
Meetings & Conferences of the AMS

IMPORTANT INFORMATION REGARDING MEETINGS PROGRAMS: AMS Sectional Meeting programs do not appear in the print version of the *Notices*. However, comprehensive and continually updated meeting and program information with links to the abstract for each talk can be found on the AMS website. See <http://www.ams.org/meetings/>. Programs and abstracts will continue to be displayed on the AMS website in the Meetings and Conferences section until about three weeks after the meeting is over. Final programs for Sectional Meetings will be archived on the AMS website in an electronic issue of the *Notices* as noted below for each meeting.

Boston, Massachusetts

Northeastern University

October 5–6, 2002

Meeting #979

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: August 2002

Program first available on AMS website: August 22, 2002

Program issue of electronic *Notices*: October 2002

Issue of *Abstracts*: Volume 23, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: Expired

Invited Addresses

Lou P. van den Dries, University of Illinois, Urbana-Champaign, *Title to be announced*.

Hillel Furstenberg, Einstein Institute of Mathematics, *Title to be announced* (Erdős Memorial Lecture).

Diane Henderson, Pennsylvania State University, *Mathematical modelling and experiments on water waves*.

Christopher K. King, Northeastern University, *Information capacity of quantum channels*.

Xiaobo Liu, University of Notre Dame, *Solving universal equations in Gromov-Witten invariants*.

Special Sessions

Convex Geometry, **Daniel A. Klain**, University of Massachusetts, Lowell, and **Elisabeth Werner**, Case Western Reserve University.

Developments and Applications in Differential Geometry, **Chuu-Lian Terng**, Northeastern University, and **Xiaobo Liu**, University of Notre Dame.

Elliptic Operators on Noncompact Manifolds, **Maxim Braverman**, Northeastern University, **Victor Nistor**, Pennsylvania State University, and **Mikhail A. Shubin**, Northeastern University.

Ergodic Theory and Dynamical Systems, **Stanley J. Eigen**, Northeastern University, and **Vidhu S. Prasad**, University of Massachusetts, Lowell.

Geometric Group Theory, **Sean T. Cleary**, City College, CUNY, **Murray Elder**, Tufts University, and **Jennifer Taback**, University of Albany.

Hilbert Schemes, **Mark De Cataldo**, SUNY at Stony Brook, and **Anthony A. Iarrobino**, Northeastern University.

Modern Schubert Calculus, **Frank Sottile**, University of Massachusetts, Amherst, and **Christopher T. Woodward**, Rutgers University.

Number Theory and Arithmetic Geometry, **Matthew A. Papanikolas**, Brown University, and **Siman Wong**, University of Massachusetts, Amherst.

Quantum Information Theory, **Christopher K. King**, Northeastern University, and **Mary Beth Ruskai**, University of Massachusetts, Lowell.

Quivers and Their Generalizations, **Alex Martsinkovsky**, **Gordana G. Todorov**, **Jerzy M. Weyman**, and **Andrei V. Zelevinsky**, Northeastern University.

Recent Developments in the Orbit Method for Real and p -adic Groups, **Donald R. King**, Northeastern University, and **Alfred G. Noel**, University of Massachusetts, Boston.

Singularities in Algebraic and Analytic Geometry, **Terence Gaffney** and **David B. Massey**, Northeastern University, and **Caroline Grant Melles**, U. S. Naval Academy.

The History of Mathematics, **Adrian C. Rice**, Randolph-Macon College, and **Amy E. Shell-Gellasch**, U. S. Military Academy.

The Mathematics of Water Waves, **Diane Henderson**, Pennsylvania State University, and **Gene Wayne**, Boston University.

Madison, Wisconsin

University of Wisconsin-Madison

October 12–13, 2002

Meeting #980

Central Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: August 2002

Program first available on AMS website: August 29, 2002

Program issue of electronic *Notices*: October 2002

Issue of *Abstracts*: Volume 23, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: Expired

Invited Addresses

Lawrence Ein, University of Illinois at Chicago, *Title to be announced.*

Eleny Ionel, University of Wisconsin, *Title to be announced.*

Mikhail Safonov, University of Minnesota, *Title to be announced.*

John Sullivan, University of Illinois, Urbana-Champaign, *Title to be announced.*

Special Sessions

Arithmetic Algebraic Geometry, **Ken Ono** and **Tonghai Yang**, University of Wisconsin-Madison.

Arrangements of Hyperplanes, **Daniel C. Cohen**, Louisiana State University, **Peter Orlik**, University of Wisconsin-

Madison, and **Anne Shepler**, University of California Santa Cruz.

Biological Computation and Learning in Intelligent Systems, **Shun-ichi Amari**, RIKEN, **Amir Assadi**, University of Wisconsin-Madison, and **Tomaso Poggio**, Massachusetts Institute of Technology.

Characters and Representations of Finite Groups, **Martin Isaacs**, University of Wisconsin, Madison, and **Mark Lewis**, Kent State University.

Combinatorics and Special Functions, **Richard Askey** and **Paul Terwilliger**, University of Wisconsin-Madison.

Dynamical Systems, **Sergey Bolotin** and **Paul Rabinowitz**, University of Wisconsin-Madison.

Effectiveness Questions in Model Theory, **Charles McCoy**, **Reed Solomon**, and **Patrick Speissegger**, University of Wisconsin-Madison.

Geometric Methods in Differential Equations, **Gloria Mari Beffa**, University of Wisconsin-Madison, and **Peter Olver**, University of Minnesota.

Geophysical Waves and Turbulence, **Paul Milewski**, **Leslie Smith**, and **Fabian Waleffe**, University of Wisconsin-Madison.

Group Cohomology and Homotopy Theory, **Alejandro Adem**, University of Wisconsin-Madison, and **Jesper Grodal**, Institute for Advanced Study.

Harmonic Analysis, **Alex Ionescu** and **Andreas Seeger**, University of Wisconsin-Madison.

Hyperbolic Differential Equations and Kinetic Theory, **Shi Jin**, **Marshall Slemrod**, and **Athanassios Tzavaras**, University of Wisconsin-Madison.

Lie Algebras and Related Topics, **Georgia Benkart** and **Arun Ram**, University of Wisconsin-Madison.

Lie Groups and Their Representations, **R. Michael Howe**, University of Wisconsin, Eau Claire, and **Gail D. Ratcliff**, University of Missouri, St. Louis.

Multiresolution Analysis and Data Presentation, **Amos Ron**, University of Wisconsin-Madison.

Optimal Geometry of Curves and Surfaces, **Jason H. Cantarella**, University of Georgia, and **John M. Sullivan**, University of Illinois, Urbana.

Partial Differential Equations and Geometry, **Sigurd Angenent** and **Mikhail Feldman**, University of Wisconsin-Madison.

Probability, **David Griffeath** and **Timo Seppalainen**, University of Wisconsin-Madison.

Ring Theory and Related Topics, **Don Passman**, University of Wisconsin-Madison.

Several Complex Variables, **Pat Ahern**, **Xianghong Gong**, **Alex Nagel**, and **Jean-Pierre Rosay**, University of Wisconsin-Madison.

Salt Lake City, Utah

University of Utah

October 26–27, 2002

Meeting #981

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: September 2002

Program first available on AMS website: September 16, 2002

Program issue of electronic *Notices*: October 2002

Issue of *Abstracts*: Volume 23, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: Expired

Invited Addresses

Yakov Eliashberg, Stanford University, *Comparing symplectic and contact topologies*.

Hart F. Smith, University of Washington, *The wave equation and harmonic analysis*.

Michael Ward, University of British Columbia, *The dynamics and stability of localized patterns for a reaction-diffusion system*.

Amie Wilkinson, Northwestern University, *Partially hyperbolic dynamics on 3-manifolds*.

Special Sessions

Analytic Number Theory, **Roger Baker**, **Xian-Jin Li**, and **Andrew D. Pollington**, Brigham Young University.

Area-Minimization and Minimal Surfaces, **Michael Dorff**, **Denise Halverson**, and **Gary R. Lowler**, Brigham Young University.

Geometry and Topology, **Mladen Bestvina**, **Michael Kapovich**, and **Grigory Mikhalkin**, University of Utah.

Nonlinear Elliptic Partial Differential Equations, **David A. Hartenstine**, University of Utah, and **Jon T. Jacobsen**, Harvey Mudd College.

Numerical Solutions of Modeling Problems, **Sun Chow**, Brigham Young University, and **Joseph V. Koebbe**, Utah State University.

Recent Trends in Algebraic Geometry, **Aaron J. Bertram**, University of Utah, and **Christopher Derek Hacon**, University of California Riverside.

Representation Theory of Semisimple Lie Groups, **Dragan Milicic** and **Peter Trapa**, University of Utah.

Time Series, Heavy Tails, and Applications, **Davar Khoshnevisan**, University of Utah, and **Piotr Kokozska**, Utah State University.

Orlando, Florida

University of Central Florida

November 9–10, 2002

Meeting #982

Southeastern Section

Associate secretary: John L. Bryant

Announcement issue of *Notices*: September 2002

Program first available on AMS website: September 26, 2002

Program issue of electronic *Notices*: November 2002

Issue of *Abstracts*: Volume 23, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: September 17, 2002

Invited Addresses

Steven J. Cox, Rice University, *Decoding the dance of your dendritic spines*.

James Haglund, University of Pennsylvania, *The q, t -Catalan numbers and the space of diagonal harmonics*.

Marius Mitrea, University of Missouri-Columbia, *Elliptic and parabolic boundary problems in Sobolev-Besov spaces on nonsmooth domains*.

Ricardo H. Nochetto, University of Maryland, College Park, *Title to be announced*.

Special Sessions

Algebraic and Enumerative Combinatorics (Code: AMS SS A1), **James Haglund**, University of Pennsylvania, and **Jeff B. Remmel**, University of California San Diego.

Asymptotics of Integrable Partial Differential Equations, Riemann-Hilbert Problem and Related Topics (Code: AMS SS M1), **Ken T. R. McLaughlin**, University of North Carolina at Chapel Hill and University of Arizona, and **Alexander Tovbis**, University of Central Florida.

Commutative Algebra (Code: AMS SS B1), **Heath M. Martin**, University of Central Florida, and **Stephanie A. Fitchett**, Florida Atlantic University.

Computational Mathematics (Code: AMS SS C1), **Ricardo H. Nochetto**, University of Maryland, and **Bernardo Cockburn**, University of Minnesota.

Computational Methods in Analysis (Code: AMS SS P1), **George A. Anastassiou**, University of Memphis.

Financial Mathematics (Code: AMS SS D1), **Craig A. Nolder** and **Alec N. Kercheval**, Florida State University.

Function Spaces, Singular Integrals and Applications to PDEs (Code: AMS SS N1), **Marius Mitrea** and **Dorina Mitrea**, University of Missouri-Columbia.

Functional and Harmonic Analysis of Wavelets, Frames and their Applications (Code: AMS SS E1), **Deguang Han**,

University of Central Florida, and **Manos I. Papadakis**, University of Houston.

Graph Theory (Code: AMS SS F1), **Robert C. Brigham**, University of Central Florida, **Cun-Quan Zhang**, West Virginia University, and **Yue Zhao**, University of Central Florida.

Homotopy Theory and Geometric Topology (Code: AMS SS J1), **Alexander N. Dranishnikov**, **James E. Keesling**, and **Yuli B. Rudyak**, University of Florida.

Invariants of Knots and Low-Dimensional Manifolds (Code: AMS SS H1), **J. Scott Carter**, University of South Alabama, and **Masahico Saito**, University of South Florida.

Mathematical Neuroscience (Code: AMS SS G1), **Steve J. Cox**, Rice University, and **Richard Bertram**, Florida State University.

Nonlinear Waves (Code: AMS SS L1), **Min Chen**, Purdue University, and **Roy Choudhury** and **David J. Kaup**, University of Central Florida.

The Likelihood Inferences in Statistics (Code: AMS SS K1), **Jian-Jian Ren**, University of Central Florida.

Baltimore, Maryland

Baltimore Convention Center

January 15–18, 2003

Meeting #983

Joint Mathematics Meetings, including the 109th Annual Meeting of the AMS, 86th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), the winter meeting of the Association for Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: October 2002

Program first available on AMS website: November 1, 2002

Program issue of electronic *Notices*: January 2003

Issue of *Abstracts*: Volume 24, Issue 1

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: October 1, 2002

For summaries of papers to MAA organizers: September 10, 2002

Joint Invited Addresses

Noam D. Elkies, Harvard University, *Some novel uses of lattice reduction*, Friday, 11:10 a.m. (AMS-MAA Invited Address).

Edward R. Scheinerman, Johns Hopkins University, *Discrete mathematics and mechanical engineering*, Wednesday, 11:10 a.m. (AMS-MAA Invited Address).

AMS Committee on Science Policy-MAA Science Policy Committee Government Speaker, Friday, 4:20 p.m. Speaker to be announced.

Joint Special Sessions

Computability and Models (Code: AMS SS T1), **Douglas Cenzer**, University of Florida, and **Valentina S. Harizanov**, The George Washington University (AMS-ASL); Wednesday and Thursday mornings and Wednesday afternoon.

Dynamical Systems and Oceanography (Code: AMS SS H1), **Reza Malek-Madani** and **Peter A. McCoy**, U.S. Naval Academy (AMS-SIAM); Wednesday and Thursday mornings and afternoons.

Interactions Between Logic, Group Theory and Computer Science (Code: AMS SS Q1), **Alexandre V. Borovik**, UMIST, and **Alexei Myasnikov**, City College of CUNY (AMS-ASL); Wednesday and Thursday mornings and Wednesday afternoon.

Mathematics and Education Reform (Code: AMS SS N1), **Naomi Fisher**, University of Illinois at Chicago, **William H. Barker**, Bowdoin College, **Jerry L. Bona**, University of Illinois at Chicago, and **Kenneth C. Millett**, University of California Santa Barbara (AMS-MAA-MER); Wednesday and Thursday mornings and afternoons.

Research in Mathematics by Undergraduates (Code: AMS SS P1), **Darren A. Narayan**, **Carl V. Lutzer**, and **Tamara A. Burton**, Rochester Institute of Technology (AMS-MAA-SIAM); Friday and Saturday mornings and afternoons.

The History of Mathematics (Code: AMS SS S1), **Joseph W. Dauben**, Lehman College, and **David E. Zitarella**, Temple University (AMS-MAA); Friday and Saturday mornings and afternoons.

Other Joint Sessions

Implementing Preparation and Development Programs for College Mathematics Instructors, Wednesday, 2:00 p.m.–4:00 p.m., organized by **Teri J. Murphy**, University of Oklahoma, and **Natasha Speer**, Michigan State University. An increasing number of institutions have experience with designing and implementing professional development opportunities for instructors. In an effort to learn from each other's efforts, during this session audience members will be able to discuss their experiences, ideas, and goals with contributors and with each other. This poster session will begin with opening remarks by the organizers, followed by time for participants to view the posters and engage in discussion with the individual presenters. The session will conclude with a whole-group discussion about issues and ideas generated by the posters. This session is intended for participants from a range of programs that target graduate teaching assistants, postdocs, adjuncts, and new faculty, at two-year as well as four-year colleges. Applications should be submitted to Teri Jo Murphy (tjmurphy@math.ou.edu) by December 10, 2002. The session is sponsored by AMS-MAA Joint Committee on Teaching Assistants and Part-Time Instructors.

Prize Session and Reception: In order to showcase the achievements of the recipients of various prizes, the AMS

and MAA are cosponsoring this event at 4:25 p.m. on Thursday. A cash bar reception will immediately follow. All participants are invited to attend. The AMS, MAA, and SIAM will award the Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student. The MAA prizes include the Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics, the Chauvenet Prize, the Beckenbach Book Prize, the Yueh-gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics, and Certificates of Meritorious Service. The AMS will announce the winners of the George David Birkhoff Prize in Applied Mathematics, Frank Nelson Cole Prize in Algebra, Levi L. Conant Prize, Ruth Lyttle Satter Prize in Mathematics, and the Leroy P. Steele Prizes. The AWM will present the Louise Hay Award for Contributions to Mathematics Education and the Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman.

