
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.

Boulder, Colorado

University of Colorado

October 2–4, 2003

Thursday–Saturday

Meeting #989

Joint Central/Western Sections

Associate secretaries: Susan J. Friedlander and Michel L. Lapidus

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: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: Expired

Invited Addresses

J. Brian Conrey, American Institute of Mathematics, *Random matrix theory and the Riemann zeta-function*.

Giovanni Forni, Northwestern University, *Deviation of ergodic averages for rational polygonal billiards*.

Juha M. Heinonen, University of Michigan, *Nonsmooth calculus*.

Joseph D. Lakey, New Mexico State University, *Recent progress in time-frequency analysis*.

Albert Schwarz, University of California Davis, *Maximally supersymmetric gauge theories*.

Brooke Shipley, Purdue University, *Rings up to homotopy*.

Avi Wigderson, Institute for Advanced Study, *Some insights of computational complexity theory* (Erdős Memorial Lecture).

Special Sessions

Algebraic Geometry, **Holger Kley**, **Rick Miranda**, and **Chris Peterson**, Colorado State University.

Algebras, Lattices and Varieties, **Keith A. Kearnes**, University of Colorado, Boulder, **Agnes Szendrei**, Bolyai Institute, and **Walter Taylor**, University of Colorado, Boulder.

Analysis on Singular Spaces, **Mario Bonk**, University of Michigan, and **Juha Heinonen**, Mathematical Sciences Research Institute.

Applications of Number Theory and Algebraic Geometry to Coding, **David R. Grant**, University of Colorado, Boulder, **Jose Felipe Voloch**, University of Texas at Austin, and **Judy Leavitt Walker**, University of Nebraska, Lincoln.

Associative Rings and Their Modules, **Gene Abrams**, University of Colorado at Colorado Springs, and **Kent Fuller**, University of Iowa.

Computational and Mathematical Biology, **Harvey J. Greenberg**, University of Colorado at Denver.

Computational Number Theory, **Brian Conrey** and **Michael Rubinstein**, American Institute of Mathematics.

Finite Geometries, **Stanley E. Payne**, University of Colorado, Denver, and **Robert Allen Liebler**, Colorado State University.

Geometric Methods in Partial Differential Equations, **Jeanne N. Clelland**, University of Colorado, Boulder, and **George R. Wilkins**, University of Hawaii.

Graphs and Diagraphs, **Michael Jacobson** and **Richard J. Lundgren**, University of Colorado, Denver.

Groupoids in Analysis and Geometry, **Lawrence Baggett**, University of Colorado, Boulder, **Jerry Kaminker**, Indiana University-Purdue University Indianapolis, and **Judith Packer**, University of Colorado, Boulder.

Homotopy Theory, **Daniel Dugger**, University of Oregon, and **Brooke E. Shipley**, Purdue University.

Noncommutative Geometry and Geometric Analysis, **Carla Farsi**, **Alexander Gorokhovskiy**, and **Siye Wu**, University of Colorado.

Nonlinear Waves, **Bernard Deconinck**, Colorado State University, and **Harvey Segur**, University of Colorado, Boulder.

Structured Population and Epidemic Models: Periodicity, Chaos, and Extinction, **Linda J. S. Allen**, Texas Tech University, and **Sophia R.-J. Jang**, University of Louisiana at Lafayette.

Ubiquitous Heat Kernel, **Jay Jorgenson**, City College of New York, and **Lynne Walling**, University of Colorado, Boulder.

Binghamton, New York

Binghamton University

October 11–12, 2003

Saturday–Sunday

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: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: Expired

Invited Addresses

Peter Kuchment, Texas A&M University, *Quantum graphs and their applications*.

Zlil Sela, Einstein Institute of Mathematics, *Diophantine geometry over groups and the elementary theory of free and hyperbolic groups*.

Zoltan Szabo, Princeton University, *Holomorphic disks and Floer homology for knots*.

Jeb F. Willenbring, Yale University, *Symmetric pairs*.

Special Sessions

Biomolecular Mathematics, **Thomas J. Head** and **Dennis G. Pixton**, Binghamton University, **Mitsunori Ogihara**, University of Rochester, and **Carlos Martin-Vide**, Universitat Rovira i Virgili.

Boundary Value Problems on Singular Domains, **Juan B. Gil**, Temple University, and **Paul A. Loya**, Binghamton University.

Character Theory of Finite Groups and Algebraic Combinatorics, **Kenneth W. Johnson**, Pennsylvania State University, and **Eirini Poimenidou**, New College of Florida.

Dowling Lattices: The 30th Anniversary, **Thomas Zaslavsky**, Binghamton University.

Finite Solvable Groups and Their Representations, **Ben Brewster**, Binghamton University, and **Arnold Feldman**, Franklin & Marshall College.

Geometric Group Theory, **Zlil Sela**, Einstein Institute of Mathematics, and **Ross Geoghegan**, Binghamton University.

Homotopy Theory: Honoring Peter Hilton on His Eightieth Birthday, **Martin Bendersky** and **Joseph Roitberg**, Hunter College (CUNY).

Infinite Groups and Group Rings, **Luise-Charlotte Kappe**, Binghamton University, and **Derek J. S. Robinson**, University of Illinois, Urbana-Champaign.

Inverse Problems and Tomography, **Peter Kuchment**, Texas A&M University, **Leonid A. Kunyansky**, University of Arizona, and **Eric Todd Quinto**, Tufts University.

Lie Algebras, Conformal Field Theory, and Related Topics, **Chongying Dong**, University of California Santa Cruz, and **Alex J. Feingold** and **Gaywalee Yamskulna**, Binghamton University.

Manifold Theory, **Erik K. Pedersen**, Binghamton University, and **Ian Hambleton**, McMaster University.

Noncommutative Ring Theory, **Howard E. Bell** and **Yuanlin Li**, Brock University.

Probability Theory, **Miguel A. Arcones**, Binghamton University, and **Evarist Gine**, University of Connecticut.

Quasigroups and Loops, **Tuval S. Foguel**, North Dakota State University, and **J. D. Phillips**, Wabash College.

Statistics, **Miguel A. Arcones**, **Anton Schick**, and **Qiqing Yu**, Binghamton University.

Topological Combinatorics, **Laura M. Anderson**, Binghamton University, and **Edward B. Swartz**, Cornell University.

Chapel Hill, North Carolina

University of North Carolina at Chapel Hill

October 24–25, 2003

Friday–Saturday

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: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: Expired

Invited Addresses

James N. Damon, University of North Carolina, *Scale-based geometry and its role for computer imaging*.

Erica L. Flapan, Pomona College, *Topological symmetry groups of graphs embedded in the 3-sphere*.

Mary Ann Horn, Vanderbilt University, *Mathematical modeling and challenges in the development of drug resistance*.

Helmut Voelklein, University of Florida, *Interactions between group theory and algebraic curves via Riemann's Existence Theorem*.

Special Sessions

Algebras and Their Representations, **Edward L. Green**, Virginia Polytech Institute & State University, and **Ellen E. Kirkman**, Wake Forest University.

Association Schemes: 1973–2003, **William J. Martin**, Worcester Polytechnic Institute, and **Dijen K. Ray-Chaudhuri**, Ohio State University.

Banach Algebras and Several Complex Variables, **John T. Anderson**, College of the Holy Cross, and **Alexander J. Izzo**, Bowling Green State University.

Commutative Rings and Monoids, **Scott Chapman**, Trinity University.

Current Topics in Optical Communications Systems, **Rudy Horne** and **Tobias Schaefer**, University of North Carolina.

Group Actions on Curves, **Kay Magaard**, Wayne State University and University of Florida, and **Helmut Voelklein**, University of Florida.

Group Cohomology in Algebra and Geometry, **Richard M. Hain**, Duke University, and **Kevin P. Knudson**, Mississippi State University.

Homological Physics, **Thomas J. Lada**, North Carolina State University, and **James Stasheff**, University of North Carolina at Chapel Hill.

Knots, Links, and Embedded Graphs, **Joel S. Foisy**, SUNY at Potsdam, and **Erica L. Flapan**, Pomona College.

Linear Operators on Function Spaces, **Nathan S. Feldman**, Washington and Lee University, and **William T. Ross**, University of Richmond.

Mathematical Modeling in Physiology and Medicine, **Mary Ann Horn**, Vanderbilt University.

Mathematical Molecular Biology, **Dorothy Buck**, Brown University.

Measurable, Complex, and Symbolic Dynamics, **Jane M. Hawkins** and **Karl E. Petersen**, University of North Carolina at Chapel Hill.

Multi-scale Challenges in Soft Matter Materials, **Gregory M. Forest**, University of North Carolina, **Qi Wang**, Florida State University, and **Ruhai Zhou**, University of North Carolina.

Multi-scale Fluid Flow: Theory and Computation, **Sorin M. Mitran**, University of North Carolina, and **Traian Iliescu**, Virginia Tech.

Nonlinear Wave Phenomena: Stability and Interactions, **Christopher Jones**, University of North Carolina at Chapel Hill, and **Bjorn Sandstede**, The Ohio State University.

Bangalore, India

Indian Institute of Science

December 17–20, 2003

Wednesday–Saturday

Meeting #992

First Joint AMS-India Mathematics Meeting

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: October 2003

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:
Expired

For abstracts: September 1, 2003

Invited Addresses

R. Balasubramanian, Institute for Mathematical Sciences, *Title to be announced*.

George C. Papanicolaou, Stanford University, *Title to be announced*.

M. S. Raghunathan, Tata Institute of Fundamental Research, *Title to be announced*.

Peter Sarnak, Princeton University and New York University–Courant Institute, *Title to be announced*.

K. B. Sinha, Indian Statistical Institute, *Title to be announced*.
Vladimir Voevodsky, Institute for Advanced Study, *Title to be announced*.

Special Sessions

Algebraic and Geometric Methods in Multivariable Operator Theory, **Ronald G. Douglas**, Texas A&M University, and **Gadadhar Misra**, Indian Statistical Institute.

Algebraic and Geometric Topology, **Parameswaren Sankaran**, Institute of Mathematical Sciences, and **P. B. Shalen**, University of Illinois.

Automorphic Forms and Functoriality, **James Cogdell**, Oklahoma State University, and **T. N. Venkataramana**, Tata Institute of Fundamental Research.

Buildings and Group Theory, **N. S. Narasimha Sastry**, Indian Statistical Institute, and **Richard M. Weiss**, Tufts University.

Commutative Algebra and Algebraic Geometry, **Sudhir Ghorpade**, Indian Institute of Technology Bombay, **Hema Srinivasan**, University of Missouri, and **Jugal K. Verma**, Indian Institute of Technology Bombay.

Cycles, K-Theory, and Motives, **Eric M. Friedlander**, Northwestern University, **Steven Lichtenbaum**, Brown University, **Kapil Paranjape**, Institute of Mathematical Sciences, and **Vasudevan Srinivas**, Tata Institute of Fundamental Research.

Differential Equations and Applications to Population Dynamics, Epidemiology, Genetics and Microbiology, **Bindhyachal Rai**, University of Allahabad, **Sanjay Rai**, Jacksonville University, **Terrance Quinn**, Ohio University Southern, and **Sunil Tiwari**, Sonoma State University.

History of Indian Mathematics, **Gerard G. Emch**, University of Florida, and **R. Sridharan**, Chennai Mathematical Institute.

L-Functions, Automorphic Forms and Cryptography, **R. Balasubramanian**, Institute of Mathematical Sciences, and **K. Soundararajan**, University of Michigan.

The Many Facets of Linear Algebra and Matrix Theory, **Richard Brualdi**, University of Wisconsin, and **Rajendra Bhatia**, Indian Statistical Institute.

PDE and Applications, **Susan B. Friedlander**, University of Illinois, and **P. N. Srikanth**, Tata Institute of Fundamental Research.

Probability Theory, **Rajeeva Karandikar**, Indian Statistical Institute, and **Srinivasa R. S. Varadhan**, New York University-Courant Institute.

Quantum Dynamics, **William Arveson**, University of California Berkeley, and **B. V. Rajarama Bhat**, Indian Statistical Institute.

Reductive Groups: Arithmetic, Geometry and Representation Theory, **Vikram Mehta** and **R. Parimala**, Tata Institute of Fundamental Research, and **Gopal Prasad**, University of Michigan, Ann Arbor.

Spectral and Inverse Spectral Theories of Schrödinger Operators, **Peter David Hislop**, University of Kentucky, and **Krishna Maddaly**, Institute of Mathematical Sciences.

Meeting Website

This joint international meeting of the American Mathematical Society (AMS) (<http://www.ams.org>) is being organized with support from the Indian National Science Academy (INSA), New Delhi, and the Indian Academy of Sciences (IAS), Bangalore, (<http://www.ias.ac.in/>) December 17-20, 2003, at J. N. Tata Auditorium, Indian Institute of Science (IISc.), Bangalore (<http://www.iisc.ernet.in>).

Abstract Submission

The deadline for submission of all abstracts is September 1, 2003. Those wishing to submit an abstract should contact the organizer(s) of the Special Session directly.

Accommodations

Special rates have been negotiated at a number of hotels in the Bangalore area near the venue of the Joint India-AMS Mathematics Meeting. Here is a list of these hotels along with their rates. You must contact them directly. Please state that you are one of the participants in the India-AMS Meeting when making the reservation, and also send a copy of your reservation request to amsindia@isibang.ac.in.

There is more information regarding hotels in SITA Travels (<http://www.isibang.ac.in/Smubang/AmsIndia/Sita.html>) beyond the list given below.

The Chancery: Standard single room, US\$60; standard double room, US\$70; webpage: <http://www.chanceryhotel.com>; email: chancery@vsnl.com.

These rates include buffet breakfast but do not include all applicable taxes, presently 12.5%, which may be revised at any time.

