teaching and the Philosophy of Mathematics

Organized by Martin E. Flashman, Humboldt

State University

Part 1: Sunday, January 6, 2:15 pm – 4:15 pm

Part 2: Tuesday, January 8, 1:00 pm – 3:00 pm

We will introduce participants to issues in the philosophy of mathematics that can be used to illuminate classroom topics in undergraduate courses at a variety of levels and provide a foundation for organizing an undergraduate course in the philosophy of mathematics for both mathematics and philosophy

students. We will focus primarily on issues related to the nature of the objects studied in mathematics (ontology) and the knowledge of the truth of assertions about these objects (epistemology). Enrollment limit is 50.

Minicourse #14

Beyond Formulas and Algorithms: Teaching a Conceptual/Thematic Single Variable Calculus Course

Organized by Shahriar Shahriari, Pomona College

Part 1: Sunday, January 6, 4:45 pm – 6:45 pm

Part 2: Tuesday, January 8, 3:30 pm – 5:30 pm

Many students enter college having seen the main ideas of calculus and knowing how to do routine calculus problems, but without a firm grasp of the concepts underlying calculus. We will explore an alternative honors calculus class where the theme is approximations and one of the test cases is approximating the number of primes up to x . A thematic/conceptual approach using open-ended problems that incorporates some unusual mathematics (in this case, analytic number theory) allows us to take advantage of the students' prior experience with calculus to get a deeper understanding of the subject. Enrollment limit is 50.

Minicourse #15

Evaluating Student Presentations in Mathematics

Organized by Suzanne Dorée, Augsburg College;

Richard Jardine, Keene State College; and Thomas Linton, Central College

Part 1: Monday, January 7, 9:00 am – 11:00 am

Part 2: Wednesday, January 9, 9:00 am – 11:00 am

While most mathematics professors can tell a great mathematics talk from a truly horrible one, when it comes to grading student presentations we are often at a loss. We will examine what makes a good student mathematics talk, offer concrete advice on helping students prepare to speak, discuss the use of rubrics for evaluating presentations, and explore the role of presentations in departmental curriculum and assessment. Enrollment limit is 50.

Minicourse #16

A Beginner's Guide to the Scholarship of Teaching and Learning in Mathematics

Organized by Curtis D. Bennett and Jacqueline M. Dewar, Loyola Marymount University

Part 1: Monday, January 7, 1:00 pm – 3:00 pm

Part 2: Wednesday, January 9, 1:00 pm – 3:00 pm

We will introduce participants to the scholarship of teaching and learning in mathematics (SoTL). We will present a framework that illustrates the similarities between disciplinary research and SoTL work, offer examples of SoTL projects in mathematics at varying stages of development, discuss methods for investigation, and help participants begin projects of their own. Suggestions for how to make this work public will also be given. Enrollment limit is 50.

MAA Sessions for Students

Help for Undergraduates: Negotiating the Joint Meetings

Sunday, January 6, 5:00 pm – 6:30 pm

How do you make sense of a 200-page program book? This informal panel will help undergraduate students find their way through the Joint Mathematics Meetings.

Undergraduate Career Paths in Math: What Can You Do with a Math Degree?

Monday, January 7, 10:45 am – 12:05 pm

This panel showcases a selection of career choices from industry, government, and education. Come to learn more about your options with an undergraduate degree in mathematics.

Student Lecture

The Riemann Hypothesis

J. Brian Conrey, The American Institute of Mathematics

Tuesday, January 8, 1:00 pm – 1:50 pm

Brian Conrey is the Executive Director of the American Institute of Mathematics and Professor of Mathematics at Oklahoma State University. His research is in analytic number theory, especially the (analytic side of) the theory of L-functions. As Director of AIM, Conrey has helped organize many collaborative workshops on cutting edge mathematics, including some on problems related to the Riemann Hypothesis.

Undergraduate Student Poster Session

Tuesday, January 8, 3:00 pm–5:30 pm

Deadline for proposals: Friday, November 2, 2007.

The session is reserved for undergraduates (and first-year graduate students submitting posters on work done as undergraduates). Abstracts are accepted on a first come basis. Space is limited and students are encouraged to apply early. Beginning August 1, 2007 students can submit abstracts online at <http://www.maa.org/students/undergrad/poster08.htm>. Posters can discuss a new result, a different proof of a known theorem, an innovative solution of a Putnam problem, a new mathematical model or method of solution to an applied problem. Purely expository posters cannot be accepted. Prizes will be awarded to the top rated posters with money. Trifold, self-standing 48" by 36" tabletop posters will be provided. Additional material or equipment is the responsibility of the presenters. Questions regarding the session may be directed to Diana Thomas at thomasdia@mail.montclair.edu.

For a full description of these sessions please visit:

<http://www.maa.org/meetings/082307studentsjmm08.html>.

MAA Contributed Paper Sessions

The MAA has put together several contributed paper sessions for the Joint Meetings in San Diego. Most of them deal with specific topics, but there will also be a General Contributed Papers Session, which is open to papers on any subject. Some of these sessions will take one morning or one afternoon, but several will require more time. We list the titles of the MAA paper sessions below and the dates on which they will be held. Check the meeting web site for more information:

Assessment of Student Learning in Undergraduate Mathematics

Monday, January 7, 8:00 am to 12:00 pm

Biomathematics in the Undergraduate Curriculum

Wednesday, January 9, 8:00 am to 10:55 am and 1:00 pm to 5:30 pm

Building Diversity in Advanced Mathematics: Models that Work

Wednesday, January 9, 8:00 am to 10:55 am

College Algebra: Concepts, Data, and Models

Monday, January 7, 8:00 am to 12:00 pm

Countering “I Can’t Do Math”: Strategies for Teaching Under-Prepared Math-Anxious Students Interested in Business and the Sciences

Tuesday, January 8, 8:00 am to 10:55 am

Crossing the “Bridge to Higher Mathematics”: What Works and Why

Sunday, January 6, 8:00 am to 10:55 am

Cryptology for Undergraduates

Wednesday, January 9, 8:00 am to 10:55 am

Curriculum Materials for Preservice Middle School Mathematics Teachers

Monday, January 7, 1:00 pm to 4:10 pm

Demos and Strategies with Technology that Enhance Teaching and Learning Mathematics I & II

Monday, January 7, 8:00 am to 12:00 pm and 1:00 pm to 4:10 pm

Ethnomathematics and Its Uses in Teaching

Sunday, January 6, 8:00 am to 10:55 am

General Contributed Paper Sessions, I – VIII

Sunday, January 6, Monday, January 7, Tuesday, January 8, and Wednesday, January 9

Great Activities for an Introductory Statistics Class

Sunday, January 6, 8:00 am to 10:55 am

Guided Discovery in Mathematics Education

Tuesday, January 8, 1:00 pm to 5:55 pm

For a list of contributed paper sessions with organizers and email addresses of the contact person, go to http://www.ams.org/amsmtg/2109_maacp.html. Clicking on the session title on that page will take you to the entry for this session in the JMM schedule for that day. Listings of the papers to be presented at each session are not yet available; they will appear on the final program.

Innovative and Effective Ways to Teach Linear Algebra

Tuesday, January 8, 8:00 am to 10:55 am

Mathematics Experiences in Business, Industry, and Government

Tuesday, January 8, 8:00 am to 10:55 am

Mathematics and the Arts

Monday, January 7, 1:00 pm to 4:10 pm

Mathlets and Web Resources for Mathematics and Statistics Education

Wednesday, January 9, 8:00 am to 10:55 am

Philosophy of Mathematics

Monday, January 7, 8:00 am to 12:00 pm

Preparing Faculty for Success in a Problem-Solving and Technology-Rich Curriculum

Sunday, January 6, 8:00 am to 10:55 am

Research and Professional Development Activities for Math Majors

Monday, January 7, 1:00 pm to 4:10 pm

Research on the Teaching and Learning of Undergraduate Mathematics

Monday, January 7, 1:00 pm to 4:10 pm

Serving Students Who Have Taken Calculus in High School

Sunday, January 6, 2:15 pm to 6:00 pm

Topics and Techniques for Real Analysis

Monday, January 7, 8:00 am to 12:00 pm

Using Ideas from Asian Mathematics in the Classroom

Sunday, January 6, 2:15 pm to 6:00 pm

Using Innovative Technologies to Implement Active Learning in Mathematics (and in other STEM disciplines)

Wednesday, January 9, 8:00 am to 10:55 am

The Power of Inductive and Recursive Thinking

Sunday, January 6, 2:15 pm to 6:00 pm

For full descriptions of these sessions go to MAA Online: <http://www.maa.org/meetings/042707cps08sandiego.html>.

Special Interest Groups of the MAA (SIGMAAs)

SIGMAAs will be hosting a number of interesting activities, sessions, and guest lecturers. There are currently nine such focus groups offering members opportunities to interact not only at meetings but throughout the year via newsletters and email-based communications. For more information visit <http://www.maa.org/SIGMAA/SIGMAA.html>.