109th Annual Meeting of the AMS

AMS Invited Addresses

Weinan E., Princeton University, *Title to be announced*, Thursday, 3:20 p.m.

David B. Mumford, Brown University, *The shape of objects in two and three dimensions: Mathematics meets computer vision* (AMS Josiah Willard Gibbs Lecture), Wednesday, 8:30 p.m.

Andrei Okounkov, University of California Berkeley, *Dimer model and geometry*, Thursday, 2:15 p.m.

Charles C. Pugh, University of California Berkeley, *Partial hyperbolicity*, Wednesday, 10:05 a.m.

Dana Randall, Georgia Institute of Technology, *Efficient algorithms for finding a random needle in a combinatorial haystack*, Friday, 9:00 a.m.

Peter Sarnak, Courant Institute and Princeton University, *Spectra of hyperbolic surfaces and applications* (AMS Colloquium Lectures), Wednesday, Thursday, and Friday, 1:00 p.m.

Vladimir Voevodsky, Institute for Advanced Study, *Motivic homotopy theory*, Friday, 10:05 a.m.

AMS Special Sessions

Advances in Spherical Designs and Codes (Code: AMS SS A1), **Béla Bajnok**, Gettysburg College, and **Neil J. A. Sloane**, AT&T Shannon Labs; Wednesday and Thursday mornings and afternoons.

Algebraic Topology Based on Knots (Code: AMS SS F1), **Mark E. Kidwell**, U.S. Naval Academy, and **Jozef H. Przytycki** and **Yongwu Rong**, The George Washington University; Friday and Saturday mornings and afternoons.

Algebras, Actions, and Algorithms (Code: AMS SS CC1), **Edward S. Letzter** and **Martin Lorenz**, Temple University; Wednesday and Thursday mornings and Wednesday afternoon.

Banach Space Theory and Convex Geometry (Code: AMS SS L1), **Teck-Cheong Lim**, Mason University, and **Mikhail Ostrovskii**, The Catholic University of America; Thursday and Friday afternoons and Friday morning.

C-Extensions and Classifications of C*-Algebras* (Code: AMS SS C1), **Shuang Zhang**, University of Cincinnati, and **Huaxin Lin**, University of Oregon; Friday and Saturday afternoons and Friday morning.

Computational Algebraic and Analytic Geometry for Low-Dimensional Varieties (Code: AMS SS G1), **Mika K. Sepälä**, Florida State University, and **Emil J. Volcheck**, Baltimore, Maryland; Thursday and Friday afternoons and Friday morning.

Discrete Dynamics and Difference Equations (Code: AMS SS D1), **Saber N. Elaydi**, Trinity University, and **Gerasimos Ladas**, University of Rhode Island; Friday and Saturday mornings and Saturday afternoon.

Discrete Models (Code: AMS SS K1), **Cris Moore**, University of New Mexico and Santa Fe Institute, and **Dana Randall**, Georgia Institute of Technology; Wednesday and Thursday mornings and afternoons.

Dynamics, Physics, and Probability: The Work of the 2002 Nemmers Prize Winner, Yakov Sinai (Code: AMS SS W1), **John M. Franks** and **Jeff Xia**, Northwestern University; Wednesday afternoon.

Highlights of Recent Workshops Held by the Board on Mathematical Sciences and their Applications (Code: AMS SS DD1), **David Eisenbud**, Mathematical Sciences Research Institute, and **Scott T. Weidman**, National Research Council; Thursday afternoon.

Homotopy Theory (Code: AMS SS E1), **Kristine Baxter Bauer**, **J. Michael Boardman**, **Nitu Kitchloo**, **Jean-Pierre Meyer**, **Jack Morava**, and **W. Stephen Wilson**, Johns Hopkins University; Friday and Saturday mornings and afternoons.

Inverse Problems and Sampling Theory in Signal Analysis (Code: AMS SS Z1), **M. Zuhair Nashed**, University of Delaware; Thursday and Friday afternoons and Thursday morning.

Mathematical Current Events: Expository Reports (Code: AMS SS Y1), **David Eisenbud**, Mathematical Sciences Research Institute; Friday morning.

Modular Forms, Elliptic Curves, and Related Topics (Code: AMS SS J1), **Cristina M. Ballantine** and **Sharon M. Frechette**, College of the Holy Cross, and **Holly J. Rosson**, St. Mary's College of Maryland; Thursday afternoon and Friday and Saturday mornings.

Nonstandard Models of Arithmetic and Set Theory (Code: AMS SS X1), **Ali Enayat**, American University, and **Roman Kossak**, CUNY Graduate Center; Wednesday and Thursday afternoons and Wednesday morning.

Operator Algebras, Quantization, and Noncommutative Geometry: A Centennial Celebration in Honor of J. V. Neumann and M. H. Stone (Code: AMS SS U1), **Robert S. Doran**, Texas Christian University, and **Richard V. Kadison**,

University of Pennsylvania; Wednesday and Thursday mornings and afternoons.

Primes and Knots (Code: AMS SS R1), **Jack Morava**, Johns Hopkins University, **Stavros Garoufalidis**, Georgia Institute of Technology, and **Masanori Morishita**, Kanazawa University; Wednesday and Thursday mornings and afternoons.

Quantum Computation and Information: Mathematical Challenges (Code: AMS SS EE1), **Samuel J. Lomonaco, Jr.**, University of Maryland Baltimore County, **Howard E. Brandt**, Army Research Laboratory, and **Louis H. Kauffman**, University of Illinois at Chicago; Wednesday and Thursday mornings and afternoons.

Recent Advances in Riemannian and Lorentzian Geometries (Code: AMS SS M1), **Krishan L. Duggal**, University of Windsor, and **Ramesh Sharma**, University of New Haven; Wednesday and Thursday mornings and Wednesday afternoon.

Special Functions and q -Series (Code: AMS SS V1), **Mourad E. H. Ismail**, University of South Florida; Wednesday and Thursday mornings and Wednesday afternoon.

Stochastic and Multiscale Problems in the Sciences (Code: AMS SS AA1), **Weinan E.**, Princeton University, **Shiyi Chen**, Johns Hopkins University, and **Eric Vanden-Eijnden**, New York University-Courant Institute; Friday and Saturday mornings and afternoons.

The Many Lives of Lattice Theory and the Theory of Ordered Sets, with Connections to Combinatorics (Code: AMS SS BB1), **Jonathan D. Farley**, University of Oxford, and **Stefan E. Schmidt** and **Alex J. Pogel**, New Mexico State University; Friday and Saturday afternoons and Saturday morning.

Wavelets, Frames and Operator Theory (Code: AMS SS B1), **Christopher Heil**, Georgia Institute of Technology, **Palle Jorgensen**, University of Iowa, and **David Larson**, Texas A&M University; Friday and Saturday mornings and afternoons.

AMS Contributed Papers

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 should be submitted electronically. Send a blank message to `abs-submit@ams.org` and type `help` as the subject to see your electronic options. See the beginning of this announcement for pertinent deadlines.

Other AMS Sessions

Committee on the Profession Presentation, Wednesday, 4:30 p.m.-6:00 p.m.

Committee on Science Policy Panel Discussion, Friday, 2:30 p.m.-4:00 p.m.

Who Wants to be a Mathematician?, Thursday, 10:00 a.m.-11:00 a.m., organized by **Michael A. Breen** and **Annette W. Emerson**, AMS, and **William T. Butterworth**, Barat College. Come watch ten of the Baltimore area's top high school students as they have the chance to compete for cash and prizes by answering questions about mathematics. There is no partial credit to agonize over, and the top prize is \$2,000. Contestants can ask for help from the audience, so the more people in the audience who know mathematics, the better it is for the contestants. You are invited to come and take part in this educational and fun presentation.

Committee on Education Panel Discussion, Saturday, 8:30 a.m.-10:00 a.m.

Other AMS Events

Council Meeting, Tuesday, 1:00 p.m.-6:00 p.m.

Business Meeting, Saturday, 11:45 a.m.-12:15 p.m. The secretary notes the following resolution of the Council: Each person who attends a business meeting of the Society shall be willing and able to identify himself as a member of the Society. In further explanation, it is noted that each person who is to vote at a meeting is thereby identifying himself as and claiming to be a member of the American Mathematical Society. The Society has a Committee on the Agenda for Business Meetings. The purpose is to make business meetings orderly and effective. The committee does not have legal or administrative power. It is intended that the committee consider what may be called "quasipolitical" motions. The committee has several possible courses of action on a proposed motion, including but not restricted to:

- (a) doing nothing,
- (b) conferring with supporters and opponents to arrive at a mutually accepted amended version to be circulated in advance of the meeting,
- (c) recommending and planning a format for debate to suggest to a business meeting,
- (d) recommending referral to a committee, and
- (e) recommending debate followed by referral to a committee.

There is no mechanism that requires automatic submission of a motion to the committee. However, if a motion has not been submitted through the committee, it may be thought reasonable by a business meeting to refer it rather than to act on it without benefit of the advice of the committee.

In order that a motion for this business meeting receive the service offered by the committee in the most effective manner, it should be in the hands of the secretary by December 16, 2002.

AMS Short Course

This two-day course on *Public-Key Cryptography* is organized by **Daniel B. Lieman**, University of Georgia, and takes place on Monday and Tuesday, January 13 and 14. Please see the complete description beginning on page 1162. Talks include *Public-key and symmetric-key cryptography*; *Cryptography in the real world today*; *Towards faster cryptosystems*; and *Attacks*. There are separate

registration fees to participate. See the fee schedule on the registration form at the back of this issue.

86th Annual Meeting of the MAA

MAA Invited Addresses

David H. Fowler, University of Warwick, *Some comments on early Greek mathematics*; Wednesday, 3:20 p.m.

Paul J. Sally Jr., University of Chicago, *Is teaching about mathematics the same as teaching mathematics?*; Saturday, 10:05 p.m.

Joseph H. Silverman, Brown University, *The ubiquity of elliptic curves*; Saturday, 9:00 a.m.

Richard A. Tapia, Rice University, *Some mathematical insights into car and bicycle racing*; Thursday, 10:05 a.m.

Robin Wilson, The Open University, *Four colors suffice: A history and proof of the four-color problem*; Wednesday, 2:15 p.m.

MAA Minicourses

Minicourses are open only to persons who register for the Joint Meetings and pay the Joint Meetings registration fee in addition to the appropriate minicourse fee. If the only reason for registering for the Joint Meetings is to gain admission to a minicourse, please make a notation on your registration form. If the minicourse is fully subscribed or cancelled, a full refund of the Joint Meetings advance registration fee (otherwise subject to the 50% rule) will be made. The MAA reserves the right to cancel any minicourse that is undersubscribed.

Minicourse #1: Teaching Introductory Statistics Using a Workshop Approach, organized by **James H. Albert**, Bowling Green State University; Part A: Wednesday, 9:00 a.m. to 11:00 a.m.; Part B: Friday, 9:00 a.m. to 11:00 a.m. This minicourse will help instructors teach introductory statistics conforming to recent ASA/MAA recommendations to emphasize statistical thinking with an increased emphasis on data and concepts and with fewer recipes. A workshop approach will be illustrated where students explore topics in data analysis, probability, and inference by means of directed activities in the classroom. Traditional and Bayesian methods will be compared from the viewpoint of communicating basic tenets of statistical inference. The use of Fathom and web-based software will be illustrated, and a student survey project will be described as a useful method of assessing the student's learning of statistics. No previous computer experience is necessary to attend this minicourse. Cost is \$90; enrollment limit is 30.

Minicourse #2: Java Applets in Teaching Mathematics, organized by **Joe Yanik**, Emporia State University, and **David M. Strong**, Pepperdine University; Part A: Wednesday, 2:15 p.m. to 4:15 p.m.; Part B: Friday, 1:00 p.m. to 3:00 p.m. This minicourse will introduce the participants to the Java Programming language and its use in creating mathematical activities. No previous experience in Java programming will be assumed. Through the use of a Visual Development Environment and a MathToolkit that was developed with the support of an NSF grant, this hands-on workshop will lead the participants through the creation

of some sample applets and introduce them to the MathToolkit. In addition they will be provided with a more complete tutorial that they can take home that will teach them the Java Programming language and its use in creating mathematical applets. Cost is \$90; enrollment limit is 30.

Minicourse #3: Optimization of Technology in the Geometry Classroom, organized by **Subhash C. Saxena**, Coastal Carolina University; Part A: Wednesday, 4:30 p.m. to 6:30 p.m.; Part B: Friday, 3:15 p.m. to 5:15 p.m. The latest version of "Dynamic Geometry Software" empowers us to teach a lot more geometry in an enhanced pedagogical environment, especially topics like affine transformations. This minicourse will provide hands-on experience to participants in the optimal use of technology in diverse college geometry classrooms. We will discuss plane isometries, dilations, affine transformations, equiareal transformations, inversions, and various custom tools; and time permitting, non-Euclidean models and fractals. An abbreviated guide will be available to participants. Cost is \$90; enrollment limit is 30.

Minicourse #4: Visual Linear Algebra, organized by **Eugene A. Herman**, Grinnell College; **Michael D. Pepe**, Seattle Central Community College; and **Eric P. Schulz**, Walla Walla Community College; Part A: Thursday, 8:00 a.m. to 10:00 a.m.; Part B: Saturday, 9:00 a.m. to 11:00 a.m. This minicourse will introduce participants to a new, visual approach to teaching linear algebra. The primary objective is to create a dynamic learning environment in which students are actively engaged in learning the central concepts of linear algebra. Course materials cover the entire first course in linear algebra; they stress the development of visualization skills to acquire strong geometric intuition. Participants will have the option of working with the materials in Maple, Mathematica, or webMathematica. Cost is \$90; enrollment limit is 30.

Minicourse #5: Using and Adapting Online Materials, organized by **David A. Smith** and **Lang Moore**, Duke University; **Douglas E. Ensley**, Shippensburg University; and **Franklin A. Wattenberg**, U. S. Military Academy; Part A: Thursday, 10:15 a.m. to 12:15 p.m.; Part B: Saturday, 1:00 p.m. to 3:00 p.m. The minicourse will begin with a short survey of useful mathematical sites, with emphasis on materials available in the Mathematical Sciences Digital Library (MathDL). This will be followed by a brief introduction/review of the basics of HTML. Then we will show how to use and adapt a new set of tools developed by MathDL to create short online learning activities. Cost is \$90; enrollment limit is 30.

Minicourse #6: WeBWorK, an Internet-Based System for Generating and Delivering Homework Problems to Students, organized by **Arnold K. Pizer**, **Michael E. Gage**, and **Vicki Roth**, University of Rochester; Part A: Thursday, 1:00 p.m. to 3:00 p.m.; Part B: Saturday, 3:15 p.m. to 5:15 p.m. This minicourse introduces participants to WeBWorK, a freely available web-based homework system that comes with an extensive library of problems. WeBWorK won the ICTCM Award for Excellence and Innovation with the Use of Technology in Collegiate Mathematics. Supported by grants from the NSF, WeBWorK has already been adopted

by many colleges and universities. Participants will actively participate in using WeBWorK and writing WeBWorK problems. Readers can learn more about WeBWorK by connecting to <http://www.math.rochester.edu/webwork>. Cost is \$90; enrollment limit is 30.

Minicourse #7: *The Mathematics of Presidential and Other Elections*, organized by **Steven J. Brams**, New York University; Part A: Wednesday, 9:00 a.m. to 11:00 a.m.; Part B: Friday, 9:00 a.m. to 11:00 a.m. This course will emphasize modeling presidential campaigns and elections and, more generally, the theoretical problems underlying voting and social choices. Topics will include modeling position-taking in two-candidate and multicandidate races, bandwagon and underdog effects in primaries, voting power in the Electoral College, and election reforms like approval voting. Cost is \$60; enrollment limit is 50.