Hotel Ashoka: For blocks of 50 rooms the following special rates would be applicable: single occupancy, INR 4350/- + taxes per day; double occupancy, INR 4875/- + taxes per day. For blocks of 100 rooms the following special rates would be applicable: single occupancy, INR 3770/- + taxes per day; double occupancy, INR 4225/- + taxes per day. Webpage: <http://www.theashokgroup.com/banashok.htm>; email: reservation@theashokgroup.com.

The rates quoted include complimentary breakfast. The rates quoted DO NOT include taxes, which will be charged extra as applicable at the time of use. The check-in/check-out time is 12 noon. The exact U.S. dollar amount depends on the rate of exchange in effect at the time of your stay.

Le Meridien: Superior single room, INR 4500/US \$140 plus taxes per room per night superior double room, INR 5200/US \$160 plus taxes per room per night; meal plan: complimentary buffet breakfast. Le Royal Club single room, INR 5500/US \$170 plus taxes per room per night; Le Royal Club double room, INR 6500/US \$200 plus taxes per room per night. Webpage: http://www.limeridien.com/india/bangalore/hotel_in1639.shtml; email: 1mbsales@blr.vsnl.net.in.

Program

The timetable for the lectures at Joint India-AMS Meeting:

The first hour on December 17 is for registration. In the timetable, the "H*" is an hour-long time slot, while the "P*"

Dec. 17	Registration	H1	C	P1	Lunch	P2	C	H2	H3
Dec. 18	H4	H5	C	P3	Lunch	P4	C	H6	H7
Dec. 19	H8	H9	C	P5	Lunch	P6			
Dec. 20	H10	H11	C	H12	Lunch	H13	C	H14	

is for the Plenary Lectures, whose duration will also be one hour. The "C" stands for short coffee/tea break. Of course, several sessions would be running parallel during each of the "H*" slots. There will be no other lectures while the Plenary Lectures are being given. The organizers of the Special Sessions will decide on the length of each lecture in their respective sessions. Please note that there are no lectures scheduled for the afternoon of December 19 after P6. All the half sessions will run parallel on December 20.

Registration

See the meeting website maintained by the organizers for online registration. All enquiries concerning registration by post should be directed to gm@isibang.ac.in. There are no registration fees for this meeting.

Travel

Travel arrangements to India in December must be made well in advance (about three months for international travel). Please visit the website regarding local information maintained by the organizers at <http://www.isibang.ac.in/Smubang/AmsIndia/amsindia.htm>.

Phoenix, Arizona

Phoenix Civic Plaza

January 7–10, 2004

Wednesday–Saturday

Meeting #993

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), the winter meeting of the Association for Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: October 2003

Program first available on AMS website: November 1, 2003

Program issue of electronic *Notices*: January 2004

Issue of *Abstracts*: Volume 25, Issue 1

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
Expired

For abstracts: October 1, 2003

For summaries of papers to MAA organizers: September 9, 2003

Joint Invited Addresses

Bonnie Berger, Massachusetts Institute of Technology, *Title to be announced* (AMS-MAA), Friday, 11:10 a.m.

Stephen Wolfram, Wolfram Research Inc., *Title to be announced* (AMS-MAA), Wednesday, 11:10 a.m.

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

Joint Special Sessions

Classical and Nonlinear Special Functions (Code: SS 9A), **Peter A. Clarkson**, University of Kent, **Francisco Marcellan**, Universidad Carlos III, and **Peter A. McCoy**, U. S. Naval Academy; Friday and Saturday mornings and Friday afternoon. (AMS-SIAM)

Coding, Geometry, and Hyperbolic Dynamics (Code: SS 21A), **Svetlana R. Katok**, Pennsylvania State University, and **Boris Hasselblatt**, Tufts University; Thursday and Friday afternoons and Friday morning. (AMS-AWM)

History of Mathematics (Code: SS 6A), **Joseph W. Dauben**, Lehman College (CUNY), and **David E. Zitarelli**, Temple University; Friday and Saturday mornings and afternoons. (AMS-MAA)

Infinite Combinatorics and Inner Model Theory (Code: SS 22A), **Matthew D. Foreman** and **Martin Zeman**, University of California Irvine; Wednesday afternoon and Thursday morning. (AMS-ASL)

Mathematical Techniques in Musical Analysis (Code: SS 1A), **Judith L. Baxter**, University of Illinois at Chicago, and **Robert W. Peck**, Louisiana State University; Friday and Saturday afternoons and Friday morning. (AMS-MAA)

Mathematics and Education Reform (Code: SS 17A), **William H. Barker**, Bowdoin College, **Jerry L. Bona** and **Naomi Fisher**, University of Illinois at Chicago, **Kenneth C. Millett**, University of California Santa Barbara, and **Bonnie Saunders**, University of Illinois at Chicago; Wednesday and Thursday mornings and Wednesday afternoon. (AMS-MAA-MER)

Research in Mathematics by Undergraduates (Code: SS 20A), **Darren A. Narayan**, **Carl V. Lutzer**, and **Tamara A. Burton**, Rochester Institute of Technology; Thursday morning and afternoon. (AMS-MAA-SIAM)

Other Joint Sessions

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 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 Award for Distinguished Public Service, Levi L. Conant Prize, E. H. Moore Research Article Prize, Oswald Veblen Prize in Geometry, Norbert Wiener Prize in Applied Mathematics, JPBM Communications Award, 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.

110th Annual Meeting of the AMS

AMS Invited Addresses

Michael Aschbacher, California Institute of Technology, *The status of the classification of the finite simple groups*, Wednesday, 10:05 a.m.

Hyman Bass, University of Michigan, *Title to be announced* (Retiring Presidential Address), Thursday, 3:20 p.m.

Sun-Yang Alice Chang, Princeton University, *Conformal invariants and partial differential equations* (Colloquium Lectures), Wednesday–Friday, 1:00 p.m.

Eric Lander, Whitehead Institute for Biomedical Research, *Title to be announced* (Josiah Willard Gibbs Lecture), Wednesday, 8:30 p.m.

Gregory F. Lawler, Cornell University, *Random planar curves and conformal invariance*, Friday, 10:05 a.m.

Eva Tardos, Cornell University, *Title to be announced*, Thursday, 2:15 p.m.

James A. Yorke, University of Maryland, *Properties of “almost every” C^1 image of compact sets*, Friday, 9:00 a.m.

AMS Special Sessions

Arithmetical Algebraic Geometry (Code: SS 33A), **Kirti Joshi**, **Minhyong Kim**, and **Adrian Vasiu**, University of Arizona; Friday and Saturday afternoons and Saturday morning.

Celestial Mechanics (Code: SS 10A), **Samuel R. Kaplan**, University of North Carolina at Asheville, and **Gareth E. Roberts**, College of the Holy Cross; Wednesday morning and afternoon.

Coding and Design-Theoretic Applications of Polynomials (Code: SS 2A), **Donald D. Mills**, Southern Illinois University, Carbondale, **Patrick S. Mitchell**, Midwestern State University, and **Kent M. Neuerburg**, Southeastern Louisiana University; Wednesday and Thursday mornings and Wednesday afternoon.

Competitive and Adaptive Dynamics in Ecology (Code: SS 15A), **Carlos Castillo-Chavez**, Los Alamos National Laboratory, **Yang Kuang**, Arizona State University, **Bai-Lian Li**, University of California Riverside, and **Horst R. Thieme**, Arizona State University; Friday and Saturday mornings and Saturday afternoon.

Continued Fractions (Code: SS 26A), **James G. McLaughlin** and **Nancy J. Wyshinski**, Trinity College; Friday morning and afternoon.

Current Events (Code: SS 18A), **David Eisenbud**, Mathematical Sciences Research Institute and University of California Berkeley; Friday afternoon.

Discrete Dynamics and Difference Equations (Code: SS 16A), **Saber N. Elaydi**, Trinity University, **Jim M. Cushing**, University of Arizona, **Gerasimos Ladas**, University of Rhode Island, and **James A. Yorke**, University of Maryland, College Park; Wednesday and Thursday mornings and afternoons.

Fixed Points: Theory and Application (Code: SS 4A), **Robert F. Brown** and **Mark S. Burgin**, University of California Los Angeles; Thursday and Friday afternoons and Friday morning.

Geometric Structures on Manifolds (Code: SS 31A), **Tedi C. Draghici**, **Gueo V. Grantcharov**, and **Philippe Rukimbira**, Florida International University; Saturday morning and afternoon; Saturday morning and afternoon.

Geometry and Combinatorics (Code: SS 32A), **Michael J. Falk**, Northern Arizona University, **Eva-Maria Feichtner**, ETH Zurich, and **Dmitry N. Kozlov**, Bern University; Wednesday and Thursday afternoons and Wednesday morning.

Low-Dimensional Topology (Code: SS 7A), **Tim D. Cochran**, Rice University; Friday and Saturday mornings and afternoons.

The Many Lives of Lattice Theory and the Theory of Ordered Sets, with Connections to Combinatorics (Code: SS 29A), **Jonathan D. Farley**, Massachusetts Institute of Technology, and **Stefan E. Schmidt**, New Mexico State University; Wednesday and Thursday mornings and afternoons.

Mathematical Modeling in Neuroscience, Biomedicine, Genetics, and Epidemiology (Code: SS 14A), **Steven M. Baer**, Arizona State University, **Ivo D. Dinov**, University of California Los Angeles, and **Frank C. Hoppensteadt** and **Hal L. Smith**, Arizona State University; Thursday and Friday afternoons and Thursday morning.

Mathematics in Natural Resource Modeling (Code: SS 11A), **Catherine A. Roberts**, College of the Holy Cross, and **Suzanne M. Lenhart**, University of Tennessee; Wednesday morning and afternoon.

Modern Function Theory (Code: SS 27A), **Beth Schaubroeck**, U. S. Air Force Academy, **Peter L. Duren**, University of Michigan, Ann Arbor, and **John A. Pfaltzgraff**, University of North Carolina at Chapel Hill; Friday afternoon and Saturday morning.

Multiscale and Oscillatory Phenomena: Modeling, Numerical Techniques, and Applications (Code: SS 23A), **Richard Tsai**, Princeton University, and **Luminita A. Vese**, University of California Los Angeles; Friday and Saturday mornings and Saturday afternoon.

Nonassociative Algebra (Code: SS 12A), **Murray R. Bremner**, University of Saskatchewan, **Irvin R. Hentzel**, Iowa State University, and **Luiz A. Peresi**, University of Sao Paulo; Saturday morning and afternoon.

Nonlinear Partial Differential Equations and Conformal Geometry (Code: SS 34A), **Jie Qing**, University of California

Santa Cruz, and **Yu Yuan**, University of Washington, Seattle; Wednesday and Thursday mornings and Wednesday afternoon.

Nonlinear PDEs and Variational Problems (Code: SS 5A), **David A. Hartenstine**, University of Utah, **Ahmed Mohammed**, Ball State University, **John M. Neuberger**, Northern Arizona State University, and **John W. Neuberger**, University of North Texas; Friday and Saturday mornings and afternoons.

Nonstandard Methods (Code: SS 8A), **Matt Insall**, University of Missouri at Rolla, **Peter A. Loeb**, University of Illinois at Urbana-Champaign, and **David A. Ross**, University of Hawaii; Wednesday and Thursday afternoons and Thursday morning.

Partial Differential Equations and Applications (Code: SS 24A), **Xin Lu**, University of North Carolina at Wilmington, **Yan-Wei Qi**, University of California Santa Barbara, **Weiqing Xie**, California State Polytech University, and **Hong-Ming Yin**, Washington State University; Thursday morning and afternoon.

Probability and Its Applications in Combinatorics and Algorithms (Code: SS 13A), **Russell D. Lyons**, Indiana University, and **Yuval Peres**, University of California Berkeley; Wednesday and Thursday mornings and afternoons.

Smooth Dynamical Systems and Applications (Code: SS 30A), **Qiu-dong Wang** and **Maciej P. Wojtkowski**, University of Arizona; Saturday morning and afternoon.

Theory and Applications of Orthogonal Polynomials (Code: SS 25A), **Mourad E. H. Ismail**, University of South Florida, and **Barry Simon**, California Institute of Technology; Wednesday and Thursday afternoons and Thursday morning.

Time Scales and Applications (Code: SS 19A), **Martin J. Bohner**, University of Missouri at Rolla, **Billur Kaymakçalan**, Georgia Southern University, and **Allan C. Peterson**, University of Nebraska; Wednesday and Thursday afternoons and Wednesday morning.

Topological Dynamics and Ergodic Theory (Code: SS 28A), **Alica Miller** and **Joseph Rosenblatt**, University of Illinois at Urbana-Champaign; Thursday and Friday mornings.

Value Distribution Theory in Classical and p -Adic Function Theory (Code: SS 3A), **Alain Escassut**, Université Blaise Pascal, **Ilpo Laine**, University of Joensuu, and **Chung-Chun Yang**, Hong Kong University of Science and Technology; Saturday morning and afternoon.

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

AMS Committee on the Profession Panel Discussion: Wednesday, 4:30 p.m. to 6:00 p.m.

Who Wants To Be A Mathematician: Friday, 10:00 a.m. to 11:00 a.m., organized by Michael A. Breen and Annette W. Emerson, AMS; and William T. Butterworth, Barat College of DePaul University. Come watch ten of Phoenix'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.

AMS Committee on Science Policy Presentation: Friday, 2:30 p.m. to 4:00 p.m.

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

Other AMS Events

Council: Tuesday, 1:00 p.m.

Business Meeting: Saturday, 11:45 a.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 10, 2003.

AMS Short Course

This two-day course on Trends in Optimization, 2004, organized by **Serkan Hosten**, San Francisco State University; **Jon Lee**, IBM; and **Rekha Thomas**, University of Washington, takes place on Monday and Tuesday, January 5 and 6. Please see the complete article on page 000. Talks include *Graphs and combinatorial optimization*, *Polyhedral methods in optimization*, *Integer-programming duality*, *Nonlinear and semidefinite programming*, *Approximation algorithms*, *Lattice basis reduction in optimization*, and *Algebraic methods in optimization*. There are separate registration fees to participate. See the fee schedule on the registration form at the back of this issue.