SIGMAA on Mathematics and the Arts Mathematics and Hollywood: A Conversation with Mathematical Hollywood Writers and Mathematics Faculty

Sunday, January 6, 2:15 pm – 3:35 pm

SIGMAA on Environmental Mathematics Guest Lecture and Business Meeting

Sunday, January 6, 4:00 pm – 5:30 pm

SIGMAA on the History of Mathematics Business Meeting, Reception, and Guest Lecturer

Sunday, January 6, 5:30 pm – 7:30 pm

SIGMAA on Business, Industry, and Government Guest Lecturer

Monday, January 7, 3:00 pm – 3:45 pm

SIGMAA on Quantitative Literacy Business Meeting and Reception

Monday, January 7, 5:45 pm – 6:45 pm

SIGMAA on the Philosophy of Mathematics Business Meeting, Reception, and Guest Lecturer

Monday, January 7, 5:45 pm – 7:15 pm

SIGMAA on Statistics Education Business Meeting

Monday, January 7, 5:45 pm – 7:15 pm

SIGMAA on Research in Undergraduate Mathematics Business Meeting

Tuesday, January 8, 6:00 p.m – 7:00 pm

SIGMAA on Mathematical and Computational Biology Biomathematics in the Undergraduate Curriculum

*Wednesday, January 9, 8:00 am – 10:55 am
and 1:00 pm – 5:30 pm*

Project NExT Sessions

Project NExT (New Experiences in Teaching) is the MAA's professional development program for new and recent PhD's in the mathematical sciences. The following sessions were organized by Project NExT Fellows to address the concerns of faculty who have four to ten years of teaching experience. All participants are invited.

Making the Math Major Work for the Under-Prepared Student

Monday, January 7, 2:30 pm – 4:00 pm

Wouldn't it be great if all students considering a major in mathematics were adequately prepared to succeed in the major? Of course, the reality is that many of our students need additional motivation, guidance, and assistance with the material in order to make it through the major. Our panelists will give brief presentations on strategies for helping such students to succeed without compromising standards.

Capstone and One-Semester Research Projects for a Variety of Students

Tuesday, January 8, 1:00 pm – 2:30 pm

All mathematics majors, even those not destined for mathematical stardom, can benefit from a real mathematical research experience. This session is designed to help faculty recognize and find appropriate problems that can be tackled in a single semester, match problems to students, and mentor these young researchers throughout the research experience from initial approach to final product, a paper and/or presentation.

New Technologies for Faculty: Wikis, Discussion Boards, and Clickers

Wednesday, January 9, 9:30 am – 11:00 am

There is always something new in the technological front. This can feel overwhelming, but some of us have found exciting ways to improve their pedagogy with cutting-edge technology. Come learn how you too can enhance your teaching with these easy-to-learn technologies.

Mark Your Calendars!

2009 Joint Mathematics Meetings Washington, DC January 5-8, 2009

The dates have changed for the 2009 Joint Mathematics Meetings. They were previously scheduled for January 7-10, 2009. The meetings will now be held on January 5-8, 2009.

AMS Special Sessions

Some sessions are co-sponsored with other organizations; these are noted within the parentheses at the end of each listing, where applicable. The deadline for submitting an abstract for these sessions has now passed. A listing of the papers to be presented should be available at the meeting web site soon.

Algebraic Dynamics

Tuesday, January 8, 8:00 am – 10:50 am
and 1:00 pm – 5:50 pm

Algebraic Topology

Sunday, January 6, 8:00 am – 10:50 am
and 2:15 pm – 6:05 pm
Monday, January 7, 8:00 am – 11:50 am

Algebraic and Geometric Aspects of Integrable Systems

Wednesday, January 9, 8:00 am – 10:50 am
and 1:00 pm – 5:50 pm

Applications of Computer Algebra in Enumerative and Algebraic Combinatorics

Tuesday, January 8, 1:00 pm – 5:50 pm

Asymptotic Methods in Analysis with Applications (AMS-SIAM)

Sunday, January 6, 8:00 am – 10:50 am
and 2:15 pm – 6:05 pm

Automorphic Forms and Related Topics

Sunday, January 6, 8:00 am – 10:50 am and
2:15 pm – 6:05 pm

Biomathematical Modeling

Tuesday, January 8, 1:00 pm – 5:50 pm

Conformally Flat Lorentzian Manifolds

Monday, January 7, 8:00 am – 11:50 am
and 1:00 pm – 3:50 pm

Dynamics and Stability of Coherent Structures

Tuesday, January 8, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

E-Theory, Extensions, and Elliptic Operators

Wednesday, January 9, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

Environmental Mathematics: Some Mathematical Problems on Climate Change and Geophysical Fluid Dynamics (AMS-SIAM)

Wednesday, January 9, 8:00 am – 10:50 am

Expanders and Ramanujan Graphs: Construction and Applications

Tuesday, January 8, 1:00 pm – 5:50 pm

Wednesday, January 9, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

Feynman Integral in Mathematics and Physics

Wednesday, January 9, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

Financial Mathematics

Tuesday, January 8, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm
Wednesday, January 9, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

Global Optimization and Operations Research Applications

Wednesday, January 9, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

Graph Theory

Monday, January 7, 8:00 am – 11:50 am and
1:00 pm – 3:50 pm
Tuesday, January 8, 8:00 am – 10:50 am

Groups, Representations, and Character Theory

Sunday, January 6, 8:00 am – 10:50 am and
2:15 pm – 6:05 pm

Heegaard Splittings, Bridge Positions, and Low Dimensional Topology

Wednesday, January 9, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

History of Mathematics

(AMS-MAA)
Tuesday, January 8, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm
Wednesday, January 9, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

Hyperbolic Dynamical Systems

Sunday, January 6, 8:00 am – 10:50 am and
2:15 pm – 6:05 pm

Interactions Between Noncommutative Algebra and Algebraic Geometry

Sunday, January 6, 8:00 am – 10:50 am and
2:15 pm – 6:05 pm

Inverse Problems in Geometry

Tuesday, January 8, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm

Learning and Math Graduate Students in K–12 Classroom

Tuesday, January 8, 1:00 pm – 5:50 pm

Linear Diophantine Problem of Frobenius

Wednesday, January 9, 1:00 pm – 5:50 pm

Low Genus Curves and Applications*Monday, January 7, 1:00 pm – 3:50 pm**Tuesday, January 8, 8:00 am – 10:50 am and
1:00 pm – 5:50 pm***Mathematical Problems in Biological Formations***Wednesday, January 9, 1:00 pm – 5:50 pm***Mathematics and Education Reform**

(MAA-AMS-MER)

*Wednesday, January 9, 8:00 am – 10:50 am and**1:00 pm – 5:50 pm***Mathematics for Teaching: Educating Elementary and Middle School Teachers for Success***Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm***Mathematics of Information and Knowledge***Sunday, January 6, 8:00 am – 10:50 am and**2:15 pm – 6:05 pm**Monday, January 7, 8:00 am – 11:50 am**and 1:00 pm – 3:50 pm***Modular Forms and Modularity***Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm**Tuesday, January 8, 8:00 am – 10:50 am***Monotone Discrete Dynamical Systems with Applications***Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm***Probability Theory and Statistical Mechanics***Wednesday, January 9, 8:00 am – 10:50 am and**1:00 pm – 5:50 pm***Progress in Commutative Algebra***Sunday, January 6, 8:00 am – 10:50 am**Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm***Recent Advances in Mathematical Biology, Ecology, and Epidemiology***Sunday, January 6, 8:00 am – 10:50 am and**2:15 pm – 6:05 pm**Monday, January 7, 8:00 am – 11:50 am***Representation Theory and Nonassociative Algebras***Tuesday, January 8, 1:00 pm – 5:50 pm***Research in Mathematics by Undergraduates**

(MAA-AMS-SIAM)

*Monday, January 7, 1:00 pm – 3:50 pm**Tuesday, January 8, 8:00 am – 10:50 am**Wednesday, January 9, 8:00 am – 10:50 am and**1:00 pm – 5:50 pm***Scholarship of Teaching and Learning in Mathematics**

(MAA-AMS)

*Sunday, January 6, 8:00 am – 10:50 am and**2:15 pm – 6:05 pm***Secant Varieties and Related Topics***Tuesday, January 8, 8:00 am – 10:50 am and**1:00 pm – 5:50 pm***Set Theory and Banach Spaces**

(AMS-ASL)

*Sunday, January 6, 8:00 am – 10:50 am and**2:15 pm – 6:05 pm**Monday, January 7, 8:00 am – 11:50 am***Stochastic, Large-Scale, and Hybrid Systems with Applications***Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm***Structure, Geometry, and Symbolic Computation of Algebraic Groups and Symmetric Spaces***Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm**Tuesday, January 8, 8:00 am – 10:50 am***Time-Frequency Analysis: Hilbert Huang Transform and Wavelet Analysis***Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm***Voting Theory***Monday, January 7, 8:00 am – 11:50 am and**1:00 pm – 3:50 pm***Wavelet Sets and Tilings of \mathbb{R}^n** *Tuesday, January 8, 8:00 am – 10:50 am and**1:00 pm – 5:50 pm***Zeta Functions of Graphs, Ramanujan Graphs, and Related Topics**

(AMS-AWM)

*Sunday, January 6, 8:00 am – 10:50 am and**2:15 pm – 6:05 pm***AMS Contributed Paper Sessions**

There will be sessions for contributed papers of ten minutes' duration. Contributed papers will be grouped by related Mathematics Subject Classification into sessions insofar as possible. The author(s) and their affiliation(s) and the title of each paper accepted will be listed in the program along with the date and time of presentation. Abstracts will be published in *Abstracts Presented to the American Mathematical Society* and will be available at the meeting.