Minicourse #8: *Mathematical Finance*, organized by **Walter R. Stromquist**; Part A: Wednesday, 2:15 p.m. to 4:15 p.m.; Part B: Friday, 1:00 p.m. to 3:00 p.m. We will examine market price statistics to test the validity of the "standard model" for stock prices (Geometric Brownian Motion). We will then cover two main ideas of modern finance: portfolio optimization and option valuation. Portfolio optimization means allocating a fixed investment fund among instruments (such as stocks) in order to maximize return and minimize risk. Option valuation includes the well-known Black-Scholes formula, and we will show how the technique is extended to oil field valuation. The presenter will draw on practical examples from the organizer's consulting experience. Cost is \$60; enrollment limit is 50.

Minicourse #9: *Fair Enough? Mathematics of Equity*, organized by **John C. Maceli** and **Stanley E. Seltzer**, Ithaca College; Part A: Wednesday, 4:30 p.m. to 6:30 p.m.; Part B: Friday, 3:15 p.m. to 5:15 p.m. Topics of fairness make terrific subject matter for a contemporary mathematics course. This minicourse introduces some fairness topics—apportionment, voting power, elections, fair allocation and equity, the Census—with the goals of helping participants learn about these topics, see and use activities that support a course in fairness, and prepare to teach such a course. We will provide sample activities, projects, and a list of resources, including original papers accessible to undergraduates. Active participation is expected. Cost is \$60; enrollment limit is 50.

Minicourse #10: *Turning a Nonscience or Developmental Course into a Capstone Mathematical Experience*, organized by **James T. Sandefur**, Georgetown University, and **Rosalie A. Dance**, University of the Virgin Islands; Part A: Thursday, 9:00 a.m. to 11:00 a.m.; Part B: Saturday, 9:00 a.m. to 11:00 a.m. Many college freshmen struggle with mathematics without realizing that the mathematics is either useful or important. In this minicourse, participants learn to introduce interesting applications with high algebraic content into precalculus and intermediate algebra courses and courses with titles like "Excursions in Mathematics". We will discuss how to 1) identify and revise appropriate investigations, 2) present investigations to students with a variety of needs, and 3) use technology appropriately. We will use investigations set in high interest contexts (e.g., protection of a local natural resource) or

issues of social importance (e.g., teenage binge drinking). Cost is \$60; enrollment limit is 50.

Minicourse #11: *Symmetry for All*, organized by **George Baloglou**, SUNY at Oswego; Part A: Thursday, 1:00 p.m. to 3:00 p.m.; Part B: Saturday, 1:00 p.m. to 3:00 p.m. We offer an elementary, strictly geometrical approach to wallpaper patterns. Two-colored patterns provide opportunities for both mathematical exploration and artistic creativity, while compositions of isometries are investigated in the context of multicolored tilings. This low-tech minicourse parallels a general education course developed at SUNY at Oswego over the last ten years. Participants will actually go through the group-work labs that introduce new topics in class and will receive additional materials sufficient for creating a similar course. Cost is \$60; enrollment limit is 50.

Minicourse #12: *Getting Students Involved in Undergraduate Research*, organized by **Aparna W. Higgins**, The University of Dayton, and **Joseph A. Gallian**, University of Minnesota, Duluth; Part A: Wednesday, 9:00 a.m. to 11:00 a.m.; Part B: Friday, 9:00 a.m. to 11:00 a.m. This course will cover many aspects of facilitating research by undergraduates, such as finding appropriate problems, deciding how much help to provide, and presenting and publishing the results. Examples will be presented of research in summer programs and research that can be conducted during the academic year. Although the examples used will be primarily in the area of discrete mathematics, the strategies discussed can be applied to any area of mathematics. Cost is \$60; enrollment limit is 50.

Minicourse #13: *Incorporating Discrete Mathematics in the Preparation of K-12 Mathematics Teachers*, organized by **Lolita Alvarez**, New Mexico State University; Part A: Wednesday, 2:15 p.m. to 4:15 p.m.; Part B: Friday, 1:00 p.m. to 3:00 p.m. More than a fixed set of topics, discrete mathematics is a way of thinking that deals with important and interesting problems in contemporary mathematics. We will start by picking up some simple situations from art, biology, computer science, social psychology, just to name a few. We will expose, at different levels of sophistication, the mathematics related to each situation. We will emphasize the interplay between mathematical content and methods of teaching and learning. Each course participant will receive a collection of materials, including an extensive list of resources. Cost is \$60; enrollment limit is 50.

Minicourse #14: *Teaching a Course in the History of Mathematics*, organized by **V. Frederick Rickey**, U. S. Military Academy, and **Victor J. Katz**, University of the District of Columbia; Part A: Wednesday, 4:30 p.m. to 6:30 p.m.; Part B: Friday, 4:30 p.m. to 6:30 p.m. Many schools are introducing courses in the history of mathematics and asking faculty who may never have taken such a course to teach them. This minicourse will assist those teaching history by introducing participants to numerous resources, discussing differing approaches and sample syllabi, providing suggestions for student projects and assessments, and giving those teaching such courses for the first time the confidence to master the subject themselves and to present the material to their students. Cost is \$60; enrollment limit is 50.

Minicourse #15: Real Fun Exploring Basic Mathematics, organized by **Shawnee L. McMurran** and **Robert G. Stein**, California State University, San Bernardino; Part A: Thursday, 9:00 a.m. to 11:00 a.m.; Part B: Saturday, 9:00 a.m. to 11:00 a.m. Intended for college instructors wishing to enhance math courses for preservice teachers, this course models teaching mathematical content using methods that carry over to schools. The course shows how to take discovery learning beyond isolated activities to build basic skills. Lessons, on topics central to the K-8 curriculum, are open-ended, encouraging deep involvement. Participants will get new ideas and establish mathematical connections that make for a rich experience. Cost is \$60; enrollment limit is 50.

Minicourse #16: Cwatsets: A Research Experience for Undergraduates, organized by **Gary J. Sherman**, Rose-Hulman Institute of Technology; Part A: Thursday, 1:00 p.m. to 3:00 p.m.; Part B: Saturday, 1:00 p.m. to 3:00 p.m. Cwatsets are group-like subsets of binary n -space with surprising algebraic and combinatorial properties whose applications range from statistics to graph theory. We will survey the evolving undergraduate-driven theory of cwatsets, present an extensive inventory of research questions suitable for undergraduates and their teachers, and discuss cwatsets as a capstone topic for a discrete mathematics or abstract algebra course. Participants will receive a packet of technical reports, papers, examples, and questions. See <http://www.rose-hulman.edu/~sherman/Cwatsets> for more details. Cost is \$60; enrollment limit is 50.

MAA Contributed Paper Sessions

See the complete descriptions and instructions on how to participate in these sessions beginning on page 22 in the May/June issue of *FOCUS* or at http://www.ams.org/amsmtg/2074_maacontrib.html. Please note that the days and times listed are tentative.

Innovative Uses of the World Wide Web in Teaching Mathematics (MAA CP A1), Wednesday morning and Thursday afternoon. **Brian E. Smith**, McGill University; **Marcelle Bessman**, Jacksonville University; **Marcia P. Birken**, Rochester Institute of Technology; **Thomas E. Leathrum**, Jacksonville State University; **David M. Strong**, Pepperdine University; and **Joe Yanik**, Emporia State University.

Classroom Demonstrations and Course Projects That Make a Difference (MAA CP B1), Wednesday morning and Thursday afternoon. **David R. Hill**, Temple University; **Sarah L. Mabrouk**, Framingham State College; and **Lila F. Roberts**, Georgia Southern University.

The History of Mathematics in the Americas (MAA CP C1), Wednesday morning. **Amy E. Shell-Gellasch**, U. S. Military Academy; and **Daniel E. Otero**, Xavier University.

Getting Students to Discuss and to Write about Mathematics (MAA CP D1), Wednesday afternoon. **Sarah L. Mabrouk**, Framingham State College.

Quantitative Literacy in Practice: What Is It and What Works? (MAA CP E1), Wednesday afternoon. **Richard A. Gillman**, Valparaiso University.

Environmental Mathematics in the Classroom (MAA CP F1), Wednesday afternoon. **Karen D. Bolinger**, Clarion University, and **Ben Fusaro**, Florida State University.

Incorporating History of Mathematics in the Mathematics Classroom (MAA CP G1), Thursday morning. **Victor J. Katz**, University of the District of Columbia; **Edith Prentice Mendez**, Sonoma State University; and **Eisso J. Atzema**, University of Maine.

Helping Students Give Effective Mathematics Presentations (MAA CP H1), Thursday morning. **Suzanne Dorée**, Augsburg College, and **Thomas Linton**, Central College.

Mathematics Experiences in Business, Industry, and Government (MAA CP I1), Thursday morning. **Philip E. Gustafson**, Mesa State College.

Applications of Abstract Algebra (MAA CP J1), Thursday morning. **Robert E. Lewand**, Goucher College; and **George Mackiw**, Loyola College, Maryland.

The Special Interest Group of the MAA on Research in Undergraduate Mathematics Education (MAA CP K1), Friday and Saturday mornings. **James F. Cottrill**, Illinois State University, and **Anne E. Brown**, Indiana University South Bend.

Best Statistics Projects/Activities (MAA CP L1), Friday and Saturday mornings. **Carolyn K. Cuff**, Westminster College, and **Mary M. Sullivan**, Rhode Island College.

Rethinking the Courses Below Calculus (MAA CP M1), Friday and Saturday mornings. **Mary Robinson**, University of New Mexico, Valencia Campus; **Sheldon P. Gordon**, SUNY at Farmingdale; **Florence S. Gordon**, New York Institute of Technology; and **Arlene H. Kleinstein**, SUNY at Farmingdale.

Assessment of Student Learning: Models and Methodology (MAA CP N1), Friday and Saturday mornings. **Jay A. Malmstrom**, Oklahoma City Community College; **Linda Martin**, Albuquerque-TVI; and **Mercedes A. McGowen**, William Rainey Harper College.

Initiating and Sustaining Undergraduate Research Projects and Programs (MAA CP O1), Thursday afternoon. **James A. Davis**, University of Richmond; **Suzanne M. Lenhart**, University of Tennessee; and **Daniel J. Schaal**, South Dakota State University.

Encouraging Underrepresented Groups of Students in Math Contests (MAA CP P1), Friday afternoon. **Harold B. Reiter**, University of North Carolina Charlotte; **Ruth G. Favro**, Lawrence Technological University; **David M. Wells**, Pennsylvania State University; **Susan Schwartz Wildstrom**, Walt Whitman High School; and **Jeff J. Dodd**, Jacksonville State University.

Strategies for Increasing the Diversity of Students in Mathematics (MAA CP Q1), Friday morning. **Marjorie Enneking**, Portland State University; **Wade Ellis**, West Valley College; **William Hawkins**, SUMMA; **Robert E. Megginson**, University of Michigan; **Kenneth C. Millett**, University of California, Santa Barbara; and **William Y. Velez**, University of Arizona.

Mathematical Modeling in and out of the Classroom (MAA CP R1), Friday afternoon. **Brian J. Winkel**, U. S. Military Academy; **Tanya L. Leise**, Rose-Hulman Institute of Technology; and **Amy E. Radunskaya**, Pomona College.

Philosophy of Mathematics (MAA CP S1), Friday afternoon. **Bonnie Gold**, Monmouth University.

Integrating Undergraduate Research with the Mathematics Curriculum (MAA CP T1), Friday afternoon. **David**

Brown and Osman Yurekli, Ithaca College.

Courses and Projects Addressing the Shortage of K-12 Teachers (MAA CP U1), Saturday afternoon. **Harel Barzilai**, Salisbury University; **Maria G. Fung**, Western Oregon University; and **Jay M. Jahangiri**, Kent State University.

Creative Visualization Labs (MAA CP V1), Saturday afternoon. **Sarah J. Greenwald**, Appalachian State University; **Catherine A. Gorini**, Maharishi University of Management; and **Mary L. Platt**, Salem State College.

Linking Mathematics with Other Disciplines (MAA CP W1), Saturday afternoon. **Stephanie A. Fitchett** and **Blake Mellor**, Honors College, Florida Atlantic University; and **Gavin P. LaRose**, University of Michigan.

Mathematical Connections in Art, Music, and Science (MAA CP X1), Saturday afternoon. **John M. Sullivan**, University of Illinois at Urbana-Champaign; **Douglas E. Norton**, Villanova University; and **Reza Sarhangi**, Towson University.

Computation Mathematics in Linear Algebra and Differential Equations (MAA CP Y1), Saturday afternoon. **Richard J. Marchand**, SUNY at Fredonia; **Elias Deebe**, University of Houston-Downtown; and **Timothy J. McDevitt**, Millersville University.

General Contributed Paper Session (MAA CP Z1), Wednesday, Thursday, Friday, and Saturday mornings. **Michael A. Jones**, Montclair State University; **Jill Dietz**, St. Olaf College; **Steven M. Hetzler**, Salisbury University; and **Shawnee L. McMurrin**, California State University at San Bernardino.

Other MAA Sessions

Reflections on the Conference to Improve College Algebra, Wednesday, 9:00 a.m.–10:20 a.m., organized by **Donald B. Small**, U.S. Military Academy. Traditional college algebra is not working. That was the strong consensus of the participants in the National Conference to Improve College Algebra held at the U.S. Military Academy. This conclusion was based on the high FDW rates, outdated curriculum, small percentage of students who eventually take Calculus I, and the negative impact these courses have on student perceptions of mathematics. In order to make college algebra work, the participants recommended refocusing the courses on the needs of other disciplines, society, and the workplace. In particular, they recommended revising college algebra courses to be real-world problem-based and to include modeling with power and exponential functions, systems of equations, graphing, and difference equations. They also strongly emphasized communication skills, small group projects, and appropriate use of technology to enhance conceptual understanding, visualization, and inquiry as well as computation. Panelists include **John C. Maceli**, Ithaca College; **Philip H. Mahler**, Middlesex Community College; **Alexander H. Fluellen**, Clark Atlanta University; and **Norma M. Agras**, Miami-Dade Community College. The panel will be moderated by **Bernard L. Madison**, University of Arkansas, and is sponsored by the MAA CUPM Subcommittee on Curriculum Reform Across the First Two Years (CRAFTY).

The Impact of Technology in Calculus Courses on Long-Term Student Performance and Employment, Wednesday, 2:15 p.m.–3:35 p.m., organized by **Susan L. Ganter**, Clemson University, and **Jack Bookman**, Duke University. More than

ten years after the funding of the first NSF calculus reform projects, there is very little consensus about the degree to which these efforts, and particularly technology, have succeeded in improving the postcalculus achievement of the participating students. This panel will address this issue by discussing a multi-institutional project that is collecting data for the purpose of: (1) comparing the performance of reform and traditional calculus students in courses beyond calculus; (2) examining students prior to graduation from college to determine these students' fundamental notions of calculus; (3) determining the extent to which potential employers value the ideals supported by calculus reform efforts; and, (4) training a group of on-site evaluators capable of developing and sustaining a viable evaluation plan on multiple campuses beyond this project. Panelists include **Betsy Darken**, University of Tennessee at Chattanooga; **Elton Graves**, Rose-Hulman Institute of Technology; **Glenn W. Ledder**, University of Nebraska; **Howard L. Penn**, U.S. Naval Academy; and **Debra L. Wood**, University of Arizona. The panel is sponsored by the MAA Committee on the Undergraduate Program in Mathematics (CUPM) and the MAA CUPM Subcommittee on Curriculum Reform Across the First Two Years (CRAFTY).

An Overview of Interviews, Wednesday, 2:15 p.m.–3:35 p.m., organized by **Dov N. Chelst**, DeVry College of Technology, and **John A. Vano**, University of Wisconsin. This will be a useful session for those going through the Employment Center for the first time.

Expanding Your Research Horizons, Wednesday, 3:30 p.m.–5:00 p.m., organized by **Jennifer Hontz**, Meredith College, and **Philip K. Hotchkiss**, Westfield State College. Changing research agendas can be a daunting task. How do you enter into a new field of research? What strategies might be useful for learning about a new field? The panelists will offer their experience and expertise on how one might successfully change research agendas. These speakers include active mathematicians who are working in different research areas as well as representatives from DIMACS and MSRI. This session was organized by the 1994–98 Project NEXT Fellows to address issues of concern to faculty who have four to ten years of teaching experience. Panelists include **John W. Emert**, Ball State University; **Rochelle Leibowitz**, DIMACS; and **Neil Portnoy**, California State University, Chico. Sponsored by MAA Project NEXT.