87th Annual Meeting of the MAA

MAA Invited Addresses

Manjul Bhargava, Harvard University, *Title to be announced*, Thursday, 10:05 a.m.

William W. Dunham, Muhlenberg College, *Selections from the Calculus Museum*, Wednesday, 3:20 p.m.

Erica L. Flapan, Pomona College, *When topology meets chemistry*, Saturday, 9:00 a.m.

Mark M. Meerschaert, University of Nevada, *Fractional calculus with applications*, Friday, 1:00 p.m. (Student Lecture)

Neil J. A. Sloane, AT&T Shannon Labs, *The on-line encyclopedia of integer sequences, or confessions of a sequence addict*, Wednesday, 2:15 p.m.

Ann E. Watkins, California State University Northridge, *Fallacies in elementary statistics*, Saturday, 10:05 a.m. (Retiring Presidential Address)

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. The MAA reserves the right to cancel any minicourse that is undersubscribed.

Minicourse #1: *Designing and Evaluating Assessments for Introductory Statistics*, organized by **Beth L. Chance** and **Allan J. Rossman**, California Polytechnic State University, San Luis Obispo; and **Robert C. Del Mas**, University of Minnesota; Part A: Wednesday, 9:00 a.m. to 11:00 a.m.; Part B: Friday, 9:00 a.m. to 11:00 a.m. Statistics teachers find it challenging to construct student assessments that focus on conceptual understanding, allow consistent scoring, and provide informative feedback. Participants will be involved in constructing assessment instruments for use in introductory courses using an online assessment resource, ARTIST, and in evaluating the results. We will discuss guidelines of effective assessment, resources for assessment material categorized by concept and level of difficulty, suggestions for evaluating student performance through examinations and performance assessments, and

use of a comprehensive first-course exam. Participants will be invited to pilot items, contribute new items, and share outcome data for comparison across institutions through ARTIST. Cost is \$90; enrollment limit is 30.

Minicourse #2: *Hands-On Discrete Math with Technology*, organized by **Douglas E. Ensley** and **Kate McGivney**, Shippensburg 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. Discrete math is a course that serves students studying math and computer science. The goals for these two disciplines can be different, so the goals for this course are often debated. This minicourse will focus on three particular topics—sets/relations, combinatorics/probability, and writing mathematical proofs—that are common to most discrete math courses. We will use Maple and the TI-83 for the first two topics and simple Flash movies for the third. Some familiarity with Maple syntax and TI calculators is required, but no experience with Flash will be assumed. Cost is \$90; enrollment limit is 30.

Minicourse #3: *Computation and Discovery in the Number Theory Classroom*, organized by **Clifford A. Reiter**, Lafayette 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. While proofs remain central to number theory, technology offers opportunities for discovering theorems and investigating conjectures in the number theory classroom. The instructor has developed several J-based computer classroom laboratories which will be shared with participants. No experience with J is expected. Sample lab topics include the sieve of Eratosthenes and twin primes, discovering quadratic reciprocity, public key codes, factoring, and elliptic curves. Participants are expected to share their ideas, reactions, and experiences. Cost is \$90; enrollment limit is 30.

Minicourse #4: *Java Applets in Teaching Mathematics*, organized by **Joe Yanik**, Emporia State University, and **David M. Strong**, Pepperdine University; 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 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 #5: *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, 10:15 a.m. to 12:15 p.m.; Part B: Saturday, 1:00 p.m. to 3:00 p.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. N.B. Those interested must register in advance; there is no on-site registration for this minicourse.

Minicourse #6: *Using Interactive Labs to Explore Abstract Algebra Topics*, organized by **Allen C. Hibbard**, Central College, and **Kenneth M. Levasseur**, University of Massachusetts at Lowell; Part A: Thursday, 1:00 p.m. to 3:00 p.m.; Part B: Saturday, 3:15 p.m. to 5:15 p.m. Using Mathematica, participants will become engaged in examining interactive laboratory activities focusing on groups, rings, and morphisms. The notebooks, designed for exploration and investigation of these structures, are intended to expand upon or motivate classroom discussions. No programming with Mathematica is necessary (though minimal familiarity with the software is helpful) since packages are imported that define the required functionality. A CD with our packages and notes will be distributed. (On Thursday, 12:30 p.m. to 1:15 p.m., there will be a preliminary session available to acquaint those unfamiliar with Mathematica.) Go to <http://www.central.edu/eaam/> for more information. Cost is \$90; enrollment limit is 30.

Minicourse #7: *Origami in Undergraduate Mathematics Courses*, organized by **Thomas C. Hull**, Merrimack College; Part A: Wednesday, 9:00 a.m. to 11:00 a.m.; Part B: Friday, 9:00 a.m. to 11:00 a.m. Those who have studied origami may have unfolded their creations and marveled at the pattern of creases in the paper that result. Lovely mathematics, from geometry, combinatorics, and algebra lurks behind these creases. This material is easily understood by undergraduate majors, leads to numerous open questions, and offers a great opportunity for hands-on, discovery-based learning. This workshop will offer participants hands-on experience with the main areas of "origami-math" (modular origami, geometric constructions, and combinatorial modeling) to incorporate into their own classes. Experience either in paperfolding or in teaching geometry, algebra, or combinatorics would be useful. Cost is \$70; enrollment limit is 30.

Minicourse #8: *Some Mathematics of Leonhard Euler*, organized by **William W. Dunham**, Muhlenberg College, and **Edward C. Sandifer**, Western Connecticut 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. Euler wrote and published over 850 books and papers. They form the basis for huge segments of modern mathematics. We will survey his many contributions and take a close look at a few of them. We will demonstrate how to use Euler's 18th-century mathematics in a 21st-century environment, and we will show by example why Laplace was giving good advice when he said, "Read Euler, read Euler. He is the master of us all." Cost is \$60; enrollment limit is 60.

Minicourse #9: *PMET (Preparing Mathematicians to Educate Teachers): Grades 7-12*, organized by **Holly Hirst**, Appalachian State University, and **Jack Y. Narayan**, SUNY College at Oswego; Part A: Wednesday, 4:30 p.m. to 6:30 p.m.; Part B: Friday, 3:15 p.m. to 5:15 p.m. What back-

ground does a mathematician need in order to teach mathematics courses for future teachers? This is the question being addressed by the PMET initiative funded by NSF and MAA. This minicourse will provide an overview of the initiative and will share videos, hands-on activities, presentations, and discussions related to teaching prospective middle grades and secondary teachers. Participants will also learn about resources that PMET has developed as well as programs planned for the future. Cost is \$60; enrollment limit is 60.

Minicourse #10: *Teaching Linear Algebra with Applications*, organized by **Gilbert Strang**, Massachusetts Institute of Technology; Part A: Thursday, 9:00 a.m. to 11:00 a.m.; Part B: Saturday, 9:00 a.m. to 11:00 a.m. Linear algebra is a crucial subject in the teaching and applications of mathematics. We hope to suggest new ideas in its presentation. Among those ideas is a range of problems whose exploration (by hand and mind, not by computer) will lead us to the major themes of linear algebra. The pure and applied parts of this subject will be intertwined in the minicourse, as they are in reality. In a way, the minicourse itself will try to show the fascination of teaching and learning and using linear algebra. The problems will be distributed (with some solutions!), and we describe our use of the course page, web.mit.edu/18.06/www, and of computing, all open for discussion. Cost is \$60; enrollment limit is 60.

Minicourse #11: *Developing Your Department's Assessment Plan*, organized by **William G. Marion**, Valparaiso University, and **Bonnie Gold**, Monmouth University; Part A: Thursday, 1:00 p.m. to 3:00 p.m.; Part B: Saturday, 1:00 p.m. to 3:00 p.m. Most universities and, thus, individual departments are under pressure from accrediting agencies to develop and implement assessment plans to assess student learning. During the minicourse pairs (or larger groups) of members of a mathematical sciences department will develop, in workshop format, a proposed departmental mission statement and the skeleton of its individualized assessment plan. Sample assessment programs (developed by teams of mathematics faculty under the auspices of the MAA's NSF-funded assessment project, Supporting Assessment in Undergraduate Mathematics) will be discussed, and participants will share ideas with groups from similar departments to develop their own program. Cost is \$60; enrollment limit is 60.

Minicourse #12: *Incorporating Discrete Mathematics in the Preparation of K-12 Mathematics Teachers*, organized by **Lolita Alvarez**, New Mexico 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. More than a fixed set of topics, discrete mathematics is a way of thinking that deals with important and interesting problems in contemporary mathematics. Using some of these problems as starting points, we will expose, at different levels of sophistication, the mathematics of each situation. We will emphasize the interplay between mathematical content and methods of teaching and learning, and the insertion in the school curriculum of topics from discrete mathematics. Each participant will receive a collection of materials, including ready-to-use assignments. Cost is \$60; enrollment limit is 60.

Minicourse #13: *The Fibonacci and Catalan Numbers*, organized by **Ralph P. Grimaldi**, Rose-Hulman Institute of Technology; Part A: Wednesday, 2:15 p.m. to 4:15 p.m.; Part B: Friday, 1:00 p.m. to 3:00 p.m. In introductory courses in discrete or combinatorial mathematics one encounters the Fibonacci numbers and sometimes the Catalan numbers. This minicourse will review and then extend this first encounter as it examines some of the properties these numbers exhibit as well as applications where these sequences arise. A survey of applications dealing with chemistry, physics, computer science, linear algebra, set theory, graph theory, and number theory will show why these sequences are of interest and importance. Cost is \$60; enrollment limit is 60.

Minicourse #14: *Introduction to Mathematical Card Tricks*, organized by **Colm K. Mulcahy** and **Jeffrey A. Ehme**, Spelman College; Part A: Wednesday, 4:30 p.m. to 6:30 p.m.; Part B: Friday, 4:30 p.m. to 6:30 p.m. Card tricks live up any gathering—including mathematics classes—and can help to convince people that math is fun and that there is a rational explanation for some seemingly impossible events. This interactive introduction to mathematical card tricks will survey applications of permutations, binary and ternary numbers, probability and more, and will feature classic tricks based on the Gilbreath principle and faro shuffle. Cost is \$60; enrollment limit is 60.

Minicourse #15: *Fair Enough? Mathematics of Equity*, organized by **John C. Maceli** and **Stanley E. Seltzer**, Ithaca College; Part A: Thursday, 9:00 a.m. to 11:00 a.m.; Part B: Saturday, 9:00 a.m. to 11:00 a.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 60.

Minicourse #16: *Getting Students Involved in Undergraduate Research*, organized by **Aparna W. Higgins**, University of Dayton, and **Joseph A. Gallian**, University of Minnesota, Duluth; Part A: Thursday, 1:00 p.m. to 3:00 p.m.; Part B: Saturday, 1:00 p.m. to 3:00 p.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 60.

MAA Invited Paper Sessions

WebWork, a Web-Based Homework System, Thursday afternoon, organized by **Michael G. Gage**, **Arnold K. Pizer**, and **Vicki Roth**, University of Rochester; **Jeffrey W. Holt**, University of Virginia; and **John W. Jones**, Arizona State

University. Further information on WebWork may be found at <http://www.webwork.math.rochester.edu>.

Assessment of Student Learning in Undergraduate Mathematics, Friday afternoon, organized by **Bernard L. Madison**, University of Arkansas at Fayetteville, and **William E. Haver**, Virginia Commonwealth University.

The Use of Hand-Held Technology in College and University Developmental Algebra Classrooms, Friday afternoon, organized by **Wade Ellis Jr.**, West Valley College, and **Edward D. Laughbaum**, The Ohio State University.

Applications of Topology to Biology, Chemistry, and Physics, Saturday afternoon, organized by **Erica L. Flapan**, Pomona College, and **Dorothy Buck**, Brown University.

MAA Contributed Paper Sessions

See the complete descriptions and instructions on how to participate in these sessions, beginning on page 25 in the May/June issue of *FOCUS* or at http://www.ams.org/amsmtg/2078_maacontrib.html. Please note that the days and times listed are tentative.

Submitters should be aware that if your talk cannot be accommodated in the session of your choice, it will be submitted to the General Contributed Paper Session organizer for consideration. Please do not submit multiple abstracts.

Teaching a History of Mathematics Course (MAA CP A1), Wednesday morning, **Joel K. Haack**, University of Northern Iowa, and **Amy E. Shell-Gellasch**, SIAM-Germany.

Teaching Operations Research in the Undergraduate Classroom (MAA CP B1), Wednesday morning, **Dipa Choudhury**, Loyola College, and **Steven M. Hetzler**, Salisbury State University.

Mathematical Experiences for Students outside the Classroom (MAA CP D1), Wednesday morning, **Laura L. Kelleher**, Massachusetts Maritime Academy, and **Mary S. Hawkins**, Prairie View A&M University.

Uses of the WWW That Enrich and Promote Learning (MAA CP C1), Wednesday and Saturday afternoons, **Marcelle Bessman**, Jacksonville University; **Marcia P. Birken**, Rochester Institute of Technology; **Mary L. Platt**, Salem State College; and **Brian E. Smith**, McGill University.

Courses below Calculus: A New Focus (MAA CP E1), Wednesday afternoon and Thursday morning, **Mary Robinson**, University of New Mexico, Valencia Campus; **Florence S. Gordon**, New York Institute of Technology; **Arlene H. Kleinstein**, SUNY at Farmingdale; **Norma M. Agras**, Miami Dade Community College; **Laurette B. Foster**, Prairie View A&M University; and **Linda Martin**, Albuquerque T-VI.

Getting Students to Discuss and Write about Mathematics (MAA CP F1), Wednesday afternoon, **Sarah L. Mabrouk**, Framingham State College.