Other AMS Sessions

Department Chairs Workshop

This annual one-day workshop for chairs and leaders of departments of mathematical sciences will be held a day before the start of the Joint Meetings on Saturday, January 5, from 8:00 am to 6:30 pm. The workshop format is intended to stimulate discussion among attending chairs and workshop leaders. Sharing ideas and experiences with peers provides a form of department chair therapy, creating an environment that enables attending chairs to address departmental matters from new perspectives.

There is a registration fee for the workshop, which is in addition to and separate from the Joint Meetings registration. An invitation to attend the workshop will be sent to department chairs this fall. Information will also be posted on the AMS website.

Council Meeting

Saturday, January 5, 1:30 pm

Grant Writing in the Mathematical Sciences

Sunday, January 6, 8:00 am to 10:55 am and
2:15 pm to 5:30 pm

This workshop, organized by Michelle Wagner of the National Security Agency, and Deborah F. Lockhart of the National Science Foundation, aims to inform the community about ongoing and new funding opportunities in the mathematical sciences, provide grant writing guidance from program managers and successful proposal writers, and provide a hands-on opportunity for participants to write mock proposals and have their work critiqued by their peers and other experts. See the meetings web site for more details. Please be sure to check the appropriate box on the registration form if you intend to participate.

Congressional Fellowship Session

Sunday, January 6, 4:30 pm to 6:00 pm

The Congressional Fellows program is administered by the American Association for the Advancement of Science (AAAS). The fellowship is designed to provide a unique public policy learning experience, to demonstrate the value of science/government interaction, and to bring a technical background and external perspective to the decision-making process in Congress. The three AMS-sponsored Congressional Fellows will report on their experience.

Who Wants to Be a Mathematician

Tuesday, January 8, 10:00 am to 10:55 am

Come watch eight of the area's top high school students compete for cash and prizes by answering questions about mathematics. You are invited to come and take part in this educational and fun presentation.

Current Events Bulletin

Tuesday, January 8, 1:00 pm to 6:00 pm

This session, organized by David Eisenbud, follows the model

of the Bourbaki Seminars in that mathematicians with strong expository skills speak on important recent work done by other mathematicians. Written versions of the talks will be distributed at the session.

Wiki Math

Tuesday, January 8, 1:00 pm to 2:15 pm

Mathematics should be an ideal subject for Wikipedia, since mathematical facts are, well, facts, and there ought to be little room for disagreement. How does this work out in practice? The session will offer an anecdotal survey, exhibiting some of the best as well as some of the worst. We hope also to discuss how perhaps it should deal with mathematics.

Committee on Science Policy Panel Discussion

Tuesday, January 8, 2:30 pm to 4:00 pm

Committee on Education Panel Discussion

Wednesday, January 9, 8:30 am to 10:00 am

Business Meeting

Wednesday, January 9, 11:45 am

Activities of Other Organizations

Several organizations or special groups are having receptions or other social events.

Association for Symbolic Logic (ASL)

Tuesday, January 8, and Wednesday, January 9

The program will include sessions of contributed papers and invited addresses. See also the Special Session cosponsored by the ASL on Set Theory and Banach Spaces.

Association for Women in Mathematics (AWM)

Twenty-Ninth Annual Emmy Noether Lecture

Fun with Zeta Functions of Graphs

Audrey Terras

University of California, San Diego

Monday, January 7, 10:05 am



Audrey Terras received her BS in mathematics from the University of Maryland, College Park, in 1964, where she was inspired by the lectures of Sige-katu Kuroda to become a number theorist. She was particularly impressed by the use of analysis (in particular using zeta functions) to derive algebraic results. She received her MA (1966) and PhD (1970) from Yale University, working with Tsuneo Tamagawa.

In 1972 she became an Assistant Professor of Mathematics at the University of California, San Diego. Now she is a Full Professor at UCSD, where she has had 24 PhD students. She is a fellow of the American Association for the Advancement of Science, and has served on the Council of the American Mathematical Society.

Terras has written three books: *Harmonic Analysis on Symmetric Spaces and Applications, Vols. I and II*, (Springer 1985, 1988) and *Fourier Analysis on Finite Groups and Applications*, (Cambridge 1999). Her research interests include number theory, harmonic analysis on symmetric spaces and finite groups (including applications), special functions, algebraic graph theory, especially zeta functions of graphs, arithmetical quantum chaos, and Selberg's trace formula.

When lecturing on mathematics, Terras believes it is important to give examples, applications, and colorful pictures. In this talk, she 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.

A luncheon will be given in her honor; see the "Social Events" section for details. Also see the related Special Session on Zeta Functions of Graphs, Ramanujan Graphs, and Related Topics jointly sponsored by the AWM listed under the "AMS Special Sessions" heading.

Panel Discussion

Sunday, January 6, 2:15 pm – 3:40 pm

Just before the panel discussion, AWM will recognize the Alice T. Schafer award honorees. The formal announcement of the prize will be made at the Joint Prize Session on Monday afternoon.

Business Meeting

Sunday, January 6, 3:45 pm – 4:15 pm

Workshop

Wednesday, January 9, 8:20 am – 4:20 pm

This workshop is for women graduate students and women who have received the PhD within the last five years. Twenty women mathematicians are selected in advance of this workshop to present their research; graduate students will present posters, and the recent PhDs will give 20-minute talks. The workshop opens with a dinner on a previous evening to introduce workshopers and mentors, and includes a panel discussion on career issues. All mathematicians (female and male) are invited to attend the entire program. The deadline for applications for presenting and funding has expired. Updated information about the Workshop is available at <http://www.awm-math.org/workshops.html>.

Reception

Sunday, 9:30 pm – 11:00 pm

National Association of Mathematicians (NAM)

Granville-Brown-Haynes Session of Presentations by Recent Doctoral Recipients in the Mathematical Sciences

Tuesday, January 8, 2:15 pm – 4:00 pm

Cox-Talbot Address

Tuesday, January 8 after the banquet; speaker and title to be announced.

Panel Discussion

Wednesday, January 9, 9:00 am – 9:50 am

Business Meeting

Wednesday, January 9, 10:00 am – 10:50 am

Claytor-Woodard Lecture

Wednesday, January 9, 1:00 pm

Speaker and title to be announced.

Society for Industrial and Applied Mathematics (SIAM)

The Invited Address will be given by Inez Fung, Berkeley Institute of the Environment, University of California Berkeley. From global predictions to local action: Mathematical challenges in global warming at 11:10 am on Monday, January 7.

Minisymposia

Education and Applied Mathematics

Sunday, January 6, 8:00 am – 11:00 am

Analysis and Computation of Stochastic Equations

Sunday, January 6, 2:15 pm – 6:15 pm

From Global Predictions to Local Action

*Monday, January 7, 8:00 am – 11:00 am
and 1:00 pm – 4:15 pm*

Graph Coloring and Partitioning

*Wednesday, January 9, 8:00 am – 11:00 am
and 1:00 pm – 5:00 pm*

Others

Math on the Web

Sunday, January 6 – Wednesday, January 9, various times.

Communicating math on the Web involves some of the same challenges as writing mathematics in general, but it also introduces a whole new layer of challenges and possibilities. There will be several presentations on the exhibit hall floor throughout the meeting.

Mathematical Art Exhibit

A popular feature at the last Joint Mathematics Meetings in New Orleans, this exhibit provides a break in your day. On display are works in various media by artists who are inspired by mathematics and by mathematicians who use visual art to express their findings. The exhibit will be open during the regular exhibit hours.

Pi Mu Epsilon (PME) Council Meeting

Tuesday, January 8, 8:00 am–11:00 am

Rocky Mountain Mathematics Consortium (RMMC)

Board of Directors Meeting

Tuesday, January 8, 2:15 pm–4:10 p.m

Summer Program for Women in Mathematics (SPWM)

Reunion

Monday, January 7, 1:00 pm–4:00 pm

Young Mathematicians Network (YMN)

Concerns of Young Mathematicians: A Town Meeting

Tuesday, January 8, 7:00 pm–8:00 pm

Other Events of Interest

AMS Information Booth

All meetings participants are invited to visit the AMS Information Booth during the meetings. A special gift will be available for participants, compliments of the AMS. AMS staff will be at the booth to answer questions about AMS programs and membership.

Book Sales and Exhibits

All participants are encouraged to visit the book, education media, and software exhibits from 12:15 pm – 5:30 pm on Sunday, January 6, 9:30 am – 5:30 pm on Monday, January 7, and Tuesday, January 8, and 9:00 am – 1:00 pm on Wednesday, January 9. Books published by the MAA and AMS will be sold at discounted prices, somewhat below the cost for the same

books purchased by mail. These discounts will be available only to registered participants wearing the official meetings badge. Most major credit cards will be accepted for book sale purchases at the meetings. Also, AMS electronic products and the AMS website will be demonstrated. Participants visiting the exhibits are required to display their meetings badge in order to enter the exhibit area.

The MAA and the AMS cordially invite all registered participants to enjoy complimentary tea and coffee (available at noon and 2:00 pm on Sunday, January 6; 9:00 am, noon, and 2:00 pm on Monday, January 7, and Tuesday, January 8; and 9:00 am on Wednesday, January 9) while perusing the associations' booths.

Mathematical Sciences Employment Center

Those wishing to participate in the Mathematical Sciences Employment Center should read carefully the important article at www.ams.org/emp-reg/.

Networking Opportunities: There are many opportunities to meet new friends and greet old acquaintances in addition to the vast array of scientific sessions offered at these meetings. These opportunities are listed on the newcomers page at www.ams.org/amsmtg/2109_newcomers.html. Newcomers may want to investigate the many receptions listed in the “Social Events” section, the Student Hospitality Center, and the Employment Center. On site a Networking Center featuring casual seating and lists of registered participants sorted by school and math subject classification will be available for your perusal.

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Social Events

All events listed are open to all registered participants. It is strongly recommended that for any event requiring a ticket, tickets should be purchased through advance registration. Only a very limited number of tickets, if any, will be available for sale on site. If you must cancel your participation in a ticketed event, you may request a 50% refund by returning your ticket(s) to the Mathematics Meetings Service Bureau (MMSB) by December 21. After that date no refunds can be made. Special meals are available at banquets upon advance request, but this must be indicated on the Advance Registration/Housing Form.

ACMS Worship Service

Sunday, January 6, 7:00 am – 7:50 am

Begin the Joint Meetings by attending a nondenominational service provided by members of the Association of Christians in the Mathematical Sciences.

Student Hospitality Center

Sunday–Tuesday, January 6 – 8, 9:00 am – 5:00 pm

Wednesday, January 9, 9:00 am – 3:00 pm

Organized by Richard and Araceli Neal, American Society for the Communication of Mathematics.

Reception for Undergraduates

Sunday, January 6, 4:00 pm – 5:00 pm

Reception for Graduate Students and First-Time Participants

Sunday, January 6, 5:30 pm – 6:30 pm

The MAA and the AMS co-sponsor these social hours. Students and first-timers are especially encouraged to come to pick up a few tips on how to survive the environment of a large meeting.

Mathematical Institutes Open House

Sunday, January 6, 5:30 pm – 8:00 pm

Participants are warmly invited to attend this open house co-sponsored by several North American mathematical institutes. Come find out about the latest activities and programs at each of the Institutes.

AWM Reception

Sunday, January 6, 9:30 pm

This is an open reception held after the AMS Gibbs Lecture.

AWM Luncheon to honor Noether Lecturer, Audrey Terras

Monday, January 7

Those interested may email awm@awm-math.org; a sign-up sheet for those interested will also be located at the AWM table in the exhibit area and also at the AWM panel discussion and Business Meeting.

Association of Lesbian, Gay, Bisexual, and Transgendered Mathematicians Reception

Monday, January 7, 5:45 pm – 7:00 pm

Everyone is welcome to attend this open reception. Meet some new friends or get together with some old friends. Please join us!

MAA Two-Year College Reception

Monday, January 7, 5:45 pm – 7:00 pm

Open to all meeting participants, particularly two-year faculty members. There will be hot and cold refreshments and a cash bar. Sponsored by Addison Wesley.

MER Banquet

Monday, January 7, 6:30 pm

The Mathematicians and Education Reform (MER) Forum welcomes all mathematicians who are interested in educational reform to attend the MER banquet. There will be a cash bar beginning at 6:30 pm. Dinner will be served at 7:30 pm.

NSA Women in Mathematics Society Networking Session

Monday, January 7, 6:30 pm – 8:30 pm

Everyone is invited to this annual session.

Knitting Circle

Monday, January 7, 8:15 pm – 9:45 pm

Bring a project (knitting/crochet/tating/beading/etc.) and chat with other mathematical crafters!

Hawkes Learning Systems Courseware Presentation

Tuesday, January 8, 6:00 pm – 7:00 pm

All participants are invited.

Mathematical Reviews Reception

Tuesday, January 8, 6:00 pm – 7:00 pm

All friends of *Mathematical Reviews* (MR) are invited to join reviewers and MR editors and staff (past and present) for a reception in honor of all the efforts that go into the creation and publication of the *Mathematical Reviews* database.

Budapest Semesters in Mathematics Reunion

Tuesday, January 8th, 6:00 pm – 8:00 pm

All alumni, family, and spouses are invited.

NAM Banquet

Tuesday, January 8, 6:00 pm – 9:30 pm

The National Association of Mathematicians will host a banquet on Tuesday evening. A cash bar reception will be held at 6:00 pm, and dinner will be served at 6:30 pm.

Association of Christians in the Mathematical Sciences (ACMS) Reception and Banquet

Tuesday, January 8, 6:00 pm – 10:00 pm

This annual dinner at 6:30 pm is preceded by a reception and will be followed by an after-dinner talk by Fernando Gouvêa, Colby College. Tickets must be ordered by November 30; see www.acmonline.org for details.

Wine and Jazz Evening

Tuesday, January 8, 7:00 pm – 10:00 pm

Join your colleagues for an informal evening enjoying fine wines and cool jazz at the San Diego Wine & Culinary Center Cafe, 200 Harbor Drive (across from the Convention Center).

MAA–Project NEXt Reception

Tuesday, January 8, 8:30 pm – 10:30 pm

All Project NEXt Fellows, consultants, and other friends of Project NEXt are invited.

AMS Banquet

Wednesday, January 9, 6:30 pm

The AMS banquet provides an excellent opportunity to socialize with fellow participants in a relaxed atmosphere. The participant who has been a member of the Society for the greatest

number of years will be recognized and will receive a special award. The banquet will be held on Wednesday, with a cash bar reception at 6:30 pm and dinner at 7:30 pm.

Receptions for Alumni and Friends of Mathematics Departments

Lehigh University Reception

Monday, January 7, 5:45 pm – 7:00 pm

University of Iowa Mathematics Department Reception

Monday, January 7, 5:45 pm – 7:00 pm

New Mexico State University Department of Mathematical Sciences Reception

Monday, January 7, 5:45 pm – 7:15 pm

University of Chicago Mathematics Alumni Reception

Monday, January 7, 6:00 pm – 7:00 pm

University of Illinois at Urbana-Champaign Department of Mathematics Alumni Reception

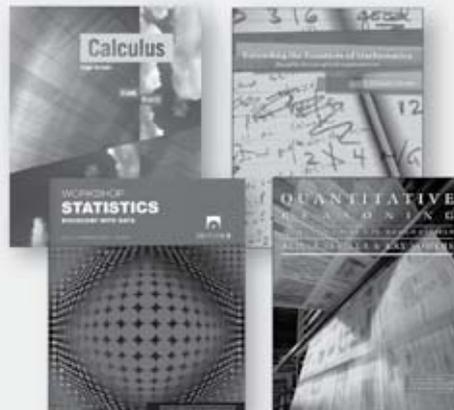
Tuesday, January 8, 5:30 pm – 7:30 pm

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Registration, Travel and Other Information

The MAA and AMS make every effort to keep participant expenses at meetings and registration fees for meetings as low as possible. We work hard to negotiate the best hotel rates and to make the best use of your registration dollars to keep the meetings affordable for you. The MAA and the AMS encourage all participants to register for the meeting. When you pay the registration fee, you are helping to support a wide range of activities associated with planning, organizing, and running a major meeting of this size. For more information and to register online, visit http://www.ams.org/amsmtgs/2109_intro.html.

How to Register in Advance

If at all possible, register in advance. Advance registration fees are considerably lower. (See the registration form for fees and deadlines.) Acknowledgments of registrations will be sent by email to the email address(es) given on the Advance Registration/Housing Form. If you do not wish your registration acknowledged by email, please mark the appropriate box on the form.

Email Advance Registration: This service is available for advance registration and housing arrangements by requesting the forms via email from meetreg-request@ams.org or by visiting http://www.ams.org/amsmtgs/2109_reg.html. Completed email forms should be sent to meetreg-submit@ams.org. All advance registrants will receive acknowledgment of payment prior to the meetings.

Internet Advance Registration: This service is available for advance registration and housing arrangements at http://www.ams.org/amsmtgs/2109_reg.html. All Internet advance registrants will receive acknowledgment of payment upon submission of this form.

Badges and Programs: Participants registering by November 15 may receive their badges, programs, and tickets by mail approximately three weeks before the meetings. Registration materials will be mailed only to those who check the box on the registration form and provide a home address. Because of delays that occur in U.S. mail to Canada, advance registrants from Canada and overseas must pick up their materials at the meetings. There will be a special Registration Assistance Desk at the Joint Meetings to assist individuals who either do not receive this mailing or who have a problem with their registration. Please note that a US\$5 replacement fee will be charged for programs and badges that are mailed but not taken to San Diego.

Cancellation Policy: Those who cancel their advance registration for the meetings, MAA Minicourses, or Short Courses by December 28 will receive a 50% refund of fees paid. No refunds will be issued after this date. The deadline for refunds for banquet tickets is December 21.

If you wish to be included in a list of individuals sorted by mathematical interest, please provide the one mathematics subject classification number of your major area of interest on the Advance Registration/Housing Form. (A list of these numbers is available by sending an empty email message to abs-submit@ams.org; include the number 1035 as the subject of the message.) Copies of this list will be available for your perusal in the Networking Center.

If you do not wish to be included in any mailing list used for promotional purposes, please indicate this in the appropriate box on the Advance Registration/Housing Form.

Early Advance Registration: Those who register by the early deadline of **October 31** will be included in a random drawing to select winners of complimentary hotel rooms in San Diego. The winners will be notified by mail prior to December 20.

Ordinary Advance Registration: Those who register after October 31 and by the **ordinary** deadline of November 15 may use the housing services offered by the MMSB but are not eligible for the room lottery and raffle. You may also elect to receive your badge and program by mail in advance of the meetings.

Final Advance Registration: Those who register after November 15 and by the **final** deadline of December 14 must pick up their badges, programs, and any tickets for social events at the meetings. Unfortunately, it is sometimes not possible to provide final advance registrants with housing, so registrants are strongly urged to make their hotel reservations by November 15. Please note that the **December 14 deadline is firm**; any forms received after that date will be returned and full refunds issued.

Hotel Reservations

Participants requiring hotel reservations should read the instructions on the following pages and at http://www.ams.org/amsmtgs/2109_hsg.html. Participants who do not reserve a room during advance registration and would like to obtain a room at one of the hotels listed on the following pages should call the hotels directly after December 17. However, after that date the MMSB can no longer guarantee availability of rooms or special convention rates.

Importance of Staying in the Official Meetings Hotels: Your patronage of the official headquarters hotels enables the JMM to secure the meeting space at a greatly reduced cost which helps to keep the cost of the meeting and your registration fees down. Networking events will be held at the Marriott for the convenience of our participants.

Headquarters Raffle: Win an Olympus FE-230 digital cam-

era and Fujifilm 1 GB xD picture card valued at over US\$200! Participants who register and reserve a room *at the Marriott* by October 31, 2007, will be eligible to enter this drawing. All participants who are eligible will receive a raffle ticket on their badge sheet. Those who wish to enter the drawing must turn in their tickets at the Meetings Registration Desk in the San Diego Convention Center. You must turn in your ticket to be entered into the drawing! The winning ticket will be drawn before the end of the meeting on Wednesday, specific day and time to be announced.

Room Lottery: Win *free* room nights at our official hotels as listed on the hotel pages. Participants who register and reserve a room by October 31, 2007 at any of the meetings hotels listed will automatically be included in a random drawing to select a winner of free room nights in that hotel.

Miscellaneous Information

Audio-Visual Equipment: Standard equipment in all session rooms is one overhead projector and screen. Invited 50-minute speakers are automatically provided with two overhead projectors and a computer projector. Blackboards are not available. Individual speakers must consult with the session organizer(s) if additional equipment or services are needed. All requests should be received by November 1.

Childcare: The Mathematical Association of America and the American Mathematical Society will again offer childcare services for the Joint Mathematics Meetings to registered participants. See the August/September issue of FOCUS for details. Registration starts in September. To register, go to <https://www.kiddiecorp.com/jmmkids.htm> or call KiddieCorp at (858) 455-1718 to request a form.

Email Services: Limited email access for all Joint Meetings participants will be available. The hours of operation will be published in the program.

Information Distribution: Tables are set up in the exhibit area for dissemination of general information of possible interest to the members and for the dissemination of information of a mathematical nature not promoting a product or program for sale.

Local Information: For information about the city see www.meetmeinsandiego.com/AMS/ and for complete restaurant information, including maps and menus, see www.sandiego.org/nav/Visitors/DiningAndNightlife.

Petition Table: At the request of the AMS Committee on Human Rights of Mathematicians, a table will be made available in the exhibit area at which petitions on behalf of named individual mathematicians suffering from human rights violations may be displayed and signed by meetings participants acting in their individual capacities. For details contact the director of meetings in the Providence office at 401-455-4137 or by email at dms@ams.org.

Travel Information

Discounted Air Travel: The official airline for the meetings is Delta. The MAA and AMS have made an agreement with Delta to provide special discounts to participants. We cannot guarantee that these will be the lowest fares when you make your arrangements. However, we strongly urge participants to make use of this special deal if at all possible, since the MAA and AMS can earn complimentary tickets. These tickets are used to send meetings' staff (not officers or other staff) to the Joint Mathematics Meetings, thereby keeping the costs of the meetings (and registration fees) down. To make reservations, visit http://www.ams.org/amsmtgs/2109_travel.html and click on the Delta Air Lines logo. Reservations must be made through this link to receive the discount.

Traveling from the airport: Shuttle service is available from the airport to the downtown hotels for approximately US\$8–11 per person one way and US\$16–22 per person round trip. See http://www.san.org/airport/ground_transportation/shuttle_services.asp. We have set up a special rate with the Cloud 9 shuttle service if you reserve in advance. Visit the meeting travel site at http://www.ams.org/amsmtgs/2109_travel.html for more information.

Public Transportation from/to the airport: General information on San Diego public transportation is at <http://www.sdmts.com/>.

Taxicabs: Taxi fare to the downtown area is approximately US\$10–12 dollars one way.

Driving Directions: Please visit the meeting web site for directions, as well as <http://www.visitsandiego.com/maps/>. The hotels being used by the Joint Mathematics Meetings are downtown and locations can be ascertained by checking the map on page 45.

Train: The Union Station (Santa Fe Depot) train station is conveniently located in downtown San Diego at 1050 Kettner Boulevard. There is a trolley stop at the train station. Contact Amtrak for more information on train service to or from San Diego.

Discounted Car Rental: Avis is the official car rental company for the meetings. Contact Avis for rates and reservations, citing group ID number **J098887**.

Travel Information for International Participants: International participants should view the important information about traveling to the United States at http://www7.nationalacademies.org/visas/Traveling_to_US.html. Because of increased scrutiny of visa applicants, many potential attendees of scientific meetings in the United States have experienced unusual delays in obtaining travel visas. If you need a letter of invitation from the AMS and have not yet requested it, please send email to meet@ams.org and an invitation will be forwarded as soon as possible.

How to Obtain Hotel Accommodations

<p>Room Raffle/Lottery: For this meeting, we are offering a special raffle for anyone who reserves a room at the Marriott Hotel & Marina by October 31. We are also offering the Room Lottery again for anyone who reserves a room at any of the following hotels by October 31. See <i>How To Register in Advance</i> for details.</p>	<p>General Instructions: Participants must register in advance in order to obtain hotel accommodations through the Mathematics Meetings Service Bureau (MMSB). Special rates have been negotiated exclusively for this meeting at the following hotels. With the exception of the Student Hostel and Hotel Occidental, reservations must be made through the Mathematics Meetings Service Bureau (MMSB) to receive these rates. Please call the Student Hostel and Hotel Occidental directly for reservations. All other hotels will ONLY start accepting reservations directly after December 17, at which time rooms and rates will be based on availability. A higher rate will be applied to any rooms reserved directly with any of these hotels before December 18.</p> <p>To make a reservation, please submit a completed housing section of the Advance Registration/Housing (ARH) Form (paper or electronic) with a guarantee by November 15. Sorry, reservations cannot be taken by phone. Participants interested in reserving suites should contact the MMSB for further information.</p>	<p>Deadlines:</p> <ul style="list-style-type: none"> • Raffle and Room Lottery qualification: October 31, 2007 • Reservations through MMSB: November 15, 2007 • Changes/cancellations through MMSB: December 7, 2007
<p>Rates:</p> <ul style="list-style-type: none"> • Subject to 10.6 % state and local tax • Only certified students or unemployed mathematicians qualify for student rates. • See ARH Form for detailed breakdown of rates for each hotel. 	<p>General Information:</p> <ul style="list-style-type: none"> • Check-in 3:00 p.m./checkout 12:00 p.m. – all hotels except for the Hilton, Embassy Suites, San Diego Marriott (check-in 4:00 p.m./checkout 12:00 p.m.) and Holiday Inn Express (check-in 3:00 p.m./checkout 11:00 a.m.) • Windows open in some rooms - see descriptions below • Children are free in existing beds only. See age limits in each hotel. • Limited availability of cribs, free of charge • All hotels have a limited environmental policy regarding linens where all requests for a limited change of linens will be honored. • Distance from hotels to the San Diego Convention Center (CC) is indicated in each listing. • Cloud 9 Shuttle is offering a special discount for this meeting. Go to https://www.hudsonltd2.com/cgi-bin/cld1/res?LOGON=GO&USERIDENTRY=JMM08 to make a reservation and receive this discount. Note also that some hotels are offering free airport shuttles. • Wireless is free in some hotels - see descriptions below. • Some hotels will only send confirmations by email and some are not sending any confirmations - see descriptions below. • All hotels are in acceptable compliance with ADA. All hotels have TTYs/TDDs text telephones on the premises or can rent them by request. 	<p>Guarantee Requirements/Cancellation Policy:</p> <ul style="list-style-type: none"> • One night deposit by check, or • Credit cards accepted: VISA, MC, AMEX, Diners, and Discover (except for Horton Grand which does not accept Discover) • 72-hour cancellation policy for all hotels except 500 West (24-hour cancellation policy) and Omni (7-day cancellation policy) • Please note that early departure penalties will apply at some of the hotels – see descriptions below

Continued →

<p>San Diego Marriott Hotel & Marina (Headquarters) (Location of Council, Board of Governors, Child Care, EC, Miscellaneous Sessions, and Short Courses; all other events at CC) (Next door to CC)</p> <p>333 W. Harbor Drive San Diego, CA 92101 619-230-8316 City Single/Double US \$172 Bay Single/Double US \$192 Student Single/Double US \$138</p> <p>All Non-Smoking Hotel; Restaurants; Lounges; Fitness center; Heated outdoor pools; Starbucks; Shops; Tennis court; Marina; Parking per day – US \$20 self or US \$26 valet; All rooms have full amenities; Windows open in South Tower, Balconies in North Tower; Children under 18 years free; High speed internet in rooms at a cost of US \$9.95 per day plus tax and includes phone usage for local and long distance; Wireless in DW's Lounge and lobby lounge - cost based on usage; Business Center runs wireless connection in Starbucks foyer at a cost of US \$10 per day; Hard lines available at Business Center at a cost of US \$5 per 10 minutes; Confirmations provided by email only</p>	<p>Horton Grand Hotel (.33 mile to CC - 3 blocks)</p> <p>311 Island Avenue San Diego, CA 92101 619-544-1886 Single/Double US \$155 Student Single/Double US \$145</p> <p>Historic Hotel – All One-Bedded Rooms (Very limited number of rooms with two queen beds); Restaurant (serving breakfast only); Bar; Parking per day – US \$14 day or US \$24 over night valet; All rooms have full amenities including gas fireplace; High speed internet OR wireless in room at a cost of US \$9.95 per day plus tax; Windows open in some rooms; Balconies in some rooms; Majority of rooms have one king bed; Children under 10 years free; No roll-in showers available; Confirmations provided by email only</p>	<p>Hilton San Diego Gaslamp Quarter (Across the street to CC - .06 mile)</p> <p>401 K. Street San Diego, CA 92101 619-231-4040 Single/Double US \$150 Student Single/Double US \$140</p> <p>All Non-Smoking Hotel; Restaurant; Lounge; Fitness center; Outdoor heated pool; Parking per day – US \$30 valet; All rooms have full amenities; Complimentary high speed internet access in room and complimentary WiFi in lobby; Windows open in rooms; Children under 18 years free; Confirmations provided by email only; All changes to departure dates must be made at check-in to avoid a US \$75 penalty charge</p>	<p>Embassy Suites San Diego Bay-Downtown (.45 mile to CC / across the street from Seaport Village)</p> <p>601 Pacific Highway San Diego, CA 92101 619-239-2400 Single/Double US \$149 Student Single/Double US \$135 Additional US \$20 for bay view</p> <p>All Suites Hotel; Complimentary fully cooked breakfast and daily evening cocktail reception included in rates; Restaurant; Lounge; Fitness center; Starbucks; Indoor pool; Glass elevators; Parking per day – US \$26 valet; Complimentary airport shuttle; All rooms are suites with private bedroom and living room area with sleeper sofa; Full amenities in all rooms including refrigerator and microwave oven; Windows open in all rooms; Wireless high speed internet throughout hotel at a cost of US \$9.95 per 24 hours plus tax; Children under 18 years free; Confirmations provided by email only; All changes to departure dates must be made at check-in to avoid a US \$75 penalty charge</p>
<p>Omni San Diego (Across the street to CC - .10 mile)</p> <p>675 L. Street San Diego, CA 92101 619-231-6664 Single/Double US \$140 Student Single/Double US \$125</p> <p>Restaurant; Lounge; Fitness center; Outdoor heated pool; Bar; Parking per day - US \$26 valet or US \$14 self; All rooms have full amenities including mini bar, refreshment center, and bathrobes; Complimentary wired and wireless internet in all rooms, hotel lobby, bar, and pool deck; Windows open in all rooms; Children under 12 years free; Confirmations provided by email only;</p>	<p>Holiday Inn on the Bay (1.10 miles to CC) (2 blocks from trolley)</p> <p>1355 North Harbor Drive San Diego, CA 92101 619-232-3861 Single/Double US \$135 Student Single/Double US \$125 Additional US \$30 for bay view</p> <p>Restaurants; Lounge; Fitness center; Outdoor heated pool; Parking per day - US \$24 valet or US \$20 self; Complimentary airport shuttle; All rooms have full amenities including refrigerators; Most rooms have patios; Windows open in all rooms; Complimentary wireless internet in all rooms and lobby; Children under 18 years free; Confirmations provided by email only</p>	<p>Holiday Inn Express (1.8 miles to CC) (2 blocks from trolley)</p> <p>1430 7th Avenue San Diego, CA 92101 619-696-0911 Single/Double US \$129 Student Single/Double US \$119</p> <p>All Non-Smoking Hotel; Restaurant; Complimentary continental breakfast; Outdoor pool; Parking per day - US \$12 self; Complimentary airport shuttle; All rooms have full amenities including safes and refrigerators; Windows open in all rooms; Most rooms have balconies; Complimentary high speed internet and wireless in all rooms and lobby; Children under 18 years free; Confirmations provided by email only</p>	<p>Courtyard by Marriott - Downtown (.9 miles to CC) (1 block from trolley)</p> <p>530 Broadway Street San Diego, CA 92101 619-446-3000 Single/Double US \$109</p> <p>All Non-Smoking Historic Hotel; Restaurant; Bar; Business center; Fitness center; Courtyard market; Parking per day - US \$24 valet w/ in and out privileges; All rooms have full amenities; Some rooms have microwave ovens; Windows do not open in rooms; Complimentary high speed internet access in rooms and complimentary wireless in the bar and lobby; Children under 18 years free; Confirmations will not be sent.</p>

Continued →

<p>Rodeway Inn & Suites <i>(1.8 miles to CC)</i> <i>(3 blocks from trolley)</i></p> <p>719 Ash Street San Diego, CA 92101 619-232-2525 Single/Double US \$91</p> <p>No Restaurant; Complimentary continental breakfast; Limited smoking rooms; Free access to outdoor pool at Holiday Inn Express across the street; Complimentary parking; Complimentary airport shuttle; Rooms open from the outside; All rooms have full amenities including safes and refrigerators; Windows open in all rooms; Complimentary high speed internet and wireless in all rooms and lobby; Children under 18 years free; Confirmations provided by email only</p>	<p>500 West <i>(.75 mile from CC)</i> <i>(1 block from train station and trolley)</i></p> <p>500 W. Broadway San Diego, CA 92101 800-276-7415 Single occupancy only – US \$49, twin beds only</p> <p>All Non-Smoking Hotel; No air conditioning; Cafe; YMCA on lower floor; Common room with full kitchen; Laundry; Parking per day – US \$15 overnight w/ no in and out (located next door); Daily maid service; Shared bathrooms; Windows open in all rooms; Complimentary wireless internet throughout hotel; Confirmations provided</p>	<p>Attention Students</p> <p>As alternative housing choices, we list the following:</p> <p>1. Hostelling International-San Diego Downtown is located on the corner of 5th and Market Street in the soul of the city's Gaslamp Quarter. It is located four blocks from the Convention Center and three blocks from the trolley. They offer comfortable dorm rooms and up to date private rooms, free pancake breakfast, free Wi-Fi in rooms, full kitchen, and onsite laundry.</p> <p>521 Market Street San Diego, CA 92101 (619) 525-1531 (619) 338-0129 (fax) www.sandiegohostels.org</p> <p>Please call directly for further information and reservations.</p> <p>2. Hotel Occidental is a Budget Hotel located 11 blocks from the Convention Center, 7 blocks from the trolley, and 1 block from the bus station. The bus runs every 20 minutes on a weekday and every hour on the weekend. The guest rooms range from singles and doubles with shared baths to private baths in single, doubles and queen suites. Each features private kitchenettes, large windows, high ceilings with ceiling fans, TV's with DVD players, central air and heat, complimentary high speed wireless internet access, safes, digital phones with free local calls, and free continental breakfast.</p> <p>410 Elm Street San Diego, CA 92101 619-232-1336 Hoteloccidental-sandiego.com</p> <p>Please call directly for further information and reservations.</p>
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Joint Meetings Advance Registration/Housing Form



Note: Write your name as you would like it to appear on your badge (no titles, please). Badges and programs can only be mailed to home addresses. If you would like your registration materials mailed to you on December 13, please register by November 15, provide your home address, and check this box: I want my materials mailed to the following address on 12/13/07. I do not want my materials mailed. I will pick them up onsite.

Name _____

Mailing Address _____

Telephone: _____ Fax: _____

In case of emergency (for you) at the meeting, call: Day #: _____ Evening #: _____

Email Address _____

Affiliation for name badge _____

Nonmathematician guest badge name _____ (please note charge below)

Acknowledgment of this registration will be sent to the email address listed, unless you check this box: Send by U.S. Mail

Membership

✓ all that apply. First column is eligible for member registration fee

- | | |
|-------------------------------|------------------------------|
| <input type="checkbox"/> AMS | <input type="checkbox"/> ASA |
| <input type="checkbox"/> MAA | <input type="checkbox"/> AWM |
| <input type="checkbox"/> ASL | <input type="checkbox"/> NAM |
| <input type="checkbox"/> CMS | <input type="checkbox"/> YMN |
| <input type="checkbox"/> SIAM | |

Registration Fees

Joint Meetings	by Dec 14	at mtg	Subtotal
<input type="checkbox"/> Member AMS, ASL, CMS, MAA, SIAM	US \$214	US \$279	
<input type="checkbox"/> Nonmember	US \$332	US \$431	
<input type="checkbox"/> Graduate Student	US \$ 44	US \$ 54	
<input type="checkbox"/> Undergraduate Student	US \$ 23	US \$ 29	
<input type="checkbox"/> High School Student	US \$ 5	US \$ 10	
<input type="checkbox"/> Unemployed	US \$ 43	US \$ 53	
<input type="checkbox"/> Temporarily Employed	US \$172	US \$200	
<input type="checkbox"/> Developing Countries Special Rate	US \$ 43	US \$ 53	
<input type="checkbox"/> Emeritus Member of AMS or MAA	US \$ 43	US \$ 53	
<input type="checkbox"/> High School Teacher	US \$ 43	US \$ 53	
<input type="checkbox"/> Librarian	US \$ 43	US \$ 53	
<input type="checkbox"/> Nonmathematician Guest	US \$ 15	US \$ 15	
			\$ _____

AMS Short Course: Applications of Knot Theory (1/4-1/5)

<input type="checkbox"/> Member of AMS or MAA	US \$ 94	US \$125
<input type="checkbox"/> Nonmember	US \$125	US \$155
<input type="checkbox"/> Student, Unemployed, Emeritus	US \$ 42	US \$ 63
		\$ _____

MAA Short Course: Combinatorics: Past, Present, Future. (1/4-1/5)

<input type="checkbox"/> Member of MAA or AMS	US \$125	US \$140
<input type="checkbox"/> Nonmember	US \$175	US \$190
<input type="checkbox"/> Student, Unemployed, Emeritus	US \$ 50	US \$ 60
		\$ _____

MAA Minicourses (see listing in text)

I would like to attend: One Minicourse Two Minicourses

Please enroll me in MAA Minicourse(s) # _____ and/or # _____

In order of preference, my alternatives are: # _____ and/or # _____

Price: US \$60 for each minicourse.

(For more than 2 minicourses, call or email the MMSB.) \$ _____

Employment Center

Applicant résumé forms and employer job listing forms will be on the AMS website at www.ams.org/emp-reg/.

Employer—First Table	US \$245	US \$325
<input type="checkbox"/> Computer-scheduled <input type="checkbox"/> Self-scheduled <input type="checkbox"/> Combination Interview		
Employer—Each Additional Table	US \$ 95	US \$125
<input type="checkbox"/> Computer-scheduled <input type="checkbox"/> Self-scheduled <input type="checkbox"/> Combination Interview		
<input type="checkbox"/> Employer—Posting Job Description Only	US \$ 50	N/A
<input type="checkbox"/> Applicant (all services)	US \$ 44	US \$ 82
<input type="checkbox"/> Applicant (Winter List & Message Ctr only)	US \$ 22	US \$ 22
		\$ _____

Events with Tickets

MER Banquet (1/7)	US \$50.00	# _____ Regular	# _____ Veg	# _____ Kosher
NAM Banquet (1/8)	US \$49.00	# _____ Regular	# _____ Veg	# _____ Kosher
AMS Banquet (1/9)	US \$52.00	# _____ Regular	# _____ Veg	# _____ Kosher
				\$ _____

Other Events

- AMS Workshop on Grant Writing (1/6) (no charge)
 Graduate Student/First Time Attendee Reception (1/6) (no charge)

Total for Registrations and Events \$ _____

Registration for the Joint Meetings is not required for the Short Courses, but it is required for the Minicourses and the Employment Center

Payment

Registration & Event Total (total from column on left) \$ _____

Hotel Deposit (only if paying by check) \$ _____

Total Amount To Be Paid \$ _____

(Note: A US \$5 processing fee will be charged for each returned check or invalid credit card. Debit cards are not accepted.)

Method of Payment

- Check. Make checks payable to the AMS. Checks drawn on foreign banks must be in equivalent foreign currency at current exchange rates.
 Credit Card. VISA, MasterCard, AMEX, Discover (no others accepted)

Card number: _____

Exp. date: _____ Zipcode of credit card billing address: _____

Signature: _____

Name on card: _____

Purchase order # _____ (please enclose copy)

Other Information

Mathematical Reviews field of interest # _____

How did you hear about this meeting? Check one: Colleague(s) Notices Focus Internet

This is my first Joint Mathematics Meeting.

I am a mathematics department chair.

For planning purposes for the MAA Two-year College Reception, please check if you are a faculty member at a two-year college.

I would like to receive promotions for future JMM meetings.

Please ✓ this box if you have a disability requiring special services.



Please do not include my name on any promotional mailing list.

Mail to:

Mathematics Meetings Service Bureau (MMSB)

P. O. Box 6887

Providence, RI 02940-6887 Fax: 401-455-4004

Questions/changes call: 401-455-4143 or 1-800-321-4267 x4143; mmsb@ams.org

Deadlines Please register by the following dates for:

Résumés/job descriptions printed in the *Winter Lists* **Oct. 24, 2007**

To be eligible for the room lottery and the raffle: **Oct. 31, 2007**

For housing reservations, badges/programs mailed: **Nov. 15, 2007**

For housing changes/cancellations through MMSB: **Dec. 7, 2007**

For advance registration for the Joint Meetings, Employment Center, Short Courses, MAA Minicourses, & Tickets: **Dec. 14, 2007**

For 50% refund on banquets, cancel by: **Dec. 21, 2007***

For 50% refund on advance registration, Minicourses & Short Courses, cancel by: **Dec. 28, 2007***

***no refunds after this date**

San Diego Joint Meetings Hotel Reservations

To ensure accurate assignments, please rank hotels in order of preference by writing 1, 2, 3, etc., in the column on the left and by circling the requested room type and rate. If the rate or the hotel requested is no longer available, you will be assigned a room at a ranked or unranked hotel at a comparable rate. Participants are urged to call the hotels directly for details on suite configurations, sizes, and availability; however, suite reservations can be made only through the MMSB to receive the convention rates listed. Reservations at the following hotels must be made through the MMSB to receive the convention rates listed. Reservations made directly with the hotels may be changed to a higher rate. All rates are subject to a 10.6% sales tax. **Guarantee requirements: First night deposit by check (add to payment on reverse of form) or a credit card guarantee.**

Deposit enclosed (see front of form) Hold with my credit card Card Number _____ Exp. Date _____ Signature _____

Date and Time of Arrival _____ Date and Time of Departure _____

Name of Other Room Occupant _____ Arrival Date _____ Departure Date _____ Child (give age(s)) _____

Order of choice	Hotel	Single	Double 1 bed	Double 2 beds	Triple 2 beds	Triple 2 beds w/cot	Triple - King or queen w/cot	Quad 2 beds	Quad 2 beds w/cot	Suites Starting rates
	San Diego Marriott Hotel & Marina (hqtrs)									
	Cityview	US \$172	US \$172	US \$172	US \$192	US \$192	US \$192	US \$212	US \$212	N/A
	Bayview	US \$192	US \$192	US \$192	US \$212	US \$212	US \$212	US \$232	US \$232	US \$685
	Student	US \$138	US \$138	US \$138	US \$158	US \$158	US \$158	US \$178	US \$178	N/A
	Horton Grand Hotel	US \$155	US \$155	US \$155 (very limited)	US \$175 (very limited)	N/A	N/A	US \$195 (very limited)	N/A	US \$215
	Student	US \$145	US \$145	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hilton San Diego Gaslamp Quarter	US \$150	US \$150	US \$150	US \$170	N/A	US \$190	US \$190	N/A	US \$489
	Student	US \$140	US \$140	US \$140	US \$160	N/A	US \$180	US \$180	N/A	N/A
	Embassy Suites-Cityview Suites	US \$149	US \$149	US \$149	US \$169	No rollaways; have sleeper sofa	US \$180	US \$189	N/A	all suites
	Bayview Suites	US \$169	US \$169	US \$169	US \$189	No rollaways; have sleeper sofa	No rollaways; have sleeper sofa	US \$209	N/A	all suites
	Student Suites	US \$135	US \$135	US \$135	US \$145	No rollaways; have sleeper sofa	No rollaways; have sleeper sofa	US \$155	N/A	all suites
	Omni San Diego	US \$140	US \$140	US \$140	US \$160	N/A	US \$185	US \$180	N/A	Jr. Suite: US \$399; 1BR US \$499
	Student	US \$125	US \$125	US \$125	US \$145	N/A	US \$170	US \$165	N/A	N/A
	Holiday Inn on the Bay-Cityview	US \$135	US \$135	US \$135	US \$150	N/A	US \$160	US \$165	N/A	N/A
	Bayview	US \$165	US \$165	US \$165	US \$180	N/A	US \$190	US \$195	N/A	US \$338
	Student	US \$125	US \$125	US \$125	US \$140	N/A	US \$150	US \$155	N/A	N/A
	Holiday Inn Express	US \$129	US \$129	US \$129	US \$144	N/A	N/A	US \$159	N/A	US \$239
	Student	US \$119	US \$119	US \$119	US \$134	N/A	N/A	US \$149	N/A	N/A
	Courtyard Marriott Downtown	US \$109	US \$109	US \$109	US \$119	N/A	King only-US \$119	US \$129	N/A	US \$169
	Rodeway Inn and Suites	US \$91	US \$91	US \$91	US \$101	\$121	US \$121	US \$111	US \$131	N/A
	500 West Hotel	US \$49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Special Housing Requests:

I have disabilities as defined by the ADA that require a sleeping room that is accessible to the physically challenged. My needs are: _____
 Other requests: _____

I am a member of a hotel frequent-travel club and would like to receive appropriate credit.

The hotel chain and card number are: _____

Email confirmations (no paper) will be sent by the Hilton, Embassy Suites, Holiday Inns, Horton, Marriott (hqtrs), Omni & Rodeway Inn. **Please provide your email address:** _____

If you are not making a reservation, please check off one of the following:

- I plan to make a reservation at a later date.
- I will be making my own reservations at a hotel not listed. Name of hotel: _____
- I live in the area or will be staying privately with family or friends.
- I plan to share a room with _____, who is making the reservations.



Joint Mathematics Meetings

Jan 6, 2008 to Jan 9, 2008



Hotel	Distance from SDCC
1 500 West Hotel	0.75
2 Rodeway Inn and Suites	1.05
3 Courtyard San Diego Downtown by Marriott	0.70
4 Embassy Suites Hotel San Diego Bay - Downtown	0.45
5 Hilton San Diego Gaslamp Quarter	0.06
6 Holiday Inn Express San Diego Downtown	1.06
7 Holiday Inn San Diego on the Bay	1.10
8 Horton Grand Hotel	0.33
9 Omni San Diego Hotel	0.12
10 San Diego Marriott Hotel & Marina Headquarters Hotel	0.05

EMPLOYMENT OPPORTUNITIES

ILLINOIS

Southern Illinois University

Southern Illinois University Edwardsville, a comprehensive state university 20 miles from downtown St. Louis, Missouri, invites applications for a tenure-track assistant professor beginning August 2008. Applicants should have a PhD in math education, mathematics, or statistics. Review of applications will begin December 1, 2007. For more information visit www.siu.edu/MATH/.

Wheaton College (IL)

Open Rank Positions in Mathematics & Computer Science

The Mathematics & Computer Science department at Wheaton College (IL) invites applications for two tenure-track, open-rank positions—one starting in fall 2008, and one in fall 2009. Fields of expertise are algebra, analysis, statistics, and/or math history and foundations. Applicants must be committed to excellence in teaching and scholarship in a liberal arts environment. Effectiveness in mentoring undergraduate student researchers is expected. Ph.D. is required. The College is located 25 miles west of Chicago. For more information please visit www.wheaton.edu/math.

Review of applications will begin November 16, 2007 and continue until the positions are filled. Applicants should send a curriculum vita and a description of teaching philosophy and research interests to: Dr. Terry Perciante, Chair; Department of Mathematics and Computer Science; Wheaton College; 501 College Avenue; Wheaton, Illinois 60187.

Additional application materials will be sent to eligible candidates.

Wheaton College is an evangelical Protestant Christian liberal arts college whose faculty members affirm a Statement of Faith and the moral and lifestyle expectations of our Community Covenant. The College complies with federal and state guidelines of nondiscrimination in employment; women and minorities are encouraged to apply.

NEW YORK

Cornell University

The Department of Mathematics at Cornell University invites applications for two or more half-time visiting positions (rank based on experience) for mathematics professors on sabbatical/other leaves from col-

leges, universities, and engineering schools for our Teaching Program Visiting Faculty Positions beginning August 16, 2008. Candidates with substantial experience teaching undergraduate mathematics, and with teaching and research interests compatible with current faculty, are sought. Successful candidates are expected to pursue a program of study and/or research at Cornell. The normal duties are to teach two identical courses each semester. The Department actively encourages applications from women and minority candidates.

Applicants are strongly encouraged to apply electronically at <http://www.mathjobs.org>.

For information about these positions and application instructions, see: <http://www.math.cornell.edu/Positions/facpositions.html>.

Deadline December 1, 2007.

Cornell University is an Affirmative Action/Equal Opportunity Employer and Educator.

OHIO

The Ohio State University at Newark

Assistant Professor of Statistics

The Ohio State University at Newark invites applications for the position of Assistant Professor of Statistics to start autumn, 2008. Ph.D. in statistics supported by a strong potential for teaching and research. All areas of specialization will be considered, but preference will be given to candidates with research areas compatible with existing expertise on Ohio State's Columbus campus (see <http://www.stat.osu.edu>). Teaching experience at the college or university level is preferred. Responsibilities include: teaching undergraduate courses in statistics at The Ohio State University at Newark, conducting research, and engaging in service to the campus. Salary: \$69,000 to \$72,000 (A comprehensive benefits package is included). Posting Date: July 21, 2007 to Open until filled. Send a CV, cover letter, three letters of reference, and representative reprints to The Ohio State University at Newark, Office of Human Resources, Assistant Professor of Statistics, Search, #329607, 1179 University Drive, Newark, OH, 43055. EEO/AA Employer.

NEW HAMPSHIRE

Dartmouth College

John Wesley Young

Research Instructorship

The John Wesley Young Instructorship is a postdoctoral, two- to three-year appointment intended for promising Ph.D. graduates with strong interests in both research and teaching

and whose research interests overlap a department member's. Current research areas include applied mathematics, combinatorics, geometry, logic, non-commutative geometry, number theory, operator algebras, probability, set theory and topology. Instructors teach four ten-week courses distributed over three terms, though one of these terms in residence may be free of teaching.

The assignments normally include introductory, advanced undergraduate, and graduate courses. Instructors usually teach at least one course in their own specialty. This appointment is for 26 months with a monthly salary of \$4667, and a possible 12 month renewal. Salary includes two-month research stipend for Instructors in residence during two of the three summer months. To be eligible for a 2008-2011 Instructorship, candidate must be able to complete all requirements for the Ph.D. degree before September, 2008. Applications may be obtained at <http://www.math.dartmouth.edu/recruiting/> or <http://www.mathjobs.org> <<http://www.math.dartmouth.edu/recruiting/>> <<http://www.math.dartmouth.edu/recruiting/%3E>> Position ID: 237-JWY.

General inquiries can be directed to Annette Luce, Department of Mathematics, Dartmouth College, 6188 Kemeny Hall, Hanover, New Hampshire 03755-3551. At least one referee should comment on applicant's teaching ability; at least two referees should write about applicant's research ability. Applications received by January 5, 2008 receive first consideration; applications will be accepted until position is filled.

Dartmouth College is committed to diversity and strongly encourages applications from women and minorities.

PENNSYLVANIA

Penn State Mont Alto

Penn State Mont Alto seeks a tenure track assistant professor to teach courses primarily in the first two years of college mathematics using traditional and hybrid delivery modes. Publish in refereed journals. Seek Ph.D. in mathematics and experience teaching introductory math courses. Prefer candidate with a record of successfully teaching students whose abilities range from weak to strong preparation for college-level mathematics. To learn more about the campus visit <http://www.psu.edu/ur/cmpcoll.html>. To learn more about the position and how to apply, visit <http://www.psu.jobs/Opportunities/Opportunities.html> and follow the "Faculty" link. AA/EOE.

Peru

Land of the Incas



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For more details visit: www.maa.org

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Nebraska Conference for Undergraduate Women in Mathematics

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Plenary Speakers

Katherine Bartley, National Security Agency

Rebecca Caldwell, Axiom Corporation

Angela Desai, University of Montevallo

Cornelia Yuen, SUNY Potsdam

All Plenary Speakers are NCUWM Alumnae

For undergraduate participants, most local expenses are covered and travel support is available.

For more information, to register, apply for funding, or sign up to give a talk, visit us on the web at

www.math.unl.edu/~ncuwm

or write to us at

ncuwm@math.unl.edu

Department of Mathematics
University of Nebraska-Lincoln

203 Avery Hall
Lincoln, NE 68588-0130

Deadline for registration January 18, 2008

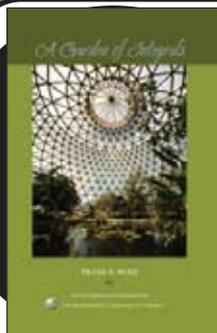
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The Mathematical Association of America



A Garden of Integrals

Frank Burk

The derivative and the integral are the fundamental notions of calculus. Though there is essentially only one derivative, there is a variety of integrals, developed over the years for a variety of purposes, and this book describes them. No other single source treats all of the integrals of Cauchy, Riemann, Riemann-Stieltjes, Lebesgue, Lebesgue-Stieltjes, Henstock-Kurzweil, Weiner, and Feynman. The basic properties of each are proved, their similarities and differences are pointed out, and the reason for their existence and their uses are given. There is a great deal of historical information.

The audience for the book is advanced undergraduate mathematics majors, graduate students, and faculty members. Even experienced faculty members are unlikely to be aware of all of the integrals in **A Garden of Integrals** and the book provides an opportunity to see them and appreciate their richness. Professor Burk's clear and well-motivated exposition makes this book a joy to read.

The book can serve as a reference, as a supplement to course that include the theory of integration, and a source of exercises in analysis. There is no other book like it.

Dolciani • Catalog Code: DOL-31 • 354 pp., Hardbound, 2007 • ISBN: 978-0-88385-337-5
List: \$51.95 • MAA Member: \$41.50

Differential Geometry and Its Applications

John Oprea

Textbook—Second Edition

Printed with four full-color plates.

This book studies the differential geometry of surfaces with the goal of helping students make the transition from the compartmentalized courses in a standard university curriculum to a type of mathematics that is a unified whole. It mixes together geometry, calculus, linear algebra, differential equations, complex variables, the calculus of variations, and notions from the sciences.

That mix of ideas offers students the opportunity to visualize concepts through the use of computer algebra systems such as *Maple*. **Differential Geometry and Its Applications** emphasizes that this visualization goes hand-in-hand with understanding the mathematics behind the computer construction. The book is rich in results and exercises that form a continuous spectrum, from those that depend on calculation to proofs that are quite abstract.

Table of Contents: 1. The Geometry of Curves; 2. Surfaces; 3. Curvatures; 4. Constant Mean Curvature Surfaces; 5. Geodesics, Metrics and Isometries; 6. Holonomy and the Gauss-Bonnet Theorem; 7. The Calculus of Variations and Geometry; 8. A Glimpse at Higher Dimensions.

Classroom Resource Materials • Catalog Code: DGA • 510 pp., Hardbound, 2007 • ISBN: 978-0-88385-748-9
List: \$69.95 • MAA Member: \$57.00



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