Doctorates in Mathematics Education: Why the Shortage? Where Do They Go? What Do They Do?, Wednesday, 3:45 p.m.–4:45 p.m., organized by **Robert E. Reys**, University of Missouri-Columbia, and **Robert Glasgow**, Southwest Baptist University. There is an acute shortage of doctorates in mathematics education. One of the reasons is that people completing doctorates in mathematics education pursue many different career options. Some of these options and career directions taken by recent graduates will be presented. Time will be allowed for interaction with participants attending the session.

Small Group Projects in College Algebra, Wednesday, 3:45–5:05 p.m., organized by **Donald B. Small**, U.S. Military Academy. The movement to improve college algebra has focused on revising both content and pedagogy to address the needs of other disciplines, society, and the workplace.

The issue of incorporating small group projects is central to revising college algebra courses. Faculty in partner disciplines as well as employers look to mathematics to provide students with experience working in small groups. Assessment, time involvement, faculty development, and objectives are some of the issues that will be discussed. Panelists include **Laurette B. Foster**, Prairie View A&M University; **Richard D. West**, Francis Marion College; **Paul Dirks**, Miami-Dade Community College; and **Regina D. Aragon**, Eastern New Mexico University. The session will be moderated by **Kathleen Snook**, U.S. Military Academy and COMAP, and is sponsored by the MAA CUPM Subcommittee on Curriculum Reform Across the First Two Years (CRAFTY).

A Workshop on Student Writing: A Hands-on Approach, Wednesday, 4:30 p.m.–6:30 p.m., organized by **Mary Ellen Foley**, Louisiana State University in Shreveport; **Kirk E. Weller**, Bethel College; **Douglas Kurtz**, New Mexico State University; and **Ahmed I. Zayed**, DePaul University. This session will introduce and elaborate on the main points of employing writing assignments in mathematics classes. These points include creating appropriate assignments, effectively communicating instructors' expectations, and assessing students' work. The audience will have an opportunity to practice these ideas with sample assignments and student papers. The session is sponsored by the MAA Committee on the Teaching of Undergraduate Mathematics (CTUM).

Truth in Using the History of Mathematics in Teaching Mathematics, Wednesday, 5:15–6:45 p.m., organized by **Victor J. Katz**, University of the District of Columbia, and **Eisso J. Atzema**, University of Maine. The history of mathematics has long been accepted as a scholarly activity for its own sake. Increasingly, historical research is called upon by a wide variety of professionals within the mathematical community to serve a broad range of agendas. This panel aims to assess this development by opening up a dialogue between the history of mathematics community and the users of history. Questions to be discussed include, but are not limited to, the following: What resources in history do the users of history of mathematics use and why? Specifically, what is the attraction of myth and legend for those who use history? Is it reasonable to expect that all users use state-of-the-art research in history? Should the history of mathematics community be more accommodating toward the users of history of mathematics? What should the role of myth and legend be in the community's own teaching of the history of mathematics? Panelists include **Joseph W. Dauben**, City University of New York; **Fernando Q. Gouvêa**, Colby College; and **Anthony V. Piccolino**, Montclair State University. The session is sponsored by the MAA History of Mathematics SIGMAA.

Writing and Publishing Expository Articles about Mathematics, Thursday, 8:30 a.m.–10:00 a.m., organized by **T. Christine Stevens**, St. Louis University; **Joseph A. Gallian**, University of Minnesota Duluth; and **Aparna W. Higgins**, University of Dayton. The panelists will provide advice about writing and publishing expository articles in mathematics. They will discuss how to identify suitable topics, how to organize and write such articles, and how to choose a suitable journal. The panelists include experienced authors of

expository articles and current or former editors of MAA or AMS publications. Panelists include **Edward G. Dunne**, AMS; **Deanna B. Haunsperger**, Carleton College; **Martha J. Siegel**, Towson University; and **Francis E. Su**, Harvey Mudd College.

Undergraduate Programs and Courses in the Mathematical Sciences: A CUPM Curriculum Guide, Thursday, 9:00 a.m.–10:20 a.m., organized by **Harriet S. Pollatsek**, Mount Holyoke College, and **Susanna S. Epp**, DePaul University. The MAA Committee on the Undergraduate Program in Mathematics (CUPM) periodically reviews its curricular recommendations for college and university departments and revises them as needed to fit new circumstances. "Undergraduate Programs and Courses in the Mathematical Sciences: A CUPM Curriculum Guide" will appear in the fall of 2003; it will be the first guide explicitly to address the needs of nonmajors as well as majors. Panelists will describe the latest draft of the Curriculum Guide, and there will be an opportunity for comments and questions from the audience. The chief writer of this draft is Barry Cipra, working under the direction of CUPM. This draft is also informed by the Curriculum Foundations Project of CRAFTY, as well as work on the first college course, on quantitative literacy, and on the mathematical preparation of teachers. After revisions prompted by MathFest 2002 discussion, a near-final draft Curriculum Guide will circulate widely in 2002–2003, with a final version slated for publication in fall 2003. CUPM and the MAA acknowledge funding from the NSF and the CCHE in support of the writing, production and distribution of the new Curriculum Guide. Consult <http://www.maa.org/news/cupm.html> for past interim reports and drafts, as well as the most recent version. Panelists include **Susan L. Ganter**, Clemson University; **William E. Haver**, Virginia Commonwealth University; **Harriet S. Pollatsek**, and **Susanna S. Epp**. The session is sponsored by the MAA Committee on the Undergraduate Program in Mathematics (CUPM).

Sample Mathematics Lessons Integrating Environmental Issues, Thursday, 9:00 a.m.–10:20 a.m., organized by **Patricia Clark Kenschaft**, Montclair State University. Three authors of mathematics texts that integrate environmental issues into their writing will present sample lessons from their creative work. These lessons will illustrate how mathematics can be taught more effectively by also, at the same time, exploring environmental challenges that can be better understood and remedied by using mathematics. Panelists include **Greg A. Langkamp**, Quantitative Environmental Learning Project and Seattle Central Community College; **Martin E. Walter**, University of Colorado at Boulder; and **Nancy E. Zumoff**, Kennesaw State University. The session is sponsored by the MAA Committee on Mathematics and the Environment.

NSF Funding Opportunities for Learning and Teaching in the Mathematical Sciences, Thursday, 9:00 a.m.–10:20 a.m., organized by **Elizabeth J. Teles** and **Lee L. Zia**, NSF/Division of Undergraduate Education; and **James H. Lightbourne**, NSF/Division of Graduate Education. The NSF Division of Undergraduate Education and sister NSF divisions offer a variety of grant programs to support innovations in learning and teaching in the mathematical sciences. These programs will be discussed along with examples of successful projects. In addition, anticipated budget

highlights and other new initiatives for the next fiscal year will be presented.

First College-Level Mathematics Courses, Thursday, 9:00 a.m.–11:00 a.m., organized by **Donald B. Small**, U.S. Military Academy; **Sarah Bush**, Wiley College; and **Dorothy Hunter**, Huston-Tillotson College. The majority of students enrolled in mathematics are enrolled in “first year” courses: algebra, college algebra, college algebra and trig, elementary statistics, finite mathematics, liberal arts mathematics, elementary modeling, precalculus, etc. There is a growing movement to refocus these courses on the needs of partner disciplines, society, and the workplace. Problem solving (in the modeling sense), appropriate use of technology, small group projects, real-world problems, elementary data analysis, development of communication skills, and student-centered pedagogy characterize these new approaches to first year courses. Several of these new approaches will be displayed at this poster session. Applications should be submitted to Don Small don-smal1@usma.edu by December 10, 2002. The session is sponsored by the MAA Committee on the Undergraduate program in Mathematics (CUPM).

How Can Placement Testing Be Improved?, Thursday, 10:45 a.m.–12:05: pm, organized by **Susan L. Forman**, Bronx Community College (CUNY), and **Bernard L. Madison**, University of Arkansas. Criticism of college placement tests has increased significantly in recent years, focusing mostly on the lack of alignment with curricula and pedagogy of school mathematics. Some of this criticism is based in differences between what students learn in school mathematics and what mathematical knowledge and skills are necessary for success in first college mathematics courses. Other criticism is rooted in differing visions of what students should know and be able to do. Beyond these tensions lie differences in the backgrounds of entering students; for example, some come directly from high school and others have been away from school and college for several years. Panelists from high schools, two-year colleges, and four-year colleges will discuss these criticisms and ways to make college mathematics placement tests better understood and more effective. Panelists include **Judy E. Ackerman**, Montgomery College, AMATYC President Elect; **Judy Marwick**, Morton College; **Johnny W. Lott**, University of Montana, NCTM President Elect; **Susan L. Forman**, and **Bernard L. Madison**.

The Nature of Mathematics Knowledge and Knowledge of Mathematics Learning Needed by Secondary School Mathematics Teachers in an Era of Technology and Reform-oriented Curricula, Thursday, 10:45 a.m.–12:05 p.m., organized by **M. Kathleen Heid**, The Pennsylvania State University. The CBMS MET Report along with recent research and surveys have pointed out the need to know more about what mathematics high school teachers need to function effectively with reform-oriented curricula. Several projects are underway creating materials that address these needs. One such project is centered at Berkeley and the University of Chicago on creating materials that examine problems, concepts, and results of high school mathematics in depth and from a more advanced point of view. The Mid-Atlantic Center for Mathematics Teaching and Learning is investigating and developing ways to deepen understandings

that prospective and practicing high school mathematics teachers have of the mathematics featured in emerging high school mathematics curricula. Making Mathematical Connections in Programs for Prospective Teachers at the University of New Hampshire is providing prospective teachers the opportunity to make connections between prior knowledge and future tasks and to enable them to construct new mathematical and pedagogical knowledge. Panelists include **Karen J. Graham**, University of New Hampshire; **Walter Seaman**, University of Iowa; **Richard J. Stanley**, University of California Berkeley; **Zalman P. Usiskin**, University of Chicago; **Skip Wilson**, Virginia Polytechnic Institute and State University; **James T. Fey**, University of Maryland; and **M. Kathleen Heid**. The session is sponsored by the MAA Committee on the Mathematical Education of Teachers (COMET).

Keeping the Platters Spinning: Effective Time Management, Thursday, 10:45 a.m.–12:05 p.m., organized by **Karolyne Fogel**, California Lutheran University, and **J. Lyn Miller**, Slippery Rock University. You have got papers to grade, three classes to prepare, the committee needs your feedback on the proposal, and you wanted to submit your new result to a journal. Meanwhile five students are knocking on your door for help. Sometimes it just seems like there are not enough hours in the day. This panel discussion will focus on ways to negotiate the maze of teaching, service, and research to become successful, competent, and remain sane. The session is cosponsored by Project NEXt and the Young Mathematicians' Network.

How to Assess a Mathematics Program, Thursday, 1:00 p.m.–2:30 p.m., organized by **Mary D. Shepherd**, Northwest Missouri State University. Many universities/colleges and, thus, individual departments are faced with the prospect of implementing assessment plans to assess student learning and really do not know where to start. In the undergraduate mathematics community for the past ten years local, regional, and national efforts have been underway to assist faculty in developing assessment programs to assess student learning and to improve the undergraduate major (outcomes assessment). All the panelists have been involved with assessment at some level and will discuss a number of the ongoing initiatives, provide a few ideas as to what makes for a good assessment program, and describe some of their own experiences. This session was organized by the 1994–98 Project NEXt Fellows to address issues of concern to faculty who have four to ten years of teaching experience. Panelists include **Michael Button**, The Master's College; **Bernard L. Madison**, University of Arkansas; **William A. Marion Jr.**, Valparaiso University; **William Martin**, North Dakota State University; and **Barbara M. Moskal**, Colorado School of Mines. Sponsored by MAA Project NEXt.

Integrating Calculus, Precalculus, and Algebra, Thursday, 1:00 p.m.–2:20 p.m., organized by **Laura A. Taalman**, James Madison University. Many students enter college with insufficient algebra and precalculus backgrounds to succeed in college calculus, regardless of whether or not they have had a high school calculus course. These students are unlikely to enroll in precalculus courses in college if they have already taken calculus, and those that do take a precalculus course to prepare for calculus are often unsuccessful in making the jump between the two courses.

One solution is to offer a two-semester course that combines first-semester calculus with precalculus and algebra material. Such combined, or “integrated”, courses are currently being offered or developed at many institutions around the country. Integrated calculus courses can be effective in a “traditional” or a “reform” setting, as well as for lower-level “business” calculus and upper-level “majors” calculus courses. This session brings together a diverse group of people who have developed (or are planning to develop) integrated or combined calculus courses. Panelists include **Nancy Baxter Hastings**, Dickinson College; **Robert P. Hostetler**, Pennsylvania State University Erie, The Behrend College; **Dennis C. Ebersole**, Northampton Community College; **Robin J. Gottlieb**, Harvard University; **Jack Bookman**, Duke University; and **Laura A. Taalman**.

Successful Strategies for Implementing a Texas-Style (Modified Moore Method) Course, Thursday, 1:00 p.m.–2:20 p.m., organized by **W. Ted Mahavier**, Lamar University, and **James P. Ochoa**, Hardin-Simmons University. Panelists will discuss the mechanics of implementing a Texas-style (Moore method) mathematics course. Topics will include gaining administrative support, developing materials, class goals and objectives, a typical day in the classroom, and how to measure the success of such a course. The information should be useful to anyone interested in using the method for the first time as well as experienced Texas-style instructors. Panelists include **E. Lee May**, Salisbury University; **David McRae**, Woodberry Forest School; **G. Edgar Parker**, James Madison University; and **Shing S. So**, Central Missouri University.

Improving Graduate Education: Lessons Learned on What Works, Thursday 1:00 p.m.–2:20 p.m., organized by **James H. Lightbourne** and **Deborah F. Lockhart**, NSF. The purpose of this session is to identify approaches that are proving effective to recruit and retain students for graduate study, improve various aspects of graduate education, and, specifically, improve preparation for academic and nonacademic positions. Panelists will provide lessons learned in NSF-funded projects at their institution. Information will also be provided about activities in graduate education being conducted by national organizations and the resources they have available. NSF staff will provide information about funding opportunities.

MAA Project NExT and YMN Poster Session, Thursday, 2:00 p.m.–4:00 p.m., organized by **Kenneth A. Ross**, University of Oregon, and **Kevin E. Charlwood**, Washburn University. We encourage exhibits from new or recent Ph.D.s in the mathematical sciences or from those still pursuing graduate study. Applications should be submitted to Kevin Charlwood zzchar1w@washburn.edu or Ken Ross ross@math.uoregon.edu by December 10, 2002.

The Role of Logic in Learning to Write Proofs, Thursday, 2:45 p.m.–4:05 p.m., organized by **Jeff L. Hirst**, Appalachian State University, and **Daniel Velleman**, Amherst College. The session will address the role of mathematical logic in learning to write mathematical proofs. Questions that pertain to this topic include: Should mathematical logic be a significant topic in transition and bridge courses? What topics in mathematical logic should be included in proof writing courses? How should logic topics be presented? How

can logic be linked to other mathematical topics? What role can technology play in this setting? How do students use logical training in proof writing? The session will consist of four short presentations followed by periods for discussion, questions, and panel interaction. Participants include **Susanna S. Epp**, DePaul University; **Connie M. Campbell**, Millsaps College; **Jeff L. Hirst** and **Daniel Velleman**. Sponsored by the MAA and the Association for Symbolic Logic.

Session for Chairs, Thursday, 2:45–4:05 p.m., organized by **Daniel P. Maki**, Indiana University, and **Catherine P. Murphy**, Purdue University Calumet. This session will feature a presentation by attorney **Michael Anselmi**.