The Effective Use of Computer Algebra Systems in the Teaching of Mathematics (MAA CP G1), Wednesday afternoon, **L. Carl Leinbach**, Gettysburg College, and **Edward A. Connors**, University of Massachusetts.

Placement Strategies (MAA CP H1), Thursday morning, **Janet P. Ray**, Seattle Central Community College; **Susan L. Forman**, Bronx Community College, CUNY; and **Patricia R. Wilkinson**, Borough of Manhattan Community College, CUNY.

Chaotic Dynamics and Fractal Geometry (MAA CP I1), Thursday morning, **Denny Gulick**, University of Maryland, and **Jon Scott**, Montgomery College.

Truth in Using the History of Mathematics in Teaching Mathematics (MAA CP J1), Thursday morning, **Victor J. Katz**, University of the District of Columbia, and **Eisso J. Atzema**, University of Maine.

Innovations in Teaching Discrete Mathematics (MAA CP K1), Thursday afternoon, **William E. Fenton**, Bellarmine University, and **Nancy L. Hagelgans**, Ursinus College.

Initiating and Sustaining Undergraduate Research Projects and Programs (MAA CP L1), Thursday afternoon, **James A. Davis**, University of Richmond, and **Joel S. Foisy**, State University of New York.

Mathlets for Teaching and Learning Mathematics (MAA CP M1), Thursday afternoon, **David M. Strong**, Pepperdine University; **Thomas E. Leathrum**, Jacksonville State University; and **Joe Yanik**, Emporia State University.

Statistics Education Discourse on Inference (MAA CP N1), Friday morning, **John D. McKenzie Jr.**, Babson College, and **Carolyn K. Cuff**, Westminster College.

Math and the Arts (MAA CP O1), Friday morning, **Ann Robertson**, Connecticut College; **John M. Sullivan**, University of Illinois, Urbana; **Reza Sarhangi**, Towson University; and **Nathaniel A. Friedman**, State University of New York, Albany.

Applications of Mathematics in Computer Science (MAA CP P1), Friday morning, **William A. Marion**, Valparaiso University.

Mathematics Experiences in Business, Industry and Government (MAA CP Q1), Friday morning, **Philip E. Gustafson**, Mesa State College, and **Michael G. Monticino**, University of North Texas.

Teaching and Learning of Undergraduate Mathematics (MAA CP R1), Friday afternoon and Saturday morning, **Anne E. Brown**, Indiana University South Bend; **Marilyn P. Carlson**, Arizona State University; and **Draga D. Vidakovic**, Georgia State University.

My Favorite Demo: Innovative Strategies for Mathematics Instructors (MAA CP S1), Friday afternoon and Saturday morning, **David R. Hill**, Temple University, and **Lila F. Roberts**, Georgia Southern University.

Mathematical Models of the Environment (MAA CP T1), Friday afternoon, **Karen D. Bolinger**, Clarion University; **William D. Stone**, New Mexico Institute of Mining and Technology; and **Ahlam E. Tannouri**, Morgan State University.

Philosophy of Mathematics (MAA CP U1), Friday afternoon, **Roger A. Simons**, Rhode Island College, and **Satish C. Bhatnagar**, University of Nevada, Las Vegas. The session will be punctuated with light refreshments and informal conversation, and will be followed by its annual business meeting at 6:00 p.m. If you have an interest in the philosophy of mathematics, please join us on Friday.

Focus on Integrating Graphic Handhelds into Collegiate Mathematics (MAA CP V1), Saturday morning, **Charles E. Hofmann**; LaSalle University, and **Joseph R. Fiedler**, California State University Bakersfield.

Mathematics and Sports (MAA CP W1), Saturday morning, **Sean L. Forman**, Saint Joseph's University, and **Douglas Drinen**, University of the South.

Technology in Mathematics Teacher Preparation Courses (MAA CP X1), Saturday afternoon, **Mary Ann Connors**, Westfield State College, and **Christine Browning**, Western Michigan University, Kalamazoo.

Strategies That Work to Positively Change Student Attitudes toward Mathematics (MAA CP Y1), Saturday afternoon, **Caren L. Diefenderfer**, Hollins University; **Janet L. Andersen**, Hope College; and **Elizabeth G. Yanik**, Emporia State University.

General Contributed Paper Session (MAA CP Z1), Wednesday–Saturday afternoons, and Saturday morning **Laura J. Wallace**, California State University San Bernardino; **Jacqueline Jensen**, University of Oregon; and **Gary Townsley**, SUNY at Geneseo. Papers may be presented on any mathematical topic. Papers that fit into one of the other sessions should be sent to that organizer, not to this session. Any paper that cannot be accommodated in one of the named contributed paper sessions will be diverted automatically to this session; therefore, papers should not be sent to more than one session organizer.

Other MAA Sessions

Open Discussion on Beginning-Level Courses, Wednesday, 9:00 a.m. to 10:20 a.m., organized by **Donald B. Small**, U.S. Military Academy. An explosion of interest in the role of beginning-level courses has arisen within the past few years. The recognition that the large majority of students enrolled in mathematics are in the beginning level courses and the awareness that these courses are not successfully serving a “feeder” function into other mathematics courses has led to questions concerning their roles, content, and pedagogy. Panelists include **Norma M. Agras**, Miami-Dade Community College, and **Bob Mayes**, West Virginia University. The panel will be moderated by **Jack Bookman**, Duke University, and is sponsored by the CUPM Subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY).

Quantitative Literacy Across the Curriculum, Wednesday, 2:15 p.m. to 3:35 p.m., organized by **Rick Gillman**, Valparaiso University; **Kim Rheinlander**, Dartmouth University; **Emily Decker Larder** and **Gillie Malnarich**, Evergreen State University. Many institutions have made quantitative literacy a priority and are now in the process of changing their curriculum or instituting new requirements to meet that goal. This past summer, two MAA PREP workshops were held at which participants adapted and created QL materials appropriate for their own courses and students, drawing on materials developed at sites across the country. In addition, participants discussed a general framework for quantitative literacy by reading and discussing *Mathematics and Democracy and Radical Equations*. They developed strategies for assessing the effectiveness of the curricular changes they are promoting. Our panelists, participants from these workshops, will describe their experiences at the Northeast and Northwest PREP workshops on Quantitative Literacy Across the Curriculum. They will describe the programs that they envisioned at the workshops and their experiences at initiating these programs once they returned to their home campuses. The session is sponsored by the CUPM Subcommittee on Quantitative Literacy Requirements.

Service Learning in Mathematics: They Wrote the Book, Wednesday, 2:15 p.m. to 3:35 p.m., organized by **Jerry F. Dwyer**, Texas Tech University. This session presents descriptions of service learning activities as graded sections of mathematics classes. The organization of these activities and related implementation and grading issues will be discussed. Contributions in all areas of service learning in mathematics are solicited. Presentations related to preservice teacher training are particularly welcome for this session. Panelists include **Josh Sabloff**, Haverford College; **Richard A. Zang**, University of New Hampshire at Manchester; **Perla L. Myers**, University of San Diego; **Dana S. Craig**, University of Central Oklahoma; and **Lida McDowell**, University of Southern Mississippi.

Writing Textbooks in Mathematics, Wednesday, 2:30 p.m. to 4:00 p.m., organized by **Revathi Narasimhan**, Kean University. At some point or another, many of us have thought about writing a mathematics textbook. What does this involve? The panel, composed of experienced authors and acquisitions editors, will discuss various aspects of the textbook writing process, including reasons for writing a textbook, current market trends in textbooks at various levels, writing proposals for a textbook and the editorial process, what editors look for when evaluating a proposal, textbook writing and promotion and tenure issues, and some “nuts and bolts” details of producing a manuscript. There will be time for questions and answers from the audience. Panelists include **Lynn Cox**, Houghton-Mifflin; **J. Douglas Faires**, Youngstown State University; **William Hoffman**, Addison-Wesley; and **Dan Kalman**, American University. This session was organized by the 1994–99 Project NEXT Fellows and is sponsored by MAA Project NEXT.

The Impact of Laptop Computers on Classroom Instruction, Wednesday, 3:45 p.m. to 5:05 p.m., organized by **Donald B. Small**, U.S. Military Academy. Laptop computers are changing many, if not all, aspects of instruction. For example, is hand computation of derivatives and integrals an essential part of a calculus course in which students have laptop computers? What approximation skills are required to validate the output of computer algebra systems? How does the use of laptop computers effect testing? The panelists will discuss curricula impact of students using laptops in the classroom. They will share their experiences and lessons learned. Panelists include **Panama Geer**, Bryn Mawr College; **Michael Huber**, U.S. Military Academy; and **Jim Rolfe**, U.S. Air Force Academy. The session will be moderated by **Joseph D. Myers**, U.S. Military Academy, and is sponsored by the CUPM Subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY).

History of Mathematics (HOM) SIGMAA Annual Meeting and Inaugural Annual Address, Wednesday, 6:00 p.m. to 8:00 p.m., organized by **Amy Shell-Gellasch**, SIAM-Germany. In addition to our annual meeting, The HOM SIGMAA executive council is pleased to announce the inauguration of our first annual guest lecture. **Peggy Kidwell** and **Amy Ackerberg-Hastings** will present “Making sense of your department’s material culture”. In this talk you will learn how to identify, understand, and arrange mathematical objects and books you might find in your department. In

many cases, math professors don’t need to leave their home institutions to explore the material culture of mathematics. Historic models, devices, and books may be tucked away in the drawers and closets of their own departments. For more information, visit the HOM SIGMAA website, accessible from the MAA website, or contact **Amy Shell-Gellasch** at amy.shellgellasch@us.army.mil.

The Impact of Technology in Calculus Courses on Long-Term Student Performance and Employment, Thursday, 9:00 a.m. to 10:20 a.m., organized by **Susan L. Ganter**, Clemson University, and **Jack Bookman**, Duke University. More than fifteen 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 post-calculus achievement of the participating students. This panel will address this issue by discussing results from a multiinstitutional project that includes data for the purpose of comparing the performance of reform and traditional calculus students in courses beyond calculus, examining students prior to graduation from college to determine these students’ fundamental notions of calculus, determining the extent to which potential employers value the ideals supported by calculus reform efforts, and 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 Ledder**, University of Nebraska; and **Howard L. Penn**, U.S. Naval Academy. The session is sponsored by the CUPM Subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY).

National Science Foundation Programs Supporting Learning and Teaching in the Mathematical Sciences, Thursday, 9:00 a.m. to 10:20 a.m., organized by **Elizabeth J. Teles**, **Calvin L. Williams**, **Lee L. Zia**, NSF Division of Undergraduate Education; **John Bradley**, NSF Division of Elementary, Secondary and Informal Education; **James H. Lightbourne**, NSF Division of Graduate Education; and **Lloyd E. Douglas**, NSF Division of Mathematical Sciences. A number of NSF divisions offer a variety of grant programs that 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.

SUMMA Special Presentation, Thursday, 9:00 a.m. to 10:20 a.m., organized by **William A. Hawkins Jr.**, MAA and the University of the District of Columbia. Panelists will discuss programs for increasing diversity among mathematics students. The panel will be moderated by **William A. Hawkins Jr.**, director of the SUMMA (Strengthening Underrepresented Minority Mathematics Participation) program. Panelists include **Jong Pil Lee**, SUNY College at Old Westbury, and **Thomas Martin**, California State University at Chico. The panel is sponsored by the MAA Committee on Minority Participation in Mathematics (CMPM). There will be ample time for discussion.

Mentoring New Faculty, Thursday, 9:00 a.m. to 10:30 a.m., organized by **T. Christine Stevens**, St. Louis University; **Joseph A. Gallian**, University of Minnesota Duluth; and **Aparna W. Higgins**, University of Dayton. Panelists **Emily Ann Hynds**, Sanford University; **Jim Lewis**, University Nebraska, Lincoln; **Catherine M. Murphy**, Purdue University Calumet; and **Thomas Q. Sibley**, Saint John's University, will discuss formal and informal mentoring programs and practices for new faculty offered in their departments. What new faculty desire in the way of mentoring will also be addressed. This session is sponsored by MAA Project NEXt.

Undergraduate Programs and Courses in the Mathematical Sciences: A CUPM Curriculum Guide, Thursday, 10:45 a.m. to 12:05 p.m., organized by **Harriet S. Pollatsek**, Mount Holyoke College, and **Susan L. Ganter**, Clemson 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. The 2004 CUPM Curriculum Guide is the first explicitly to address the needs of nonmajors as well as majors. The panelists, **William H. Barker**, Bowdoin College; **David M. Bressoud**, Macalester College; **Susanna Epp**, DePaul University; **Susan L. Ganter**; and **Bill Haver**, Virginia Commonwealth University, will describe the new CUPM recommendations and discuss implementation issues. The CUPM Curriculum Guide has been formed by the CRAFTY Curriculum Foundations Project, and from the MAA report *CUPM Discussion Papers about Mathematics and Mathematical Sciences in 2010: What Should Students Know?*, and other reports, plus focus groups on earlier drafts. Most recently, it was revised based on feedback from MAA committees, individual mathematicians, and professional societies in the mathematical sciences and allied disciplines. The session will be moderated by Harriet Pollatsek and is sponsored by the Committee on the Undergraduate Program in Mathematics (CUPM).

Finding Your Next Job, Thursday, 10:45 a.m. to 12:05 p.m., organized by **Chawne M. Kimber**, Lafayette College, and **David T. Kung**, St. Mary's College of Maryland. Panelists will present strategies for conducting a search for a second job. Many angles will be covered, including postdoc to tenure-track, academic to industry, liberal arts college to research institution, and just one job to another. The session is cosponsored by the Young Mathematicians' Network and MAA Project NEXt.

Assessment in a Refocused College Algebra Program, Thursday, 10:45 a.m. to 12:05 p.m., organized by **Donald B. Small**, U.S. Military Academy. Refocusing college algebra to emphasize modeling/problem solving, communications skills, and conceptual understanding requires changing the focus and means of assessment. The lack of suitable assessment tools and guidelines is often a barrier to implementing change. For example, how does one assess a student's development of modeling/problem solving, communication skills, or conceptual understanding? The speakers will address these particular questions as well as others. Panelists include **Paul Dirks**, Miami-Dade Community College; **Laurette B. Foster**, Prairie View A & M Univer-

sity; and **Bruce C. Crauder**, Oklahoma State University. The panel will be moderated by **Norma Agrass**, Miami-Dade Community College, and is sponsored by the CUPM Subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY).

Successful Activities for a Math Club, Thursday, 1:00 p.m. to 2:20 p.m., organized by **Jennifer M. McNulty**, University of Montana, and **Janet C. Woodland**, University of Arkansas. Undergraduate education can be enhanced through activities outside the classroom. For example, attending a lecture on Ramsey Theory, viewing a movie about chaos, or hearing the experiences of an industrial mathematician. Such events are often inspiring to students. These types of activities are typically sponsored by some type of math club, be it an MAA Student Chapter, a Pu Mu Epsilon Chapter, or university club. In this session activities that have increased student enthusiasm for mathematics are discussed and avenues for future growth are explored. Panelists **Jean Bee Chan** and **Elaine McDonald**, Sonoma State University; **J. Douglas Faires**, Youngstown State University; **Donna L. Flint**, South Dakota State; **Philip K. Hotchkiss**, Westfield State College; **Timothy R. Ray**, Southeast Missouri State University; and **Robert S. Smith**, Miami University, will share their experiences. Audience participation, both in regard to questions as well as ideas for activities, is encouraged.

Mathematics Education in a Research-Intensive Department: What Makes It Work?, Thursday, 1:00 p.m. to 2:20 p.m., organized by **David A. Gay**, **Deborah Hughes Hallett**, **William G. McCallum**, and **Fred Stevenson**, University of Arizona. Research mathematicians and mathematics educators at universities have traditionally worked in different colleges. In many cases there was little or no interaction between them. But times are changing. Educators and mathematicians are finding that each has a lot to offer the other. Mathematics faculties are now finding ways of bringing educators into their ranks. This session will focus on examples of how this is being accomplished at several research-intensive universities. The session will begin with an overview of how the collaboration of mathematician and educator has successfully taken root and grown. Panelists **Marilyn P. Carlson**, Arizona State University; **Jim Lewis**, University of Nebraska-Lincoln; **Joan R. Leitzel**, MSEB; **William G. McCallum** and **Fred Stevenson**, University of Arizona, will discuss how this has occurred over the past decade at their respective institutions. A national perspective from the MSEB will wrap up the session.

Technology and the Mathematics Major, Thursday, 1:00 p.m. to 2:30 p.m., organized by **Ioana Mihaila**, California State Polytechnic University at Pomona. There has been much discussion in the mathematical community about changing the traditional mathematics major to reflect new technologies and changing emphases. These changes affect both the standard mathematics curriculum and the way that courses are taught. The panelists will offer their expertise and advice on how to wisely incorporate technology into the math major. The panelists are active mathematicians from academe and from organizations involved in mathematics education and research. This session was organized by the 1994–99 Project NEXt Fellows

to address issues of concern to faculty who have four to ten years of teaching experience. All meeting participants are invited to attend. Panelists include **Bernard W. Banks**, California State Polytechnic University, Pomona; **Robert L. Lopez**, Rose-Hulman Institute of Technology and Waterloo Maple; **Olympia E. Nicodemi**, State University of New York, Geneseo; and **Kathleen G. Snook**, Consortium for Mathematics and its Applications. The session is sponsored by MAA Project NEXt.

MAA Project NEXt and YMN Poster Session, Thursday, 2:00 p.m. to 4:00 p.m., organized by **Kevin E. Charlwood**, Washburn University, and **Kenneth A. Ross**, University of Oregon. Project NEXt and the Young Mathematicians' Network invite submissions of abstracts for this session. We expect to accept thirty posters from different areas within the mathematical sciences. Only trifold, self-standing 48" by 36" tabletop posterboard will be provided. Additional material or equipment is the responsibility of the presenters. Applications should be submitted to **Kevin Charlwood**, kevin.charlwood@washburn.edu, or **Kenneth Ross**, ross@math.uoregon.edu, by December 9, 2003. This session is sponsored by the Young Mathematicians' Network and MAA Project NEXt.

The Undergraduate Mathematical Statistics Sequence, Thursday, 2:40 p.m. to 4:00 p.m., organized by **Carolyn K. Cuff**, Westminster College. A two-course sequence in mathematical probability and statistics has traditionally been part of the mathematics major. Computer technology, AP Statistics, courses in the concepts of statistics, demands of industry, and graduate school admission requirements may necessitate changes in these courses. Panelists **Matthew J. Hassett**, ASA, AdvancePCS; **Elliot A. Tanis**, Hope College; **Douglas A. Wolfe**, The Ohio State University; and **Deborah Nolan**, UC Berkeley, will present their perspective on the current and future relevance of the sequence. The session will be moderated by **Allan J. Rossman**, California Polytechnic State University at San Luis Obispo, and is sponsored by the MAA SIGMAA on Statistics Education.

The History of Applications in Teaching Undergraduate Mathematics: 1950–2000, Thursday, 2:40 p.m. to 4:00 p.m., organized by **Joseph Malkevitch**, York College, CUNY; **Walter Meyer**, Adelphi University; and **Jack Winn**, SUNY at Farmingdale. Today one often finds applications in undergraduate mathematics courses, but it wasn't always so. This panel will discuss how and why the greater emphasis arose. Questions will include: What were the major milestones in bringing about the change? What were the reasons behind the push toward applications? Did new ideas in research influence the changes at the undergraduate level? Was it an internal development in pedagogy? Did factors outside mathematics (such as developments in other disciplines, perceived national needs, the role of mathematics in World War II, Sputnik, NSF policies, the availability of computers, changes in the student body, or the "relevance" movement of the 60s) have an influence? Was the change uncontroversial? Is there more or less distinction between mathematics and applications today? Panelists drawn from both the teaching and research communities include **Peter D. Lax**, Courant Institute;

Donald W. Bushaw, University of Washington at Pullman; **Chandler Davis**, University of Toronto; **Andrew M. Gleason**, Harvard University; and **Daniel P. Maki**, Indiana University. The session is sponsored by the MAA SIGMAA on History of Mathematics.

WEB SIGMAA Panel Discussion and Inaugural Business Meeting, Thursday, 5:45 p.m. to 7:15 p.m., organized by **Kirby A. Baker**, UCLA, and **Marcelle Bessman**, Jacksonville University. The focus of the new WEB SIGMAA is mathematics instruction using the World Wide Web. The panel members will discuss the ongoing efforts of the MAA in this area and the ways in which the members of WEB SIGMAA and others can contribute. Light refreshments will be served. All interested participants are encouraged to attend.

Preparing Mathematicians to Educate Teachers, Friday, 9:00 a.m. to 10:20 a.m., organized by **Alan C. Tucker**, SUNY at Stony Brook, and **Bernard L. Madison**, University of Arkansas at Fayetteville. The MAA's project Preparing Mathematicians to Educate Teachers (PMET) is a multifaceted initiative of the MAA to help mathematical sciences departments enhance their capacity to improve K-12 mathematics teaching. As mathematics departments seek to offer high-quality college courses on the mathematical knowledge needed for K-12 teaching, they face a major challenge in finding qualified instructors. Mathematics faculty know the mathematics well but are normally ill-prepared to help teachers connect it to K-12 instruction. The major components of PMET are minicourses and summer workshops, minigrants, regional networks, and a variety of dissemination efforts. Panelists **Ed Dubinsky**, Cincinnati, Ohio, and **Alan C. Tucker** will address some of the results of PMET and how others can become involved. PMET is funded by NSF with additional support from Texas Instruments.

Proposal Writing Workshop for Grant Applications to the NSF Division of Undergraduate Education, Friday, 9:00 a.m. to 10:20 a.m., organized by **Elizabeth J. Teles**, **Calvin L. Williams**, 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.

Writing Expository Mathematics, Friday, 9:00 a.m. to 10:30 a.m., organized by **Jed Herman**, University of Wisconsin at Stevens Point; **Jennifer Hontz**, Meredith College; and **George W. Moss**, University of Virginia's College at Wise. Are you interested in writing expository articles in mathematics? This panel discussion includes experienced authors of expository articles and current or former editors of MAA or AMS publications. Panelists **Lowell W. Beineke**, Indiana University-Purdue; **Ezra Brown**, Virginia Tech; **Frank A. Farris**, Santa Clara University; **Underwood Dudley**, DePauw University; **Keith J. Devlin**, Stanford University, 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. This session was organized by the 1994–99 MAA Project NEXT Fellows.

Assessment of Student Learning in Undergraduate Mathematics: Works in Progress, Friday, 9:00 a.m. to 11:00 a.m., organized by **William E. Haver**, Virginia Commonwealth University, and **Bernard L. Madison**, University of Arkansas. Posters are invited that describe an institution's program of assessment of student learning in a curricular block of undergraduate mathematics courses. This poster session is aimed at assessment programs that are in the early stages of development and implementation. We expect that those presenting their programs will seek guidance and suggestions from those who attend the poster session. The session is sponsored by the NSF-supported MAA project Supporting Assessment in Undergraduate Mathematics (SAUM). The curricular blocks that have been identified as focus areas by SAUM are (1) mathematics major, (2) mathematics for teachers, (3) general education (or quantitative literacy) courses, (4) placement/developmental programs, (5) mathematics for and in mathematics-intensive majors, and (6) innovations (e.g. reform courses). Programs of assessment in these six focus areas are especially invited, but programs of assessment in other curricular blocks may be contributed. Contributions should present a clear description of the assessment design and preliminary results. The following outline is suggested to the extent that the assessment program has been implemented: Background and Goals: What did we hope to accomplish? Description: What did we do? For example, developing the assessment program, details of the assessment program, and revisions based on initial experience (if applicable). Insights: What did we learn? For example, findings and success factors, use of the findings, and next steps and recommendations. More details can be found at <http://www.maa.org/SAUM/index.html>. The deadline for submissions is December 9, 2003. Abstracts of posters should be sent to **Bernard L. Madison**, bmadison@mail.uark.edu.

Voices of the Partner Disciplines: Building on the MAA Curriculum Foundations Project, Friday, 1:00 p.m. to 2:20 p.m., organized by **Tevis Dray**, Oregon State University; **Deborah Hughes Hallett**, University of Arizona; **Matthias Kawski**, Arizona State University; and **William G. McCallum**, University of Arizona. As part of the Curriculum Foundations Project of the MAA, faculty in other disciplines made recommendations for the mathematics curriculum through a series of eleven workshops held from 1999 to 2001, culminating in the MAA report *A Collective Vision*. This session builds on these workshops by bringing the conversations between mathematicians and those in partner disciplines to a larger audience. Panelists **Corinne A. Manogue**, Department of Physics at Oregon State University; **Ron Roedel**, Associate Dean for Academic Affairs, Arizona State University College of Engineering and Applied Sciences; and **Michael Zeilik**, Department of Physics and Astronomy, University of New Mexico, will speak on the mathematical needs and desires of their respective disciplines, both present and future, for the courses taken by their students.

Session for Chairs: The Chair's Role in Teaching Teachers, Friday, 1:00 p.m. to 2:20 p.m., organized by **Catherine M. Murphy**, Purdue University Calumet, and **Daniel P. Maki**, Indiana University. A panel of leaders experienced in programs to develop preservice teachers of mathematics will present their perspective on the topic. This will be followed by a question and answer period. Panelists include **Benjamin M. Freed**, Clarion University; **Sidney Graham**, Central Michigan University; **Jim Lewis**, University of Nebraska-Lincoln; and **Alan C. Tucker**, SUNY at Stony Brook.

Projects Supported by the NSF Division of Undergraduate Education, Friday, 1:00 p.m. to 3:00 p.m., organized by **Jon W. Scott**, Montgomery College. This poster session will feature principal investigators (PIs) presenting progress and outcomes from various NSF-funded projects in the Division of Undergraduate Education. Ample opportunity will be permitted for attendees to engage in small group discussions with the PIs and to network with each other. Information about each presenter and her/his project will appear in the program. Only trifold, self-standing 48" by 36" tabletop posterboard will be provided. Additional material or equipment is the responsibility of the presenters.

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

CINEMATH: Mathematics on the Silver Screen, Friday, 4:15 p.m. to 6:00 p.m., organized by **Charlie L. Smith**, Park University. The motion picture, a relatively recent technological development, can become a marvelous tool for introducing many mathematical topics, ranging from the Pythagorean Theorem to the Twin Prime Conjecture. This presentation will consist of film excerpts with mathematical content, each followed by a rigorous analysis and explanation of the material. A list of movies containing mathematical references will be provided.

SIGMAA on Research on Undergraduate Mathematics Education Session and Business Meeting, Friday, 4:00 p.m. to 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 **Chris Rasmussen** of Purdue University Calumet exemplifying research on undergraduate mathematics education.

Nonpermanent Instructors: Implications and Issues, Saturday, 9:00 a.m. to 10:20 a.m., organized by **Teri J. Murphy**, University of Oklahoma, and **Natasha M. Speer**, Michigan State University. Nontenured/tenure-track instructors teach a large proportion of college mathematics courses, especially lower-division. Panelists will identify and discuss issues for these instructors as employees, issues for departments as employers, and the need for professional development opportunities for nontenured/tenure-track instructors. The session is sponsored by the AMS-MAA Committee on Teaching Assistants and Part-Time Instructors.