The History of Curricular Change: Linear Algebra 1950–2000, Thursday, 3:00 p.m.–4:20 p.m., organized by **Walter J. Meyer**, Adelphi University; **Jack Winn**, SUNY at Farmingdale; and **Joseph Malkevitch**, York College (CUNY). Some curricular innovations catch on and some do not. We have little way of judging in advance. We might be wiser in our efforts if there were a better history of curricular changes. Linear algebra is a good subject for study because it has undergone many changes in the last half-century: splitting off from abstract algebra, becoming more applied, moving down to freshman and sophomore levels, adding technology, etc. Subjects for discussion may include: the reasons for the changes just mentioned, the changing relation of “linear algebra” to “matrix theory”, the role of internal versus external influences, the relation to “theory of equations”. Panelists will be curricular leaders who lived through these changes, which are mostly undocumented. The aim is to stimulate recollection and discussion, rather than to be definitive. Besides being of interest for curriculum innovators, this will provide useful raw material for students of the history of curriculum. Panelists include **Philip J. Davis**, Brown University; **Harold M. Ewards**, NYU-Courant Institute; **Carl C. Cowen**, Purdue University; and **Kenneth M. Hoffman** and **Gilbert Strang**, Massachusetts Institute of Technology. The session is sponsored by the History of Mathematics SIG-MAA.

Eine Kleine (Mathematische) Nachtmusik, Thursday, 7:30 p.m.–9:00 p.m., presented by **Erich Neuwirth**, University of Vienna. Mathematical principles of musical tuning systems will be demonstrated, beginning with simple frequency ratios for musical intervals known to the Greeks. Pythagorean mean tone and well-tempered scales with accompanying melodies and chords will be constructed on the piano. A few different pieces by well-known composers will be performed to show the connection between the mathematical and physical aspects of the problem. How much the musical expression of a piece of music changes when played in different tunings will be demonstrated.

Can This Graduate Student Be Saved?, Friday, 9:00 a.m.–10:20 a.m., organized by **Carolyn C. Connell**, Westminster College. This session will present actual case studies of graduate students who have seriously considered dropping out. Attendees will be asked to meet in groups to discuss these cases and to find ways to make the community of mathematicians more open to all students. The session is sponsored by the MAA Committee on the Participation of Women.

Proposal Writing Workshop for Grant Applications to the NSF Division of Undergraduate Education, Friday, 9:00 a.m.–10:20 a.m., organized by **Elizabeth J. Teles** and **Lee L. Zia**, NSF/Division of Undergraduate Education. Presenters will describe the general NSF grant proposal process and consider particular details relevant to programs in the Division of Undergraduate Education. Attendees of this session will have an opportunity to read sample proposals and take part in a “mock” panel review of proposals.

Special Programs to Encourage Young Women in Mathematics, Friday, 9:00 a.m.–11:00 a.m., organized by **Elizabeth G. Yanik**, Emporia State University, and **Kathleen A. Sullivan**, Seattle University. This poster session is designed to highlight special programs which have been developed to encourage young women to maintain an interest in and commitment to succeeding in mathematics. These programs might include such activities as after school clubs, weekend activities, mentoring opportunities with women professionals, summer camps, etc. Poster presentations should convey information such as recruitment strategies, a typical schedule of events of the program, program financial support, and methods used for assessment. We encourage everyone involved offering outreach programs to consider making a submission. Exhibitors are asked to submit to the organizer a one-page abstract describing the subject of the poster presentation. Application should be submitted to Betsy Yanik (yanikel@emporia.edu) by December 10, 2002. The session is sponsored by the MAA Women and Mathematics Network.

Undergraduate Seminars in Mathematics, Friday, 1:00 p.m.–2:30 p.m., organized by **Jed Herman**, University of St. Thomas, and **Hieu D. Nguyen**, Rowan University. This panel session will focus on issues that faculty face when teaching a mathematics seminar course for the first time and how faculty can use such a course to enhance their teaching skills and further their research. This includes the preparation and expectations that are involved in teaching such a course and the personal rewards and possible drawbacks. There will be a panel discussion during the first half of the session followed by small group discussions led by panelists during the second half. The session was organized by the 1994–1998 Project NExT Fellows to address issues of concern to faculty who have four to ten years of teaching experience. Panelists include **William P. Abrams**, Longwood College; **Karen D. Bolinger**, Clarion University; **Philip K. Hotchkiss**, Westfield State College; and **Daniel L. King**, Sarah Lawrence College. Sponsored by MAA Project NExT.

Mathematics Educators, Computer Science Educators: Working Together, Friday 1:00 p.m.–2:20 p.m., organized by **William A. Marion**, Valparaiso University. Two recent reports have provided the impetus for undergraduate mathematics and computer science educators to initiate a dialogue concerning the mathematical preparation of computer science majors: the Curriculum Foundations Project (CFP) of CUPM and the ACM/IEEE Computing Curricular 2001 Guidelines (CC2001). In both, the importance to computer science majors of receiving a strong grounding in discrete mathematics early in their four-year program is stressed. The purpose of this panel is to promote an open exchange of information between mathematicians and computer scientists

and to broaden the opportunity to participate in ongoing discussions out of which will come the CUPM curriculum recommendations for programs in the mathematical sciences. Panelists include **William H. Barker**, Bowdoin College; **Susanna S. Epp**, DePaul University; **Peter B. Henderson**, Butler University; and **Henry M. Walker**, Grinnell College. Of the panelists, Barker, Epp, Henderson, and Marion have participated at some level in the CFP, and Marion and Walker have been involved in crafting the mathematics recommendations in the CC2001 Report. **William Marion** will moderate the panel. The session is sponsored by the MAA Committee on the Undergraduate Program in Mathematics (CUPM) and the Mathematics Across the Disciplines Subcommittee of the Committee on Professional Development and of CUPM.

Projects Supported by the NSF Division of Undergraduate Education, Friday, 1:00 p.m.–3:00 p.m., organized by **Jon W. Scott**, Montgomery Community College. This poster session will feature principal investigators (PIs) presenting progress and outcomes from various NSF funded projects in the Division of Undergraduate Education. The poster session format will permit ample opportunity for attendees to engage in small group discussions with the PIs and to network with each other.

Presentations by Teaching Award Recipients, Friday, 2:30 p.m.–4:00 p.m. Winners of the Deborah and Franklin Pepper Haimo Awards for Distinguished College or University Teaching will give presentations on the secrets of their success.

SIGMAA on Research on Undergraduate Mathematics Education Business Meeting, Friday, 4:00 p.m.–6:00 p.m., organized by **Anne E. Brown**, Indiana University South Bend. This SIGMAA is a group formed for mathematics educators and professional mathematicians interested in research on undergraduate mathematics education. There will be welcoming comments, the business meeting, the election of officers, and an invited address by **Rina Zazkis** of Simon Fraser University exemplifying research on undergraduate mathematics education.

Informal Session on Actuarial Education, Friday, 5:00 p.m.–7:00 p.m., organized by **Krzysztof M. Ostaszewski**, Illinois State University. This informal session sponsored by the Actuarial Faculty Forum provides an opportunity for those involved in actuarial education, interested in it, or curious about it, to get together to discuss common concerns such as the major changes in the actuarial exam systems that will have just taken place.

SIGMAA on Statistics Education, 2003 Business Meeting, and Lecture, Thursday, 6:00 p.m. to 8:00 p.m., organized by **Mary Sullivan**, Rhode Island College. The SIGMAA for Statistics Education will hold its third annual business meeting, including an invited talk. After some necessary formalities, we will hear the chair’s report and results of the fall elections, and discuss new business. Topics of discussion will include outreach, membership services, and suggestions from the membership related to statistics education.

Rethinking the Courses Below Calculus, Saturday, 9:00 a.m.–10:20 a.m., organized by **Sheldon P. Gordon**, SUNY at Farmingdale. In the past year, four important invited conferences have taken place to rethink each of the entry level mathematics experiences below calculus—college algebra,

precalculus, quantitative literacy, and the needs of the quantitative disciplines. Subsequently, key individuals from each of the four conferences came together to identify the common elements in the four movements and to plan for a national initiative to rethink all the courses at this level. In this session, panelists will provide an overview of each of the four special conferences and discuss the results and recommendations for the different courses that emerged from the conferences. They will also indicate the commonalities among the three movements, as well as any significant differences, and the action plan for future activities. Panelists include **Nancy Baxter Hastings**, Dickinson College; **Susan L. Ganter**, Clemson University; and **Mercedes A. McGowen**, William Rainey Harper College. The session is sponsored by the MAA Committee for Curriculum Renewal Across the First Two Years (CRAFTY) and the MAA Task Force on the First College Level Mathematics Course.

The Intersection of the Life Sciences, Mathematical Sciences, and Computer Science: Implications for the Undergraduate Curriculum, Saturday, 9:00 a.m.–10:20 a.m., organized by **Elizabeth J. Teles** and **Lee L. Zia**, NSF/Division of Undergraduate Education. This panel will feature an interdisciplinary group of faculty and NSF staff who will discuss the emerging opportunities and challenges associated with new curriculum models that lie at the intersection of the life sciences, mathematical sciences, and computer science. Possible future NSF programmatic directions will also be presented.

Forging Relationships Between Professional Organizations to Improve Mathematics Teaching and Learning from Kindergarten through Graduate School, Saturday, 1:00 p.m.–2:20 p.m., organized by **Johnny W. Lott**, University of Montana, President of NCTM, and **James M. Rubillo**, NCTM. There are various professional societies related to mathematics: AMS, MAA, AMATYC, NCTM, and AWM to name a few. While these organizations may serve a diverse group of individuals, they all share many common goals which include: ensuring a high quality mathematics education that will prepare students for daily life as well as the scientific and technical community; increasing public support and appreciation for mathematics; and supporting the professional development of those involved in mathematics and mathematics education. This interactive session will offer ideas and ways we can all work together through coordinated and collaborative efforts to achieve our goals.

Open Discussion on First College-Level Mathematics Courses, Saturday, 1:00 p.m.–2:20 p.m., organized by **Donald B. Small**, U.S. Military Academy. The panelists will reflect on the work of the MAA's Task Force on First Year College Level Courses, and then the moderator will open the floor for discussion. Approximately 70% of college students enrolled in mathematics courses are enrolled in first year courses. Discussion is invited on both content and pedagogical issues, on the role of technology for teaching and learning, and on the purpose of these courses. Panelists include **Mercedes A. McGowen**, William Rainey Harper College, and **Sheldon P. Gordon**, SUNY at Farmingdale. The session will be moderated by **Donald B. Small** and is sponsored by the MAA Committee on the Undergraduate program in Mathematics (CUPM).

The State of Statistics Education, Saturday, 2:45 p.m.–4:05 p.m., organized by **Mary M. Sullivan**, Rhode Island College. This panel will address the current state of statistics education as it affects statistics courses on the college level. Efforts over the past ten years to encourage faculty who teach the introductory statistics course have resulted in courses that are more interactive. As a consequence of NCTM's "Principles and Standards for School Mathematics" published in 2000, statistics has a greater presence in the K–12 curriculum. Recently published curriculum materials suitable for K–12 embody many activity-based learning ideas of concepts contained in the first course. College level introductory course instructors may find that their students have previously studied many topics contained in their first course. Panelists will address how K–12 mathematics curriculum changes affect college introductory statistics courses, the introduction of a calculus-based data analysis course, and the increased prominence of assessment. Panelists include **Gail F. Burrill**, MSEB; **Allan J. Rossman**, California Polytechnic State University, San Luis Obispo; and **Joan Garfield**, University of Minnesota. **Thomas L. Moore**, Grinnell College, will be the moderator. The panel is sponsored by the SIGMAA on Statistics Education.

SUMMA Special Presentation, Saturday, 2:45 p.m.–4:05 p.m., organized by **William A. Hawkins Jr.**, MAA and the University of the District of Columbia. Presenters will discuss their enrichment programs for precollege or college students. The session will be moderated by **William A. Hawkins Jr.**, director of the SUMMA Program and is sponsored by the MAA SUMMA (Strengthening Underrepresented Minority Mathematics Achievement) Program and the MAA Committee on Minority Participation in Mathematics. There will be ample time for discussion.

MAA Student Activities

Student Lecture, Friday, 1:00 p.m., **Donna L. Beers**, Simmons College, *What drives mathematics and where is mathematics driving innovation?*

Undergraduate Student Poster Session, Friday, 4:00 p.m.–6:30 p.m., organized by **Mario U. Martelli**, Claremont McKenna College. Send title and an abstract (not more than a half page) to Mario Martelli by email at martelli@mckenna.edu or by regular mail at Mathematics Department, Claremont McKenna College, Claremont CA 91711, by December 6, 2002. Include author's name, address, phone number, email, affiliation, and name and affiliation of the faculty advisor. Notification of acceptance will be emailed two weeks after the abstract has been received. Apply early! Space is limited. The session is restricted to undergraduates and first-year graduate students submitting posters on work done while undergraduates. Posters' content should not be purely expository. The best posters will be awarded a monetary prize with funds provided by the MAA, AMS, AWM, and CUR. Tri-fold, self-standing 48" x 36" tabletop posters will be provided. Additional material or equipment is the responsibility of each presenter. The session is sponsored by the CUPM Committee and the Committee on Student Chapters of the MAA.

Other student opportunities appear under the “Social Events” section.

MAA Short Course

Mathematics in the Ancient World, Monday and Tuesday, January 13 and 14, organized by **V. Frederick Rickey**, U. S. Military Academy.

Nearly everyone who has taken an interest in the history of mathematics becomes fascinated with some facet of ancient mathematics. But only a few have the mathematical preparation, historical sensitivities, and linguistic skills to do original work. The speakers at this short course will give an expository survey of their special area of ancient mathematics. They will discuss some areas of current research, point out open questions, and provide guidelines to help you delve into the expository and research literature. Those of you who have taught history of mathematics will undoubtedly learn that some of what you read in older literature has been superseded by modern scholarship. Thus you will have much to carry back to your classroom. Speakers and their talks include **Eleanor Robson**, The Oriental Institute, All Souls College, Oxford University, *Mesopotamian Mathematics*; **Will Noel**, The Walters Art Museum, *The Archimedes Palimpsest and Its Restoration*; **Reviel Netz**, Department of Classics, Stanford University, *Archimedes*; **Kim Plofker**, Department of the History of Mathematics, Brown University, *Mathematics in India*; **Joseph W. Dauben**, Herbert H. Lehman College (CUNY), *Mathematics in China*; and **Len Berggren**, Simon Fraser University, *Islamic Mathematics*.

Please note that there is a separate registration fee for this Short Course. To register in advance, please use the Advance Registration/Housing Form found at the back of this issue, or see http://www.ams.org/amsmtgs/2074_registration.html. Advance registration fees are \$125/member; \$175/nonmember; and \$50/student, unemployed, emeritus. On-site registration fees are \$140/member; \$190/nonmember; and \$60/student, unemployed, emeritus.

Other MAA Events

Board of Governors, Tuesday, 8:30 a.m.–4:00 p.m.

Section Officers, Wednesday, 4:30 p.m.–6:30 p.m.

Joint PME and MAA Student Chapter Advisors' Breakfast, Friday, 7:00 a.m.–8:00 a.m., organized by **Robert S. Smith**, Miami University; **Richard Neal**, University of Oklahoma; and **Jean B. Chan**, Sonoma State University.

Business Meeting, Saturday, 11:10 a.m.–11:40 a.m.

See the listings for various receptions in the “Social Events” section.

Activities of Other Organizations

Several organizations or special groups are having receptions or other social events. Please see the “Social Events” section of this announcement for details.

Association for Symbolic Logic (ASL)

This two-day program on Friday and Saturday will include Invited Addresses and sessions of contributed papers.

See also the Special Sessions jointly sponsored by the ASL in the “Joint Special Sessions” section, as well as a presentation jointly sponsored with MAA on Thursday afternoon (see the listing in the *Other MAA Sessions* section).

Association for Women in Mathematics (AWM)

Twenty-Third Annual Emmy Noether Lecture, Thursday, 9:00 a.m.–9:50 a.m. will be given by **Jean E. Taylor**, Rutgers University, on *Five little crystals and how they grew*.

A dinner in honor of the lecturer will be held on Wednesday evening. See the “Social Events” section for details on how to participate.