Mathematicians and Mathematics Teacher Educators Working Together to Improve K–12 Mathematics Education, Saturday, 9:00 a.m. to 10:20 a.m., organized by **Jodie D. Novak**, University of Northern Colorado. The purpose of this panel is to present and discuss issues that arise when mathematicians and mathematics teacher educators work together with K–12 mathematics teachers. The panelists are two mathematicians and two mathematics teacher educators who have been working together over the last three years to deliver mathematics professional development for K–12 teachers. The panelists are: **Jack Price**, past president of the National Council of Teachers of Mathematics (NCTM); **Judith E. Jacobs**, former NCTM board member and past president of the Association of Mathematics Teacher Educators (AMTE); **Randall J. Swift**, research mathematician; **Jodie D. Novak**, research mathematician. In the panel discussion we will address the following points: the importance of mathematics teacher educators and mathematicians working collaboratively as peers and developing respect for what each brings to working with teachers; the synergy created when mathematicians and mathematics educators work together; the benefits to mathematics teacher educators, mathematicians, and K–12 teachers from this collaboration; first steps for mathematicians in mathematics professional development for K–12 teachers; a natural progression of responsibility for mathematicians in working with K–12 teachers; and field experiences that will provide mathematicians a different perspective from which to understand the issues K–12 teachers face. There will be time for discussion and questions from the audience.

Doctorates in Mathematics Education: Where Do They Go? What Do They Do? How Can Mathematics Departments Contribute?, Saturday, 9:00 a.m. to 10:20 a.m., organized by **Robert E. Reys**, University of Missouri-Columbia. There is an acute shortage of doctorates in mathematics education, because doctorates in mathematics education pursue many different career options. Some options and career directions taken by recent graduates will be presented and different ways in which faculty in departments of mathematics might contribute will be discussed. Panelists include **Douglas B. Aichele**, Oklahoma State University; **Rick Billstein**, University of Montana; and **Ira J. Papick**, University of Missouri.

What Are Colleges Doing with Students with AP Placement?, Saturday, 1:00 p.m. to 2:20 p.m., organized by **Martin E. Flashman**, Humboldt State University. A rising number of students now enter colleges with high grades on the Advanced Placement Calculus Examinations. These students form an important segment of the college freshman population, with potential for continuing work in science and mathematics. This panel will consider what is happening to these students in their placement and continuation in mathematical studies, what might be done to enhance their early experiences with mathematics at colleges and universities, and current approaches that encourage them to continue work in mathematics. Panelists include **Shahriar Shahriari**, Pomona College; **Morton Brown**, University of Michigan; **Wade Ellis Jr.**, West Valley College; and **Susan Kornstein**, The College Board. The session is

sponsored by the CUPM Subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY).

What Can You Do with a Degree in Mathematics? Saturday, 1:00 p.m. to 2:20 p.m., organized by **John A. Vano**, University of Wisconsin-Madison, and **Kim Roth**, Wheeling Jesuit University. Ever wanted to know what all of your options are for careers with your math degree? This panel will talk about some of the options, from industry to grad school and other things in between. Undergraduate and graduate students are especially encouraged to attend.

Oral Presentations: Let's Talk About It!, Saturday, 1:00 p.m. to 2:20 p.m., organized by **Tom J. Linton**, Central College; **Suzanne Dorée**, Augsburg College; **Nancy L. Hagelgans**, Ursinus College; and **Richard J. Jardine**, Keene State College. This session will introduce and elaborate on the main points of using oral presentations in mathematics classes. This will be an active learning session where participants will work in small groups at various stations. These stations include: "Why do oral presentations?", "How do you do it?", "How do you prepare the students?", "How do you assess an oral presentation?"

Revisiting Crossroads: Continuing the Dialogue on Two-Year College Mathematics, Saturday, 2:30 p.m. to 3:30 p.m., organized by **Susan S. Wood**, J. Sargeant Reynolds Community College. Panelists will describe a project to revisit the 1995 AMATYC Standards and the development of a vision and recommendations for two-year college mathematics education. Attention is given to the student and learning, faculty and teaching, mathematics content challenges, and outside communities. Resting upon revised basic principles, it is expected that a written document will be released in 2006 with supporting products that use a variety of media. In addition, a set of "Standards Supporting Student Learning" will complement the "Standards for Intellectual Development, Content, and Pedagogy" from the 1995 Crossroads. The goals of the session are to inform attendees about the project to revisit the 1995 AMATYC Standards, *Crossroads in Mathematics: Standards for Introductory College Mathematics Before Calculus*, and to collect input from attendees on the project and an annotated outline. Panelists will include **Judy E. Ackerman**, Montgomery College, and **Susan S. Wood**.

How to Implement Curriculum Change, Saturday, 2:45 p.m. to 4:05 p.m., organized by **Donald B. Small**, U.S. Military Academy. The past fifteen years has been a time of change in undergraduate mathematics. Expectantly, there will be continued improvements to college algebra, precalculus, calculus, linear algebra, differential equations, and other courses. Accessibility of new technologies, advances in learning research, and accountability to the workplace have fueled the reform efforts. Panelists **Mike Moody**, Olin University; **Stephen B. Maurer**, Swarthmore College; and **Jeff Floyd**, Texas A&M University, will share their experiences and expertise in implementing change. The session will be moderated by **Gary W. Krahn**, U.S. Military Academy, and is sponsored by the CUPM Subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY).

Informal Session on Actuarial Education, Saturday, 2:45 p.m. to 4:45 p.m., organized by **Krzysztof M. Ostaszewski**, Illinois State University, and **Curtis E. Huntington**, University of Michigan. This is an informal session to discuss current issues in actuarial education. The presenters will discuss latest developments in the actuarial examinations system and the relationship of professional actuarial societies to academia. Refreshments will be provided.

How to Assess Problem Solving, Saturday, 4:15 p.m. to 5:35 p.m., organized by **Donald B. Small**, U.S. Military Academy. Developing problem-solving skills in the modeling sense is a central component in refocusing courses to emphasize process, conceptual understanding, and student growth. Assessing the extent to which a student achieves the goal of becoming a competent and confident problem solver is a very difficult. Panelists **Jack Bookman**, Duke University; **Alex J. Heidenberg**, U.S. Military Academy; **Bill Haver**, Virginia Commonwealth University; and **Bonnie Gold**, Monmouth University, will share their experience and expertise in addressing this type of assessment. The session will be moderated by **Kathleen G. Snook**, Consortium for Mathematics and Its Applications, and is sponsored by the CUPM Subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY).

MAA Student Activities

Student Lecture, Friday, 1:00 p.m., **Mark M. Meerschaert**, University of Nevada, *Fractional calculus with applications*.

Undergraduate Student Poster Session, Friday, 4:00 p.m. to 6:30 p.m., organized by **Mario U. Martelli**, Claremont McKenna College, and sponsored by the Committee on Undergraduate Student Activities and Chapters (CUSAC). Send title and abstract (not longer than half page) by e-mail to mmartelli@mckenna.edu, or by regular mail to **Mario U. Martelli**, Mathematics Department, Claremont McKenna College, Claremont, CA 91711, by December 9, 2003. Include author's name, address, phone number, email, affiliation, name and affiliation of faculty advisor, name of the sponsoring program (NSF-REU, NSA, etc.), and request if electricity is needed for the presentation. When the poster is authored by more than one student, please indicate the one who will communicate with Mario Martelli. Notification of acceptance will be emailed two weeks after the abstract has been received. Apply early! Space is limited. The session is reserved to undergraduates and first-year graduate students submitting posters on work done while undergraduates. Each poster will be evaluated by at least three judges, and the best posters will receive monetary awards provided by the MAA, AMS, AWM, and CUR. Only trifold, self-standing 48" by 36" tabletop posterboard will be provided. Additional material or equipment is the responsibility of the presenters.

MAA Short Course

The History of Mathematical Technologies: Exploring the Material Culture of Mathematics, Monday and Tuesday, January 5 and 6, organized by **Amy Shell-Gellasch**, SIAM-Germany, and **Glen Van Brummelen**, Bennington College.

This short course will explore the history, development, use, and significance of various mathematical devices throughout history. Devices investigated will include sun dials, linkages, navigational and surveying devices, early computing devices, and early computers. Presenters will bring in actual historical devices when possible. The sessions will be a mix of traditional presentations, followed by a hands-on demonstration and question period. Topics will cover calculations and Mensuration devices from various eras, from ancient to modern times. Our finale will be a presentation on mathematical devices at world's fairs. Presenters include **Lennart Berggren**, Simon Fraser University; **James Evans**, University of Puget Sound, *Instruments of the ancient astronomers: Mathematics and history*; **Ed Sandifer**, Western Connecticut State University, *Fourier without the formula: How harmonic analyzers work*; **Daina Tainima**, Cornell University, *What linkages have to do with mathematics*; **David Weil**, Computer Museum of America, *Early computing devices*; and **Peggy Aldrich Kidwell**, National Museum of American History, *Mathematical instruments at the fairs*.

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/amsmtg/2078_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, 2:30 p.m.–5:00 p.m.

Joint PME and MAA Student Chapter Advisors' Breakfast, Friday, 7:00 a.m.–8:00 a.m.

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 sessions of contributed papers and Invited Addresses by: **Matt Foreman**, University of California Irvine; **Steve Jackson**, University of North Texas; **Byunghan Kim**, Massachusetts Institute of Technology; **Julia Knight**, University of Notre Dame; **R.W. Knight**, Oxford, UK; **Steffen Lempp**, University of Wisconsin; **Kobi Peterzil**, Haifa, Israel; **Francoise M. Point**, University of Mons-Hainut; and **Slawomir Solecki**, University of Illinois-Urbana. All titles are to be announced. See also the Special Session jointly sponsored by the ASL in the "Joint Special Sessions" section.

Association for Women in Mathematics (AWM)

Twenty-Fourth Annual Emmy Noether Lecture, Thursday, 9:00 a.m.–9:50 a.m., will be given by **Svetlana R. Katok**, The Pennsylvania State University, on *Symbolic dynamics for geodesic flows*.

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

Supporting the Diverse Personal Lives of Mathematicians, Wednesday, 3:20 p.m.–4:20 p.m., organized by **Carolyn S. Gordon**, Dartmouth College; **Marianne Kortén**, Kansas State University; **Helen Moore**, American Institute of Mathematics Research Conference Center; and **Christina Sormani**, Lehman College, CUNY. The discussion will address challenges faced by mathematicians in the context of their personal lives: solving lesbian two-body problems, parenting special-needs children, being single in a small college town, and more. Panelists include **Beth Bradley**, University of Louisville; **Dawn A. Lott**, New Jersey Institute of Technology; and **Elizabeth Stanhope**, Willamette 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 Thursday afternoon (see the AWM inclusion in the “Joint Sessions” section at the beginning of this announcement).

Business Meeting, Wednesday, 4:20 p.m.–4:50 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.

London Mathematical Society (LMS)

On Friday from 3:30 p.m. to 6:30 p.m., there will be a meeting of the Society, an Invited Address, and a reception. All meetings participants are invited to attend.

National Association of Mathematicians (NAM) Granville-Brown-Haynes Session of Presentations by Recent Doctoral Recipients in the Mathematical Sciences, Friday, 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: Saturday, 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 (RMCC)

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

Society for Industrial and Applied Mathematics (SIAM)

A two-day program on Wednesday and Thursday will include an Invited Address and minisymposia. The Invited Address will be given by **Martin Golubitsky**, University of Houston, *Coupled cell systems: A potpourri of theory and examples*, at 11:10 a.m. on Thursday. Minisymposia and their organizers include: *Mathematics Education*, **William Briggs**, University of Colorado at Denver, and **Terry L. Herdman**, Virginia Tech; *Dynamics and Stability of Coherent Structures*, **Joceline Lega**, University of Arizona; Title to be announced, **Michael Tabor** and **Alain I. Goriely**, University of Arizona; *Applied Dynamics*, **Eric Kostelich**, Arizona State University; *Mathematical Modeling in Neuroscience, Biomedicine, Genetics and Epidemiology*, **Hal Smith** and **Frank C. Hoppensteadt**, Arizona State University, and **Ivo Dinov**, University of California Los Angeles. See also the Special Sessions jointly sponsored by SIAM in the “Joint Special Sessions” section.

Young Mathematicians Network (YMN)

Concerns of Young Mathematicians: A Town Meeting, Wednesday, 7:15 p.m.–8:15 p.m., organized by **Kevin E. Charlwood**, 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.

Others

Math on the Web, Wednesday–Saturday, various times. The problem of communicating Math on the Web is really no different than communicating math via other media. Namely, authoring and displaying mathematical notation is difficult. On top of that, the Web is a dynamic medium, where users can interact with rich media documents in sophisticated ways. This introduces a whole new layer of challenges and possibilities for engaging, interactive communication between authors and readers.

Summer Program for Women in Mathematics (SPWM), Thursday, 2:00 p.m.–4:00 p.m., organized by **Murli Gupta**, George Washington University. SPWM participants will describe their experiences from past programs.

Ancillary Conferences

American Statistical Association (ASA): A one-day course will be offered January 6 preceding the Joint Mathematics Meetings in Phoenix. 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.

Mathematics Knowledge Management (MKM), Tuesday, 9:00 a.m. to 5:30 p.m., organized by **William Farmer**, McMaster University; **Michael Kohlhase** and **Dana Scott**, Carnegie Mellon University; and **Bernd Wegner**, Technische Universität Berlin. The goal of this second North American workshop on MKM is to introduce its principles and to facilitate collaboration between the North American mathematics community and other researchers in MKM. The workshop will begin with an invited lecture/tutorial and continue with a second invited address and selected contributed talks to introduce participants to the major issues and current research in MKM. There will be ample time for formal and informal discussion. Watch the meeting website at http://www.ams.org/asmtgs/2078_intro.html and follow the links to “Ancillary Conferences” for further session information and how to register.