Mathematics Educators and Mathematicians Working Together, Wednesday, 4:00 p.m.–5:00 p.m., organized by **Bettye Anne Case**, Florida State University; **Suzanne M. Lenhart**, University of Tennessee; and **Elizabeth G. Yanik**, Emporia State University. This panel will include mathematics educators and mathematicians. The idea for this forum has been developed by the National Council of Teachers of Mathematics affiliate, Women and Mathematics Education, and the AWM. The discussion will address how mathematics educators and mathematicians can collaborate to assist each other and to improve mathematics teaching at all levels. Panelists include **Deborah Loewenberg Ball**, University of Michigan; **Hyman Bass**, University of Michigan; **Karen Dee Michalowicz**, The Langley School (McLean, VA); and **Edith Prentice Mendez**, Sonoma State University.

At the conclusion of the panel discussion, AWM will recognize the Alice T. Schafer prizewinner, runner-up, and honorable mention honorees. Note that formal prizewinner announcements are made at the Joint Prize Session on Monday afternoon (see the AWM inclusion in the “Joint Sessions” section at the beginning of this announcement).

Business Meeting, Wednesday, 5:00 p.m.–5:30 p.m.

Workshop, Saturday, 8:30 a.m.–5:00 p.m. With funding from the Office of Naval Research and the National Science Foundation (pending final funding approval), AWM will conduct its workshop for women graduate students and women who have received the Ph.D. within the last five years.

Twenty women mathematicians have been selected in advance of this workshop to present their research. The selected graduate students will present posters, and the recent Ph.D.'s will give 20-minute talks. Travel funds are provided to the twenty selected presenters. The workshop will also include a panel discussion on issues of career development and a luncheon. Participants will have the opportunity to meet with other women mathematicians at all stages of their careers. All mathematicians (female and male) are invited to attend the entire program. Departments are urged to help graduate students and recent Ph.D.'s who do not receive funding to obtain some institutional support to attend the workshop and the associated meetings. The deadline for applications for presenting and funding has expired. Inquiries regarding future workshops may be made to AWM by

telephone: 301-405-7892, by email: awm@math.umd.edu, or by visiting <http://www.awm-math.org/>.

AWM seeks volunteers to lead discussion groups and to act as mentors for workshop participants. If you are interested in volunteering, please contact the AWM office.

Reception, Wednesday, 9:30 p.m.–11:00 p.m. See the listing in the “Social Events” section of this announcement.

National Association of Mathematicians (NAM) Granville-Brown-Haynes Session of Presentations by Recent Doctoral Recipients in the Mathematical Sciences, Tuesday, 2:15 p.m.–4:00 p.m.

Cox-Talbot Address, to be given Friday after the banquet; speaker and title to be announced.

Panel Discussion on Saturday, 9:00 a.m.–9:50 a.m.

Business Meeting, Saturday, 10:00 a.m.–10:50 a.m.

Claytor-Woodard Lecture: Wednesday, 1:00 p.m., speaker and title to be announced.

See details about the banquet on Friday in the “Social Events” section.

National Science Foundation (NSF)

The NSF will be represented at a booth in the exhibit area. NSF staff members will be available to provide counsel and information on NSF programs of interest to mathematicians. The booth is open the same days and hours as the exhibits. Times that staff will be available will be posted at the booth.

Pi Mu Epsilon (PME)

Council Meeting, Friday, 8:00 a.m.–11:00 a.m.

Rocky Mountain Mathematics Consortium (RMMC)

Board of Directors Meeting, Friday, 2:15 p.m.–4:10 p.m.

Society for Industrial and Applied Mathematics (SIAM)

This two-day program on Wednesday and Thursday will include an Invited Address and minisymposia. The Invited Address will be given by **John A. Burns**, Virginia Polytechnic Institute and State University, title to be announced, at 11:10 a.m. on Thursday. Minisymposia and their organizers include: *Life Sciences*, **Tim Elston**, North Carolina State University and the University of North Carolina at Chapel Hill, Wednesday morning; *Optimization*, **Ariela Sofer**, George Mason University, Wednesday morning; *Stability of Nonlinear Dispersive Waves*, **Robert L. Pego**, University of Maryland, Wednesday and Thursday afternoons; *Mathematical Problems in Image Analysis*, **John Goutsias**, Johns Hopkins University, Thursday morning; and *Dynamical Systems*, **Yury Grabovsky**, Temple University, Thursday morning.

Young Mathematicians Network (YMN)

Concerns of Young Mathematicians: A Town Meeting, Wednesday, 7:15 p.m.–8:15 p.m., organized by **Kevin E. Charlowood**, Washburn University. This panel discussion will focus on the current primary concerns of young

mathematicians, with emphasis on audience participation.

Also see details about the poster session (Thursday afternoon) and a panel discussion (Thursday morning at 10:45 a.m.) cosponsored by YMN under the *Other MAA Sessions* section.

Ancillary Conference

American Statistical Association (ASA): A two-day course will be offered January 13 and 14 preceding the Joint Mathematics Meetings in Baltimore. Visit the LearnSTAT site at <http://www.amstat.org/education/learnstat.html> for more details as they are developed. Inquiries can be directed to learnstat@amstat.org.

Social Events

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 30**. 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.

Student Hospitality Center, Wednesday–Friday, 9:00 a.m.–5:00 p.m., and Saturday, 9:00 a.m.–3:00 p.m., organized by **Richard Neal**, University of Oklahoma.

Graduate Student Reception, Wednesday, 5:00 p.m.–6:00 p.m., organized by Betty Mayfield, Hood College, and Shawnee McMurran, California State University San Bernardino. Mathematicians representing a wide range of disciplines will join interested graduate students at an informal reception. Complimentary food and beverages will be served. NOTE: This event is only for students who sign up on the Advance Registration/Housing Form.

Mathematical Sciences Institutes Reception, Wednesday, 5:30 p.m.–7:30 p.m.

Reception for First-Time Participants, Wednesday, 6:00 p.m.–7:00 p.m. The AMS and the MAA Committee on Membership are cosponsoring this social hour. All participants (especially first-timers) are encouraged to come and meet some old-timers and pick up a few tips on how to survive the environment of a large meeting. Refreshments will be served.

All participants are invited to a **dinner to honor AWM's Noether Lecturer** on Wednesday. A sign-up sheet for those interested will be located at the AWM table in the exhibit area and also at the AWM panel discussion.

AWM Reception: There is an open reception on Wednesday at 9:30 p.m. after the AMS Gibbs Lecture. This has been a popular, well-attended event in the past.

Lehigh University Reception, Thursday, 5:45 p.m.–7:00 p.m. All friends and graduates of the Lehigh Mathematics Department are invited.

New Mexico State University Mathematics Association, Thursday, 6:00 p.m. to 7:00 p.m. Alumni, current and former faculty, and friends of New Mexico State University are invited to this reception sponsored by the NMSU-MATH Association.

Association of Lesbian, Gay, Bisexual, and Transgendered Mathematicians Reception, Thursday, 6:00 p.m.-7:00 p.m. All are welcome to attend this open reception. Last year's event, the first ever on site, was very successful.

MER Banquet: The Mathematicians and Education Reform (MER) Forum welcomes all mathematicians who are interested in precollege, undergraduate, and/or graduate educational reform to attend the MER banquet on Thursday evening. This is an opportunity to make or renew contacts with other mathematicians who are involved in education projects and to engage in lively conversation about educational issues. The after-dinner discussion is an open forum for participants to voice their impressions, observations, and analyses of the current education scene. There will be a cash bar beginning at 6:30 p.m. Dinner will be served at 7:30 p.m. Tickets are \$42 each, including tax and gratuity.

Knitting Circle, Thursday, 8:15 p.m. to 9:45 p.m. Bring a project (knitting/crochet/tatting/beading/etc.) and chat with other mathematical crafters.

Reception for Mathematicians in Business, Industry, and Government, Friday, 5:00 p.m.-6:00 p.m., organized by **Philip E. Gustafson**, Mesa State College. This welcome reception is open to all conference participants and in particular those interested in the mathematics of business, government, and industry (BIG). The reception will be a great opportunity to interact with BIG mathematicians and learn more about BIG mathematics. The reception is sponsored by the BIG SIGMAA.

University of Illinois at Urbana-Champaign Department of Mathematics Reception, Friday 5:15 p.m.-7:15 p.m.

NAM Banquet, Friday, 5:30 p.m. to 8:00 p.m. The National Association of Mathematicians will host a banquet on Friday evening. A cash bar reception will be held at 5:30 p.m., and dinner will be served at 6:00 p.m. Tickets are \$45 each, including tax and gratuity.

Mathematical Reviews Reception, Friday, 6:00 p.m.-7:00 p.m. 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. Refreshments will be served. The prize in an exhibit booth contest will be awarded.

MAA Project NEXt Reception, Friday, 8:30 p.m. to 10:30 p.m. All MAA Project NEXt national and Section NEXt Fellows, consultants, and other friends of MAA Project NEXt are invited.

AMS Banquet: As a fitting culmination to the meetings, 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 Saturday,

with a cash bar reception at 6:30 p.m. and dinner at 7:30 p.m. Tickets are \$45, including tax and gratuity.

Other Events of Interest

AMS Information Booth: All meeting participants are invited to visit the AMS Information Booth during the meeting. Complimentary coffee and tea will be served. A special gift will be available for participants, compliments of the AMS. The membership manager of the Society will be at the booth to answer questions about membership.

Book Sales and Exhibits: All participants are encouraged to visit the book, education media, and software exhibits from noon to 5:30 p.m. on Wednesday, 9:30 a.m. to 5:30 p.m. on Thursday and Friday, and 9:00 a.m. to noon on Saturday. Books published by the AMS and MAA 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 will be asked to display their meetings badge or acknowledgment of advance registration from the Mathematics Meetings Service Bureau (MMSB) in order to enter the exhibit area.

Mathematical Sciences Employment Center: Those wishing to participate in the Mathematical Sciences Employment Center should read carefully the important article about the Center beginning on page 1203 in this issue of *Notices* or at <http://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. 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. This is a great place to relax between sessions and forge new friendships.

Registering in Advance and Obtaining Hotel Accommodations

How to Register in Advance: The importance of advance registration cannot be overemphasized. Advance registration fees are considerably lower than the fees that will be charged for registration at the meeting. Participants registering by November 15 will receive their badges, programs, and tickets purchased in advance by mail approximately three weeks before the meetings, unless they check the appropriate box to the contrary on the Advance Registration/Housing Form. Because of delays that occur in U.S. mail to Canada, it is strongly suggested that advance registrants from Canada choose to pick up their materials at the meetings. Because of delays that occur in U.S.

mail to overseas, materials are never mailed overseas. 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 \$5 replacement fee will be charged for programs and badges that are mailed but not taken to Baltimore. Acknowledgments of registrations will be sent by email to the email addresses 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/2074_reghsg.html. VISA, MasterCard, Discover, and American Express are the only methods of payment which can be accepted for email advance registration, and charges to credit cards will be made in U.S. funds. Completed e-mail 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/2074_reghsg.html. VISA, MasterCard, Discover, and American Express are the only methods of payment which are accepted for Internet advance registration, and charges to credit cards will be made in U.S. funds. All Internet advance registrants will receive acknowledgment of payment upon submission of this form.

Cancellation Policy: Those who cancel their advance registration for the meetings, MAA Minicourses, or Short Courses by January 10 (the deadline for refunds for banquet tickets is December 30) will receive a 50% refund of fees paid. No refunds will be issued after this date.

Joint Mathematics Meetings Registration Fees

	by Dec. 19	at meeting
Member of AMS, ASL, Canadian Mathematical Society, MAA, SIAM	\$190	\$247
Emeritus Member of AMS, MAA; Graduate Student; Unemployed; Librarian; High School Teacher; Developing Countries Special Rate	35	45
Undergraduate Student	20	26
Temporarily Employed	150	172
Nonmember	295	383
High School Student	2	5
One-Day Member of AMS, ASL, CMS, MAA, SIAM	n/a	136
One-Day Nonmember	n/a	211
Nonmathematician Guest	5	5
Employment Center		
Employer (first table)	\$220	\$300
Employer (each additional table)	65	100
Employer Posting Fee	50	N/A
Applicants (all services)	40	75

Applicants (<i>Winter List</i> & message center only)	20	20
AMS Short Course		
Member of AMS or MAA	\$ 80	\$100
Nonmember	110	130
Student/Unemployed/Emeritus	35	50
MAA Minicourses		
Minicourses #7-16	\$60	\$60*
Minicourses #1-6	90	90*
*if space is available		
MAA Short Course		
MAA Member	\$125	\$140
Nonmember	175	190
Student/Unemployed/Emeritus	50	60

Full-Time Students: Those currently working toward a degree or diploma. Students are asked to determine whether their status can be described as graduate (working toward a degree beyond the bachelor's), undergraduate (working toward a bachelor's degree), or high school (working toward a high school diploma) and to mark the Advance Registration/Housing Form accordingly.

Emeritus: Persons who qualify for emeritus membership in either the Society or the Association. The emeritus status refers to any person who has been a member of the AMS or MAA for twenty years or more and who retired because of age or long-term disability from his or her latest position.

Librarian: Any librarian who is not a professional mathematician.

Unemployed: Any person currently unemployed, actively seeking employment, and not a student. It is not intended to include any person who has voluntarily resigned or retired from his or her latest position.

Developing Country Participant: Any person employed in developing countries where salary levels are radically noncommensurate with those in the U.S.

Temporarily Employed: Any person currently employed but who will become unemployed by June 1, 2003, and who is actively seeking employment.

Nonmathematician Guest: Any family member or friend who is not a mathematician and who is accompanied by a participant of the meetings. These official guests will receive a badge and may attend all sessions and the exhibits.

Participants who are not members of the AMS and register for the meetings as a nonmember will receive mailings after the meetings are over with a special membership offer.

Advance registration and on-site registration fees only partially cover the expenses of holding meetings. All mathematicians who wish to attend sessions are expected to register and should be prepared to show their badges if so requested. Badges are required to enter the exhibit area, to obtain discounts at the AMS and MAA Book Sales, and to cash a check with the Joint Meetings cashier. If a registrant should arrive too late in the day to pick up his/her badge, he/she may show the acknowledgment of

advance registration received from the MMSB as proof of registration.

Advance registration forms accompanied by insufficient payment either will be returned, thereby delaying the processing of any housing request, or a \$5 charge will be assessed if an invoice must be prepared to collect the delinquent amount. Overpayments of less than \$5 will not be refunded.

For each invalid check or credit card transaction that results in an insufficient payment for registration or housing, a \$5 charge will be assessed. Participants should check with their tax preparers for applicable deductions for education expenses as they pertain to these meetings.

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 e-mail message to abs-submit@ams.org; include the number 983 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.

Advance Registration Deadlines

There are four separate advance registration deadlines, each with its own advantages and benefits.

EMPLOYMENT CENTER advance registration (inclusion in the <i>Winter Lists</i>)	October 25
EARLY meetings advance registration (room lottery)	November 1
ORDINARY meetings advance registration (hotel reservations, materials mailed)	November 15
FINAL meetings advance registration (advance registration, Short Courses, Employment Center, MAA Minicourses, banquets)	December 19

Employment Center Advance Registration: Applicant and employer forms must be received by October 25 in order to appear in the publications distributed to all participants. For detailed information on the Employment Center, see the separate article on page 1203.

Early Advance Registration: Those who register by the **early** deadline of November 1 will be included in a random drawing to select winners of complimentary hotel rooms in Baltimore. Multiple occupancy is permissible. The location of rooms to be used in this lottery will be based on the number of complimentary rooms available in the various hotels. Therefore, the free room may not necessarily be in the winner's first-choice hotel. The winners will be notified by mail prior to December 25. So register early! (See the list of the winners in San Diego on the hotel page.) Also, applicant and employer forms must be received by

November 1 in order to be reproduced in the *Winter Lists* for the Employment Center.

Ordinary Advance Registration: Those who register after November 1 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. 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 19 must pick up their badges, programs, and any tickets for social events at the meetings. Unfortunately, it is not possible to provide **final** advance registrants with housing. Please note that the **December 19 deadline is firm**; any forms received after that date will be returned and full refunds issued. Please come to the registration desk in Hall A of the Baltimore Convention Center to register on site.