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 McMurrin**, 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.–8:00 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.

Association of Lesbian, Gay, Bisexual, and Transgendered Mathematicians Reception, Thursday, 6:00 p.m.–8:00 p.m. All are welcome to attend this open reception.

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 \$45 each, including tax and gratuity.

Knitting Circle, Thursday, 8:15 p.m.–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.

New Mexico State University Mathematics Association Reception, Friday, 5:30 p.m.–7:30 p.m. All members and friends are invited; there will be a no-host bar available.

NAM Banquet, Friday, 5:30 p.m.–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 \$46 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.–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 \$44, 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. AMS staff will be at the booth to answer questions about AMS programs and membership.

Book Sales and Exhibits: All participants are encouraged to visit the book, education media, and software exhibits from noon to 5:30 p.m. on Wednesday, 10:00 a.m. to 6:00 p.m. on Thursday, 9:30 a.m. to 5:30 p.m. on 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 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 1163 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. These opportunities are listed on the newcomers page at http://www.ams.org/amsmtgs/2078_newcomers.html. Newcomers may want to investigate the many receptions listed in the “Social Events” sec-

tion, 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 7 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 Phoenix. 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/2078_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 email forms should be sent to meetreg-submit@ams.org. All advance registrants will receive acknowledgment of payment prior to the meetings.

Internet Advance Registration: This service is available for advance registration and housing arrangements at http://www.ams.org/amsmtgs/2078_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 2 (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. 12	at meeting
Member of AMS, ASL, Canadian Mathematical Society, MAA, SIAM	\$193	\$251
Emeritus Member of AMS, MAA; Graduate Student; Unemployed; Librarian; High School Teacher; Developing Countries Special Rate	38	48
Undergraduate Student	20	26
Temporarily Employed	153	176
Nonmember	299	389
High School Student	2	5
One-Day Member of AMS, ASL, CMS, MAA, SIAM	n/a	138
One-Day Nonmember	n/a	214
Nonmathematician Guest	10	10
MAA Minicourses		
Minicourses #1-6 (computers) (please note there is no onsite registration for minicourse #5)	\$90	\$90*
Minicourse #7	70	70*
Minicourses #8-16 *if space is available	60	60*
Employment Center (please note that earlier deadlines apply for inclusion in the <i>Winter Lists</i>)		
Employer (first table, computer or self-scheduled)	\$220	\$300
Employer (each additional table, computer or self-scheduled)	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 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: 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, 2004, 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 in 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.

Advance registration forms accompanied by insufficient payment 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 email 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 24
EARLY meetings advance registration (room lottery)	October 31
ORDINARY meetings advance registration (hotel reservations, materials mailed)	November 7
FINAL meetings advance registration (advance registration, Short Courses,	

Employment Center, MAA Minicourses, banquets) **December 12**

Employment Center Advance Registration: Applicant and employer forms must be received by October 24 in order to appear in the publications distributed to all participants. For detailed information on the Employment Center, see the separate article on page 1163.

Early Advance Registration: Those who register by the **early** deadline of October 31 will be included in a random drawing to select winners of complimentary hotel rooms in Phoenix. 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 19. So register early! (See the list of the winners in Baltimore.) Also, applicant and employer forms must be received by October 24 in order to be reproduced in the *Winter Lists* for the Employment Center.

Ordinary Advance Registration: Those who register after October 31 and by the **ordinary** deadline of November 7 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 7 and by the **final** deadline of December 12 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 12 deadline is firm**; any forms received after that date will be returned and full refunds issued. Please come to the registration desk in Hall D of the Phoenix Civic Plaza 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 15. 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 before or after guests have checked into their rooms. These hotels are indicated on the hotel page at http://www.ams.org/amsmtgs/2078_hotelpage.html. Participants should also 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 non-guaranteed 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 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.

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 Pat Allaire, Chensh Blayneh, Kevin Chartwood, Orin Chain, Hugh Edgar, George Gasper, Stanley Gurak, John Harris, Morris Kalka, Peter Lofth, Katherine Mawhinney, Megan McKinney, Andrew Miller, Chihiro Oshima, Judith Packer, Joseph Palen, Amelia Taylor, and Dave Trunnel.</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 15, 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 16.</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 7. 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: October 31, 2003 • Reservations through MMSB: November 7, 2003 • Changes/cancellations through MMSB: December 1, 2003 	<p>Guarantee Requirements/Cancellation Policy:</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) See Wyndham Hotel. • 72-hour cancellation policy: Hampton, Wyndham, Sunshine, Ramada, SpringHill • 24-hour cancellation policy: San Carlos, Hilton Garden • 48-hour cancellation policy: Holiday Inn, Hyatt • 6:00 p.m. day of arrival cancellation policy: Wellesley • Please note that some hotels enforce early departure penalties.
<p>Rates:</p> <ul style="list-style-type: none"> • Subject to 12.07% 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./checkout: noon – Wyndham, Sunshine, and Ramada (For all others, check-in is at 3:00 p.m., checkout is noon, with the exception of the Wellesley Inn & Suites whose check-in is 2:00 p.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 (with the exception of Wellesley Inn & Suites who have no policy) have a limited environmental policy regarding linens where all requests for a limited change of linens will be honored. • Distance from hotel to Phoenix Civic Plaza is indicated in each listing. • Shuttle service is provided for some hotels. • All hotels are in acceptable compliance with ADA except for the Hotel San Carlos. It is a historic property and is not wheelchair accessible. All hotels have TTYs/TDDs text telephones on the premises. 	<p>SpringHill Suites (3 blocks—shuttle service provided)</p> <p>802 East Vanburen Street Phoenix, AZ 85006 (602) 307-9929 Regular—\$129 single/double Student—\$119 single/double</p> <p>Complimentary continental breakfast; Fitness room; Whirlpool; Outdoor pool; Free parking; All rooms are suites and have full amenities including mini refrigerators, microwaves, two phone lines, data ports, and windows that open; Extra person no charge</p>	<p>Hampton Inn Phoenix/Midtown (2 miles—shuttle service provided)</p> <p>160 West Catalina Drive Phoenix, AZ 85013 (602) 200-0990 \$109 single/\$119 double</p> <p>Complimentary deluxe continental breakfast; Fitness center; Outdoor pool; Whirlpool; Free parking; All rooms have full amenities including 2-line phones, refrigerators, microwaves, data ports, and windows that open; Children under 18 years free; IHOP 1/2 mile away</p>
<p>Wyndham (formerly Crowne Plaza) (2 blocks)</p> <p>50 East Adams Phoenix, AZ 85004 (602) 333-0000 Regular—\$145 single/double Student—\$130 single/double</p> <p>Restaurants; Lounge; Fitness center; Outdoor heated pool; Parking \$10 (self); All rooms have full amenities including high speed internet capability, 2-line modems, and windows that open; Children under 18 years free; Hotel will charge one night deposit at time of booking; All changes to departure dates must be made 72 hours before arrival to avoid a penalty charge.</p>	<p>Hotel San Carlos (3 blocks)</p> <p>202 North Central Avenue Phoenix, AZ 85004 (602) 253-4121 \$129 single/double</p> <p>Restaurants; Gourmet coffee shop; Gift shop; Rooftop outdoor pool; Parking \$5 (self); All rooms have full amenities including data ports, internet access capability, and some windows that open; Children under 17 years free; Changes to departure dates after check-in will be subject to a penalty charge.</p>	<p>Ramada Inn-Downtown Phoenix (3 blocks)</p> <p>401 North First Street Phoenix, AZ 85004 (602) 258-3411 Regular—\$129 single/double Student—\$119 single/double</p> <p>Restaurant; Lounge; Outdoor heated pool; Gift shop; Free parking; All rooms have full amenities including data ports and internet access capability; Rooms have a patio or balcony; Children under 18 years free; Changes to departure dates after check-in will be subject to a penalty charge.</p>	<p>Hyatt Regency Phoenix (headquarters) (1 block)</p> <p>122 North Second Street Phoenix, AZ 85004-2379 (602) 252-1234 Regular—\$152 single/double Student—\$130 single/double</p> <p>Restaurants; Lounge; Health club; Outdoor heated pool; Sauna; Gift shop; Parking \$18 (valet), \$14 (self); All rooms have full amenities including 2-line phones; Children under 18 years free; All changes to departure dates must be made 24 hours before arrival to avoid a penalty charge.</p>
<p>Continued →</p>			

<p>Hilton Garden Inn Phoenix/Midtown <i>(3 miles—shuttle service provided)</i></p> <p>4000 North Central Avenue Phoenix, AZ 85012 (602) 279-9811 \$99 single/double</p> <p>Restaurant; Lobby bar; Fitness center; Whirlpool; Outdoor pool; Free parking; All rooms have full amenities including data ports, free high speed internet access, and windows that open; Children under 18 years free; Changes to departure dates after check-in will be subject to a penalty charge.</p>	<p>Holiday Inn Phoenix/Midtown <i>(3.5 miles—shuttle service provided)</i></p> <p>4321 North Central Avenue Phoenix, AZ 85012 (602) 200-8888 \$95 single/double</p> <p>Restaurant; Fitness center; Outdoor pool; Jacuzzi; Free parking; All rooms have full amenities including data ports, high speed internet access and some windows that open (upper floors only); Rooms on ground floor have microwaves and refrigerators; Children under 18 years free</p>	<p>Wellesley Inn & Suites Midtown <i>(3 miles—shuttle service provided)</i></p> <p>217 West Osborn Road Phoenix, AZ 85013 (602) 279-9000 \$89 studio/\$99 suite</p> <p>Free continental breakfast; Fitness center; Outdoor pool; Free parking; All rooms are suites and have all amenities including fully equipped kitchens, 2 phone lines, and data ports; Children under 18 years free</p>	<p>Sunshine Hotel & Suites <i>(3 miles—shuttle service provided)</i></p> <p>3600 North Second Avenue Phoenix, AZ 85013 (602) 248-0222 \$89.95 single/double</p> <p>Restaurant; Fitness center; Outdoor pool; Free parking; All rooms have full amenities including data ports and windows that open; Children under 18 years free</p>	<p>Attention Students</p> <p>As an alternative housing choice, Hostelling International-Phoenix is located downtown on Ninth Street between Portland and Roosevelt. It is approximately 1.5 miles (20-minute walk) from the Civic Plaza.</p> <p>\$12 - \$14/day 1026 Ninth Street Phoenix, AZ 85006 (602) 254-9803</p> <p>Please call directly for further information and reservations.</p>
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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 \$58 (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.visitphoenix.com> 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 7 through 10 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.

Discounted Air Travel

Phoenix is on Standard Time. The Phoenix Sky Harbor International Airport (PHX) is located in the middle of the greater Phoenix Metropolitan area and is served by all major airlines.

Official airlines for the meetings are **Southwest Airlines** and **United 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 1-14, 2004. 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 Q0158**. Reservations sales agents are available 7:00 a.m.-8:00 p.m. Monday-Friday; or 8:30 a.m.-5:30 p.m. Saturday and Sunday, Central Standard Time.

United Airlines offers a 5% discount off any United or United Express published fare, including First Class, in effect when tickets are published, subject to all applicable restrictions. Applicable BUA, or like, fares earn 10% discount with seven-day advance purchase. An additional 5% discount is applicable when tickets are issued 30 days prior to travel.

For reservations call (or have your travel agent call) Meeting Plus Reservation Center toll free at 1-800-521-4041 between 8:00 a.m. and 10:00 p.m. Eastern Time. Refer to **Meeting Plus ID Code 514ZM**.

Ground Transportation from the Airport: SuperShuttle, operates 24 hours a day on a time-scheduled basis and offers airport-to-door service. Vans usually depart every 15 minutes from 9:00 a.m. to 9:00 p.m., but with lesser frequency from 9:00 p.m. to 9:00 a.m. Fares are charged on a flat rate to each sector of geographic area. Check rates on the outside of the vehicle or contact SuperShuttle at 602-244-9000 for reservations and prices.

Discounted Car Rental

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 4-17, 2003:

Car Type	Daily	Weekly	Weekend Daily
Subcompact	\$40	\$165	\$26
Compact	44	176	27
Intermediate	48	192	29
Full-Size 2-Door	49	203	30
Full-Size 4-Door	52	214	31
Premium	55	225	34
Luxury, Minivan, Convertible, or Sport Utility	87	385	80

Should a lower qualifying rate become available, Avis is pleased to present a 5% discount off the lower qualifying rate or the meeting rate, whichever is lowest. Rates do not include any state or local surcharges, tax, optional coverages, or gas refueling charges. Renters must meet Avis's age, driver, and credit requirements. Reservations can be made by calling 800-331-1600; cite **group ID number J098887**. Reservations can also be made online at www.avis.com.

Weather

The temperature ranges from about 43 °F. to 65 °F. Average precipitation in January is .83 inches. Visit your favorite weather site for up-to-the-minute forecasts, or see <http://asp.usatoday.com/weather/CityForecast.aspx?LocationID=USAZ0166&ps=L1>.

Tallahassee, Florida

Florida State University

March 12–13, 2004

Friday – Saturday

Meeting #994

Southeastern Section

Associate secretary: John L. Bryant

Announcement issue of *Notices*: January 2004

Program first available on AMS website: January 29, 2004

Program issue of electronic *Notices*: March 2004

Issue of *Abstracts*: Volume 02, Issue 04

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:

November 25, 2003

For abstracts: January 20, 2004

Invited Addresses

Fern Y. Hunt, National Institute of Standards, *Title to be announced*.

William H. Jaco, Oklahoma State University, *Title to be announced*.

Glenn F. Webb, Vanderbilt University, *Title to be announced*.

Special Sessions

Algebraic Geometry and Topology (Code: SS 5A), **Eriko Hironaka** and **Paolo Aluffi**, Florida State University.

Applications of Mathematics to Problems in Biology (Code: SS 1A), **Richard Bertram** and **Jack R. Quine**, Florida State University.

Geometric Topology (Code: SS 6A), **Washington Mio**, Florida State University, and **Erik K. Pedersen**, Binghamton University (SUNY).

Harmonic Analysis (Code: SS 7A), **Daniel M. Oberlin**, Florida State University, and **Laura de Carli**, Florida International University.

Knot Theory and Applications (Code: SS 2A), **Yuanan Diao**, University of North Carolina at Charlotte.

Modeling and Simulation of Complex Fluid Systems (Code: SS 8A), **Qi Wang** and **Mark Sussman**, Florida State University, and **Xiaomng Wang**, Iowa State University.

PDE's and Turbulence (Code: SS 9A), **Xiaomng Wang**, Iowa State University.

Results in 3-Manifolds and Related Topics (Code: SS 3A), **Wolfgang H. Heil** and **Sergio R. Fenley**, Florida State University.

Robert Gilmer and Joe Mott: Forty Years of Commutative Ring Theory at Florida State University (Code: SS 4A), **William J. Heinzer**, Purdue University, and **James W. Brewer**, Florida Atlantic University.

Szygies and Hilbert Functions (Code: SS 10A), **Irena Peeva** and **Christopher A. Francisco**, Cornell University.

Athens, Ohio

Ohio University

March 26–27, 2004

Friday – Saturday

Meeting #995

Central Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: January 2004

Program first available on AMS website: February 12, 2004

Program issue of electronic *Notices*: March 2004

Issue of *Abstracts*: Volume 02, Issue 04

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:

December 9, 2003

For abstracts: February 3, 2004

Invited Addresses

Mario Bonk, University of Michigan, *Title to be announced*.

Irene M. Gamba, University of Texas at Austin, *Title to be announced*.

Rostislav I. Grigorchuk, Steklov Institute of Mathematics, *Title to be announced*.

Eric G. Zaslow, Northwestern University, *Title to be announced*.

Special Sessions

Algebraic Coding Theory (Code: SS 7A), **Marcus Greferath**, San Diego State University, and **Sergio R. López-Permouth**, Ohio University.

Differential Equations and Control Theory (Code: SS 1A), **Sergiu Aizicovici** and **Nicolai Pavel**, Ohio University.

Dynamical Systems (Code: SS 3A), **Patrick D. McSwiggen**, University of Cincinnati, and **Todd Young**, Ohio University.

Groups, Representations, and Characters (Code: SS 2A), **Mark Lewis**, Kent State University, and **Thomas R. Wolf**, Ohio University.

Integrable Systems in Mathematics and Physics (Code: SS 11A), **Michael Gekhtman**, University of Notre Dame, and **Luen Chau Li**, Pennsylvania State University.

Linear Algebra and its Applications (Code: SS 5A), **S. K. Jain**, Ohio University, and **Michael Neumann**, University of Connecticut.

Probabilistic and Asymptotic Aspects of Group Theory (Code: SS 9A), **Rostislav Grigorchuk**, Texas A & M University, **Mark Sapir**, Vanderbilt University, and **Zoran Sunik**, Texas A & M University.

Recent Trends in Infinite-dimensional Banach Space Theory (Code: SS 10A), **Beata Randrianantoanina** and **Narcisse Randrianantoanina**, Miami University.

Statistics and Probability (Code: SS 6A), **Maria Rizzo** and **Vladimir Vinogradov**, Ohio University.

Theory of Rings and Modules (Code: SS 4A), **Nguyen Viet Dung**, **Franco Guerriero**, **Dinh Van Huynh**, and **Pramod Kanwar**, Ohio University.

Wavelets, Other Multiscale Methods and Their Applications (Code: SS 8A), **En-Bing Lin**, University of Toledo, and **Xiaoping Annie Shen**, Ohio University.

Los Angeles, California

University of Southern California

April 3–4, 2004

Saturday – Sunday

Meeting #996

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: February 2004

Program first available on AMS website: February 19, 2004

Program issue of electronic *Notices*: April 2004

Issue of *Abstracts*: Volume 02, Issue 04

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
December 16, 2003

For abstracts: February 10, 2004

Invited Addresses

Dan Boneh, Stanford University, *Title to be announced.*

Maria E. Schonbek, University of California Santa Cruz, *Title to be announced.*

Paul Smith, University of Washington, *Noncommutative algebraic geometry.*

Christopher Martin Thiele, University of California Los Angeles, *Title to be announced.*

Special Sessions

Contact and Symplectic Geometry (Code: SS 1A), **Dragomir Dragnev**, **Ko Honda**, and **Sang Seon Kim**, University of Southern California.

Financial Mathematics (Code: SS 3A), **Jaksa Cvitanic** and **Janfeng Zhang**, University of Southern California.

Fluid Problems and Related Questions (Code: SS 2A), **Maria Schonbek**, University of California Santa Cruz, and **Yuxi Zheng**, Pennsylvania State University.

Lawrenceville, New Jersey

Rider University

April 17–18, 2004

Saturday – Sunday

Meeting #997

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: February 2004

Program first available on AMS website: March 4, 2004

Program issue of electronic *Notices*: April 2004

Issue of *Abstracts*: Volume 03, Issue 04

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
December 30, 2003

For abstracts: February 24, 2004

Invited Addresses

Sylvia Serfaty, New York University-Courant Institute, *Title to be announced.*

Dennis P. Sullivan, City College (CUNY), *Title to be announced.*

Wim F. Sweldens, Bell Laboratories, *Title to be announced.*

Gaoyong Zhang, Polytechnic University, *Title to be announced.*

Special Sessions

Algebraic Geometry and Mirror Symmetry (Code: SS 4A), **Ciprian Borcea**, Rider University.

Analytic Convex Geometry (Code: SS 15A), **Alina Stancu**, Polytechnic University, and **Elisabeth Werner**, Case Western Reserve University.

Automorphic Forms and Analytic Number Theory (Code: SS 1A), **Stephen Miller**, Rutgers University, and **Ramin Takloo-Bighash**, Princeton University.

Commutative Algebra and Algebraic Geometry (Code: SS 14A), **Alberto Corso**, University of Kentucky, **Claudia Polini**, University of Notre Dame, and **Volmer V. Vasconcelos**, Rutgers University.

Convergence of Riemannian Manifolds (Code: SS 12A), **Christina Sormani**, Herbert H. Lehman College (CUNY), **Xiaochun Rong**, Rutgers State University, and **Guofang Wei**, University of California Santa Barbara.

CR Geometry and Singularities (Code: SS 10A), **Joseph J. Kohn**, Princeton University, and **John P. D'Angelo**, University of Illinois.

Elliptic Surfaces and Elliptic Fibrations (Code: SS 9A), **William L. Hoyt**, Rutgers University, **Joseph H. Silverman**, Brown University, and **Charles F. Schwartz**, Rider University.

Geometry and Arithmetic of Lattices (Code: SS 13A), **John H. Conway**, Princeton University, and **Derek A. Smith**, Lafayette College.

Geometry of Protein Modelling (Code: SS 5A), **Ileana Streinu**, Smith College, and **Jack Snoeyink**, University of North Carolina at Chapel Hill.

Group Cohomology and Related Topics (in honor of William Browder's 70th birthday) (Code: SS 16A), **Alejandro Adem**, University of Wisconsin, and **Jonathan Pakianathan**, University of Rochester.

Homotopy Theory, a Special Session in Honor of Bill Browder's 70th Birthday (Code: SS 3A), **Martin Bendersky**, Hunter College, and **Donald Davis**, Lehigh University.

Homotopical Physics (Code: SS 7A), **James Stasheff**, University of North Carolina, and **Thomas J. Lada**, North Carolina State University.

Strings and Branes (Code: SS 6A), **Thomas P. Branson**, University of Iowa, and **S. James Gates**, University of Maryland.

Surgery, a Special Session in Honor of Bill Browder's 70th Birthday (Code: SS 8A), **Frank S. Quinn**, Virginia Polytech Institute & State University.

Tomography and Integral Geometry (Code: SS 2A), **Andrew Markoe**, Rider University, and **Eric Todd Quinto**, Tufts University.

Variational Methods in Classical Mechanics (Code: SS 11A), **John N. Mather**, Princeton University, and **Vadim Y. Kaloshin**, Institute for Advanced Study.

Houston, Texas

University of Houston

May 13–15, 2004

Thursday – Saturday

Meeting #998

Sixth International Joint Meeting of the AMS and the Sociedad Matemática Mexicana (SMM).

Associate secretary: John L. Bryant

Announcement issue of *Notices*: February 2004

Program first available on AMS website: March 11, 2004

Program issue of electronic *Notices*: April 2004

Issue of *Abstracts*: Volume 03, Issue 04

Deadlines

For organizers: October 13, 2003

For consideration of contributed papers in Special Sessions:
January 6, 2004

For abstracts: March 2, 2004

Invited Addresses

Luchezar Avramov, University of Nebraska, *Title to be announced.*

Persi W. Diaconis, Stanford University, *Title to be announced.*

Samuel Gitler, CINVESTAV, *Title to be announced.*

Adolfo Sanchez-Valenzuela, Centro de Investigacion en Matematicas, *Title to be announced.*

Jose Seade-Kuri, UNAM, *Title to be announced.*

Nashville, Tennessee

Vanderbilt University

October 16–17, 2004

Saturday – Sunday

Meeting #999

Southeastern Section

Associate secretary: John L. Bryant

Announcement issue of *Notices*: August 2004

Program first available on AMS website: September 2, 2004

Program issue of electronic *Notices*: October 2004

Issue of *Abstracts*: Volume 04, Issue 04

Deadlines

For organizers: March 16, 2004

For consideration of contributed papers in Special Sessions:
June 29, 2004

For abstracts: August 24, 2004

Albuquerque, New Mexico

University of New Mexico

October 16–17, 2004

Saturday – Sunday

Meeting #1000

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: August 2004

Program first available on AMS website: September 3, 2004

Program issue of electronic *Notices*: October 2004

Issue of *Abstracts*: Volume 04, Issue 04

Deadlines

For organizers: March 16, 2004

For consideration of contributed papers in Special Sessions:
June 29, 2004

For abstracts: August 24, 2004

Invited Addresses

Sara C. Billey, University of Washington, Seattle, *Title to be announced.*

Peter Ebenfelt, University of California, San Diego, *Title to be announced.*

Theodore Stanford, New Mexico State University, *Title to be announced.*

Craig A. Tracy, University of California, Davis, *Title to be announced.*

Evanston, Illinois

Northwestern University

October 23–24, 2004

Saturday – Sunday

Meeting #1001

Central Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: August 2004

Program first available on AMS website: September 9, 2004

Program issue of electronic *Notices*: October 2004

Issue of *Abstracts*: Volume 04, Issue 04

Deadlines

For organizers: March 23, 2004

For consideration of contributed papers in Special Sessions:
July 7, 2004

For abstracts: August 31, 2004

Invited Addresses

Ian Agol, University of Illinois at Chicago, *Title to be announced.*

Robert W. Ghrist, University of Illinois, *Title to be announced.*

Yuri Manin, Northwestern University, *Title to be announced.*

Paul Siedel, Imperial College-London and University of Chicago, *Title to be announced.*

Special Sessions

Modern Schubert Calculus (Code: SS 1A), **Ezra Miller**, University of Minnesota, and **Frank Sottile**, University of Massachusetts.

Pittsburgh, Pennsylvania

University of Pittsburgh

November 6–7, 2004

Saturday – Sunday

Meeting #1002

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: September 2004

Program first available on AMS website: September 23, 2004

Program issue of electronic *Notices*: November 2004

Issue of *Abstracts*: Volume 04, Issue 04

Deadlines

For organizers: April 7, 2004

For consideration of contributed papers in Special Sessions:
July 20, 2004

For abstracts: September 14, 2004

Special Sessions

Invariants of Knots and 3-Manifolds (Code: SS 1A), **Marta M. Asaeda**, University of Maryland, **Jozef H. Przytycki**, George Washington University, and **Adam S. Sikora**, SUNY at Buffalo.

Atlanta, Georgia

*Atlanta Marriott Marquis and
Hyatt Regency Atlanta*

January 5–8, 2005

Wednesday – Saturday

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

Bowling Green, Kentucky

Western Kentucky University

March 18–19, 2005

Friday – Saturday

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: July 19, 2004

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

For abstracts: To be announced

Newark, Delaware

University of Delaware

April 2–3, 2005

Saturday – Sunday

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 2, 2004

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

For abstracts: To be announced

Lubbock, Texas

Texas Tech University

April 8–10, 2005

Friday – Sunday

Southeastern 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: To be announced

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

For abstracts: To be announced

Santa Barbara, California

University of California, Santa Barbara

April 16–17, 2005

Saturday – Sunday

Western Section

Associate secretary: Michel L. Lapidus

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: To be announced

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

For abstracts: To be announced

Mainz, Germany

*Deutsche Mathematiker-Vereinigung (DMV)
and the Osterreichische Mathematische
Gesellschaft (OMG)*

June 16–19, 2005

Thursday – Sunday

*Second Joint AMS-Deutsche Mathematiker-Vereinigung
(DMV) Meeting*

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: To be announced

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

For abstracts: To be announced

Invited Addresses

Helene Esnault, University of Essen, *Title to be announced.*

Christian Krattenthaler, University of Lyon, *Title to be announced.*

Frank Natterer, University of Muenster, *Title to be announced.*

Johnson City, Tennessee

East Tennessee State University

October 15–16, 2005

Saturday – Sunday

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: March 15, 2005

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

For abstracts: To be announced

Lincoln, Nebraska

University of Nebraska in Lincoln

October 21–22, 2005

Friday – Saturday

Central Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: August 2005

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: To be announced

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

For abstracts: To be announced

San Antonio, Texas

Henry B. Gonzalez Convention Center

January 12–15, 2006

Thursday – Sunday

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

Thursday – Sunday

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