Hotel Reservations

Participants should be aware that the AMS and MAA contract only with facilities who are working toward being in compliance with the public accommodations requirements of the ADA.

Participants requiring hotel reservations should read the instructions on the following hotel pages. Participants who did 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 29. However, after that date the MMSB can no longer guarantee availability of rooms or special convention rates. Participants should be aware that most hotels are starting to charge a penalty fee to guests for departure changes made after guests have checked into their rooms. Participants should inquire about this at check-in and make their final plans accordingly.

Participants should also be aware that it is general hotel practice in most cities to hold a nonguaranteed reservation until 6:00 p.m. only. When one guarantees a reservation by paying a deposit or submitting a credit card number as a guarantee in advance, however, the hotel usually will honor this reservation up until checkout time the following day. If the individual holding the reservation has not checked in by that time, the room is then released for sale, and the hotel retains the deposit or applies one night's room charge to the credit card number submitted.

If you hold a guaranteed reservation at a hotel but are informed upon arrival that there is no room for you, there are certain things you can request the hotel do. First, they should provide for a room at another hotel in town for that evening at no charge. (You already paid for the first night when you made your deposit.) They should pay for taxi fares to the other hotel that evening and back to the meetings the following morning. They should also pay for one telephone toll call so that you can let people know you are not at the hotel you expected. They should make every effort to find a room for you in their hotel the following day and, if successful, pay your taxi fares to and from the second hotel so that you can pick up your baggage and bring it to the first hotel. Not all hotels in all cities follow this

How to Obtain Hotel Accommodations

<p>Room Lottery: (See the <i>How to Register in Advance</i> section to learn how to qualify for this year's room lottery.) Last year's winners were Deanna Cavenny, Matthew Gould, Mara Neusel, Christy Finch, Shelly Harvey, Alan Levine, Jerold Mathews, Kyle Siegrist, and Nancy Zumoff.</p>	<p>General Instructions: Participants must register in advance in order to obtain hotel accommodations through the Mathematics Meetings Service Bureau (MMSB). Special meeting rates have been negotiated at the following hotels. These rates apply exclusively to reservations made through the MMSB. Hotels will start accepting reservations directly after December 23, 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 the hotels before December 23.</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"> • Room lottery qualification: November 1, 2002 • Reservations through MMSB: November 15, 2002 • Changes/cancellations through MMSB: December 13, 2002
<p>Rates:</p> <ul style="list-style-type: none"> • Subject to 12.5% state tax • Only certified students or unemployed mathematicians qualify for student rates. • See ARH Form for detailed rate structure of each property. 	<p>General Information:</p> <ul style="list-style-type: none"> • Check-in: 4:00 p.m./check-out: noon – Renaissance, Marriott Waterfront, and Wyndham (For all others, check-in is at 3:00 p.m., check-out is noon, with the exception of the Days Inn whose check-out is 11:00 a.m.) • Windows do not open in rooms unless otherwise indicated. • Children at different ages are free in existing beds only. • 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 hotel to Baltimore Convention Center is indicated in each listing. • All hotels are in acceptable compliance with ADA. The following hotels have TTYs/TDDs text telephones on premise: the Days Inn, Holiday Inn, Marriott Inner Harbor, Marriott Waterfront, Radisson, Renaissance, Sheraton, and Wyndham. 	<p>Guarantee Requirements:</p> <ul style="list-style-type: none"> • One night deposit by check, or • Credit cards accepted: VISA, MC, AMEX, and Diners (cards may be charged one night deposit.)
<p>Baltimore Marriott Waterfront <i>(.69 mile across the harbor—closer by water taxi)</i></p> <p>700 Aliceanna Street Baltimore, MD 21202 (410) 385-3000 Regular—\$135 single/double</p> <p>Restaurant; Lounge; Bakery and deli; Business Center; Health club; Solarium; Indoor pool; Sauna; Gift shop; Parking \$23 (valet); \$17 (self); All rooms have full amenities including 2-line phones; Children under 18 years free; \$100 early departure fee enforced</p>	<p>Brookshire Suites <i>(3 blocks—40 mile)</i></p> <p>120 E. Lombard Street Baltimore, MD 21202 (410) 625-1300 (410) 625-0912 Regular—\$129 single/double (includes daily full breakfast)</p> <p>Restaurant; Fitness room; Business services; Parking \$20 (valet); All rooms have full amenities including high speed internet capability, data ports, wet bar, robes, and windows that open a maximum of 2 inches; Children under 18 years free; Daily charge of \$4 available for unlimited 800 and local calls</p>	<p>Hyatt Regency Baltimore (HEADQUARTERS) <i>(connected by skywalk—10 mile)</i></p> <p>300 Light Street Baltimore, MD 21202 (410) 528-1234 Regular—\$124 single/double Student—\$114 single/double</p> <p>Glass elevators; Restaurants; Lounges; Gift shop; Health Club with jogging path; Outdoor pool; Tennis courts; Basketball courts; Putting green; Parking \$21 (valet), \$17 (self); All rooms have full amenities including data ports; Children under 18 years free</p>
<p>Baltimore Marriott Inner Harbor <i>(1 block—25 mile)</i></p> <p>110 South Eutaw Street Baltimore, MD 21201 (410) 962-0202 Regular—\$124 single/\$134 double Student—\$99 single/\$105 double</p> <p>Restaurants; Lounge; Business Center; Health club; Indoor pool; Golfing; Whirlpool; Sauna; Gift shop; Parking \$17 (valet), \$12 (self); All rooms have full amenities including 2-line phones, high speed internet access capabilities, data ports, safe, and mini bar; Children under 18 years free; \$100 early departure fee enforced</p>	<p>Renaissance Harborplace <i>(2 blocks—25 mile)</i></p> <p>202 East Pratt Street Baltimore, MD 21202 (410) 547-1200 Regular—\$124 single/double Student—\$113 single/double</p> <p>Attached to mall; Restaurant; Lounges; Fitness center; Sauna; Jacuzzi; Indoor pool; Gift shop; Parking \$25 (valet), \$21 (self); All rooms have full amenities including 2-line phones and data ports; Some windows open slightly; Children under 13 years free</p>	<p>Sheraton Inner Harbor <i>(connected by skywalk—.05 mile)</i></p> <p>300 South Charles Street Baltimore, MD 21201 (410) 962-8300 Regular—\$122 single/double Student—\$110 single/double</p> <p>Restaurants; Lounge; Fitness center; Indoor pool; Gift shop; Parking \$19 (valet), \$14 (self); All rooms have full amenities including 2-line phones and mini bar; Children under 18 years free; \$50 early departure fee enforced</p>
<p>Continued →</p>		

<p>Holiday Inn Inner Harbor (1 block—20 mile)</p> <p>301 W. Lombard Street Baltimore, MD 21201 (410) 685-3500 Regular—\$115 single/\$123 double Student—\$89 single/double</p> <p>Restaurant; Lounge; Gift shop; Parking \$11 (self); Guest laundry; All rooms have full amenities including data ports; Children under 18 years free</p>	<p>Wyndham Baltimore Inner Harbor (2 blocks—35 mile)</p> <p>101 West Fayette Street Baltimore, MD 21201 (410) 752-1100 Regular—\$114 single/\$124 double Student—\$91 single/\$101 double</p> <p>Restaurants; Lounge; Business Center; Gift shop; Fitness center; Outdoor pool; Parking \$22 (valet), \$16 (self); All rooms have full amenities including high speed internet access capability, cordless phones, and mini bar; Children under 18 years free</p>	<p>Radisson Plaza Lord Baltimore (2 blocks—35 mile)</p> <p>20 West Baltimore Street Baltimore, MD 21201 (410) 539-8400 Regular—\$113 single/double Student—\$90 single/double</p> <p>Restaurant; Lobby bar; Gift shop; Health club; Whirlpool; Sauna; Parking \$25 (valet); All rooms have full amenities including modems and windows that open; Children under 18 years free; \$50 early departure fee enforced</p>	<p>Days Inn Inner Harbor (across the street—10 mile)</p> <p>100 Hopkins Place Baltimore, MD 21201 (410) 576-1000 Regular—\$109 single/\$119 double Student—\$87 single/\$95 double</p> <p>Restaurant; Lounge; Business Center; Outdoor pool (heated); Parking \$12 (self); All rooms have full amenities including data ports and safe; Children under 17 years free</p>	<p>Attention Students</p> <p>Each year, we include information on a local hostel as an alternative housing choice. However, the Baltimore hostel has been closed since 1999. The Friends of the Baltimore Hostel have been working to re-open the hostel but at the time of this printing, the hostel is not open.</p> <p>If you're looking for other hostels in or accessible to Baltimore, we encourage you to contact the Washington, D.C., International hostel (www.hiwashingtonde.org) at (202) 737-2333. Please contact them directly for reservations or information. During the week, there are frequent, inexpensive commuter trains between Baltimore and Washington which take less than an hour, one way.</p>
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practice, so your request for these services may bring mixed results or none at all.

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.) Blackboards are not available. Organizers of sessions that by their nature demand additional equipment (e.g., VCR and monitor or projection panel) and where the majority of speakers in the session require this equipment should contact the audio-visual coordinator for the meetings at the AMS office in Providence at 401-455-4140 or by email at wsd@ams.org to obtain the necessary approvals. Individual speakers must consult with the session organizer(s) if additional equipment or services are needed. If your session has no organizer, please contact the audio-visual coordinator directly. All requests should be received by November 4.

Equipment requests made at the meetings most likely will not be granted because of budgetary restrictions. Unfortunately no audio-visual equipment can be provided for committee meetings or other meetings or gatherings not on the scientific program.

Childcare: Many hotels will provide recommendations for in-room childcare for guests through their concierge or front desks. Call as early as possible for the best service, and at least one day in advance. Arrangements represent a contractual agreement between each individual and the child-care provider. The Joint Meetings assumes no responsibility for the services rendered.

Email Services: Limited email access for all Joint Meeting 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.

If a person or group wishes to display information of a mathematical nature promoting a product or program for sale, they may do so in the exhibit area at the Joint Books, Journals, and Promotional Materials exhibit for a fee of \$55 (posters are slightly higher) per item. Please contact the exhibits manager, MMSB, P.O. Box 6887, Providence, RI 02940, for further details.

The administration of these tables is in the hands of the AMS-MAA Joint Meetings Committee, as are all arrangements for Joint Mathematics Meetings.

Local Information: See <http://www.baltimore.org/index2.htm> for information about the city.

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.

Signs of moderate size may be displayed at the table but must not represent that the case of the individual in question is backed by the Committee on Human Rights unless it has, in fact, so voted. Volunteers may be present at the table to provide information on individual cases, but notice must be sent at least seven days in advance of the meetings to the director of meetings in the Providence office. Since space is limited, it may also be necessary to limit the number of volunteers present at the table at any one time. The Committee on Human Rights may delegate a person to be present at the table at any or all times, taking precedence over other volunteers.

Any material that is not a petition (e.g., advertisements, résumés) will be removed by the staff. At the end of the exhibits on Saturday, any material on the table will be discarded, so individuals placing petitions on the table should be sure to remove them prior to the close of exhibits.

Telephone Messages: The most convenient method for leaving a message is to do so with the participant's hotel. Another method would be to leave a message at the meetings registration desk from January 14 through 18 during the hours that the desk is open. These messages will be posted on the Math Meetings Message Board; however, staff at the desk will try to locate a participant in the event of a bona fide emergency. The telephone number will be published in the program.

Travel

Baltimore is on Eastern Standard Time. The Baltimore-Washington International Airport (BWI) is located ten miles south of the city and is served by all major airlines.

Official airlines for the meetings are **US Airways** and **Southwest Airlines**. Given the volatility in airfares because of "fare wars", 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 AMS and MAA 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.

The following specially negotiated rates are available only for these meetings and exclusively to mathematicians and their families for the period January 10-21, 2003. Other restrictions/discounts may apply, and seats are limited.

Southwest Airlines is offering a 10% discount on most of its already low fares for air travel to and from the event. You or your travel agent may call Southwest Airlines Group and Meetings Reservations at 1-800-433-5368 and reference the **ID Code R7701**. Reservations sales agents are available 7:00 a.m.-8:00 p.m. Monday-Friday, or 8:30 a.m.-3:30 p.m. Saturday and Sunday, Central Standard Time. You must make reservations five or more days prior to travel to take advantage of this offer.

US Airways offers a 5% discount off First or Envoy Class and any published US Airways promotional round-trip fare. By purchasing your ticket 60 days or more prior to departure, you can receive an additional 5% bonus discount. Or choose a 10% discount off unrestricted coach

fares with seven-day advance purchase. By purchasing your ticket 60 days or more prior to departure, you can receive an additional 5% bonus discount.

For reservations call (or have your travel agent call) the US Airways Group and Meeting Reservation Office toll free at 1-877-874-7687 between 8:00 a.m. and 9:30 p.m. Eastern Standard Time. Refer to **Gold File number 18612072**.

Ground Transportation from the Airport: The **Super-Shuttle** (800-258-3826 or 410-859-0800) provides service to the downtown area; reservations are not necessary. Fares are \$11 one way or \$18 round trip. The SuperShuttle Ground Transportation counter is located between carousels 6 and 7, pier C. Taxi fare is about \$20; taxis can be found on the lower level near each exit. The trip takes about 20 minutes.

Railway Transportation: Baltimore is a major station in the Northeast Corridor and is served by frequent Amtrak trains from Boston, New York, Philadelphia, and Washington. Trains arrive either at the airport or the Baltimore station. For information call 800-872-7245 or see <http://www.amtrak.com>.

Avis Rent A Car is the official car rental company for the meeting. All car rentals include unlimited free mileage and are available to renters 25 years and older. Avis offers special convention rental rates effective January 8–25, 2003:

Car Type	Daily	Weekly	Weekend Daily
Subcompact	\$41.99	\$175.99	\$23.99
Compact	42.99	184.99	24.99
Intermediate	44.99	195.99	26.99
Full-Size 2-Door	46.99	204.99	29.99
Full-Size 4-Door	48.99	214.99	31.99
Premium	51.99	223.99	33.99
Luxury, Minivan, Convertible, or Sport Utility	64.99	279.99	65.99

Should a lower qualifying rate become available, Avis is pleased to present a 5% discount on that rate, or if a car size is selected that is not available above, Avis will discount the best available rate by 5%. Rates do not include any state or local surcharges, tax, optional coverages, or gas refueling charges. Renters must meet Avis' age, driver, and credit requirements. The 24-hour toll-free reservation number is 800-331-1600; cite **group ID number J098887**. Reservations can also be made online at www.avis.com.

Weather

The temperature ranges from about 28° F. to 41° F. Average precipitation in January is 3.1 inches. Visit your favorite weather site for up-to-the-minute forecasts, or see <http://www.usatoday.com/weather/cityforecast.aspx?LocationID=USMD0018>.

Baton Rouge, Louisiana

Louisiana State University

March 14–16, 2003

Meeting #984

Southeastern Section

Associate secretary: John L. Bryant

Announcement issue of *Notices*: January 2003

Program first available on AMS website: January 30, 2003

Program issue of electronic *Notices*: March 2003

Issue of *Abstracts*: Volume 24, Issue 2

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
November 26, 2002

For abstracts: January 22, 2003

Bloomington, Indiana

Indiana University

April 4–6, 2003

Meeting #985

Central Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: February 2003

Program first available on AMS website: February 20, 2003

Program issue of electronic *Notices*: April 2003

Issue of *Abstracts*: Volume 24, Issue 2

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
December 17, 2002

For abstracts: February 11, 2003

Invited Addresses

Daniel J. Allcock, University of Texas, *Title to be announced.*

Brian D. Conrad, University of Michigan, *Title to be announced.*

Robin A. Pemantle, Ohio State University, *Title to be announced.*

Sijue Wu, University of Maryland, *Title to be announced.*

Special Sessions

Applications of Teichmüller Theory to Dynamics and Geometry (Code: AMS SS K1), **Christopher M. Judge** and **Matthias Weber**, Indiana University.

Differential Geometry (Code: AMS SS L1), **Jiri Dadok, Bruce Solomon**, and **Ji-Ping Sha**, Indiana University.

Ergodic Theory and Dynamical Systems (Code: AMS SS A1), **Roger L. Jones** and **Ayse A. Sahin**, DePaul University.

Geometric Topology (Code: AMS SS D1), **Paul A. Kirk** and **Charles Livingston**, Indiana University.

Harmonic Analysis in the 21st Century (Code: AMS SS E1), **Winston C. Ou** and **Alberto Torchinsky**, Indiana University.

Holomorphic Dynamics (Code: AMS SS B1), **Eric D. Bedford** and **Kevin M. Pilgrim**, Indiana University.

Mathematical and Computational Problems in Fluid Dynamics and Geophysical Fluid Dynamics (Code: AMS SS H1), **Roger Temam** and **Shouhong Wang**, Indiana University.

Operator Algebras and Free Probability (Code: AMS SS J1), **Hari Bercovici**, Indiana University, and **Marius Dadarlat**, Purdue University.

Particle Models and their Fluid Limits (Code: AMS SS F1), **Robert T. Glassey** and **David C. Hoff**, Indiana University.

Probability (Code: AMS SS G1), **Russell D. Lyons**, Indiana University, and **Robin A. Pemantle**, Ohio State University.

Recent Trend in the Analysis and Computations of Functional Differential Equations (Code: AMS SS M1), **Paul W. Eloe** and **Qin Sheng**, University of Dayton.

Weak Dependence in Probability and Statistics (Code: AMS SS C1), **Richard C. Bradley** and **Lanh T. Tran**, Indiana University.

New York, New York

Courant Institute

April 12–13, 2003

Meeting #986

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: February 2003

Program first available on AMS website: February 27, 2003

Program issue of electronic *Notices*: April 2003

Issue of *Abstracts*: Volume 24, Issue 3

Deadlines

For organizers: September 12, 2002

For consideration of contributed papers in Special Sessions:
December 24, 2002

For abstracts: February 18, 2003

Invited Addresses

Matthias Aschenbrenner, University of California Berkeley, *Title to be announced.*

John Etnyre, University of Pennsylvania, *Title to be announced.*

Hans Foellmer, Humboldt University Berlin, *Title to be announced.*

Wilfrid Gangbo, Georgia Institute of Technology, *Title to be announced.*

Special Sessions

Combinatorial and Statistical Group Theory (Code: AMS SS B1), **Alexei Myasnikov** and **Vladimir Shpilrain**, City College, New York.

Hopf Algebras and Quantum Groups (Code: AMS SS A1), **M. Susan Montgomery**, University of Southern California, **Earl J. Taft**, Rutgers University, and **Sarah J. Witherspoon**, Amherst College.

San Francisco, California

San Francisco State University

May 3–4, 2003

Meeting #987

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: March 2003

Program first available on AMS website: March 20, 2003

Program issue of electronic *Notices*: May 2003

Issue of *Abstracts*: Volume 24, Issue 3

Deadlines

For organizers: October 3, 2002

For consideration of contributed papers in Special Sessions:
January 14, 2003

For abstracts: March 11, 2003

Invited Addresses

Joe P. Buhler, Reed College, *Title to be announced.*

Raymond C. Heitmann, University of Texas at Austin, *Title to be announced.*

Alexei Y. Kitaev, California Institute of Technology, *Title to be announced.*

Arkady Vaintrob, University of Oregon, *Title to be announced.*

Seville, Spain

June 18–21, 2003

Meeting #988

First Joint International Meeting between the AMS and the Real Sociedad Matematica Española (RSME).

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: To be announced

Program first available on AMS website: Not applicable

Program issue of electronic *Notices*: Not applicable
 Issue of *Abstracts*: Not applicable

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
 To be announced

For abstracts: To be announced

Invited Addresses

Xavier Cabre, Universidad Politécnica de Cataluña, Barcelona, *Title to be announced.*

Charles Fefferman, Princeton University, *Title to be announced.*

Michael Hopkins, Massachusetts Institute of Technology, *Title to be announced.*

Ignacio Sols, Universidad Complutense, Madrid, *Title to be announced.*

Luis Vega, Universidad del País Vasco, Bilbao, *Title to be announced.*

Efim Zelmanov, Yale University, *Title to be announced.*

Special Sessions

Affine Algebraic Geometry, **Jaime Gutierrez**, University of Cantabria, **Vladimir Shpilrain**, City College of New York, and **Jie-Tai Yu**, University of Hong Kong.

Algebraic Geometry, **Felix Delgado**, Universidad de Valladolid, and **Andrey N. Todorov**, University of California Santa Cruz.

Algebraic Topology, **Alejandro Adem**, University of Wisconsin, **J. Aguade**, Universitat Autònoma de Barcelona, and **Eric M. Friedlander**, Northwestern University.

Banach Spaces of Analytic Functions, **Daniel Girela**, University of Malaga, and **Michael Stessin**, SUNY at Albany.

Biomolecular Mathematics, **Thomas J. Head** and **Fernando Guzman**, SUNY at Binghamton, **Mario Perez**, Universidad de Sevilla, and **Carlos Martin-Vide**, Rovira i Virgili University.

Classical and Harmonic Analysis, **Nets Katz**, Washington University, **Carlos Perez**, Universidad de Sevilla, and **Ana Vargas**, Universidad Autonoma de Madrid.

Combinatorics, **Joseph E. Bonin**, George Washington University, and **Marc Noy**, Universitat Politecnica de Catalunya.

Commutative Algebra: Geometric, Homological, Combinatorial and Computational Aspects, **Alberto Corso**, University of Kentucky, **Philippe Gimenez**, Universidad de Valladolid, and **Santiago Zarzuela**, Universitat de Barcelona.

Computational Methods in Algebra and Analysis, **Eduardo Cattani**, University of Massachusetts, Amherst, and **Francisco Jesus Castro-Jimenez**, Universidad de Sevilla.

Constructive Approximation Theory, **Antonio Duran**, University de Sevilla, and **Edward B. Saff**, Vanderbilt University.

Control and Geometric Mechanics, **Manuel de Leon**, Instituto de Matemáticas y Física Fundamental, **Alberto Ibort**,

Universidad Carlos III, and **Francesco Bullo**, University of Illinois, Urbana.

Differential Galois Theory, **Teresa Crespo** and **Zbigniew Hajto**, Universitat de Barcelona, and **Andy R. Magid**, University of Oklahoma.

Differential Structures and Homological Methods in Commutative Algebra and Algebraic Geometry, **Gennady Lyubeznik**, University of Minnesota, and **Luis Narvaez-Macarro**, Universidad de Sevilla.

Discrete and Computational Geometry, **Ferran Hertado**, Universitat Politècnica de Catalunya, and **William Steiger**, Rutgers University.

Dynamical Systems, **George Haller**, Massachusetts Institute of Technology, **Zbigniew H. Nitecki**, Tufts University, **Enrique Ponce**, Universidad de Sevilla, **Tere M. Seara**, Universitat Politècnica de Catalunya, and **Xavier Jarque**, Universitat Autònoma de Barcelona.

Effective Analytic Geometry Over Complete Fields, **Luis-Miguel Pardos**, Universidad de Cantabria, and **J. Maurice Rojas**, Texas A&M University.

Geometric Methods in Group Theory, **José Burillo**, Universitat Politècnica de Catalunya, **Jennifer Tayback**, University of Albany, and **Enric Ventura**, Universitat Politècnica de Catalunya.

History of Modern Mathematics—Gauss to Wiles, **Jose Ferreiros**, Universidad de Sevilla, and **David Rowe**, Universitat Mainz.

Homological Methods in Banach Space Theory, **Jesus M. F. Castillo**, Universidad de Extremadura, and **N. J. Kalton**, University of Missouri.

Homotopy Algebras, **Pedro Real**, Universidad de Sevilla, **Thomas J. Lada**, North Carolina State University, and **James Stasheff**, University of North Carolina.

Interpolation Theory, Function Spaces and Applications, **Fernando Cobos**, Universidad Complutense de Madrid, and **Pencho Petrushev**, University of South Carolina.

Lorentzian Geometry and Mathematical Relativity, **Luis J. Alias**, Universidad de Murcia, and **Gregory James Galloway**, University of Miami.

Mathematical Aspects of Semiconductor Modeling and Nano-technology, **Irene Martinez Gamba**, University of Texas, Austin, and **Jose Antonio Carrillo**, Universidad de Granada.

Mathematical Fluid Dynamics, **Diego Cordoba**, CSIC, Madrid, and Princeton University, **Susan Friedlander**, University of Illinois, Chicago, and **Marcos Antonio Fontelos**, Universidad Rey Juan Carlos.

Mathematical Methods in Finance and Risk Management, **Santiago Carrillo Menendez**, Universidad Autonoma de Madrid, **Antonio Falcos Montesinos**, Universidad Cardinal Herrera CEU, **Antonio Sanchez-Calle**, Universidad Autonoma de Madrid, and **Luis A. Seco**, University of Toronto at Mississauga.

Moduli Spaces in Geometry and Physics, **Steven B. Bradlow**, University of Illinois, Urbana-Champaign, and **Oscar Garcia-Prada**, Universidad Autonoma de Madrid.

Nonassociative Algebras and Their Applications, **Efim I. Zelmanov**, Yale University, **Santos Gonzalez**, Universidad de Oviedo, and **Alberto Elduque**, Universidad de Zaragoza.

Nonlinear Dispersive Equations, **Gustavo Ponce**, University of California Santa Barbara, and **Luis Vega**, Universidad del Pais Vasco.

Numerical Linear Algebra, **Lothar Reichel**, Kent State University, and **Francisco Marcellan**, University Carlos III de Madrid.

Operator Theory and Spaces of Analytic Functions, **Jose Bonet**, Universidad Politecnica de Valencia, **Pedro Paul**, Universidad de Sevilla, and **Cora S. Sadosky**, Howard University.

PDE Methods in Continuum Mechanics, **Juan L. Vazquez**, Universidad Autonoma de Madrid, and **J. W. Neuberger**, University of North Texas.

Polynomials and Multilinear Analysis in Infinite Dimensions, **Richard M. Aron**, Kent State University, **J. A. Jaramillo** and **Jose G. Llavona**, Universidad Complutense de Madrid, and **Andrew M. Tonge**, Kent State University.

Quantitative Results in Real Algebra and Geometry, **Carlos Andradas** and **Antonio Diaz-Cano**, Universidad Complutense, **Victoria Powers**, Emory University, and **Frank Sottile**, University of Massachusetts, Amherst.

Recent Developments in the Mathematical Theory of Inverse Problems, **Russell Brown**, University of Kentucky, **Alberto Ruiz**, Universidad Autonoma de Madrid, Spain, and **Gunther Uhlmann**, University of Washington.

Riemannian Foliations, **Jesus Antonio Alvarez Lopez**, Universidade de Santiago de Compostela, and **Efton L. Park**, Texas Christian University.

Ring Theory and Related Topics, **Jose Gomez-Torrecillas**, University of Granada, **Pedro Antonio Guil Asensio**, University of Murcia, **Sergio R. Lopez-Permouth**, Ohio University, and **Blas Torrecillas**, University of Almeria.

The Mathematics of Electronmicroscopic Imaging, **Jose-Maria Carazo**, Centro Nacional de Biotecnologia-CSIC, and **Gabor T. Herman**, City University of New York.

Variational Problems for Submanifolds, **Frank Morgan**, Williams College, and **Antonio Ros**, Universidad de Granada.

Boulder, Colorado

University of Colorado

October 2–4, 2003

Meeting #989

Joint Central/Western Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: August 2003

Program first available on AMS website: August 21, 2003

Program issue of electronic *Notices*: October 2003

Issue of *Abstracts*: Volume 24, Issue 4

Deadlines

For organizers: March 3, 2003

For consideration of contributed papers in Special Sessions:
June 6, 2003

For abstracts: August 12, 2003

Invited Addresses

J. Brian Conrey, American Institute of Mathematics, *Title to be announced.*

Giovanni Forni, Northwestern University, *Title to be announced.*

Juha M. Heinonen, University of Michigan, *Title to be announced.*

Joseph D. Lakey, New Mexico State University, *Title to be announced.*

Albert Schwarz, University of California Davis, *Title to be announced.*

Avi Wigderson, Institute for Advanced Study, *Title to be announced* (Erdős Memorial Lecture).

Binghamton, New York

SUNY-Binghamton

October 11–12, 2003

Meeting #990

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: August 2003

Program first available on AMS website: August 28, 2003

Program issue of electronic *Notices*: October 2003

Issue of *Abstracts*: Volume 24, Issue 4

Deadlines

For organizers: March 10, 2003

For consideration of contributed papers in Special Sessions:
June 24, 2003

For abstracts: August 19, 2003

Invited Addresses

Zlil Sela, Einstein Institute of Mathematics, *Title to be announced.*

Zoltan Szabo, University of Michigan, Ann Arbor, *Title to be announced.*

Jeb F. Willenbring, Yale University, *Title to be announced.*

Special Sessions

Biomolecular Mathematics (Code: AMS SS A1), **Thomas J. Head** and **Dennis G. Pixton**, SUNY at Binghamton,

Mitsunori Ogihara, University of Rochester, and Carlos Martin-Vide, Universitat Rovira i Virgili.

Chapel Hill, North Carolina

University of North Carolina at Chapel Hill

October 24–25, 2003

Meeting #991

Southeastern Section

Associate secretary: John L. Bryant

Announcement issue of *Notices*: August 2003

Program first available on AMS website: September 11, 2003

Program issue of electronic *Notices*: October 2003

Issue of *Abstracts*: Volume 24, Issue 4

Deadlines

For organizers: March 24, 2003

For consideration of contributed papers in Special Sessions:
July 19, 2003

For abstracts: September 3, 2003

Bangalore, India

India Institute of Science

December 17–20, 2003

Meeting #992

First Joint International Meeting with Various Indian Mathematical Societies

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: To be announced

Program first available on AMS website: Not applicable

Program issue of electronic *Notices*: Not applicable

Issue of *Abstracts*: Not applicable

Deadlines

For organizers: To be announced

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

Phoenix, Arizona

Phoenix Civic Plaza

January 7–10, 2004

Joint Mathematics Meetings, including the 110th Annual Meeting of the AMS, 87th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the

National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL).

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: October 2003

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2004

Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 2, 2003

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced

Tallahassee, Florida

Florida State University

March 12–13, 2004

Southeastern Section

Associate secretary: John L. Bryant

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: To be announced

Issue of *Abstracts*: To be announced

Deadlines

For organizers: August 13, 2003

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

Athens, Ohio

Ohio University

March 26–27, 2004

Central Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: To be announced

Issue of *Abstracts*: To be announced

Deadlines

For organizers: August 26, 2003

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

Lawrenceville, New Jersey

Rider University

April 17–18, 2004

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: To be announced

Issue of *Abstracts*: To be announced

Deadlines

For organizers: September 17, 2003

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

Pittsburgh, Pennsylvania

University of Pittsburgh

November 6–7, 2004

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: To be announced

Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 7, 2004

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

Atlanta, Georgia

Atlanta Marriott Marquis and Hyatt Regency Atlanta

January 5–8, 2005

Joint Mathematics Meetings, including the 111th Annual Meeting of the AMS, 88th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association of Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of Symbolic Logic (ASL).

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: October 2004

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2005

Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 5, 2004

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced

San Antonio, Texas

Henry B. Gonzalez Convention Center

January 12–15, 2006

Joint Mathematics Meetings, including the 112th Annual Meeting of the AMS, 89th Annual Meeting of the Mathematical Association of America, annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL).

Associate secretary: John L. Bryant

Announcement issue of *Notices*: October 2005

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2006

Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 12, 2005

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced

New Orleans, Louisiana

New Orleans Marriott and Sheraton New Orleans Hotel

January 4–7, 2007

Joint Mathematics Meetings, including the 113th Annual meeting of the AMS, 90th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL).

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: October 2006

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2007

Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 4, 2006

For consideration of contributed papers in Special Sessions:
To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced