
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/>. Final programs for Sectional Meetings will be archived on the AMS website accessible from the stated URL and in an electronic issue of the *Notices* as noted below for each meeting.

Syracuse, New York

Syracuse University

October 2–3, 2010

Saturday – Sunday

Meeting #1062

Eastern Section

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: June 2010

Program first available on AMS website: August 19, 2010

Program issue of electronic *Notices*: October

Issue of *Abstracts*: Volume 31, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: Expired

For abstracts: Expired

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Alan Frieze, Carnegie-Mellon University, *Hamilton cycles in random graphs*.

Yan Guo, Brown University, *Asymptotic stability in some fluid problems*.

William Minicozzi, Johns Hopkins University, *Generic singularities of mean curvature flow*.

Andrei Zelevinsky, Northeastern University, *Cluster algebras via quivers with potentials*.

Special Sessions

Advances in Theory and Applications of Evolution Equations, **Tokia Diagana**, Howard University, and **Gaston Ní Guerekata, Alexander Pankov, Xuming Xie, and Guoping Zhang**, Morgan State University.

Analysis, Probability and Mathematical Physics on Fractals, **Luke Rogers**, University of Connecticut, **Robert Strichartz**, Cornell University, and **Alexander Teplyaev**, University of Connecticut.

Analytic Combinatorics, **Miklos Bona**, University of Florida, and **Alex Iosevich**, University of Rochester.

Commutative Algebra and Algebraic Geometry, **Anthony Geramita**, Queen's University, **Graham Leuschke** and **Claudia Miller**, Syracuse University, and **Michael Stillman**, Cornell University.

Difference Equations and Applications, **Michael Radin**, Rochester Institute of Technology.

Geometric Analysis and Flows, **William P. Minicozzi II**, Johns Hopkins University, **Xiaodong Cao**, Cornell University, and **Junfang Li**, University of Alabama at Birmingham.

Graphs Embedded in Surfaces, and Their Symmetries, **Jack E. Graver** and **Mark E. Watkins**, Syracuse University.

Harmonic Analysis, **Dmitriy Bilyk**, University of South Carolina, and **Svitlana Mayboroda**, Purdue University.

Lie Algebras and Representation Theory, **David Hemmer**, State University of New York at Buffalo, and **Emilie Wiesner**, Ithaca College.

Mathematical Image Processing, **Lixin Shen** and **Yuesheng Xu**, Syracuse University.

Nonlinear Analysis and Geometry, **Tadeusz Iwaniec**, **Leonid V. Kovalev**, and **Jani Onninen**, Syracuse University.

Quasiconformal Mappings, Riemann Surfaces, and Teichmüller Spaces (in honor of Clifford J. Earle), **Yunping Jiang**, Queens College and The Graduate Center, City University of New York, and **Sudeb Mitra**, Queens College, City University of New York.

Representations of Algebras, **Ed Green**, Virginia Polytechnic Institute, **Mark Kleiner** and **Dan Zacharia**, Syracuse University, and **Andrei Zelevinsky**, Northeastern University.

Several Complex Variables, **Dan F. Coman** and **Evgeny A. Poletsky**, Syracuse University.

Topology and Combinatorics, **Laura Anderson**, SUNY Binghamton, and **Patricia Hersh**, North Carolina State University.

Los Angeles, California

University of California Los Angeles

October 9–10, 2010

Saturday – Sunday

Meeting #1063

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: August 2010

Program first available on AMS website: August 26, 2010

Program issue of electronic *Notices*: October 2010

Issue of *Abstracts*: Volume 31, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: Expired

For abstracts: Expired

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/sectional.html.

Invited Addresses

Cristopher Moore, University of New Mexico and the Santa Fe Institute, *Phase transitions in NP-complete problems: A challenge for probability, combinatorics, and computer science*.

Stanley Osher, University of California Los Angeles, *New algorithms in image science*.

Terence Tao, University of California Los Angeles, *The cosmic distance ladder* (Einstein Public Lecture in Mathematics).

Melanie Wood, Princeton University, *Moduli spaces for rings and ideals*.

Special Sessions

Algebraic Structures in Knot Theory, **Sam Nelson**, Claremont McKenna College, and **Carmen Caprau**, California State University Fresno.

Applications of Nonlinear PDE, **Susan J. Friedlander** and **Igor Kukavica**, University of Southern California.

Automorphic Forms and Number Theory, **William Duke**, University of California Los Angeles, **Ozlem Imamoglu**,

ETH Zurich, and **Kimberly Hopkins**, University of California Los Angeles.

Combinatorics and Probability on Groups, **Jason Fulman** and **Robert Guralnick**, University of Southern California, and **Igor Pak**, University of California Los Angeles.

Continuous and Discrete Dynamical Systems, **Mario Martelli**, Claremont Graduate University, and **Robert Sacker**, University of Southern California.

Extremal and Probabilistic Combinatorics, **Benny Sudakov**, University of California Los Angeles, and **Jacques Verstraete**, University of California San Diego.

Free Probability and Subfactors, **Edward Effros** and **Dimitri Shlyakhtenko**, University of California Los Angeles, and **Dan-Virgil Voiculescu**, University of California Berkeley.

Global Geometric Analysis, **William Wylie**, University of Pennsylvania, **Joseph E. Borzellino**, California State University San Luis Obispo, and **Peter Petersen**, University of California Los Angeles.

Harmonic Analysis, **Christoph Thiele**, University of California Los Angeles, and **Ignacio Uriarte-Tuero** and **Alexander Volberg**, Michigan State University.

Homotopy Theory and K-theory, **Julie Bergner**, University of California Riverside, and **Christian Haesemeyer**, University of California Los Angeles.

Large Cardinals and the Continuum, **Matthew Foreman**, University of California Irvine, **Alekos Kechris**, California Institute of Technology, **Itay Neeman**, University of California Los Angeles, and **Martin Zeman**, University of California Irvine.

Mathematical Models of Random Phenomena, **Mark Burgin**, University of California Los Angeles, and **Alan C. Krinik**, California State Polytechnic University Pomona.

Mathematics of Criminality, **Andrea Bertozzi**, **Martin Short**, and **George Mohler**, University of California Los Angeles.

Metric and Riemannian Methods in Shape Analysis, **Andrea Bertozzi** and **Mario Micheli**, University of California Los Angeles.

Nonlinear Phenomena—Applications of PDEs to Fluid Flows, **Andrea Bertozzi**, **Nebojsa Murisic**, and **David Uminsky**, University of California Los Angeles.

Recent Trends in Probability and Related Fields, **Marek Biskup**, University of California Los Angeles, **Yuval Peres**, Microsoft Research, and **Sebastien Roch**, University of California Los Angeles.

Rigidity in von Neumann Algebras and Ergodic Theory, **Adrian Ioana**, University of California Los Angeles, **Narutaka Ozawa**, Tokyo University, and **Sorin Popa** and **Yehudah Shalom**, University of California Los Angeles.

Topology and Symplectic Geometry, **Robert Brown** and **Ciprian Manolescu**, University of California Los Angeles, and **Stefano Vidussi**, University of California Riverside.

Notre Dame, Indiana

Notre Dame University

November 5–7, 2010

Friday – Sunday

Meeting #1064

Central Section

Associate secretary: Georgia Benkart

Announcement issue of *Notices*: September 2010

Program first available on AMS website: September 23, 2010

Program issue of electronic *Notices*: November 2010

Issue of *Abstracts*: Volume 31, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: Expired

For abstracts: Expired

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/sectional.html.

Invited Addresses

Laura DeMarco, University of Illinois at Chicago, *Polynomial dynamics: Critical points and moduli*.

Jordan Ellenberg, University of Wisconsin, *Geometric analytic number theory*.

David Fisher, Indiana University, *Coarse geometry of solvable groups*.

Jared Wunsch, Northwestern University, *Geometry and analysis of diffracted waves*.

Special Sessions

Algebraic Group Actions on Affine Varieties, **Harm Derksen**, University of Michigan, and **Gene Freudenburg**, University of Western Michigan.

Algebraic and Topological Combinatorics, **John Shareshian**, Washington University, and **Bridget Tenner**, DePaul University.

Applications of Stochastic Processes in Cell Biology, **Peter Thomas**, Case Western University.

Arithmetic, Groups and Geometry, **Jordan Ellenberg**, University of Wisconsin, and **Michael Larsen**, Indiana University.

Commutative Algebra and Its Interactions with Algebraic Geometry, **Claudia Polini**, University of Notre Dame, **Alberto Corso**, University of Kentucky, and **Bernd Ulrich**, Purdue University.

Complex Analysis and Dynamical Systems, **Laura DeMarco**, University of Illinois at Chicago, and **Jeffrey Diller**, University of Notre Dame.

Computability and Its Applications, **Peter Cholak**, **Peter Gerdes**, and **Karen Lange**, University of Notre Dame.

Computation, Analysis, Modeling in PDE and their Applications, **Bei Hu** and **Yongtao Zhang**, University of Notre Dame.

Computational Electromagnetics and Acoustics, **David Peter Nicholls**, University of Illinois at Chicago.

Differential Geometry and its Applications, **Jianguo Cao** and **Brian Smyth**, University of Notre Dame.

Geometry and Lie Theory, **John Caine** and **Samuel Evens**, University of Notre Dame.

Graphs and Hypergraphs, **David Galvin**, University of Notre Dame, and **Hemanshu Kaul**, Illinois Institute of Technology.

Groups, Representations, and Characters, **James P. Cossey**, University of Akron, and **Mark Lewis**, Kent State University.

Hilbert Functions in Commutative Algebra and Algebraic Combinatorics, **Fabrizio Zanello**, Michigan Technological University, **Juan Migliore**, University of Notre Dame, and **Uwe Nagel**, University of Kentucky.

Interdisciplinary Session on Deterministic and Stochastic Partial Differential Equations, **Nathan Glatt-Holtz**, Indiana University, and **Vlad Vicol**, University of Southern California.

Mathematical Modeling and Computation with Applications in Biology, **Mark Alber** and **Zhiliang Xu**, University of Notre Dame.

Nonlinear Evolution Equations, **Alex Himonas** and **Gerard Misiolek**, University of Notre Dame.

Number Theory and Physics, **Adrian Clinger**, University of Missouri St. Louis, **Charles Doran**, University of Alberta, **Shabnam N. Kadir**, Wilhelm Leibniz Universität, and **Rolf Schimmrigk**, Indiana University.

Numerical Algebraic Geometry, **Daniel J. Bates**, Colorado State University, **Jonathan D. Hauenstein**, Texas A&M University, **Andrew J. Sommese**, University of Notre Dame, and **Charles W. Wampler**, General Motors.

Quasigroups, Loops, and Nonassociative Division Algebras, **Clifton E. Ealy**, Western Michigan University, **Stephen Gagola**, University of Arizona, **Julia Knight**, University of Notre Dame, **J. D. Phillips**, Northern Michigan University, and **Petr Vojtechovsky**, University of Denver.

Rigidity, **David Fisher**, Indiana University, and **Ralf Spatzier**, University of Michigan.

Singularities in Algebraic Geometry, **Nero Budur**, University of Notre Dame, and **Lawrence Ein**, University of Illinois at Chicago.

The Geometry of Submanifolds, **Yun Myung Oh**, Andrews University, **Mihaela Vajiac**, Chapman University, and **Ivko Dimitric**, Pennsylvania State University.

Topology, Geometry and Physics, **Ralph Kaufmann**, Purdue University, and **Stephan Stolz**, University of Notre Dame.

Undergraduate Mathematics Education: A Vision for the 21st Century, **Steven Broad**, St. Mary's College, **Nahid Erfan** and **Alex Himonas**, University of Notre Dame, and **Morteza Shafii-Mousavi**, Indiana University South Bend.

Richmond, Virginia

University of Richmond

November 6–7, 2010

Saturday – Sunday

Meeting #1065

Southeastern Section

Associate secretary: Matthew Miller

Announcement issue of *Notices*: September 2010

Program first available on AMS website: September 23, 2010

Program issue of electronic *Notices*: November 2010

Issue of *Abstracts*: Volume 31, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: Expired

For abstracts: Expired

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Matthew H. Baker, Georgia Institute of Technology, *Preperiodic points and unlikely intersections*.

Michael J. Field, University of Houston, *Symmetry, structure, and stochastic fluctuations associated to some models of neural dynamics*.

Sharon R. Lubkin, North Carolina State University, *Model perspectives on self-organizing tissues*.

Stefan Richter, University of Tennessee, Knoxville, *Boundary behavior and invariant subspaces in spaces of analytic functions*.

Special Sessions

Applications of Non-Archimedean Geometry, **Matthew H. Baker**, Georgia Institute of Technology, and **Xinyi Yuan**, Harvard University.

Codes and Designs, **James A. Davis**, University of Richmond, and **Qing Xiang**, University of Delaware.

Computational and Applied Mathematics, **Ludwig Kohaupt**, Beuth University, and **Mohammad Siddique**, Fayetteville State University.

Convexity and Combinatorics, **Valeriu Soltan** and **James F. Lawrence**, George Mason University.

Differential Equations and Applications to Physics and Biology, **Junping Shi**, College of William and Mary, and **Zhifu Xie**, Virginia State University.

Geometry of Banach Spaces and Connections with Other Areas, **Frank Sanacory**, College at Old Westbury, and **Kevin Beanland**, Virginia Commonwealth University.

History of Mathematics: A Transnational Discourse, **Della Fenster**, University of Richmond, and **Frédéric Brechenmacher**, University of Lille-North of France-Université d'Artois.

Kac-Moody Algebras, Vertex (Operator) Algebras, and Applications, **William J. Cook**, Appalachian State University, and **Kailash C. Misra**, North Carolina State University.

Mathematical Models in Biology and Medicine, **Lester Caudill**, University of Richmond.

Mathematics and the Arts, **Michael J. Field**, University of Houston, **Gary R. Greenfield**, University of Richmond, and **Reza Sarhangi**, Towson University.

Minimum Rank Problems, **Lon H. Mitchell**, Virginia Commonwealth University, and **Sivaram K. Narayan**, Central Michigan University.

Numerical Methods for Solving Partial Differential Equations in Practice, **Kathryn Trapp**, University of Richmond, and **Katie Gurski**, Howard University.

Operator Theory, **Stefan Richter**, University of Tennessee, and **William T. Ross**, University of Richmond.

Statistical Properties of Dynamical Systems, **Michael J. Field** and **Matthew J. Nicol**, University of Houston.

Topics in Graph Theory, **Daniel W. Cranston**, Virginia Commonwealth University, and **Gexin Yu**, College of William & Mary.

Pucón, Chile

December 15–18, 2010

Wednesday – Saturday

Meeting #1066

First Joint International Meeting between the AMS and the Sociedad de Matematica de Chile.

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: August 2010

Program first available on AMS website: Not applicable

Program issue of electronic *Notices*: Not applicable

Issue of *Abstracts*: Not applicable

Deadlines

For organizers: Expired

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

For abstracts: To be announced

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/interntmts.html.

AMS Invited Addresses

Ricardo Baeza, Universidad de Talca, Chile, *p -cohomological dimension of fields of characteristic p* .

Igor Dolgachev, University of Michigan, *Cremona groups and their subgroups*.

Andres Navas, Universidad de Santiago de Chile, *Probabilistic, dynamical and topological aspects of orderable groups*.

Rodolfo Rodriguez, Universidad de Concepcion, *Numerical solution of time-domain electromagnetic problems arising from some metallurgical processes*.

Gunther Uhlmann, University of Washington, *Inside-out: Inverse problems*.

S. R. Srinivasa Varadhan, New York University, *Large deviations*.

AMS Special Sessions

Algebra and Model Theory, **Thomas Scanlon**, University of California, Berkeley, **Xavier Vidaux**, Universidad de Concepcion, **Charles Steinhorn**, Vassar College, and **Alf Onshuus**, Universidad de los Andes, Columbia.

Algebraic Modeling of Knotted Objects, **Vaughan F. R. Jones**, University of California, Berkeley, **Jesús Juyumaya**, Universidad de Valparaíso, **Louis H. Kauffman**, University of Illinois at Chicago, and **Sofia Lambropoulou**, National Technical University of Athens.

Applications of Differential and Difference Equations in Biology and Ecology, **J. Robert Buchanan**, Millersville University, **Fernando Córdova**, Universidad Católica de Maule, and **Jorge Velasco Hernandez**, Instituto Nacional de Petroleo.

Arithmetic of Quadratic Forms and Integral Lattices, **Maria Ines Icaza**, Universidad de Talca, Chile, **Wai Kiu Chan**, Wesleyan University, and **Ricardo Baeza**, Universidad de Talca, Chile.

Automorphic Forms and Dirichlet Series, **Yves Martin**, Universidad de Chile, Chile, and **Solomon Friedberg**, Boston College.

Complex Algebraic Geometry, **Giancarlo Urzua** and **Eduardo Cattani**, University of Massachusetts.

Foliations and Dynamics, **Andrés Navas**, Universidad de Santiago de Chile, and **Steve Hurder**, University of Illinois at Chicago.

Group Actions: Probability and Dynamics, **Andrés Navas**, Universidad de Santiago de Chile, and **Rostislav Grigorchuk**, University of Texas.

Inverse Problems and PDE Control, **Matias Courdurier**, Pontificia Universidad Católica de Chile, **Axel Osses**, Universidad de Chile, and **Gunther Uhlmann**, University of Washington.

Non-Associative Algebras, **Alicia Labra**, Universidad de Chile, and **Kevin McCrimmon**, University of Virginia.

Probability and Mathematical Physics, **Hui-Hsiung Kuo**, Louisiana State University, and **Rolando Rebolledo**, Pontificia Universidad Católica de Chile.

Representation Theory, **Jorge Soto Andrade**, Universidad de Chile, and **Philip Kutzko**, University of Iowa.

Spectral Theory and Mathematical Physics, **Bruno Nachtergaele**, University of California, Davis, and **Rafael Tiedra**, Pontificia Universidad Católica de Chile.

New Orleans, Louisiana

New Orleans Marriott and Sheraton New Orleans Hotel

January 6–9, 2011

Thursday – Sunday

Meeting #1067

Joint Mathematics Meetings, including the 117th Annual Meeting of the AMS, 94th 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), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: October 2010

Program first available on AMS website: November 1, 2010

Program issue of electronic *Notices*: January 2011

Issue of *Abstracts*: Volume 32, Issue 1

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: Expired

For abstracts: September 22, 2010

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/national.html.

Joint Invited Addresses

Robert J. Lang, Robert J. Lang Origami, *From flapping birds to space telescopes: The mathematics of origami* (AMS-MAA-SIAM Gerald and Judith Porter Public Lecture).

Kannan Soundararajan, Stanford University, *To be announced* (AMS-MAA Invited Address).

Chuu-Lian Terng, University of California Irvine, *Title to be announced* (AMS-MAA Invited Address).

Joint Prize Session

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 Friday. 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 AMS will announce the winners of the Bôcher Memorial Prize, Frank Nelson Cole Prize in Number Theory, Levi L. Conant Prize, Joseph L. Doob Prize, Leonard Eisenbud Prize for Mathematics and Physics, Ruth Lyttle Satter Prize in Mathematics, and Leroy P. Steele Prizes. The MAA will award the Beckenbach Book Prize, Chauvenet

Prize, Euler Book Prize, Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics, Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics, David P. Robbins Prize, and Certificates of Meritorious Service. The AWM will present the Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman and the Louise Hay Award for Contributions to Mathematics Education.

This session will also be the venue for the announcement of the Joint Policy Board for Mathematics Communication Award.

117th Meeting of the AMS

AMS Invited Addresses

Denis Auroux, University of California Berkeley, *Title to be announced.*

Andrea L. Bertozzi, University of California Los Angeles, *Title to be announced.*

Alexander Lubotzky, The Hebrew University of Jerusalem, *Expander graphs in pure and applied mathematics* (AMS Colloquium Lectures).

George Papanicolaou, Stanford University, *Title to be announced* (AMS Josiah Willard Gibbs Lecture).

Scott Sheffield, Massachusetts Institute of Technology, *Title to be announced.*

Tatiana Toro, University of Washington, *Title to be announced.*

Akshay Venkatesh, Stanford University, *Title to be announced.*

AMS Special Sessions

Some sessions are cosponsored with other organizations. These are noted within the parenthesis at the end of each listing, where applicable.

Analysis of Reaction-Diffusion Models (Code: SS 31A), **Junping Shi**, College of William and Mary, and **Xuefeng Wang**, Tulane University.

Analytic and Geometric Methods in Representation Theory (Code: SS 38A), **Leticia Barchini**, Oklahoma State University, and **Hongyu He**, Louisiana State University.

Applications of Stochastic Processes in Neuroscience (Code: SS 21A), **Peter Thomas**, Case Western Reserve University, **Kreso Josic**, University of Houston, and **Carson C. Chow**, Institutes of Health (AMS-SIAM).

Applied Optimization and Douglas-Rachford Splitting Methods for Convex Programming (Code: SS 15A), **Ram U. Verma**, Seminole State College of Florida.

Asymptotic Methods in Analysis with Applications (Code: SS 10A), **Diego Dominici**, State University of New York at New Paltz, and **Peter A. McCoy**, U.S. Naval Academy.

Birational Geometry and Moduli Spaces (Mathematics Research Communities session) (Code: SS 1A), **Kevin Tucker**, University of Utah, **Dawei Chen**, University of Illinois at Chicago, **Amanda Knecht**, University of Michigan, and **David Swinarski**, University of Georgia.

Boundary Control and Moving Interface in Coupled Systems of Partial Differential Equations (Code: SS 53A), **Lorena Bociu**, University of Nebraska-Lincoln, and **Jean-Paul Zolesio**, CNRS-INLN and INRIA, Sophia Antipolis, France.

Centers for Teaching/Education/Outreach in Departments of Mathematics (Code: SS 14A), **Michael E. Mays**, West Virginia University (AMS-MAA).

Combinatorial Algebraic Geometry (Code: SS 42A), **Frank Sottile**, Texas A&M University, and **Alexander T. Yong**, University of Illinois, Urbana-Champaign.

Commutative Algebra (Mathematics Research Communities session) (Code: SS 3A), **Christine Berkesch**, Stockholm University, **Bhargav Bhatt**, University of Michigan, Ann Arbor, **Jason McCullough**, University of California, Riverside, and **Javid Validashti**, University of Kansas.

Completely Integrable Systems, Random Matrices, and the Bispectral Problem (Code: SS 28A), **Bojko Bakalov**, North Carolina State University, **Michael Gekhtman**, University of Notre Dame, **Plamen Iliev**, Georgia Institute of Technology, and **Milen T. Yakimov**, Louisiana State University.

Computational Algebraic and Analytic Geometry for Low-Dimensional Varieties (Code: SS 47A), **Mika K. Sepsala**, Florida State University, **Tanush Shaskas**, Oakland University, and **Emil Volcheck**, National Security Agency.

Continued Fractions (Code: SS 40A), **James G. McLaughlin**, West Chester University, and **Nancy J. Wyshinski**, Trinity College.

Control and Inverse Problems for Partial Differential Equations (Code: SS 33A), **Ana-Maria Croicu** and **Michele L. Joyner**, Kennesaw State University (AMS-SIAM).

Difference Equations and Applications (Code: SS 6A), **Michael A. Radin**, Rochester Institute of Technology.

Dirac Operators (Code: SS 61A), **Craig A. Nolder**, Florida State University, and **John Ryan**, University of Arkansas.

Expander Graphs in Pure and Applied Mathematics (Code: SS 66A), **Alireza Salehi Golsefidy**, Princeton University, and **Alexander Lubotzky**, Hebrew University of Jerusalem.

Formal Mathematics for Mathematicians: Developing Large Repositories of Advanced Mathematics (Code: SS 12A), **Krystyna M. Kuperberg**, Auburn University, and **Andrzej Trybulec**, **Artur Kornilowicz**, and **Adam Naimowicz**, University of Bialystok.

Geometric Group Theory (Code: SS 46A), **Joshua B. Barnard**, University of South Alabama, and **Pallavi Dani**, Louisiana State University.

Global Dynamics of Discrete Dynamical Systems in the Plane with Applications (Code: SS 56A), **M. R. S. Kulenovic** and **Orlando Merino**, University of Rhode Island.

Groups, Geometry, and Applications (Code: SS 7A), **De-laram Kahrobaei**, City University of New York.

Harmonic Analysis and Partial Differential Equations (Code: SS 65A), **Svitlana Mayboroda**, Purdue University, and **Tatiana Toro**, University of Washington.

History of Mathematics (Code: SS 37A), **Sloan E. Despeaux**, Western Carolina University, **Craig G. Fraser**, University of Toronto, and **Deborah Kent**, Hillsdale College (AMS-MAA).

Hopf Algebras and Their Representations (Code: SS 4A), **M. Susan Montgomery**, University of Southern California, **Siu-Hung Ng**, Iowa State University, and **Sarah J. Wither spoon**, Texas A&M University (AMS-AWM).

Integral Geometry: Analysis and Applications (Code: SS 20A), **Gaik Ambartsoumian**, University of Texas, Arlington, **Gestur Olafsson**, Louisiana State University, **Eric Todd Quinto**, Tufts University, and **Boris S. Rubin**, Louisiana State University.

Interactions of Inverse Problems, Signal Processing, and Imaging (Code: SS 54A), **Zuhair Nashed**, University of Central Florida.

Knot Theory (Code: SS 63A), **Tim D. Cochran** and **Shelley Harvey**, Rice University.

Knots, Links, 3-Manifolds, and Physics (Code: SS 44A), **Robert Kusner**, University of Massachusetts, Amherst, and **Rafal Komendarczyk**, Tulane University.

Lie Algebras, Algebraic Groups, and Related Topics (Code: SS 23A), **Audrey L. Malagon** and **Julie C. Beier**, Mercer University, and **Daniel K. Nakano**, University of Georgia.

Local Commutative Algebra (Code: SS 5A), **Paul C. Roberts** and **Anurag K. Singh**, University of Utah, and **Sandra M. Spiroff**, University of Mississippi.

Logic and Analysis (Code: SS 36A), **Jeremy Avigad**, Carnegie Mellon University, **Ulrich W. Kohlenbach**, Technische Universität Darmstadt, and **Henry Towsner**, University of California Los Angeles (AMS-ASL).

Mathematical Modeling in Environmental Economics (Code: SS 49A), **Natali Hritonenko**, Prairie View A&M University, and **Yuri Yatsenko**, Houston Baptist University.

Mathematical Techniques in Musical Analysis (Code: SS 19A), **Robert W. Peck**, Louisiana State University, and **Thomas M. Fiore**, University of Michigan at Dearborn.

Mathematics Related to Feynman Diagrams (Code: SS 25A), **Victor H. Moll**, Tulane University, and **Olivier Espinosa**, Universidad Santa Maria, Valparaiso.

Mathematics and Education Reform (Code: SS 39A), **William H. Barker**, Bowdoin College, **William G. McCallum**, University of Arizona, and **Bonnie S. Saunders**, University of Illinois at Chicago (AMS-MAA-MER).

Mathematics of Computation: Algebra and Number Theory (Code: SS 11A), **Gregor Kemper**, Technische Universität München, **Michael J. Mossinghoff**, Davidson College, and **Igor E. Shparlinski**, Macquarie University (AMS-SIAM).

Mathematics of Computation: Differential Equations, Linear Algebra, and Applications (Code: SS 52A), **Susanne C. Brenner**, Louisiana State University, and **Chi-Wang Shu**, Brown University (AMS-SIAM).

(The) Mathematics of Modeling Multiscale Heterogeneous Media (Code: SS 51A), **Robert P. Lipton** and **Tadele A. Mengesha**, Louisiana State University.

Measures of Entanglement of Macromolecules and Their Applications (Code: SS 57A), **Isabel K. Darcy**, University of Iowa, **Kenneth C. Millett**, University of California, Santa Barbara, **Eric J. Rawdon**, University of St. Thomas, and **Mariel Vazquez**, San Francisco State University.

Model Theory of Fields and Applications (Mathematics Research Communities session) (Code: SS 2A), **Benjamin**

A. Hutz, CUNY Graduate Center, **Jana Marikova**, Western Illinois University, **Jerome Poineau**, University of Strasbourg, and **Yimu Yin**, University of Pittsburgh.

Multivariable Operator Theory (Code: SS 13A), **Ronald G. Douglas**, Texas A&M University, and **Gelu F. Popescu**, University of Texas at San Antonio.

New Topics in Graph Theory (Code: SS 9A), **Raluca Gera**, Naval Postgraduate School, and **Eunjeong Yi**, Texas A&M University at Galveston.

New Trends in Theory and Applications of Evolution Equations (Code: SS 34A), **Guoping Zhang** and **Gaston N'Guerekata**, Morgan State University, **Wen-Xie Ma**, University of South Florida, and **Yi Li**, University of Iowa.

Noncommutative Harmonic Analysis and Dynamic Systems (Code: SS 41A), **Tao Mei**, University of Illinois, Urbana-Champaign, and **Alan D. Wiggins**, University of Michigan at Dearborn.

Nonlinear Evolution Equations, Analysis, and Geometry (Code: SS 43A), **Ralph Saxton**, University of New Orleans, and **Feride Tiglay**, Ecole Polytechnique Federale de Lausanne.

Nonlinear Waves and Integrable Systems (Code: SS 55A), **Gino Biondini**, State University of New York at Buffalo, and **Barbara Prinari**, University of Colorado at Colorado Springs (AMS-SIAM).

Quadratic Forms in Algebra and Geometry (Code: SS 16A), **Jorge F. Morales**, Louisiana State University, and **Anne Queguiner-Mathieu**, Université de Paris 13.

Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs (Code: SS 22A), **Darren A. Narayan**, **Bernard Brooks**, and **Jobby Jacob**, Rochester Institute of Technology; and **Jacqueline A. Jensen**, Sam Houston State University (AMS-MAA-SIAM).

Self-Organization in Human, Biological, and Artificial Systems (Code: SS 64A), **Andrea L. Bertozzi**, University of California Los Angeles.

Set-Valued Optimization and Variational Problems (Code: SS 62A), **Akhtar A. Khan**, Rochester Institute of Technology, and **Miguel Sama**, Universidad Nacional de Educacion a Distancia, Madrid.

Stochastic Analysis and Mathematical Physics: A Session in Honor of the 80th Birthday of Len Gross (Code: SS 18A), **Bruce K. Driver**, University of California at San Diego, **Maria Gordina**, University of Connecticut, and **Todd Kemp**, Massachusetts Institute of Technology and University of California at San Diego.

Stochastic Analysis and Random Phenomena (Code: SS 29A), **Ambar N. Sengupta** and **P. Sundar**, Louisiana State University.

Stochastic, Fractional, and Hybrid Dynamic Systems with Applications (Code: SS 17A), **A. S. Vatsala**, University of Louisiana at Lafayette, and **G. S. Ladde**, University of South Florida.

Structure Theory for Matroids and Graphs (Code: SS 45A), **Bogdan Oporowski** and **James G. Oxley**, Louisiana State University.

Structured Models in Ecology, Evolution, and Epidemiology: Periodicity, Extinction, and Chaos (Code: SS 50A), **Sophia R.-J. Jang**, **Linda J. S. Allen**, and **Lih-Ing W. Roeger**, Texas Tech University.

Theory and Application of Stochastic Differential Equations and Stochastic Partial Differential Equations (Code: SS 27A), **Armando Arciniega**, University of Texas at San Antonio, **Edward J. Allen**, Texas Tech University, **Sivapragasam Sathanathan**, Tennessee State University, and **Mahmoud Anabtawi**, American University of Sharjah.

Time Scales: Theory and Applications (Code: SS 8A), **Billy Jackson**, University of Northern Colorado, and **Joan Hoffacker**, Clemson University.

Transseries and Ordered Exponential Fields (Code: SS 32A), **Gerald A. Edgar** and **Ovidiu Costin**, The Ohio State University, and **Lou P. van den Dries**, University of Illinois, Urbana-Champaign.

Wavelets, Tilings, and Iterated Function Systems (Code: SS 26A), **Palle E. Jorgensen**, University of Iowa, **David R. Larson**, Texas A&M University, and **Gestur Olafsson**, Louisiana State University.

von Neumann Algebras (Code: SS 48A), **Richard D. Burstein**, Vanderbilt University, and **Remus Nicoara**, University of Tennessee, Knoxville.

Other AMS Sessions

What I Wish I Had Known before Applying for a Job, Thursday, 4:30 p.m.–6:00 p.m. Sponsored by the Committee on the Profession Panel Discussion.

Who Wants to Be a Mathematician—National Contest, organized by **Michael A. Breen**, AMS, and **William T. Butterworth**, DePaul University; Friday, 9:30 a.m.–11:00 a.m. See ten of the nation's best high school students compete for a US\$5,000 first prize for themselves and US\$5,000 for their school's math department. Semifinals are at 9:30 a.m. and finals at 10:30 a.m. You are invited to come and take part in this educational and fun presentation.

Current Events Bulletin, Friday, 1:00 p.m.–5:00 p.m., organized by **David Eisenbud**, University of California Berkeley. Speakers in this session follow the model of the Bourbaki Seminars in that mathematicians with strong expository skills speak on work not their own. Written versions of the talks will be distributed at the meeting and also be available on line at www.ams.org/ams/current-events-bulletin.html after the conclusion of the meeting.

Proving Hardy Wrong: Math Research with Social Justice Applications, organized by **Eva Curry**, Acadia University; Friday, 1:00 p.m.–2:15 p.m.

Grad School Fair, Saturday, 8:30 a.m.–10:30 a.m. Here is the opportunity for undergrads to meet representatives from mathematical sciences graduate programs from universities all over the country. January is a great time for juniors to learn more, and college seniors may still be able to refine their search. This is your chance for one-stop shopping in the graduate school market. At last year's meeting about 300 students met with representatives from 45 graduate programs. If your school has a graduate program and you are interested in participating, a table will be provided for your posters and printed materials for US\$60 (registration for this event must be made by a person already registered for the JMM), and you are welcome

to personally speak to interested students. Complimentary coffee will be served. Cosponsored by the AMS and MAA.

Committee on Science Policy Panel Discussion, Saturday, 2:30 p.m.–4:00 p.m.

Congressional Fellowship Session, Saturday, 4:30 p.m.–6:30 p.m.

Committee on Education Panel Discussion, Sunday, 8:30 a.m.–10:00 a.m.

Other AMS Events

Council: Wednesday, 1:30 p.m.

Business Meeting: Sunday, 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 AMS Secretary by December 9, 2010.

AMS Short Courses

There will be two, two-day Short Courses which will take place on Tuesday and Wednesday, January 4 and 5, before the meeting actually begins. Titles and organizers are *Computational Topology*, organized by **Afra Zomorodian**, Dartmouth University, and *Evolutionary Game Dynamics*, organized by **Karl Sigmund**, University of Vienna. There are separate registration fees to participate in these courses. See the complete article beginning on page 1185 of this issue or at www.ams.org/meetings/national/jmm/2125_ams.c.html.

Department Chairs Workshop

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

Past workshop sessions have focused on a range of issues facing departments today, including personnel issues (staff and faculty), long-range planning, hiring, promotion and tenure, budget management, assessments, outreach, stewardship, junior faculty development, communication, and departmental leadership.

There is a separate registration fee of US\$100 to participate. To register, visit <http://www.ams.org/profession/leaders/ChairsWorkshop2011.RSVForm.pdf>. For further information please contact the AMS Washington Office at 202-588-1100 or amsdc@ams.org.

94th Meeting of the MAA

MAA Invited Addresses

Robert M. Bell, AT&T, *Lessons from the Netflix Prize*, 10:00 a.m. on Sunday.

David M. Bressoud, Macalester College, *Issues of the transition to college mathematics* (MAA Retiring Presidential Address), 9:00 a.m. on Saturday.

Yuval Peres, Microsoft Research, *Laplacian growth and the mystery of the abelian sandpile: A visual tour*, 2:15 p.m. on Thursday.

Edward R. Scheinerman, Johns Hopkins University, *On the intersection of graphs and geometry*, 3:20 p.m. on Thursday.

Katherine Socha, Saint Mary's College of Maryland, *Sea battles, Benjamin Franklin's oil lamp, and jellybellies*, 9:00 a.m. on Friday.

Melanie Matchett Wood, Stanford University, *Binary quadratic forms: From Gauss to algebraic geometry*, 2:15 p.m. on Saturday.

Presentations by Teaching Award Recipients

Saturday, 3:30 p.m.–5:00 p.m., organized by MAA Secretary **Barbara J. Faires**, Westminster College, and moderated by MAA President, **David M. Bressoud**, Macalester College. Winners of the Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching will give presentations on the secrets of their success.

MAA Invited Paper Sessions

The Beauty and Power of Number Theory, organized by **Thomas Koshy**, Framingham State College, and **Shannon Lockard**, Bridgewater State College, Friday, 9:00 a.m.–11:55 a.m. This session focuses on delightful results

from number theory (and combinatorics), which exude the beauty and power of number theory.

Fish Tales: Stories from Mathematical Fluid Dynamics, organized by **Katherine Socha**, St. Mary's College of Maryland, Saturday, 9:00 a.m.–11:00 a.m. Speakers will present a range of examples from fluid mechanics, all motivated by real fluid motion or phenomena.

On the Intersection of Graphs and Geometry, organized by **Edward Scheinerman**, Johns Hopkins University, Sunday, 9:00 a.m.–10:50 a.m. and 1:00 p.m.–3:20 p.m.

Laplacian Growth: Visual Mathematics, organized by **Yuval Peres**, Microsoft Research; **Lionel Levine**, Massachusetts Institute of Technology; and **Alexander Holroyd**, Microsoft Research, Thursday, 3:30 p.m.–6:20 p.m.

The Rebirth of Special Functions, organized by **Teodros Amdeberhan** and **Victor Moll**, Tulane University, Thursday, 9:00 a.m.–11:50 a.m. The topic of special functions was at the center of mathematics in the 19th century. The session will introduce the audience to six different areas in which this topic is making a comeback in the 21st century.

Topics in Hopf Algebras, organized by **Serban Raianu**, California State University, Dominguez Hills, and **David Fischman**, California State University, San Bernardino, Friday, 1:00 p.m.–4:15 p.m. Hopf algebras were discovered in the early 1940s, were established as a separate field in the late 1960s, and drew a lot of interest in the early 1990's, when quantum groups (which are examples of noncommutative and noncommutative Hopf algebras) began playing a central role in mathematics and physics. One of the most striking aspects of Hopf algebras is their ubiquity. They appear in virtually all branches of mathematics: topology, algebraic geometry, operator theory, probability theory, number theory, representation theory, Lie theory, and combinatorics, to list just a few. With so many fine locations, there is little wonder that Hopf algebras continue to be a very active field, regardless of the fluctuations in the mathematical real estate market during the past seventy years.

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. Participants in minicourses #12 and #13 are required to bring their own laptop computer equipped with appropriate software. Instructions on how to download any data files needed for those courses will be provided by the organizers. All minicourses will be held in the Ile de France rooms of the JW Marriott New Orleans Hotel. The enrollment in each minicourse is limited to 50; the cost of a minicourse is US\$75.

Minicourse #1: Special relativity through a linear algebraic lens, organized by **John de Pillis**, University of California Riverside. Part 1: Friday, 1:00 p.m.–3:00 p.m.; Part 2: Sunday, 1:00 p.m.–3:00 p.m. Do all moving clocks run slow? Does a moving ruler actually shrink in the direction of motion? Anyone familiar with the basics of matrix theory has all the tools necessary to explore the

ideas underlying the mysteries and paradoxes of special relativity. As an example consider how we pass from “reality” to a mathematical model. We see a real observer on a train platform at point x and time t . This defines the mathematical ordered pair (x, t) which, it turns out, is invested with a full vector space structure. This is our link between observed reality and the mathematical model. In this minicourse we will investigate how this mathematical structure along with the standard tools of matrix theory resolve several well-known paradoxes of special relativity.

Minicourse #2: *Getting mathematics majors to think outside the book: Course activities that promote exploration, discovery, conjecture, and proof*, organized by **Suzanne Dorée**, Augsburg College; **Jill Dietz**, St. Olaf College; and **Brian Hopkins**, St. Peter’s College. Part 1: Thursday, 2:15 p.m.–4:15 p.m.; Part 2: Saturday, 2:15 p.m.–4:15 p.m. Mathematics majors should explore, make and test conjectures, and prove mathematics of their own creation. Discovery-based activities designed to develop these skills can enliven any mathematics course, deepen student understanding, and help students make the sometimes difficult transition from book-based learners to independent investigators, especially in undergraduate research projects. In this minicourse we will work on sample activities from the undergraduate curriculum including discrete mathematics and other courses, discuss attributes of successful activities in any course, present curricular models incrementally building these skills throughout the major, and help participants plan how to incorporate these ideas in their own courses and program.

Minicourse #3: *Geometry and algebra in mathematical music theory*, organized by **Thomas M. Fiore**, University of Michigan-Dearborn; **Dmitri Tymoczko**, Department of Music, Princeton University; and **Robert Peck**, School of Music, Louisiana State University. Part 1: Friday, 8:00 a.m.–10:00 a.m. Part 2: Sunday, 9:00 a.m.–11:00 a.m. Mathematical music theory is a treasure trove of ideas and examples, especially for instructors looking to enhance their abstract algebra and topology courses. We will present two current areas, transformational theory and musical orbifolds, and provide mathematicians with musical examples that can be easily incorporated into math courses. We will discuss the structure of the neo-Riemannian group, how it transforms chords, its geometric depictions, and recent results on commuting groups. We will also describe how orbifolds provide a natural mathematical framework for modeling a range of musical problems. In these spaces points represent individual musical objects, such as chords, while line segments represent transitions between objects—called “voice leadings” by music theorists. Main topics are the construction and interpretation of relevant geometries, along with their analytical and theoretical applications. Successful REU projects will also be discussed briefly.

Minicourse #4: *Getting students involved in undergraduate research*, organized by **Aparna Higgins**, University of Dayton, and **Joseph Gallian**, University of Minnesota-Duluth. Part 1: Thursday, 9:00 a.m.–11:00 a.m.; Part 2: Saturday, 9:00 a.m.–11:00 a.m. This course will cover many aspects of facilitating research by undergraduates, such as getting students involved in research, finding ap-

propriate problems, deciding how much help to provide, and presenting and publishing the results. Similarities and differences between research conducted during summer programs and research that can be conducted during the academic year will be discussed. Although the examples used will be primarily in the area of discrete mathematics, the strategies discussed can be applied to any area of mathematics.

Minicourse #5: *A Game Theory path to quantitative literacy*, organized by **David Housman**, Goshen College, and **Richard Gillman**, Valparaiso University. Part 1: Friday, 10:30 a.m.–12:30 p.m.; Part 2: Sunday, 1:00 p.m.–3:00 p.m. Game Theory, defined in the broadest sense, can be used to model many real-world scenarios of decision-making in situations involving conflict and cooperation. Further, mastering the basic concepts and tools of Game Theory require only an understanding of basic algebra, probability, and formal reasoning. These two features of Game Theory make it an ideal path to developing habits of quantitative literacy among our students. This audience-participation minicourse develops some of the material used by the presenters in their general education courses on Game Theory and encourages participants to develop their own, similar, courses.

Minicourse #6: *Green linear optimization*, organized by **Glenn Hurlbert**, Arizona State University. Part 1: Friday, 9:00 a.m.–11:00 a.m.; Part 2: Sunday, 9:00 a.m.–11:00 a.m. No, not environmental, just inexperienced. How does it work? What is it good for? What are its big theorems? Can I teach it? Turns out, most experts place the Simplex algorithm among the top ten algorithms of the 20th century, due to its nearly unrivalled impact on the last 50 years of business, engineering, economics, and mathematics. While it is regularly taught to undergraduates in those other disciplines, it is a mystery why it is virtually missing from mathematics departments. Needing little more than the first few weeks of linear algebra, students can experience connections with geometry, probability, combinatorics, algorithms, computing, game theory, economics, graph theory, and modeling. Whether you’d like to offer a course in your department, make connections with your own research, or just satisfy your curiosity, come see what all the fuss is about. This will be a very hands-on experience, with games, puzzles, and experiments motivating main results and techniques. A laptop is not necessary, but if you want to bring yours, you can download WebSim from my homepage to use (<http://mingus.la.asu.edu/~hurlbert/>), and even run Maple if you like.

Minicourse #7: *The mathematics of Islam and its use in the teaching of mathematics*, organized by **Victor J. Katz**, University of the District of Columbia. Part 1: Thursday, 9:00 a.m.–11:00 a.m.; Part 2: Saturday, 9:00 a.m.–11:00 a.m. In the current world situation, it is critical that American students be exposed to some of the culture of Islam. Thus, this minicourse introduces college teachers to the mathematics of Islam and develops some ideas on using Islamic mathematical ideas in the teaching of mathematics. The course will consider mathematical ideas taken from arithmetic, algebra, geometry, and trigonometry. Participants will read from some of the original sources and discuss the

ideas and their implications. In particular, we will consider how some of the examples of Islamic mathematics can be used in modern courses in high school and college.

Minicourse #8: *The ubiquitous Catalan numbers and their applications*, organized by **Thomas Koshy**, Framingham State College. Part 1: Thursday, 9:00 a.m.–11:00 a.m.; Part 2: Saturday, 9:00 a.m.–11:00 a.m. Catalan numbers are both fascinating and ubiquitous. They pop up in quite unexpected places, such as triangulations of convex polygons, correctly parenthesized algebraic expressions, rooted trees, binary trees, full binary trees, trivalent binary trees, latticewalking, Bertrand's ballot problem, abstract algebra, linear algebra, chess, and the World Series, to name a few. Beginning with a brief history of Catalan numbers, this minicourse presents numerous examples from different areas. We will develop a number of combinatorial formulas for computing them, investigate their parity and their primality-link to Mersenne numbers, and present the various ways they can be extracted from Pascal's triangle and several Pascal-like triangles. We will investigate both Lobb's generalization of Catalan's Parenthesization Problem and tribinomial coefficients, and show how Catalan numbers can be extracted from tribinomial coefficients.

Minicourse #9: *Learning discrete mathematics via historical projects*, organized by **Jerry Lodder**, **Guram Bezhanishvili**, and **David Pengelley**, New Mexico State University; and **Janet Barnett**, Colorado State University, Pueblo. Part 1: Thursday, 2:15 p.m.–4:15 p.m.; Part 2: Saturday, 2:15 p.m.–4:15 p.m. This minicourse is aimed at introducing curricular modules in discrete mathematics, combinatorics, logic, abstract algebra, and computer science based entirely on primary historical source material, developed by an interdisciplinary team of mathematics and computer science faculty at New Mexico State University and Colorado State University at Pueblo. In the first session we plan to discuss the pedagogy behind our approach, give a brief outline of the projects we have developed, and provide snapshots and initial hands-on participant work with four chosen projects. In the second session we will discuss the four projects in detail, including group discussions and more hands-on activity. The projects we have developed so far as well as our philosophy in teaching with historical sources can be found on our homepage: <http://www.cs.nmsu.edu/historical-projects/>

Minicourse #10: *Teaching introductory statistics*, organized by **Michael Posner**, Villanova University, and **Carolyn Cuff**, Westminster College. Part 1: Friday, 1:00 p.m.–3:00 p.m.; Part 2: Sunday, 3:30 p.m.–5:30 p.m. This minicourse, intended for instructors new to teaching statistics, exposes participants to the big ideas of statistics and the ASA-endorsed Guidelines for Assessment and Instruction in Statistics Education report. It considers ways to engage students in statistical literacy and thinking, and contrast conceptual and procedural understanding in the first statistics course. Participants will engage in many of the classic activities that all statistics instructors should know. Internet sources of real data, activities, and best practices articles will be examined. Participants will find out how they can continue to answer the three questions

by becoming involved in statistics education related conferences, newsletters, and groups.

Minicourse #11: *Using video case studies in teaching a proof-based gateway course to the mathematics major*, organized by **James Sandefur**, Georgetown University; **Connie Campbell**, Millsaps College; and **Kay Somers**, Moravian College. Part 1: Thursday, 2:15 p.m.–4:15 p.m.; Part 2: Saturday, 2:15 p.m.–4:15 p.m. Many colleges and universities have a gateway course to help mathematics students make the transition to more theoretical courses, with a goal of helping students learn how to understand and construct proofs. The organizers have been videotaping students writing proofs for problems used in gateway courses, and have been using these videos to expand their understanding of students' difficulties and to learn what support helps the students. They have also been using these videos to help students learn to reflect on their own approaches to writing proofs. In this minicourse we will view some of these videos and discuss strategies implied by them, as well as help faculty learn how they might use these videos in their own transition course.

Minicourse #12: *Concepts, data and models: College algebra for the real world*, organized by **Sheldon P. Gordon**, Farmingdale State College, and **Florence S. Gordon**, New York Institute of Technology. Part 1: Friday, 9:00 a.m.–11:00 a.m.; Part 2: Sunday, 9:00 a.m.–11:00 a.m. Almost all students taking college algebra do so to fulfill requirements for other disciplines. The current mathematical needs of our partner disciplines, especially for lab science and data-dependent social science courses are very different from courses that prepare students for calculus. Students need a focus on conceptual understanding, data and statistical analysis, and realistic problem-solving via mathematical modeling to prepare for the mathematical applications they will encounter in those courses. Families of functions and data are the two primary motivating themes around which this approach is centered. A significant amount of statistical reasoning and methods is integrated in natural ways as applications of college algebra topics. All participants are expected to bring a laptop computer to the minicourse.

Minicourse #13: *Creating demonstrations and guided explorations for multivariable calculus using CalcPlot3D*, organized by **Paul Seeburger**, Monroe Community College. Part 1: Friday, 1:00 p.m.–3:00 p.m.; Part 2: Sunday, 1:00 p.m.–3:00 p.m. It is often difficult for students to develop an accurate and intuitive understanding of the geometric relationships of calculus from static diagrams alone. This course explores a collection of freely available Java applets designed to help students make these connections. Our primary focus will be visualizing multivariable calculus using *CalcPlot3D*, a versatile new applet developed by the presenter through NSF-DUE-0736968. Participants will also learn how to customize this applet to create demonstrations and guided exploration activities for student use. Images created in this applet can be pasted into participants' documents. See <http://web.monroec.edu/calcnsp/>. Some basic HTML experience is helpful. All participants are expected to bring a laptop computer to the minicourse.

MAA Contributed Papers

The MAA Committee on Contributed Paper Sessions solicits contributed papers pertinent to the sessions listed below. Contributed Paper Session organizers generally limit presentations to fifteen minutes. Each session room is equipped with a computer projector, an overhead projector, and a screen. Please note that the dates and times scheduled for these sessions remain tentative. Full descriptions of these sessions may be found at www.maa.org/meetings/jmm.html or see the June/July issue of the *Notices*, p. 804.

Alternative Approaches to Traditional Introductory Statistics Courses, **Brian Gill**, Seattle Pacific University; **Nancy Boynton**, SUNY Fredonia; and **Michael Posner**, Villanova University; Sunday afternoon. This session is sponsored by the SIGMAA STAT-ED. Presenters will be considered for the Dex Whittinghill Award for Best Contributed Paper.

Cool Calculus: Lessons Learned Through Innovative and Effective Supplemental Projects, Activities, and Strategies for Teaching Calculus, **Jessica Deshler**, West Virginia University; Friday morning.

Cryptography for Undergraduates, **Robert Edward Leonard**, Goucher College, and **Chris Christensen**, Northern Kentucky University; Thursday afternoon.

Developmental Mathematics Education: Helping Under-Prepared Students Transition to College-Level Mathematics, **Kimberly Presser** and **J. Winston Crawley**, Shippensburg University; Saturday afternoon.

Effective Teaching of Upper Level Mathematics to Secondary Education Mathematics Majors, **Joyati Debnath**, Winona State University; Sunday morning.

Fostering, Supporting and Propagating Math Circles for Students and Teachers, **Tatiana Shubin**, San Jose State University; **Elgin Johnston**, Iowa State University; and **James Tanton**, St. Mark's Institute of Mathematics; Saturday morning. Sponsored by SIGMAA MCST.

Getting Students Involved in Writing Proofs, **Aliza Steurer**, Dominican University; **Jennifer Franko-Vasquez**, University of Scranton; and **Rachel Schwell**, Central Connecticut State University; Thursday afternoon.

Harnessing Mobile Communication Devices and Online Communication Tools for Mathematics Education, **Michael B. Scott**, California State University Monterey Bay, and **Jason Aubrey**, University of Missouri; Thursday morning. This session is sponsored by the Committee on Technologies in Mathematics Education (CTIME) and WEB SIGMAA.

Humanistic Mathematics, **Gizem Karaali**, Pomona College; **Mark Huber**, Claremont McKenna College, and **Dagan Karp**, Harvey Mudd College; Saturday afternoon. This session is sponsored by the *Journal of Humanistic Mathematics*.

Influences of the Calculus Reform Movement on the Teaching of Mathematics, **Steve Benson**, Lesley University; **Marilyn Carlson**, Arizona State University; **Ellen Kirkman**, Wake Forest University; and **Joe Yanik**, Emporia State University; Sunday morning.

Innovations in Service-Learning at All Levels, **Karl-Dieter Crisman**, Gordon College; **Rachelle Ankney**, North Park

University; and **Robert Perlis**, Louisiana State University; Thursday afternoon.

Innovative and Effective Ways to Teach Linear Algebra, **David Strong**, Pepperdine University; **Gil Strang**, Massachusetts Institute of Technology; and **David Lay**, University of Maryland; Friday morning.

Journals and Portfolios: Tools in Learning Mathematics?, **Sarah L. Mabrouk**, Framingham State College, Friday afternoon.

The Mathematical Foundations for the Quantitative Disciplines, **Yajun Yang**, Farmingdale State College of SUNY; **Laurette Foster**, Prairie View A&M University; **Ray Collings**, Georgia Perimeter College; and **K. L. D. Gunawardena**, University of Wisconsin Oshkosh; Sunday afternoon. The session is cosponsored by CRAFTY and the MAA Committee on Two-Year Colleges.

Mathematics Experiences in Business, Industry, and Government, **Carla D. Martin**, James Madison University; **Phil Gustafson**, Mesa State College; and **Michael Monticino**, University of North Texas; Saturday morning. Sponsored by the BIG SIGMAA.

The Mathematics of Games and Puzzles, **Laura Taalman**, James Madison University, and **Robin Blankenship**, Morehead State University; Thursday afternoon

The Mathematics of Sustainability, **Elton Graves**, Rose-Hulman Institute of Technology, and **Peter Otto**, Willamette University; Friday afternoon.

Modeling in the ODE Driver's Seat, **Kurt Bryan**, Rose-Hulman Institute of Technology, and **Brian Winkel**, U.S. Military Academy; Friday morning.

New and Continuing Connections between Math and the Arts, **Douglas E. Norton**, Villanova University; Saturday morning. Sponsored by SIGMAA ARTS.

Philosophy of Mathematics in Teaching and Learning, **Dan Sloughter**, Furman University, and **Martin Flashman**, Humboldt State University; Saturday afternoon. Sponsored by the POM SIGMAA.

The Scholarship of Teaching and Learning in Collegiate Mathematics, **Jackie Dewar**, Loyola Marymount University; **Tom Banchoff**, Brown University; **Pam Crawford**, Jacksonville University; and **Edwin Herman** and **Nathan Wodarz**, University of Wisconsin-Stevens Point; Thursday morning.

Treasures from the Past: Using Primary Sources in the Classroom, **Amy Shell-Gellasch**, Beloit College; **Danny Otero**, Xavier University; and **David Pengelley**, New Mexico State University; Friday afternoon. Sponsored by the HOM SIGMAA.

Trends in Undergraduate Mathematical Biology Education, **Timothy D. Comar**, Benedictine University; **Raina Robeva**, Sweet Briar College; and **Mike Martin**, Johnson County Community College; Sunday morning. This session is sponsored by the BIO SIGMAA.

Using Program Assessment to Improve Student Learning, **Bonnie Gold**, Monmouth University; **William A. Marion**, Valparaiso University; and **Jay Malmstrom**, Oklahoma City Community College; Sunday afternoon.

Wavelets in Undergraduate Education, Organizers: **Caroline Haddad**, SUNY Geneseo; **Catherine Beneteau**, University of South Florida; **David Ruch**, Metropolitan

State College of Denver; and **Patrick Van Fleet**, University of St. Thomas; Thursday morning.

General Contributed Paper Session, **Kristen Meyer**, Wisconsin Lutheran College, and **Thomas Hagedorn**, The College of New Jersey; Thursday, Friday, Saturday, and Sunday mornings and afternoons. Papers may be presented on any mathematical topics. Papers that fit into one of the other sessions should be sent to that session, not to the general session.

Submission Procedures for MAA Contributed Paper Abstracts

Abstracts must be submitted electronically at <http://www.ams.org/cgi-bin/abstracts/abstract.pl>. Simply select the New Orleans meeting, fill in the number of authors, and then follow the step-by-step instructions. The deadline for abstracts is Tuesday, **September 22, 2010**.

Participants may submit at most two abstracts for MAA contributed paper sessions at any one meeting. If your paper cannot be accommodated in the session in which it is submitted, it will automatically be considered for the general session. Speakers in the general session are limited to one talk.

The organizer(s) of your session will automatically receive a copy of the abstract, so it is not necessary for you to send it directly to the organizer. All accepted abstracts are published in a book that is available to registered participants at the meeting. Questions concerning the submission of abstracts should be addressed to abs-coord@ams.org.

MAA Panels, Posters, and Other Sessions

National Science Foundation Programs Supporting Learning and Teaching in the Mathematical Sciences, organizers/panelists are **Lee Zia**, NSF DUE; **Hank Warchall**, NSF DMS; **Dennis Davenport**, NSF DUE; **Stephanie Fitchett**, NSF DUE; Thursday, 9:00 a.m.–10:20 a.m. 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. Anticipated budget highlights and other new initiatives for the next fiscal year will also be presented.

For MAA Student Chapter Advisors: Dynamic Answers to Your Questions, organized by **Jacqueline Jensen**, Sam Houston State University; **Robert W. Vallin**, Slippery Rock University, and **Joyati Debnath**, Winona State University; Thursday, 9:00 a.m.–10:20 a.m. We all want the best for our student chapters: An excited and enthused group of involved students, a resource to find meetings for students to attend, a place to exchange ideas for events, and an understanding of what the MAA can do for your group. Panelists **Bob Anastasio**, MAA; **Kay Somers**, Moravian College; and **Robert Vallin**, Slippery Rock University, will answer questions that have come up already involving the new changes in student memberships, the MAA's Math Club in a Box website, and Math Horizons subscriptions. The panel will also take on any and all questions you have about making your student

chapter the best possible. Sponsored by the MAA Committee on Undergraduate Student Activities and Chapters.

Mathematical Outreach Programs for Underrepresented Populations Poster Session, organized by **Betsy Yanik**, Emporia State University; Thursday, 9:00 a.m.–11:00 a.m. This session is designed to highlight special programs which have been developed to encourage students from underrepresented populations to maintain an interest in and commitment to succeeding in mathematics. These programs might include such activities as after school clubs, weekend activities, one-day conferences, mentoring opportunities, summer camps, etc. In particular, recipients of Tensor and Summa grants will find this an ideal venue in which to share the progress of their funded projects. We encourage everyone involved with offering outreach activities to consider submitting an abstract to the session organizer, Betsy Yanik, eyanik@emporia.edu. Sponsored by the Women and Mathematics Network (a subcommittee on the MAA Committee on the Participation of Women).

Reporting Progress: A Minisymposium of Projects from the NSF Course, Curriculum, and Laboratory Improvement Program, organized by **Dennis Davenport**, **Stephanie Fitchett**, and **Lee Zia**, NSF DUE; Thursday, 2:15 p.m.–3:35 p.m. In this session selected projects from the NSF Division of Undergraduate Education's Course, Curriculum, and Laboratory Improvement Program will provide project updates and present major outcomes. A moderated discussion of common development and implementation issues will follow.

How to Interview for a Job in the Mathematical Sciences, organized by **David Manderscheid**, University of Nebraska-Lincoln; Thursday, 2:15 p.m.–3:35 p.m. This session is aimed at Ph.D. students and at recent graduates. Panelists **Michael Axtell**, College of St. Thomas; **Allen Butler**, Daniel H. Wagner Associates, Inc.; **James Freeman**, Cornell College; **David Manderscheid**; and **Sarah Ann Stewart**, Belmont University, will give an overview of the employment process with ample opportunity for participants to ask questions. The emphasis will be on the portion of the employment process from interviewing through accepting an offer. Questions that will be addressed include: How do employers conduct interviews? How can you best prepare for these interviews? How do employers choose to whom they will make offers? How do you negotiate once you have an offer? How do you choose among competing offers? Sponsored by the MAA Committee on Graduate Students and The Young Mathematicians Network.

Transition from High School to College: Should There Be an Alternate to Calculus?, organized by **Gail Burrill**, Michigan State University; Thursday, 3:50 p.m.–5:10 p.m. Are we losing potential STEM students because they are reluctant to take calculus as a first course in mathematics or because they have already taken calculus? Panelists **Danny Kaplan**, Macalester College; **Gregory D. Foley**, Ohio University; **Thomas R. Butts**, University of Texas at Dallas; **Al Cuoco**, Education Development Center; **Michael Shaughnessy**, Portland State University, NCTM president; and **Gail Burrill**, will discuss issues related to students who slip under the STEM recruitment radar because no one ever

told them math had alternatives to calculus or that they might consider STEM careers. Panelists will offer some possible alternatives including linear algebra, dynamic systems, and advanced quantitative reasoning, and open the floor for input from the audience related to the questions: 1) Should alternative paths be created and why? 2) If so, what mathematical territory seems most promising for such paths? And 3) What is the potential impact of the Common Core Standards on high school graduates, mathematical knowledge and are the current entry-level courses for potential STEM majors the best ones for all students with this knowledge? Sponsored by the MAA/NCTM Mutual Concerns Committee.

Young Mathematicians Network/Project NExT Poster Session, organized by **Michael Axtell**, University of St. Thomas, and **Kim Roth**, Juniata College; Thursday, 4:00 p.m.–6:00 p.m. This poster session is intended to highlight the research activities, both mathematical and pedagogical, of recent or future PhDs in mathematics and related fields. The organizers seek to provide an open venue for people who are near completion, or have finished their graduate studies in the last five years to present their work and make connections with other same-stage professionals, in much the same spirit as the YMN and Project NExT. The poster size will be 48" by 36" (it is best to have the posters 36" high). Posters and materials for posting pages on the posters will be provided on site. We expect to accept about forty posters from different areas within the mathematical sciences.

Current Issues in Actuarial Science Education, organized by **Robert Buck**, Slippery Rock University; **Betty Anne Case**, Florida State University; **Kevin Charlowood**, Washburn University; and **Steve Paris**, Florida State University; Thursday, 5:00 p.m.–7:00 p.m. A diverse group of working actuaries, publishers, and actuarial educators bring new information from professional society committees, specialized publications initiatives, and academic department experience. The pace of change is faster than in most academic areas, and the session helps faculty adjust as quickly as possible not only to educate their students generally, but give the students good professional information and to determine curriculum change that may be necessary. Panelists include **Steve Paris**, Florida State University; **Betty Anne Case**, Florida State University; and **Robert Buck**, Slippery Rock University.

There will also be a discussion about organizing an MAA Special Interest Group on Actuarial Education. Sponsored by the Actuarial Educators, Society of Actuaries, Casualty Actuarial Society, and ACTEX Publications.

Career Options for Undergraduate Mathematics Majors, organized by **Raluca Gera**, Naval Postgraduate School, and **Tom Wakefield**, Youngstown State University; Friday, 9:00 a.m.–10:20 a.m. There are a vast amount of options available for students in today's global market. A degree in mathematics continues to be a desirable asset, yet a common question for students to ask is "what options are available for someone with a math degree?" This panel showcases several options for career paths for students with an undergraduate degree in mathematics. Panelists **Emily Kessler**, Society of Actuaries; **Erin E.**

Corman, National Security Agency; **Lee Seitelman**, University of Connecticut; **David Manderscheid**, University of Nebraska-Lincoln; and **Fred Kluempfen**, Educational Testing Service, will speak on their own experiences of finding a job and answer questions from the audience. Sponsored by the MAA and the Young Mathematicians Network.

MAA Session for Chairs: The New MAA Curriculum Guide—What Should It Be?, organized by **Daniel Maki**, Indiana University, and **Catherine M. Murphy**, Purdue University Calumet; Friday, 9:00 a.m.–10:20 a.m. The current Curriculum Guide appeared in 2004. CUPM is soliciting suggestions for the next guide. This is your opportunity as chairs of mathematics departments to influence the content and structure of the guide so it will be useful for you as you review and possibly change curricula to meet the needs of tomorrow's students. Panelists **Carol Schumacher**, Kenyon College, and **James Sellers**, Pennsylvania State University, two CUPM members, will lead this session. You will learn about some major themes that are under consideration, and have the opportunity to participate in discussions of what should be kept, what needs to be improved, what is missing and should be added. Some specific questions to think about are: (1) Does your department use the 2004 Curriculum Guide in such areas as curriculum planning, outcomes assessment, self-study, and evaluation? (2) Is there some aspect of the Curriculum Guide you find especially useful? If so, what? Is there some way in which it might be improved so as to be more helpful? (3) Is there something you really hope is considered for inclusion in the new guide that wasn't in the previous guide? For reference the current guide is at www.maa.org/cupm/curr_guide.html.

Professional Science Masters Degrees in the Mathematical Sciences Poster Session, organized by **David Manderscheid**, University of Nebraska-Lincoln; Friday, 10:00 a.m.–noon. Professional Science Masters (PSM) Degree programs are a fast growing segment of academe. PSM programs provide students training in an area of science and also business with an eye toward employment in government or industry. The MAA has appointed a task force to identify the MAA niche in PSM programs. The purpose of this poster session is for existing programs to provide information about their programs and their success. It is anticipated that both undergraduate students interested in possibly enrolling in a PSM program and faculty interested in possibly starting a PSM program will attend. Sponsored by the MAA Committee on Graduate Students.

Proposal Writing Workshop for Grant Applications to the NSF Division of Undergraduate Education, presented by **Dennis Davenport**, **Stephanie Fitchett**, and **Lee L. Zia**, Division of Undergraduate Education, National Science Foundation; Friday, 10:35 a.m.–11:55 a.m. The presenters will describe the general NSF grant proposal process and consider particular details relevant to programs in the Division of Undergraduate Education. This interactive session will feature a mock panel review using a series of short excerpts from sample proposals.

Writing the History of the MAA's First 100 Years, organized by **Victor J. Katz**, University of the District of Columbia, and **Janet Beery**, University of Redlands; Friday,

10:35 a.m.–11:55 a.m. The centennial of the MAA will occur in 2015. In preparation for that event, the MAA plans to record various aspects of its history, to appear either in electronic or in hardcopy form as articles or books. Two of the panelists, **Mary Gray**, American University, and **Warren Page**, New York City College of Technology, CUNY, have already written articles on the history of women and journals in the MAA, respectively, while a third, **David Zitarella**, Temple University, has written the history of his section. They will discuss their procedures for preparing those histories. The fourth panelist, **Carol Mead**, Archives of American Mathematics, is the archivist in charge of the major collection of MAA records and will help prospective researchers learn what is available and how to access it. We hope that those attending this panel session will be motivated to do their own research, either at the section or national level, to help us complete the history of the MAA. Sponsored by the Centennial History Subcommittee of the MAA Centennial Committee.

Assessment of Learning in an Age of Technology, organized by **Michael B. Scott**, California State University Monterey Bay, and **Jason Aubrey**, University of Missouri; Friday, 1:00 p.m.–1:20 p.m. Mathematics educators often use a variety of technologies to enhance student learning. For example, technology can provide opportunity for students to investigate many examples of a particular topic more easily or enhance visualization of a difficult concept. As technology becomes more integrated into the learning experiences of students, one should expect that technology would become more integrated into assessment practices. Moreover, as teaching mathematics using technology evolves, it is natural to ask whether the mathematics being assessed also changes. This session is designed to provide practical strategies and best practices for assessment of learning when teaching with technology. Panelists **Andrew G. Bennett**, Kansas State University; **Gavin LaRose**, University of Michigan; and **Alison Marble Ahlgren**, University of Illinois at Urbana-Champaign, will describe their experiences integrating assessment of mathematical proficiency with technology other than paper and pencil. Sponsored by the Committee on Technologies in Mathematics Education (CTIME) and WEB SIGMAA.

Good Intentions Are Necessary but Not Sufficient: Steps Toward Best Practices in Mentoring Underrepresented Students, organized by **James H. Curry**, University of Colorado; Friday, 1:00 p.m.–3:00 p.m. Do you have an idea for a program that will bring underrepresented students into mathematics? Are you interested in developing a proposal for an NSF Division of Mathematical Sciences workforce program, such as Mentoring through Critical Transition Points (MCTP), Research Experiences for Undergraduates (REU), Interdisciplinary Training for Undergraduates in Biological and Mathematical Sciences (UBM), or another project under the unsolicited workforce proposal format? This panel discussion will be led by NSF-supported principal investigators who developed programs having strong mentoring components and who are experienced in working with undergraduate, graduate, and postdoctoral scholars. Panelists **Carlos Castillo-Chavez**, Arizona State University; **A. G. (Loek) Helminck**, North

Carolina State University; **Rhonda Hughes**, Bryn Mawr College; **Philip Kutzko**, The University of Iowa; and **M. Helena Noronha**, California State University, Northridge, will discuss project design issues, both successes and failures, they encountered when developing mentoring and other program support structures for underrepresented students. Representatives from the NSF DMS workforce program will be in attendance.

Report from the International Conference on Teaching Statistics: A World View of Statistics Education, organized by **John McKenzie**, Babson College, and **Michael A. Posner**, Villanova University; Friday, 1:00 p.m.–2:20 p.m. Panelists **Rob Carver**, Stonehill College; **Katherine Halvorsen**, Smith College; **John McKenzie**; **Milo Schield**, Augsburg College; and **Gail Burrill**, Michigan State University, will discuss the current state of statistical education around the world. Each of the panelists is actively involved in statistics education and recently attended the International Conference on Teaching Statistics in Slovenia. They will formally address a number of questions concerning statistical education at all levels (primary and secondary schools, colleges and universities, the workplace). Each will identify differences in statistical instruction among countries and provide reasons for such differences. The most appropriate type of statistics—statistical literacy, applied statistics, and mathematical statistics for different countries—will be discussed. Each panelist will explain what other countries can learn from the way statistics is taught in the United States and what the United States can learn from other countries. The numerous advantages of attending an international conference will also be presented. At the end of session there will be ample time for audience participation. Sponsored by the SIGMAA Stat Ed and the ASA/MAA Joint Committee on Undergraduate Statistics.

Projects Supported by the NSF Division of Undergraduate Education Poster Session, organized by **Jon W. Scott**, Montgomery Community College; Friday, 2:00 p.m.–4:00 p.m. This session will feature principal investigators (PIs) presenting progress and outcomes from various NSF funded projects in the Division of Undergraduate Education. The poster session format will permit ample opportunity for attendees to engage in small group discussions with the PIs and to network with each other. Information about presenters and their projects will appear in the program.

Mathematical Culture and Mathematical Life, organized by **Reuben Hersh** and **Vera John-Steiner**, University of New Mexico; Friday, 2:00 p.m.–4:00 p.m. The emotional, social, and political sides of mathematical life are vitally important yet seldom discussed publicly. How do people survive the stresses of mathematical life? What does it mean, personally, to be a “mathematician” nowadays? In what ways are our personalities and problems “the same” as everybody else’s, and in what ways are they very different? How is mathematical life different from, and how is it similar to other lives in “academia”? How are our mathematical lives affected by our gender or our ethnicity? Panelists include **Lenore Blum**, Carnegie-Mellon University; **Philip J. Davis**, Brown University; **Nathaniel**

Dean, Texas State University San Marcos; **Reuben Hersh**; and **Gizem Karaali**, Pomona College.

Creating/Improving the Biomathematics/Biostatistics Course, organized by **Michael A. Posner**, Villanova University; **Raina Robeva**, Sweet Briar College; and **Holly Gaff**, Old Dominion University; Friday, 2:35 p.m.–3:55 p.m. With the growing demand for quantitatively skilled biologists, the creation of new and update of previously established biomathematics, biostatistics, or bioinformatics courses is a popular topic and necessary discussion. The recommendations of the Bio 2010 report have proposed important modifications to these curricula. The faculty on this panel, including **Pam Ryan**, Truman University; **Fred Adler**, University of Utah; **Laurie Heyer**, Davidson College; and **Deborah Nolan**, University of California, Berkeley, have all been involved on their campuses in shaping these courses. They will address questions like: What does this course look like? What topics are covered? What are the best practices? Who are the target audiences? What are the challenges of creating, marketing, getting such a course approved? What are the future directions of these courses? Ample time will be left for participant discussion. Sponsored by SIGMAA BIO, SIGMAA Stat Ed, and the ASA/MAA Joint Committee on Undergraduate Statistics.

Calculus Reform: 25 Years Later, organized by **Steve Benson**, Lesley University; **Joe Yanik**, Emporia State University; **Marilyn Carlson**, Arizona State University; and **Ellen Kirkman**, Wake Forest University; Friday, 2:35 p.m.–3:55 p.m. Twenty-five years ago, the Tulane Conference “kicked off” a nationwide discussion about the teaching of calculus that led to a dramatic, sometimes contentious, re-evaluation of the ways in which calculus was taught, a discussion that continues to this day. Our panelists, **Steve Benson**; **Tom Dick**, Oregon State University; **Deborah Hughes Hallett**, University of Arizona; **Judy Holdener**, Kenyon College; and **Paul Zorn**, St. Olaf College, an eclectic combination of “Tulane” participants, curriculum developers and adapters, and observers of, and participants in, the calculus reform movement, will look back on the last 25 years and share their personal reflections, providing important historical perspective and insight for those who might wish to make similar contributions to the teaching and learning of mathematics (calculus and otherwise). Rather than to promote or (re)debate the issues, or bring back the artificial “us vs. them” distinctions, we wish to look back on the last 25 years and use these lessons to inform the next 25 years (and beyond) of mathematics teaching. Sponsored by the MAA Committee on the Teaching of Undergraduate Mathematics.

Mathematicians and Teachers: Professional Development and Outreach Groups, organized by **James King**, University of Washington and **Gail Burrill**, Michigan State University; Friday, 2:35 p.m.–3:55 p.m. The Institute for Advanced Study's Park City Mathematics Institute (PCMI) is committed to networking mathematicians and teachers. This commitment has resulted in the creation of Professional Development and Outreach (PDO) Groups, organized by mathematicians for local secondary teachers. These programs include weeklong conferences, Mathematics at the Jersey Shore workshops, math days for

high school students, and lesson-designing sessions with teachers and preservice students. Panelists **Darryl Yong**, Harvey Mudd University; **Brian Hopkins**, St. Peters College; **James King**; **Harvey Keynes**, University of Minnesota; and **Brynja Kohler**, Utah State University, will describe how their groups are organized, the impact on the teachers in their groups, and issues that emerge in making their PDO groups valuable and continuing learning experiences for the teachers. They will engage the audience in discussing the larger networking picture for mathematicians and teachers and offer suggestions for those interested in starting their own PDO group.

The Benefits of Hosting a Regional Undergraduate Mathematics Conference, organized by **Doug Faires**, Youngstown State University, Saturday, 9:00 a.m.–10:20 a.m. There are currently more than 40 conferences in the United States that receive funding to host conferences under the Regional Undergraduate Mathematics Conferences (RUMC) grant DMS-0846477. The intent of the grant is to have a sufficient number of these conferences so that every U.S. student can attend a mathematics conference without extensive travel or outlay of funds. Many regions in the country now offer this opportunity, either through this program, the MAA sections, or independently run conferences. However there are still regions with large student populations that have not taken advantage of this opportunity. The panel will include the grant PI and four other faculty members. All have directed conferences with funds awarded by the grant. Two of the panelists will be directors of multiple conferences who can tell how the conference has progressed from year to year. The remaining two will be relatively new to the program and give their impressions about what to consider when first designing and hosting a conference. Panelists **Doug Faires**; **Kendra Kilpatrick**, Pepperdine University; **Laura Taalman**, James Madison University; and **Nathan Gibson**, Oregon State University, will give advice for those interested in becoming part of the program, and describe the benefits that undergraduate conferences provide to both students and the faculty involved in the program.

Utilizing NSF ADVANCE to Promote the Success of Women Faculty in Mathematics, organized by **Jenna Carpenter**, Louisiana Tech University; Saturday, 9:00 a.m.–10:20 a.m. This panel features four funded NSF ADVANCE Programs and their impact on promoting the success of women faculty in mathematics. Panelists **Judith Silver**, Marshall University; **Brooke Shipley**, University of Illinois at Chicago; **Brenda Johnson**, Union College; and **Jenna Carpenter**, are PIs/co-PIs on an existing NSF ADVANCE Project. Small, medium, and large institutions are represented, as well as both larger institutional transformation and smaller adaptation and implementation projects. The goals of this session are to 1) increase awareness of NSF ADVANCE in the mathematics community at large; 2) educate mathematics departments about key issues impacting the success of women faculty; and 3) disseminate effective strategies to address these issues and promote faculty success. Topics to be addressed include isolation, high service and teaching loads, climate issues, faculty hiring, dual career issues, networking, university policies,

mentoring, professional development, and promotion of research. Each panelist will highlight key aspects of their program, followed by a general question-and-answer session. Materials about ADVANCE and participating projects will be available, as well.

Preparation and Recruitment of Future Mathematics Graduate Students, organized by **Amy Cohen**, Rutgers University; Saturday, 1:00 p.m.–2:20 p.m. A U.S. mathematics major typically studies mathematics about half-time for two-and-a-half years after calculus. A mathematics student outside the U.S. typically studies mathematics full-time for three to five years after calculus before applying to a U.S. doctoral program. Graduate admissions committees often find it easier to see differences in prior achievement than to discern differences in potential for future achievement. Panelists **John Meakin**, University of Nebraska-Lincoln; **Aloyisius (Loek) Helminck**, North Carolina State University; **David M. Bressoud**, Macalester College; and **Ruth Haas**, Smith College, will stimulate discussion of what is needed, what is already being done, and what more can be done to increase the number, diversity, and success of undergraduate mathematics students in the U.S. going on to graduate study. Speakers will have experience with graduate programs in pure and applied mathematics, with undergraduate programs, and with transition programs. Sponsored by the MAA Committee on the Undergraduate Program in Mathematics.

Teaching Statistics Online, organized by **Brian Gill**, Seattle Pacific University; Saturday, 1:00 p.m.–2:20 p.m. Recent years have seen a rapid expansion of the number of courses taught online, and current budget pressures are leading more institutions to consider expanding their online course offerings. However, effective instruction online requires a very substantial time commitment from faculty, and involves much more than simply taking the materials from a traditional classroom course and making them available online. Panelists **Michelle Everson**, University of Minnesota; **Patricia Humphrey**, Georgia Southern University; **Michael Miner**, American Public University; and **Sue Schou**, Idaho State University, bring together statistics instructors and education researchers with experience teaching online and hybrid courses to share advice and resources for teaching statistics online. The American Statistical Association's Guidelines for Assessment and Instruction in Statistics Education (GAISE) Report strongly emphasizes the importance of fostering active learning in the "classroom"; panelists will address strategies for implementing this guideline in an online learning environment. Sponsored by SIGMAA Stat Ed.

The Role of Mentoring in Undergraduate Mathematics: Promising Recruitment and Retention Strategies, organized by **William Velez**, University of Arizona; **Sylvia Bozeman**, Spelman College; and **Ken Millett**, University of California-Santa Barbara; Saturday, 2:35 p.m.–3:55 p.m. Without question, the United States can boast of the best system of higher education in the world. But that does not mean that this system is perfect. It has failed to meet our nation's requirements for graduates trained in the STEM disciplines, a fact that is witnessed by our need to import large numbers of scientists and engineers.

Tremendous mathematical talent exists in our population. The challenge to mathematicians is to engage that population in mathematical studies and to nurture their continued mathematical development. Many minority organizations and minority mathematicians have accepted this challenge, with the end result of increasing minority participation in mathematics-based fields. It is clear that programs aimed at minority populations will work with all students. Panelists **Sylvia Bozeman**; **Michelle Craddock**, U.S. Military Academy; **Rebecca Garcia**, Sam Houston State University; and **William Velez** will highlight some of the most successful efforts that have served to increase minority participation. Sponsored by MAA Committee on Minority Participation, Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), and National Association of Mathematicians (NAM).

Inquiry-Proof Instructional Techniques, organized by **Tom Roby**, University of Connecticut; **Dev Sinha**, University of Oregon; **Glenn Stevens**, Boston University; and **Ravi Vakil**, Stanford University; Saturday, 2:35 p.m.–3:55 p.m. There is a wealth of refined teaching techniques which emphasize mathematical inquiry, but relatively little awareness of them even among practitioners with similar philosophies but different methods. This situation lies in contrast with the physical sciences, where scientific inquiry including Web demonstrations and lab experiences is becoming ingrained in the core of the undergraduate curriculum. We bring together panelists, including **Keith Conrad**, University of Connecticut; **Ken Ono**, University of Wisconsin; **David Pengelley**, New Mexico State University; **Margaret Robinson**, Mount Holyoke College; **Brad Shelton**, University of Oregon; and **Michael Starbird**, University of Texas, who have incorporated inquiry in their undergraduate classes in different ways, including experience-first methods, the discovery method, computer-based experimentation, worksheets, and working from historical texts. We will compare these techniques with standard lecture format and with each other, addressing what students retain, when such techniques are useful, and how they fit into the curriculum as a whole. By highlighting these approaches together we hope audience members reflect on which aspects of these approaches might help improve their own teaching, rather than focusing on what they like or do not like about a particular method.

Derivative vs. Integral: The Final Slapdown, organized by **Colin Adams** and **Thomas Garrity**, Williams College; Saturday, 6:00 p.m.–7:00 p.m. Ever since Newton and Leibniz, the derivative and the integral have been locked in mortal combat, doing whatever it takes to try to prove which is the better, and in the process tearing equations asunder and leaving broken and shattered math symbols in their wake. Tonight we determine once and for all who will be crowned the victor, derivative or integral. And mathematics can then revert once again to the bucolic Garden of Eden, where students frolic with equations in peace and harmony.

Publishing Mathematics on the Web, organized by **Thomas E. Leathrum**, Jacksonville State University; Sunday, 9:00 a.m.–10:20 a.m. Emerging technologies, such as browser support for MathML, are changing the ways

authors will be expected to present mathematical material in online documents. As academic journals move toward online formats, and as libraries and archives digitize existing content, online presentation will become essential to the profession. Many useful tools have become available recently, including visual editors and simplified embedded mark-up. These tools raise a host of new issues, though, such as how modern online search engines can find math content. Panelists **Robert Miner**, Design Science; **Thomas E. Leathrum**; and **David Ruddy**, Project Euclid/Cornell University, will provide a discussion of available and emerging tools, such as legacy format conversion, authoring tools for current standards including dynamic Web pages, and future standards for presenting mathematics in online documents. The panel will be moderated by **Lawrence Moore**, Duke University. Sponsored by the MAA Committee on Technology in Math Education (CTIME)

Maximize your Career Potential!, organized by **Rachel Esselstein**, California State University Monterey Bay, and **David Manderscheid**, University of Nebraska-Lincoln; Sunday, 9:00 a.m.–10:20 a.m. The past few years have been some of the hardest for finding and keeping employment. What can you do to make yourself a stronger job candidate? Speakers **Geir Helleloid**, Acuitus Inc., and **Aba Mbrika**, Bowdoin College, will focus on advice for current graduate students and postdocs who are at least one year away from applying for jobs. We will discuss what you can do NOW to strengthen your application. Our panelists will address topics such as what you can do in the classes you are teaching and in your research to help you stand out amongst the crowd. We will also discuss internship opportunities that can open new doors and provide valuable work experience. If you are planning on applying for a job in the next few years, you won't want to miss this panel! Sponsored by the MAA Committee on Graduate Students and the Young Mathematicians Network.

Special Interest Groups of the MAA (SIGMAAs)

SIGMAAs are Special Interest Groups of the MAA. SIGMAAs will be hosting a number of activities, sessions, and guest lectures. There are currently twelve such focus groups in the MAA offering members opportunities to interact, not only at meetings, but throughout the year, via newsletters and email-based communications. For more information visit <http://www.maa.org/sigmaa/>.

SIGMAA Officers Meeting, Friday, 10:30 a.m.–noon, chaired by **Amy Shell-Gellasch**, Beloit College.

Mathematics and the Arts: SIGMAA ARTS

New and Continuing Connections between Math and the Arts, Saturday morning (see MAA Contributed Paper Sessions).

Business Meeting, Saturday, January 8, 6:00–7:00 p.m.

Mathematicians in Business, Industry and Government: BIG SIGMAA

Mathematics Experiences in Business, Industry and Government, Saturday morning (See MAA Contributed Paper Sessions.)

Guest Lecture, Saturday, 5:00 p.m.–6:00 p.m., **Tony DeRose**, Pixar Animation Studios, *How mathematics is changing Hollywood*.

Reception, Saturday, 6:15 p.m.–7:30 p.m.

Mathematical and Computational Biology: BIO SIGMAA
Trends in Undergraduate Mathematical Biology Education, Sunday morning (see MAA Contributed Paper Sessions).

Creating/Improving the Biomathematics/Biostatistics Course, Friday afternoon (see MAA Panels).

Business Meeting, Friday, 6:00 p.m.–7:00 p.m.

Guest Lecture, Friday, 7:00 p.m.–8:00 p.m., speaker and title to be announced.

Environmental Mathematics: SIGMAA EM

Paper Session: *Modeling the Oil Spill Disaster and Its Consequences*, Saturday, 1:00 p.m.–4:20 p.m.

The Oil Volcano: Truth and Consequences, a dramatic presentation on Saturday, 6:00–7:00 p.m.

Bus Trip, Sunday morning, exact time to be determined. We will visit the coastal areas with Dr. Paul Kemp of the National Audubon Society. His chief responsibility is working on coastal habitat for birds and other wildlife.

History of Mathematics: HOM SIGMAA

Treasures from the Past: Using Primary Sources in the Classroom, Friday afternoon (see MAA Contributed Paper Sessions).

Reception and Business Meeting, Thursday, 5:30 p.m.–6:30 p.m.

Guest Lecture, Thursday, 6:30 p.m.–7:30 p.m., speaker and title to be announced.

Math Circles for Students and Teachers: SIGMAA MCST

Fostering, Supporting, and Propagating Math Circles for Students and Teachers, Saturday morning (see MAA Contributed Paper Sessions).

Math Circles Demonstration, Sunday, 9:00 a.m.–11:00 a.m. Our mathematical circles are modeled after those in Eastern Europe and are as successful here as they were there. Circles bring mathematicians into direct contact with middle and high school students to work, through the give and take of conversation, on problems that require deep thinking and creative exploration. Circles also provide a social context for these students who enjoy studying mathematics. James Tanton will demonstrate a real math circle in action—with real students!

Philosophy of Mathematics: POM SIGMAA

Philosophy of Mathematics in Teaching and Learning, Saturday afternoon. (See MAA Contributed Paper Sessions.)

Business Meeting, Saturday, 6:00 p.m.–6:30 p.m.

Guest Lecture, Saturday, 6:30 p.m.–7:30 p.m., by **Keith Devlin**, Stanford University, *title to be announced*.

Quantitative Literacy: SIGMAA QL

The Role of QL in the High School Mathematics Curriculum, Friday morning and afternoon (see AMS Special Sessions).

Business Meeting, Thursday, 5:30 p.m.–6:00 p.m.

Reception and Discussion Panel: Mathematics and Democracy Ten Years Later, Thursday, 6:00 p.m.–7:00 p.m.

Research in Undergraduate Mathematics Education: SIGMAA RUME

Research on the Teaching and Learning of Undergraduate Mathematics, **Sean Larsen**, Portland State University; **Natasha Speer**, University of Maine; and **Stacy Brown**, Pitzer College; Friday morning and afternoon.

Business Meeting, Friday, 5:45 p.m.–6:30 p.m.

Statistics Education: SIGMAA STAT-ED

Alternative Approaches to Traditional Introductory Statistics Courses, Sunday afternoon (see MAA Contributed Paper Sessions).

Report from the International Conference on Teaching Statistics: A World View of Statistics Education, Friday afternoon (see MAA Panels).

Creating/Improving the Biomathematics/Biostatistics Course, Friday afternoon (see MAA panels).

Teaching Statistics Online, Saturday afternoon (see MAA panels).

Business Meeting and Reception, Friday, January 7, 5:45 p.m.–7:15 p.m.

Teaching Advanced High School Mathematics: SIGMAA TAHSM

Business Meeting, Thursday, 6:00 p.m.–7:00 p.m.

Mathematics Instruction Using the Web: WEB SIGMAA

Harnessing Mobile Communication Devices and Online Communication Tools for Mathematics Education, Thursday morning (see MAA Contributed Paper Sessions).

Assessment of Learning in an Age of Technology, Friday afternoon (see MAA Panels).

Business Meeting and Open Discussion, Saturday, 4:30 p.m.–6:00 p.m. A discussion providing WEB SIGMAA members with an opportunity to share their interests in teaching and learning mathematics online and the direction of future WEB SIGMAA activities.

MAA Sessions for Students

Grad School Fair, Saturday, 8:30 a.m.–10:30 a.m. Here is the opportunity for undergrads to meet representatives from mathematical sciences graduate programs from universities all over the country. January is a great time for juniors to learn more, and college seniors may still be able to refine their search. This is your chance for one-stop shopping in the graduate school market. At last year's meeting about 300 students met with representatives from 45 graduate programs. If your school has a graduate program and you are interested in participating, a table will be provided for your posters and printed materials for US\$60 (registration for this event must be made by a person already registered for the JMM), and you are welcome

to personally speak to interested students. Complimentary coffee will be served. Cosponsored by the AMS and MAA.

Graduate School: Choosing One, Getting In, Staying In, organized by **Aaron Luttman**, Clarkson University, and **Kristi Meyer**, Wisconsin Lutheran College; Friday, 10:35 a.m.–11:55 a.m. With so many graduate school choices and so much information available online, how do you decide on a list of schools to apply to? How can you strengthen your application so you will be accepted into a program? How do you choose which school to attend? And once you've started a program, how do you successfully navigate grad school and complete your degree? Panelists **Jessie Lenarz**, Concordia College; **Richard McGehee**, University of Minnesota; and **Jennifer McNulty**, University of Montana, will discuss these and other important issues for those students who are considering a graduate degree or thinking about switching graduate programs. Sponsored by the Young Mathematicians Network and the MAA Committee on Graduate Students.

This Could be YOUR Graduate Research!, organized by **Raluca Gera**, Naval Postgraduate School, and **Aaron Luttman**, Clarkson University; Friday, 1:00 p.m.–2:20 p.m. Are you interested in graduate school but don't know what kind of research you want to do? Ever feel like you don't really even know what kind of research is being done by mathematicians? This session, including speakers **Timothy Chartier**, Davidson College; **Steven Horton**, U.S. Military Academy; and **Keri Kornelson**, University of Oklahoma, is designed to introduce you to current research in the mathematical sciences. The presenters come from new and developing fields like network science and dynamical systems, as well as classical research areas such as analysis and algebra. Each talk is aimed specifically at introducing undergraduate students to active fields of research. Come and find out about cutting-edge mathematical problems: These could become your graduate research! Sponsored by the MAA and the Young Mathematicians Network.

MAA Lecture for Students, Saturday, 1:00 p.m.–1:50 p.m., will be given by **Steve Abbott**, Middlebury College, on *Turning theorems into plays*.

Undergraduate Student Poster Session, Saturday, 4:00 p.m.–5:30 p.m., organized by **Joyati Debnath**, Winona State University. The session is reserved to undergraduates and first-year graduate students submitting posters on work done while undergraduates. Abstracts are accepted on a first-come basis. Space is limited and students are encouraged to apply early. Beginning September 1, 2010, students can submit abstracts online at www.maa.org/students/undergrad/poster10.htm. Examples of poster topics include a new result, a different proof of a known theorem, an innovative solution of a Putnam problem, a new mathematical model, or method of solution of an applied problem. Purely expository posters cannot be accepted. Prizes will be awarded to the top-rated posters with money provided by the AMS, MAA, AWM, CUR, PME, and by the Moore Foundation. Trifold, self-standing 48" by 36" tabletop posterboards will be provided. Additional material or equipment is the responsibility of the presenters. Questions regarding this session should be directed

to Joyati Debnath at jdebnath@winona.edu. The deadline for proposals is **November 9, 2010**. Cosponsored by the MAA-CUPM Subcommittee on Undergraduate Research and the MAA Committee on Undergraduate Student Activities and Chapters (CUSAC).

Some more advanced students might be interested in the session on **How to Interview for a Job in the Mathematical Sciences**, Thursday at 2:15 p.m.; **Career Options for Undergraduate Mathematics Majors**, Friday, 9:00 a.m.; **Maximize your Career Potential!**, Sunday at 9:00 a.m.; see the full descriptions in the “MAA Panels...” section.

Also see the “Social Events” section for the open hours of the **Student Hospitality Center, Reception for Undergraduates**, and **Reception for Graduate Students and First-Time Participants**.

MAA Short Course

This two-day Short Course on *What is a Matroid? Theory and Applications, from the Ground Up* is organized by **Nancy Ann Neudauer**, Pacific University, and will take place on Tuesday and Wednesday, January 4 and 5, before the annual meeting begins. Gian-Carlo Rota said that “Anyone who has worked with matroids has come away with the conviction that matroids are one of the richest and most useful ideas of our day.”

Hassler Whitney introduced the theory of matroids in 1935 and developed a striking number of their basic properties as well as different ways to formulate the notion of a matroid. As more and more connections between matroid theory and other fields have been discovered in the ensuing decades, it has been realized that the concept of a matroid is one of the most fundamental and powerful in mathematics. Examples of matroids arise from networks, matrices, configurations of points, arrangements of hyperplanes, and geometric lattices; matroids play an essential role in combinatorial optimization.

We all know some matroids, but not always by name. In mathematics, notions of independence akin to linear independence arise in various contexts; matroids surface naturally in these situations. We provide a brief, accessible introduction so that those interested in matroids have a place to start. We look at connections between seemingly unrelated mathematical objects, and show how matroids have unified and simplified diverse areas.

Speakers and the titles of their talks include *Matroids you have known*, **Nancy Ann Neudauer**; *Cryptomorphisms and optimization*, **Jenny McNulty**, University of Montana; *Matroid representations*, **Gary Gordon**, Lafayette College; *Matroid operations*, **Dillon Mayhew**, Victoria University of Wellington; *Transversal matroids*, **Joseph Bonin**, The George Washington University; *Oriented matroids*, **Winfried Hochstättler**, Fern Universität, Hagen, Germany; *Research in matroids*, **James Oxley**, Louisiana State University; and *Concluding Session: Tying it together*.

See the full announcement at www.ams.org/meetings/national/jmm/2125_maasc.html. There are separate registration fees to participate in this Short Course. See the fee schedule on the registration form at the back of this issue or visit www.ams.org/amsmtgs/2125_reg.html.

Other MAA Events

Board of Governors, Wednesday, 9:00 a.m.–5:00 p.m.

Section Officers, chaired by Rick Gillman, Valparaiso University; Thursday, 2:30 p.m.–5:00 p.m.

Business Meeting, Sunday, 11:10 a.m.–11:40 a.m., chaired by MAA President **David M. Bressoud**, Macalester College.

Department Liaisons Meeting, Thursday, 9:30 a.m.–11:30 a.m.

Joint PME and MAA Student Chapter Advisors’ Meeting, day and time to be determined.

Minority Chairs Meeting, day and time to be determined.

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

MAA Ancillary Workshop

Teaching Introductory Statistics following GAISE and the Common Core, presented by **Robert Gould**, UCLA, Wednesday, 9:00 a.m. to 5:00 p.m. The Guidelines for Assessment and Instruction in Statistics Education (GAISE) were developed by members of the American Statistical Association (which endorses the Guidelines) to assist instructors of Introductory Statistics. The GAISE were integrated to some extent in the Common Core State Standards for Mathematics. The emphasis of the Guidelines on data analysis provides some challenges to mathematics instructors, particularly those relatively new to teaching statistics. In this workshop, we will examine strategically chosen data sets to demonstrate how to use technology to teach fundamental concepts as well as analyze data (Recommendations 2, 3, and 5), and explore the relationship between the GAISE recommendation to emphasize statistical literacy and statistical thinking with the more mathematically minded goals of the Core Curriculum Standards.

This workshop will be held on Wednesday, January 5, the day before the Joint Mathematics Meetings actually begin. There is no cost to participate. For more information and to apply, see www.causeweb.org/workshop.

Activities of Other Organizations

This section includes scientific sessions. 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 Saturday and Sunday will include sessions of contributed papers as well as Invited Addresses by **Samson Abramsky**, University of Oxford; **Andreas Blass**, University of Michigan; **Larry Moss**, Indiana University; **Alf Onshuus**, University of Los Andes; **Patrick Speissegger**, McMaster University; **Juris Steprans**, Your University (CA); and **Monica VanDieren**, Robert Morris University.

See also the session cosponsored by the ASL on *Logic and Analysis* on Friday in the “AMS Special Sessions” listings.

Association for Women in Mathematics (AWM)

In 2011 the Association for Women in Mathematics will celebrate its 40th anniversary. In honor of this special event, AWM plans to hold several activities in addition to its customary ones at the JMM. We hope you will join us during these celebrations.

Thirty-second Annual Emmy Noether Lecture, Friday, 10:05 a.m., will be given by **M. Susan Montgomery**, University of Southern California, *Title to be announced*.

A luncheon will be given in honor of the lecturer on Friday; see the “Social Events” section for details.

Also see the Special Session on *Hopf Algebras and Their Representations* jointly sponsored by the AWM in the “AMS Special Session” listings.

AWM Business Meeting, Thursday, 2:15 p.m.–2:45 p.m.

Schafer Minisymposium, organized by **Sami Assaf**, Massachusetts Institute of Technology, and **Patricia Hersh**, North Carolina State University, Thursday, 2:45 p.m.–6:15 p.m. The minisymposium will feature a retrospective on the contributions of Alice T. Schafer and on the founding of the AWM. It will be followed by five research talks by former Schafer Prize winners. Just before the minisymposium begins, the AWM will recognize the honorees for the Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman. Note that formal prizewinner announcements are made at the Joint Prize Session on Friday afternoon.

Hay Minisymposium, organized by **Cathy Kessel**, Education Consultant, and **W. James Lewis**, University of Nebraska-Lincoln; Friday, 8:00 a.m.–11:00 a.m. This session brings together a group of distinguished mathematics education researchers and mathematicians involved in teacher education to discuss the education of teachers in light of the Common Core Standards Initiative of the National Governors’ Association and the Council of Chief State School officers,

Michler and Mentoring Minisymposium, organized by **Georgia Benkart**, University of Wisconsin-Madison, and **J. Matthew Douglass**, University of North Texas, Saturday, 1:00 p.m.–5:30 p.m. This session will highlight the research of AWM Michler Prize winners, and then be followed by a panel discussion to address the critical junctures in research careers in mathematics and on ways to establish, sustain, and expand research, teaching, and service credentials for tenure and promotion.

Workshop, Sunday, 8:00 a.m.–4:00 p.m. With funding from the Office of Naval Research and the National Security Agency, 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 are selected in advance of this workshop to present their research: graduate students will present posters, and recent Ph.D.s will give 20-minute talks. At 1:00 p.m. there is a panel discussion on *Starting a Career in Mathematics*, moderated by **Susan Williams**, University of South Alabama, with panelists **Sarah Frick**, Furman University; **Pierre Grem-**

aud, SAMSI and North Carolina State University; **T. Christine Stevens**, Saint Louis University, and **Tad White**, National Security Agency. All mathematicians (female and male) are invited to attend the entire program. Departments are encouraged to help graduate students and recent Ph.D.s who do not receive funding to obtain some institutional support to attend the workshop and other meeting sessions. Updated information about the workshop is available at www.awm-math.org/workshops.html. AWM seeks volunteers to lead discussion groups and act as mentors for workshop participants. If you are interested, please contact the AWM office; inquiries regarding future workshops may be made to the office at awm@awm-math.edu.

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

National Association of Mathematicians (NAM) Granville-Brown-Haynes Session of Presentations by Recent Doctoral Recipients in the Mathematical Sciences, Saturday, 1:00 p.m.–3:30 p.m.

Cox-Talbot Address, to be given Saturday after the banquet by **Robert Bozeman**, Morehouse College, *Title to be announced*.

Panel Discussion, Sunday, 9:00 a.m.–9:50 a.m., *NAM honors the life of Dr. David Harold Blackwell*.

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

Claytor-Woodard Lecture: Sunday, 1:00 p.m., will be given by **Edray Herbert Goins**, Purdue University, *Title to be announced*.

See details about the banquet on Saturday 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, Saturday, 8:00 a.m.–11:00 a.m.

Rocky Mountain Mathematics Consortium (RMMC)

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

Society for Industrial and Applied Mathematics (SIAM)

This program consists of an Invited Address at 11:10 a.m. on Friday by **William Cook**, Georgia Institute of Technology, *title to be announced*, and a series of Minisymposia scheduled Thursday through Sunday on *Applications of Difference and Differential Equations in Ecology and Epidemiology*, **Zhilan Feng**, Purdue University, and **Yun Kang**, Arizona State University, Thursday morning and afternoon; *Combinatorial Optimization*, **David Hartvigsen**, University of Notre Dame, and **Donald Wagner**, Office of Naval Research, Friday morning and afternoon; *Education*, **Peter Turner**, Clarkson University, Saturday morning;

Frontiers in Geomathematics, **Willi Freeden**, University of Kaiserslautern, **Zuhair Nashed**, University of Central Florida, **Volker Michel**, Universität Siegen, and **Thomas Soner**, Technical University of Braunschweig, Germany, Saturday afternoon; *Vistas in Applied Mathematics*, **Maria-Carme Calderer**, University of Minnesota, **Zuhair Nashed**, University of Central Florida, Sunday morning; and *Graph Theory*, **Michael Ferrara**, University of Colorado, Denver, and **Stephen Hartke**, University of Nebraska-Lincoln.

Young Mathematicians Network (YMN)

Open Forum, Friday, 7:30 p.m.–8:30 p.m., organized by **Sarah Ann Stewart**, Belmont University, and **Joshua D. Laison**, Willamette University. All meeting attendees, including undergraduates and graduate students, are invited to discuss topics and issues affecting young mathematicians.

Also see details about other sessions cosponsored by the YMN under these headings: **MAA Panels, Posters, and Other Sessions: Project NExT-YMN Poster Session**, Thursday at 4:00 p.m.; **How to Interview...**, Thursday at 2:15 p.m.; **Career Options for Students...**, Friday at 9:00 a.m. and **MAA Sessions for Students: Graduate School: Choosing One...** Friday at 10:35 a.m.; **This could be YOUR Graduate Research...**, Friday at 1:00 p.m.).

Others

Mathematical Art Exhibition, organized by **Robert Fathauer**, Tessellations Company, **Nathaniel A. Friedman**, ISAMA and SUNY Albany, **Anne Burns**, Long Island University, C. W. Post University, **Reza Sarhangi**, Towson University, and **Nathan Selikoff**, Digital Awakening Studios. A popular feature at the last Joint Mathematics Meetings, this exhibition provides a break in your day. On display are works in various media by artists who are inspired by mathematics and by mathematicians who use visual art to express their findings. Fractals, symmetry, and tiling are some of the ideas at play here. Don't miss this unique opportunity for a different perspective on mathematics. The exhibition will be open during the regular exhibit hours.

The Mathematical Sciences in 2025, organized by **Mark L. Green**, University of California Los Angeles, and **Scott Weidman**, National Academy of Sciences; Saturday, 4:30 p.m.–5:20 p.m.

A study commissioned by the National Science Foundation and conducted by the National Academies under the auspices of the Board on Mathematical Sciences and Their Applications has begun that we hope will develop a strategic view that is useful to the NSF and other federal agencies; to chairs, deans, and academic administrators; to the mathematics and statistics communities; to the science and engineering community more broadly; and to the leadership of business, industry, government laboratories, and federal mission agencies.

This study will be a strategic examination of the mathematical sciences and how they can best position themselves to grow and contribute through 2025. It will cover three aspects of the mathematical sciences enterprise: discovery, connections, community. Here, “discovery” refers to basic research at the frontiers of knowledge in mathematics and

statistics. “Connections” refers to exploiting research opportunities at boundaries of the mathematical sciences to promote the progress of science, to enhance national security, and to strengthen economic competitiveness. “Community” refers to cultivating a community of researchers, students, and professionals of sufficient breadth, depth, and diversity to sustain the nation's mathematical sciences enterprise in the twenty-first century. Please come to hear more about our goals and to be part of a dialog with the mathematical community.

Summer Program for Women in Mathematics (SPWM) Reunion, Friday 1:00 p.m.–4:00 p.m., organized by **Murli M. Gupta**, George Washington University. SPWM participants will describe their experiences from past programs. See <http://www.gwu.edu/~spwm> for more information.

Social Events

All events listed are open to all registered participants. It is strongly recommended that for any event requiring a ticket, tickets should be purchased through advance registration. Only a very limited number of tickets, if any, will be available for sale on site. If you must cancel your participation in a ticketed event, you may request a 50% refund by returning your ticket(s) to the Mathematics Meetings Service Bureau (MMSB) by **December 27**. 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. Special meals may be subject to additional fees.

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 Sunday, with dinner served at 7:30 p.m. Tickets are US\$53 including tax and gratuity. The banquet will be preceded by a reception at 6:30 p.m.

Association of Christians in the Mathematical Sciences (ACMS) Reception and Banquet, Friday, 6:00 p.m.–8:30 p.m. This annual dinner at 6:30 p.m. is preceded by a reception at 6:00 p.m. and will be followed by an after-dinner talk by **Maria Zack**. Tickets must be ordered by **November 30**; see www.acmsonline.org for details and cost.

Association of Lesbian, Gay, Bisexual, and Transgendered Mathematicians Reception, Friday, 6:00 p.m.–8:00 p.m. All are welcome to attend this open reception cosponsored by NOGLSTP. Come and meet some old friends and allies, and make new friends, too!

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

AWM Luncheon to honor Noether Lecturer, M. Susan Montgomery, on Friday. Those interested may email awm@awm-math.org; a sign-up sheet for those interested will also be located at the AWM table in the exhibit area and also at the AWM Business Meeting on Thursday afternoon.

AWM 40th Anniversary Banquet and Jazz, Friday, 7:00 p.m.–10:00 p.m. Come celebrate the 40th anniversary of the AWM with your friends and colleagues with a few invited toasts followed by some of New Orleans' finest jazz. Tickets are US\$60, including tax and gratuity.

Budapest Semesters in Mathematics Annual Alumni Reunion, Saturday, 6:00 p.m.–8:00 p.m. All alumni, family, and spouses are invited.

Claremont Colleges Alumni Reception, Friday, 7:00 p.m.–9:00 p.m. All math faculty, alumni, students, and friends are invited. H'ors d'oeuvres and drinks will be served, and special guests are welcome! Please send your RSVP to alumni@hmc.edu.

Reception for Graduate Students and First-Time Participants, Thursday, 5:30 p.m.–6:30 p.m. The AMS and the MAA cosponsor this social hour. Graduate students and first-timers are especially encouraged to come and meet some old-timers to pick up a few tips on how to survive the environment of a large meeting. Refreshments will be served.

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

MAA-ProjectNEXT Reception, Saturday, 8:30 p.m.–10:30 p.m., organized by **Judith Covington**, Louisiana State University Shreveport; **Joseph A. Gallian**, University of Minnesota-Duluth; **Aparna W. Higgins**, University of Dayton; and **P. Gavin LaRose** All Project NEXT Fellows, consultants, and other friends of Project NEXT are invited.

MAA Two-Year College Reception, Thursday, 5:45 p.m.–7:00 p.m., is open to all meeting participants, particularly two-year faculty members. This is a great opportunity to meet old friends and make some new ones. There will be hot and cold refreshments and a cash bar. Sponsored by Pearson Education.

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.

Mathematical Institutes Open House, Wednesday, 5:30 p.m.–8:00 p.m. Participants are warmly invited to attend this open house cosponsored by several North American mathematical institutes. Come find out about the latest activities and programs at each of the institutes that may be suited to your own research interests.

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 Friday 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 US\$55 each, including tax and gratuity.

NAM Banquet, Saturday, 6:00 p.m.–8:40 p.m. The National Association of Mathematicians will host a banquet on Friday evening. A cash bar reception will be held at 6:00 p.m., and dinner will be served at 6:30 p.m. Tickets are US\$53 each, including tax and gratuity. The Cox-Talbot Invited Address will be given after the dinner.

NSA Women in Mathematics Society Networking Session, Thursday, 6:00 p.m.–8:00 p.m. All participants are welcome to this annual event. Please stop by the NSA booth in the exhibit hall for the exact location.

New Mexico State University Mathematics Association Reception, Friday, 5:30 p.m.–7:00 p.m. Alumni, faculty, and friends of the New Mexico State University Department of Mathematical Sciences are cordially invited to this reception.

Pennsylvania State University Mathematics Alumni Reception, Thursday, 6:00 p.m.–8:00 p.m. Please join us for h'ors d'oeuvres and beverages, and mingle with math alumni, faculty, and College of Science representatives.

Student Hospitality Center, Thursday–Saturday, 9:00 a.m.–5:00 p.m., and Sunday, 9:00 a.m.–3:00 p.m., organized by **Richard** and **Araceli Neal**, American Society for the Communication of Mathematics.

Reception for Undergraduates, Thursday, 4:00 p.m.–5:00 p.m.

Worship Service, Sunday, 7:00 a.m.–8:00 a.m. Begin the final day of the joint meetings by attending a nondenominational service provided by members of the Association of Christians in the Mathematical Sciences.

Other Events of Interest

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

Book Sales and Exhibits: All participants are encouraged to visit the book, education media, and software exhibits from 12:15 p.m.–5:30 p.m. on Wednesday, 9:30 a.m.–5:30 p.m. on Thursday and Friday, and 9:00 a.m.–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. Participants visiting the exhibits are required to display their meetings badge in order to enter the exhibit area.

The AMS and the MAA cordially invite all registered participants to enjoy complimentary tea and coffee while perusing the associations' booths.

Mathematical Sciences Employment Center: Those wishing to participate in the Mathematical Sciences Employment Center should read carefully the important article about the center beginning on page 1182 in this issue of *Notices* or at www.eims.ams.org. Employers should pay the appropriate fees; there are no fees for applicants to participate, except that all Employment Center participants must also register for the Joint Mathematics

Meetings (JMM). Official meeting badges are required to enter the Employment Center.

Networking Opportunities: There are many opportunities to meet new friends and greet old acquaintances in addition to the vast array of scientific sessions offered at these meetings. These opportunities are listed on the newcomers page at www.ams.org/amsmtgs/2125_newcomers.html. Newcomers may want to investigate the many receptions listed in the "Social Events" section, the Student Hospitality Center, and the Employment Center. On site, a Networking Center featuring casual seating and lists of registered participants sorted by school and math subject classification will be available for your perusal. This is a great place to relax between sessions and forge new friendships.

Registering in Advance and Obtaining Hotel Accommodations

The AMS and MAA make every effort to keep participant expenses at meetings and registration fees for meetings as low as possible. We work hard to negotiate the best hotel rates and to make the best use of your registration dollars to keep the meetings affordable for you. The AMS and the MAA encourage all participants to register for the meeting. When you pay the registration fee, you are helping to support a wide range of activities associated with planning, organizing, and running a major meeting of this size.

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 meetings. Participants registering by **November 19** may receive their badges, programs, and tickets (where applicable) in advance by mail approximately three weeks before the meetings. Those who do not want their materials mailed should check the box on the form. Because of delays that occur in U.S. mail to Canada, advance registrants from Canada must 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 did not receive this mailing or who have a problem with their registration. Please note that a US\$5 replacement fee will be charged for programs and badges that are mailed but not taken to New Orleans. 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.

Internet Advance Registration: This service is available for advance registration and hotel reservations at jointmathematicsmeetings.org/2125_reg.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, minicourses, or short courses by **December 31** will receive a 50% refund of fees paid. Those who cancel their banquet tickets by December 27 will receive a 50% refund of monies paid. No refunds will be issued after these dates.

Joint Mathematics Meetings Registration Fees

	by Dec. 22	at meeting
Member of AMS, ASL, CMS, MAA, SIAM	US\$224	US\$294
Emeritus Member of AMS, MAA; Unemployed; High School Teacher; Developing Countries Special Rate; Librarian	49	59
Graduate Student Member of AMS, MAA	49	59
Graduate Student Nonmember	76	86
Undergraduate Student	42	52
High School Student	5	10
Temporarily Employed Nonmember	181	210
One-Day Member of AMS, ASL, CMS, MAA, SIAM	N/A	160
One-Day Nonmember	N/A	250
Nonmathematician Guest	15	15
MAA Minicourses *if space is available	75	75*
Grad Student Fair (table/posterboard/electricity)	US\$60	N/A
AMS Short Course		
Member of AMS or MAA	US\$100	US\$140
Nonmember	134	170
Student/Unemployed/Emeritus	48	69
MAA Short Course		
MAA or AMS Member	US\$150	US\$160
Nonmember	200	210
Student/Unemployed/Emeritus	75	85

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.

Graduate Student: Those currently working toward a degree or diploma. Students are asked to determine whether their current status can be described as graduate (working toward a degree beyond the bachelor's), undergraduate (working towards a bachelor's degree), or high school (working toward a high school diploma). The member status refers to any graduate student who is a member of the AMS or MAA. These students should check with their department administrator to check their membership status.

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, 2011, 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 or MAA 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 US\$5 charge will be assessed if an invoice must be prepared to collect the delinquent amount. Overpayments of less than US\$5 will not be refunded.

For each invalid check or credit card transaction that results in an insufficient payment for registration or housing, a US\$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 1067 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 three separate advance registration deadlines, each with its own advantages and benefits.

EARLY meetings advance registration
(room drawing) **November 5**

ORDINARY meetings advance registration
(hotel reservations, materials
mailed) **November 19**

FINAL meetings advance registration
(advance registration, short courses,
Employment Center, minicourses,
banquets) **December 15**

Early Advance Registration: Those who register by the early deadline of **November 5** will be included in a random drawing to select winners of complimentary hotel rooms in New Orleans. Multiple occupancy is permissible. The location of rooms to be used in this drawing 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 24**. So register early!

Ordinary Advance Registration: Those who register after **November 5** and by the ordinary deadline of **November 19** may use the housing services offered by the MMSB but are not eligible for the room drawing. 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 19** and by the final deadline of **December 15** must pick up their badges, programs, and any tickets for social events at the meetings. Unfortunately, it is sometimes not possible to provide final advance registrants with housing, so registrants are strongly urged to make their hotel reservations by **November 19**. Please note that the **December 15** deadline is firm; any forms received after that date will be returned and full refunds issued. To pick up your materials, please come to the Meetings Registration Desk located on the second floor of the New Orleans Marriott.

Special Assistance

We strive to take the appropriate steps required to ensure that no individual with a disability is excluded, denied services, segregated, or otherwise treated differently. Please tell us what you require to help make your participation more enjoyable and meaningful. If you require special assistance, auxiliary aids or other reasonable accommodations to fully participate in this event, please check off the appropriate box on the Registration/Housing Form or email the MMSB at mmsb@ams.org. All requests for special accommodations under the Americans with Disabilities Act of 1990 (ADA) must be made allowing enough time for evaluation and appropriate action by the JMM. Any information regarding your disability will remain confidential.

Hotel Reservations

The AMS and MAA contract only with facilities who are working toward being in compliance with the public accommodations requirements of 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 17**. However, the MMSB can no longer guarantee availability of rooms or special convention rates after that date.

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 jointmathematicsm meetings.org/2125_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 nonguaranteed reservation until 6:00 p.m. only. When one guarantees a reservation by paying a deposit or submitting a credit card number as a guarantee in advance, however, the hotel will usually honor this reservation 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 a room charge to the credit card number submitted equivalent to a one-night stay.

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.) Second, they should pay for taxi fares to the other hotel that evening and back to the hotel the following morning, assuming a room is available. Third, they should pay for one telephone call so that you can notify people of where you are staying. The hotel 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. If you did not receive satisfactory service in this regard, please inform the Housing Coordinator for the meeting.

Importance of Staying in the Official Meetings Hotels: Your patronage of the official Meetings hotels enables the JMM to secure the meeting space at a greatly reduced cost which helps to keep the cost of the meeting and your registration fees down.

Room Drawing: Win FREE room nights at our official hotels as listed on the hotel pages. Multiple winners! Participants who register and reserve a room at any of the listed meetings hotels by **November 5**, will automatically be included in a random drawing to select a winner of free room nights in that hotel. The number of drawings to be made will be based on the number of complimentary room nights available in the various hotels. Multiple occupancy is permissible. The winners will be drawn at random from the hotel reservation lists and notified by email or phone prior to December 24.

Miscellaneous Information

Audio-Visual Equipment: Standard equipment in all session rooms is one overhead projector and screen.

Invited 50-minute speakers are automatically provided with two overhead projectors and a laptop projector; AMS Special Sessions and Contributed Papers, and MAA Invited and Contributed Paper Sessions, are provided with the standard equipment and a laptop projector. Blackboards are not available, nor are Internet hookups in session rooms. Any request for additional equipment should be sent to meet@ams.org and received by November 1.

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: The American Mathematical Society and the Mathematical Association of America will again offer childcare services for the Joint Mathematics Meetings to registered participants.

The childcare will be offered through KiddieCorp Children's Program. KiddieCorp is an organization that has been providing high-quality programs for children of all ages at meetings throughout the United States and Canada since 1986. Read all about them at www.kiddiecorp.com/.

The childcare services provided at the JMM are for children ages 6 months through 12 years old. Space per day will be limited and is on a space available basis. The dates and times for the program are January 6–9, 2011, 8:00 a.m.–5:00 p.m. each day. It will be located at the Sheraton New Orleans. If you would like to know how many children will be in the same age group as your child's, please call KiddieCorp. Parents are encouraged to bring snacks and beverages for their children but items such as juice boxes, Cheerios, and crackers will be provided. KiddieCorp can arrange meals for children at cost plus 15% or parents can be responsible for meals for their children. Parents who have questions about specific programs that will be offered or special requests, rules, or needs for their children must call KiddieCorp ahead of time.

Registration starts on **September 1**. The registration fee is US\$30 per family (nonrefundable). Additional cost will be US\$10 per hour per child or US\$8 per hour per child for graduate students. These reduced child care rates are made possible to the meetings participant by the American Mathematical Society and the Mathematical Association of America, who heavily subsidize the cost of this service, thus keeping this program affordable for families. Parents must be registered for the JMM to participate. Full payment is due at the time of registration with KiddieCorp. Deadline for registering is **December 9, 2010**.

If parents do not pick up their children at the time scheduled or by the end of the day (no later than 5:00 p.m.), they will be charged a late fee of US\$5 per child for every 15 minutes thereafter.

Cancellations must be made to KiddieCorp prior to December 9, 2010, for a full refund. Cancellations made after that date will be subject to a 50% cancellation fee. Once the program has begun, no refunds will be issued.

To register, go to <https://www.kiddiecorp.com/jmmkids.htm> or call KiddieCorp at 858-455-1718 to request a form.

Email Services: Limited email access for all Joint Meetings participants will be available in an email center located near the JMM Registration Desk. The hours of operation will be published in the program. Participants should be aware that **complimentary Internet access** will be available in the public areas of the New Orleans Marriott Hotel.

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. Information must be approved by the director of meetings prior to being placed on these tables.

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 US\$50 (posters are slightly higher) per item. Please contact the exhibits manager, MMSB, P.O. Box 6887, Providence, RI 02940, or by email at cpd@ams.org 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: For information about the city see www.neworleanscvb.com/jointmath.

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 401-455-4145 or by email at pop@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 Sunday, 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 6 through 9 during the hours that the desk is open. These messages will be posted on the Mathematics 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 and daily newsletter.

Travel/Transportation

New Orleans is on Central Standard Time. Louis Armstrong New Orleans International Airport (MSY) in Kenner, Louisiana, is located approximately 15 miles north of the French Quarter in New Orleans and is served by all major airlines.

Airline

The official airline for the meeting is United Airlines. Book your flight for the meeting with United or United Express and receive special pricing on scheduled service to New Orleans on applicable carriers. Book your airline reservation with United by calling the toll free reservation line (800-521-4041), going to united.com, or going through through your preferred travel professional. **Please be sure to reference the Meeting ID / Tour Code 586XQ.** Reservation agents are available Monday thru Friday from 8:00 a.m. to 10:00 p.m. (ET) at 800-521-4041. **The specialized meeting reservations center will be closed on all major holidays.**

Special pricing includes:

- 5% off published fares—a percentage discount off published fares for qualifying travel in or between the domestic 48 States, Hawaii, and Canada when the tickets are purchased subject to all restrictions and rules applicable to the fare purchased and issued in the United States; see below for other discounts available with over 30 days advance ticketing.

DOMESTIC-US 48 states, Hawaii, & Canada

Booking Class Discount Account
Code All Classes (F,J,A,C,D,Y-L) 5%

Over 30 Days Advance Ticketing

A,Q,V,W 7%;
M,E,U,H,F,J,C,D,Y,B 10%

- 5% percent discount off united.com bookings. Not applicable for discounts off Internet only fares. Applicable for U.S./Canadian locations only.

Additional benefits are:

- Mileage Plus® miles—Each Mileage Plus member will receive full credit to their account for all their miles flown when attending this meeting.

- Special discounts on car rentals with Hertz—Hertz will offer, to participants of the Joint Mathematics Meetings, discounts of up to 20% off the applicable rental rates when reservations are made in conjunction with United Airlines air reservations. To make reservations with Hertz and take advantage of this discount, call 888-444-1074 or to go www.Hertz.com. Please make sure you reference Hertz Discount number **CV 02R30006**. See other rental car options below.

Advance Check-In

Available seven days a week, Advance Check-In luggage delivery services will transfer your luggage from the Airport to your hotel. Enjoy New Orleans while leaving behind the worry of carrying around your luggage. For

How to Obtain Hotel Accommodations – 2011 Joint Mathematics Meetings

General

Participants must register in advance in order to obtain hotel accommodations through the Mathematics Meetings Service Bureau (MMSB). Special rates have been negotiated exclusively for this meeting at the following hotels: New Orleans Marriott, Sheraton New Orleans, JW Marriott New Orleans, and Astor Crowne Plaza New Orleans. Reservations must be made through the MMSB to receive these rates. These hotels can ONLY accept reservations directly after **December 17**, at which time rooms and rates will be based on availability. Higher rates will be applied to any rooms reserved directly with these hotels before **December 17**.

To reserve a room, please complete the housing section of the Advanced Registration/Housing (ARH) Form (via paper or the web) by **November 19**. All reservations must be guaranteed by either credit card or deposit by check in the total amount of first night stay. If you use the online form, a credit card number will be required for guarantee. If you use the paper form, a credit card number or check may be given for guarantee. For your security, credit card numbers will not be accepted by postal mail, e-mail, or fax. If you wish to guarantee your room by credit card and are submitting a paper form, the MMSB will call you at the number provided. The online form is located at www.ams.org/meetreg?meetnum=2125. The paper form is located at the back of this announcement. Participants interested in suites should contact the MMSB at mmsb@ams.org or 1-800-321-4267 ext. 4137 or 4144 for further information. **Sorry, reservations cannot be taken over the phone.**

Confirmations

All hotels will be sending out e-mail confirmations if an e-mail address is provided. Please contact the MMSB after **December 17** if you did not receive a confirmation number.

ADA Accessibility

We strive to take the appropriate steps required to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently. Please

Deadlines

- Complimentary Room Drawing: **November 5**
- Reservations through MMSB: **November 19**
- Changes/Cancellations through MMSB: **December 6**

Complimentary Room Drawing

Anyone who reserves a room through the MMSB by **November 5** is eligible for a drawing to receive complimentary room nights during the meeting. See *How to Register in Advance* for details.

Looking for a Roommate?

For your convenience, a search board has been set up at <http://boards2go.com/boards/board.cgi?user=webgoddess1> to help you find a roommate. Good Luck!

tell us what you require to help make your participation more enjoyable and meaningful. If you require special assistance, auxiliary aids or other reasonable accommodations to fully participate in this event, please check off the appropriate box on the Registration/Housing Form or e-mail the MMSB at mmsb@ams.org. All requests for special accommodations under the Americans with Disabilities Act of 1990 (ADA) must be made allowing enough time for evaluation and appropriate action by the AMS and MAA. Any information regarding your disability will remain confidential.

Environmental Policies

The majority of the hotels have successful “green” programs in place. Since 2004 Marriott has been awarded more ENERGY STAR labels than any other hotel company. In addition, the Sheraton has numerous

guest reward programs in place, such as “Green Guest Linen and Terry Program”.

Rates

- Subject to a 13% tax/TID tax plus an additional occupancy charge of US\$3
- Only certified students or unemployed mathematicians qualify for student rates.
- See the Advanced Registration/Housing (ARH) Form for a detailed breakdown of rates for each hotel.

Cancellation Policies

- All four hotels: 72 hours prior to arrival, to avoid penalties

Guarantee Requirements

- One night deposit by check, or
- Credit cards (online only): Visa, MC, AMEX, Diners, and Discover. If you reserve a room by paper form, the MMSB will contact you at the phone number provided. For your security, we do not accept credit card numbers by postal mail, e-mail or fax.

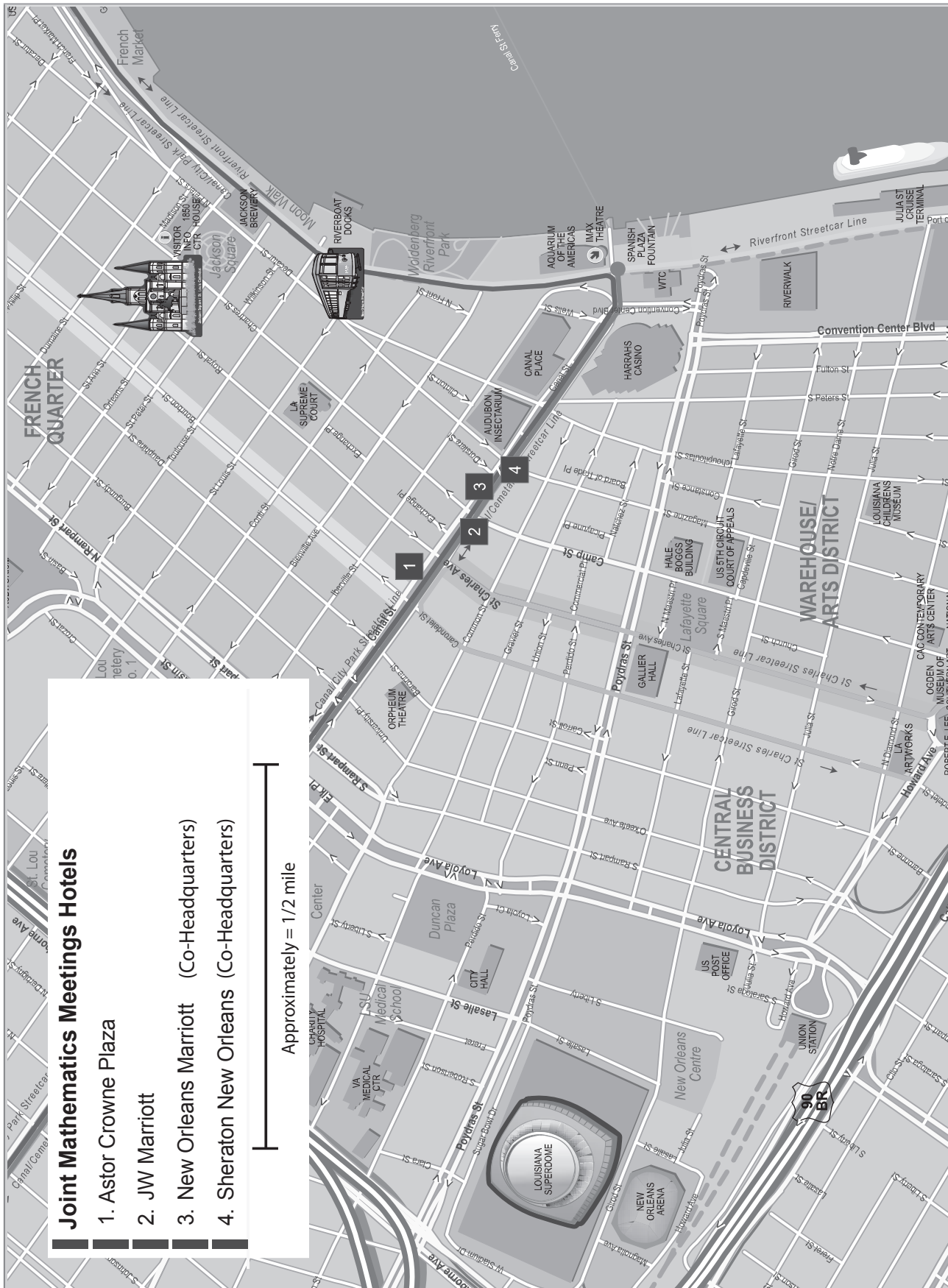
Check-in/Check-out

Check-in at each hotel is 3:00 p.m. Check-out at each hotel is noon.

Internet Access/Wireless

- **Marriott New Orleans:** Complimentary wireless in the lobby and public areas; wired ONLY in guest rooms for a daily rate of US\$14.95
- **Sheraton New Orleans:** Complimentary wireless in the lobby and public areas to hotel guests ONLY; wired ONLY in the guest rooms for a daily rate of US\$14.95
- **JW Marriott New Orleans:** Complimentary wireless in the lobby and public areas to hotel guests ONLY; wired ONLY in the guest rooms for a daily rate of US\$14.95
- **Astor Crowne Plaza New Orleans:** Complimentary wireless in the lobby and public areas; wired ONLY in guest rooms for a daily rate of US\$9.95

New Orleans Marriott (Co Headquarters)	Sheraton New Orleans (Co Headquarters)	JW Marriott New Orleans (~1 block from Marriott and Sheraton)	Astor Crowne Plaza New Orleans (~1.5 blocks from Marriott and Sheraton)
<p>555 Canal Street New Orleans, LA 70130 504-581-1000 Single US\$158, Double: US\$168 Student Single/Double: US\$120</p> <p>Smoke-free hotel. Restaurants: 5 Fifty 5, 55 Fahrenheit, and Starbucks; Fitness center; Outdoor pool; Spa services; Business center; Full amenities in guest rooms; Safety deposit boxes at front desk; Windows do not open in any rooms, including suites; Children under 15 free in room with an adult; Cribs available upon request at no charge; No pets allowed except service animals; Valet parking only US\$33.60 + tax per day; one vehicle allowed per room with limited height restrictions. See the travel section of this announcement for other parking options. Confirmations sent by e-mail only.</p>	<p>500 Canal Street New Orleans, LA 70130 504-525-2500 Main House: Single: US\$158, Double: US\$178 Club House: Single: US\$189, Double: US\$199 Student Single/Double US\$120 (Main House Only)</p> <p>Smoke-free hotel. Restaurants: Pelican Bar, Roux Bistro, and Starbucks; Fitness center; Outdoor pool; Spa services; Business center; Full amenities in guest rooms; In-room safe; Windows do not open in any rooms, including suites; Children under 18 free in room with an adult; Cribs available upon request at no charge; Pets allowed (under 80 pounds only); Valet parking only for US\$22.95 + tax per day (due to height restrictions, oversized vehicles cannot be valet parked). See the travel section of this announcement for other parking options. Confirmations sent by e-mail only.</p>	<p>614 Canal Street New Orleans, LA 70130 504-525-6500 Single: US\$148, Double: US\$158</p> <p>Smoke-free hotel. Restaurants: Shula's America's Steak House, Shula's Lounge (bar), and Lobby Lounge (bar); Spa services; Business center; Full amenities in guest rooms; Safety deposit boxes available at front desk; Windows do not open in any rooms, including suites; Children under 16 free in room with an adult; Cribs available upon request at no charge; Valet parking only for registered guests for US\$32.00 + tax per day with limited height restrictions. See the travel section of this announcement for other parking options. Confirmations sent by e-mail only.</p>	<p>739 Canal Street New Orleans, LA 70130 504-962-0500 Single/Double: US\$119 Student Single/Double: US\$109</p> <p>Smoke-free hotel. Restaurant: Dickie Brennan's Bourbon House Restaurant & Seafood; Fitness center; Spa services; Business center; Full amenities in guest rooms; Safety deposit boxes available at front desk; Windows do not open in any rooms, including suites; Children under 17 free in room with an adult; Cribs available upon request at no charge; Valet parking for registered hotel guests for US\$32.00 + tax per day with limited height restrictions. See the travel section of this announcement for other parking options. Confirmations sent by e-mail only.</p>



Joint Mathematics Meetings Hotels

1. Astor Crowne Plaza
2. JW Marriott
3. New Orleans Marriott (Co-Headquarters)
4. Sheraton New Orleans (Co-Headquarters)

Approximately = 1/2 mile

more information go to www.advancecheckin.com or call toll-free at 877-467-8898. Agents are available on the lower airport level next to Belt #1 in the baggage claim area 8:00 a.m.–midnight. The charge is US\$25.00 for up to three pieces of luggage. Additional bags can be included for US\$5.00 each. There may be additional charges for overweight bags. Hotel pick-up requests must be made online.

Traveling from the Airport

To depart the New Orleans airport, head to the lower level baggage claim area, unless you are planning to take the city bus which departs from upper level entrance #7.

SPECIAL!! Motion Transportation LLC: Motion Transportation LLC is offering Joint Mathematics Meetings participants a special offer of US\$30 per person round trip, and US\$15 per person one way from the Louis Armstrong New Orleans International Airport. Reservations can be made by going to their website, www.motiontransportation.com, or by calling 504-390-3567 and mentioning group code **JMM-2011**. To reserve online, proceed as follows:

- Go to www.motiontransportation.com
- Click on “JMM” button
- Fill in information that is requested and if necessary reference “**JMM-2011**”
- Once page is complete, hit the submit button.
- You will receive a confirmation page.
- Other information: For arrival, participants with reservations will be met by a greeter (holding a sign with “JMM”) in the baggage claim area. For departure, participants will need to make arrangements to be picked up two hours prior to their plane departures.
- If questions, call 504-390-3567.

Airport Shuttle: Airport Shuttle, (866-596-2699, 504-522-3500, www.airportshuttleneworleans.com) is the official ground transportation provider for the Louis Armstrong New Orleans International Airport. Shuttle service is available from the airport to the hotels for US\$20/per person, one-way, and US\$38/per person, round-trip. The first three bags per passenger are free. Travelers must provide their own child car seats or booster seats. Advance reservations are required 48 hours prior to travel for all ADA accessible transfers. Please call well enough in advance for the specially-equipped shuttle to be reserved.

Ticket desks are located on the lower level in the baggage claim area. After you have retrieved your luggage, proceed to the Airport Shuttle Ticket Desk, across from baggage claim areas 3, 6, and 12. The desk is staffed from 8:00 p.m. to 11:00 p.m. After 11:00 p.m. you can purchase a one-way cash ticket from any driver on the loading dock outside of baggage claim area 6, and the driver will provide you with a receipt, if needed. Service is available on a continuous basis with vans departing approximately every 30 minutes. Airport Shuttle vans are white with yellow lettering with “Airport Shuttle” and the phone number 522-3500 on the side. Return trips are best reserved at least 24 hours prior to your flight.

Taxicabs: A cab ride to the Central Business District or the French Quarter costs approximately US\$33 for one or two persons and US\$14 (per passenger) for three or more

passengers. Pickup is on the lower level, outside the baggage claim area. There may be an additional charge for extra baggage.

Bus/Public Transit: The Airport-Downtown Express E-2 Bus picks up outside airport Entrance #7 near the Delta counter on the upper (second) level. In the median, look for the sign and bench. Take the E-2 Bus to Carrollton at Tulane. At Carrollton and Tulane, on the corner by the Burger King, transfer to the #39 Tulane Bus. The #39 will take you to Canal Street at Saratoga. Walk to the middle of Canal Street and wait for the #47-48 Canal Streetcar going toward the river. The Marriott, the Sheraton, the JW Marriott, and the Astor Crowne Plaza are all on Canal Street. There is a streetcar stop about every other block on Canal Street near the French Quarter; get off at Canal and Bourbon Street for the Astor Crowne Plaza, Canal and Chartres for the JW Marriott and at either Canal at Chartres or Canal and Decatur for the New Orleans Marriott and the Sheraton New Orleans. For further information and schedules: E-2 Bus: www.jeffersontransit.org. New Orleans city bus routes: go to www.norta.com, call 504-248-3900 or send email to rideline@norta.com. The current fare for the Airport-Downtown Express (E-2) is US\$2. The fareboxes will accept US\$1, US\$5, US\$10, US\$20 dollar bills and all U.S. coins, and will provide change in the form of a value card that can be used for future fares. The New Orleans city bus fares are currently US\$1.25; senior citizens with valid ID, US\$0.40, transfers are 25 cents.

Driving directions to the hotels: Go east on Jerome S. Glazer Airport Access Road toward Airport Access Road (Jerome S. Glazer Airport Access Road turns into Airport Access Road). Take the ramp onto I-10 E. At exit 234 take the left lane toward Poydras Street/Superdome. Stay straight to go onto Poydras Street. Take a left on Camp Street, and continue to Canal Street. To go to the Sheraton, take a right on Canal, the hotel is straight ahead on your right. To go to the New Orleans Marriott, take a right on Canal Street; get into the left-hand lane and make a small U-turn. You will be in front of the Marriott. Continue a few blocks past the Marriott to get to the Astor Crowne Plaza at Canal and Bourbon Street. To go to the JW Marriott, after you take a left on Camp Street, go three blocks to Common Street, and turn left again. The motor lobby entrance is located on the right at 611 Common Street between Camp Street and St. Charles Avenue.

Car Rental

The car rental agencies are located on the lower level of the airport. **Avis** is the official car rental company for the Joint Mathematics Meetings in New Orleans. All rates include unlimited free mileage. Rates do not include any state or local surcharges, tax, optional overages, or gas refueling charges. Renters must meet Avis's age, driver, and credit requirements. For the best available rate and to make a reservation, please call Avis at 800-331-1600 or go online at <http://www.avis.com>. Please use the Avis Discount Number **J098887**.

Parking Information

Valet parking only with some height restrictions is available at the New Orleans Marriott, Sheraton New Orleans, JW Marriott, and the Astor Crowne Plaza. Please see the hotel page for details. Some other options for parking are:

- **Premium Parking Service**, Iberville Garage, 716 Iberville Street, New Orleans, LA 70130, 504-522-5975, www.premiumparkingservice.com/index2.shtml. Cost: 0-2 hours—US\$9; 2-3 hours—US\$11; 3-10 hours—US\$13; 10-24 hours—US\$20. Price includes valet service and 24-hour access. See website for details.

- **Central Parking System**, 365 Canal Street, New Orleans, LA, (504) 525-7275, www.parking.com. 365 Canal is a flat lot and there is a kiosk where you can purchase parking. Cost: 3 hours—US\$15; 12 hours—US\$25. See website for details.

Please go to <http://www.neworleansonline.com/tools/transportation/gettingaround/parking.html> for general information about parking in downtown New Orleans.

Public Transportation around New Orleans

Information on public transportation in New Orleans is at www.norta.com (see above for phone and email contact information); check this site for the latest bus and streetcar schedules, maps, and fares. New Orleans has three historic streetcar routes: the St. Charles Avenue Line, the Canal Street Line, and the Riverfront Line.

The St. Charles Line (Rt. 12) runs down St. Charles from Canal Street to Claiborne Avenue, going past Tulane and Loyola Universities, the Garden District, and Audubon Park. Canal Street has two lines. Rt. 47 Canal-Cemeteries travels the length of Canal Street, starting at the river and ending at City Park Avenue near Greenwood Cemetery. Rt. 48 Canal-City Park/Museum starts at the riverfront, travels up Canal Street, and ends near the entrance of the New Orleans Museum of Art. The Riverfront Line (Rt. 2) runs along the Mississippi River starting at the French Market; it stops at the riverfront on Canal Street near the Aquarium, and ends near the New Orleans Convention Center.

For the best value, consider VisiTour Passes offering unlimited rides. A one-day pass is US\$5 and can be purchased on a bus or streetcar. Three- and five-day passes are also available.

Weather

New Orleans has a subtropical climate with pleasant year-round temperatures. In January, average temperatures range from a low of 43 degrees to a high of 63 degrees. For up-to-the minute weather information, consult your favorite weather site or check http://www.wunderground.com/US/LA/New_Orleans.html?bannertypclick=big2.

Statesboro, Georgia

Georgia Southern University

March 12–13, 2011

Saturday – Sunday

Meeting #1068

Southeastern Section

Associate secretary: Matthew Miller

Announcement issue of *Notices*: January 2011

Program first available on AMS website: January 27, 2011

Program issue of electronic *Notices*: March 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: November 23, 2010

For abstracts: January 20, 2011

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/sectional.html.

Invited Addresses

Jason A. Behrstock, Lehman College (CUNY), *Title to be announced.*

Gordana Matic, University of Georgia, *Title to be announced.*

Jeremy T. Tyson, University of Illinois at Urbana-Champaign, *Title to be announced.*

Brett D. Wick, Georgia Institute of Technology, *Title to be announced.*

Special Sessions

Advances in Biomedical Mathematics (Code: SS 4A), **Yangbo Ye**, University of Iowa, and **Jiehua Zhu**, Georgia Southern University.

Algebraic and Geometric Combinatorics (Code: SS 13A), **Drew Armstrong**, University of Miami, and **Benjamin Braun**, University of Kentucky.

Applied Combinatorics (Code: SS 2A), **Hua Wang**, Georgia Southern University, **Miklos Bona**, University of Florida, and **Laszlo Szekely**, University of South Carolina.

Categorical Topology (Code: SS 9A), **Frederic Mynard**, Georgia Southern University, and **Gavin Seal**, EPFL, Lausanne.

Control Systems and Signal Processing (Code: SS 14A), **Zhiqiang Gao**, Cleveland State University, **Frank Goforth**, Georgia Southern University, **Thomas Yang**, Embry-Riddle Aeronautical University, and **Yan Wu**, Georgia Southern University.

Fractals and Tilings (Code: SS 3A), **Ka-Sing Lau**, The Chinese University of Hong Kong, **Sze-Man Ngai**, Georgia Southern University, and **Yang Wang**, Michigan State University.

Geometric Group Theory (Code: SS 7A), **Xiangdong Xie**, Georgia Southern University, **Jason A. Behrstock**, Lehman College, CUNY, and **Denis Osin**, Vanderbilt University.

Geometric Mapping Theory in Euclidean and Non-Euclidean Spaces (Code: SS 11A), **Jeremy Tyson**, University of Illinois at Urbana-Champaign, **David A. Herron**, University of Cincinnati, and **Xiangdong Xie**, Georgia Southern University.

Harmonic Analysis and Applications (Code: SS 5A), **Dmitriy Bilyk**, University of South Carolina, **Laura De Carli**, Florida International University, **Alex Stokolos**, Georgia Southern University, and **Brett Wick**, Georgia Institute of Technology.

Harmonic Analysis and Partial Differential Equations (Code: SS 1A), **Paul A. Hagelstein**, Baylor University, **Alexander Stokolos**, Georgia Southern University, **Xiaoyi Zhang**, IAS Princeton and University of Iowa, and **Shijun Zheng**, Georgia Southern University.

Homological Methods in Commutative Algebra (Code: SS 6A), **Alina C. Iacob**, Georgia Southern University, and **Adela N. Vraciu**, University of South Carolina.

Matrix Theory and Numerical Linear Algebra (Code: SS 8A), **Richard S. Varga**, Kent State University, and **Xie Zhang Li**, Georgia Southern University.

Sparse Data Representations and Applications (Code: SS 10A), **Alexander Petukhov** and **Alex Stokolos**, Georgia Southern University, **Ahmed Zayed**, DePaul University, and **Inna Kozlov**, Holon Institute of Technology, Department of Computer Science.

Symplectic and Poisson Geometry (Code: SS 12A), **Yi Lin**, Georgia Southern University, **Alvaro Pelayo**, Washington University, St. Louis, and **Francois Ziegler**, Georgia Southern University.

Iowa City, Iowa

University of Iowa

March 18–20, 2011

Friday – Sunday

Meeting #1069

Central Section

Associate secretary: Georgia Benkart

Announcement issue of *Notices*: January 2011

Program first available on AMS website: February 5, 2011

Program issue of electronic *Notices*: March 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: November 30, 2010

For abstracts: January 25, 2011

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/sectional.html.

Invited Addresses

Mihai Ciucu, Indiana University, *Title to be announced.*

David Damanik, Rice University, *Title to be announced.*

Kevin Ford, University of Illinois Urbana-Champaign, *Title to be announced.*

Chiu-Chu Liu, Columbia University, *Title to be announced.*

Special Sessions

Algebraic K-Theory and Homotopy Theory (Code: SS 8A), **Teena Gerhardt**, Michigan State University, and **Daniel Ramras**, New Mexico State University.

Analytic Number Theory (Code: SS 5A), **Yangbo Ye**, University of Iowa.

Commutative Ring Theory (Code: SS 6A), **Daniel D. Anderson**, University of Iowa, and **David F. Anderson**, University of Tennessee Knoxville.

Geometric Commutative Algebra and Applications (Code: SS 7A), **David Anderson**, University of Washington, and **Julianna Tymoczko**, University of Iowa.

Global and P-adic Representation Theory (Code: SS 3A), **Muthukrishnan Krishnamurthy**, **Philip Kutzco**, and **Yangbo Ye**, University of Iowa.

Modelling, Analysis and Simulation in Contact Mechanics (Code: SS 1A), **Weimin Han**, University of Iowa, and **Mircea Sofonea**, University of Perpignan.

Recent Developments in Nonlinear Evolution Equations (Code: SS 4A), **Yinbin Deng**, Central China Normal University, **Yong Yu** and **Yi Li**, University of Iowa, and **Shuangjie Peng**, Central China Normal University.

Representations of Algebras (Code: SS 2A), **Frauke Bleher**, University of Iowa, and **Calin Chindris**, University of Missouri.

Worcester, Massachusetts

College of the Holy Cross

April 9–10, 2011

Saturday – Sunday

Meeting #1070

Eastern Section

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: February 2011

Program first available on AMS website: March 10, 2011

Program issue of electronic *Notices*: April 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: December 21, 2010

For abstracts: February 15, 2011

The scientific information listed below may be dated.
For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Vitaly Bergelson, Ohio State University, *Title to be announced.*

Kenneth M. Golden, University of Utah, *Title to be announced.*

Walter D. Neumann, Columbia University, *Title to be announced.*

Natasa Sesum, University of Pennsylvania, *Title to be announced.*

Special Sessions

Complex Analysis and Banach Algebras (Code: SS 1A), **John T. Anderson**, College of the Holy Cross, and **Alexander J. Izzo**, Bowling Green State University.

Las Vegas, Nevada

University of Nevada

April 30 – May 1, 2011

Saturday – Sunday

Meeting #1071

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: February 2011

Program first available on AMS website: March 17, 2011

Program issue of electronic *Notices*: April 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: September 30, 2010

For consideration of contributed papers in Special Sessions: January 1, 2011

For abstracts: March 8, 2011

The scientific information listed below may be dated.
For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Elizabeth Allman, University of Alaska, *Title to be announced.*

Danny Calegari, California Institute of Technology, *Title to be announced.*

Hector Ceniceros, Stanford University, *Title to be announced.*

Tai-Ping Liu, Stanford University, *Title to be announced.*

Special Sessions

Advances in Modeling, Numerical Analysis and Computations of Fluid Flow Problems (Code: SS 2A), **Monika Neda**, University of Nevada Las Vegas.

Extremal Combinatorics (Code: SS 6A), **Jozsef Balogh**, University of California San Diego, and **Ryan Martin**, Iowa State University.

Geometric PDEs (Code: SS 1A), **Matthew Gursky**, Notre Dame University, and **Emmanuel Hebey**, Université de Cergy-Pontoise.

Multilevel Mesh Adaptation and Beyond: Computational Methods for Solving Complex Systems (Code: SS 4A), **Pengtao Sun**, University of Nevada Las Vegas, and **Long Chen**, University of California Irvine.

Partial Differential Equations Modeling Fluids (Code: SS 5A), **Quansen Jiu**, Capital Normal University, Beijing, China, and **Jiahong Wu**, Oklahoma State University.

Recent Advances in Finite Element Methods (Code: SS 3A), **Jichun Li**, University of Nevada Las Vegas.

Ithaca, New York

Cornell University

September 10–11, 2011

Saturday – Sunday

Meeting #1072

Eastern Section

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: June 2011

Program first available on AMS website: July 28, 2011

Program issue of electronic *Notices*: September 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: February 10, 2011

For consideration of contributed papers in Special Sessions: May 24, 2011

For abstracts: July 19, 2011

The scientific information listed below may be dated.
For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Mladen Bestvina, University of Utah, *Title to be announced.*

Nigel Higson, Pennsylvania State University, *Title to be announced.*

Gang Tian, Princeton University, *Title to be announced.*

Winston-Salem, North Carolina

Wake Forest University

September 24–25, 2011

Saturday – Sunday

Meeting #1073

Southeastern Section

Associate secretary: Matthew Miller

Announcement issue of *Notices*: June 2011

Program first available on AMS website: August 11, 2011

Program issue of electronic *Notices*: September 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: February 24, 2011

For consideration of contributed papers in Special Sessions: June 7, 2011

For abstracts: August 2, 2011

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Benjamin B. Brubaker, Massachusetts Institute of Technology, *Title to be announced.*

Shelly Harvey, Rice University, *Title to be announced.*

Allen Knutson, Cornell University, *Title to be announced.*

Seth M. Sullivan, North Carolina State University, *Title to be announced.*

Lincoln, Nebraska

University of Nebraska-Lincoln

October 14–16, 2011

Friday – Sunday

Meeting #1074

Central Section

Associate secretary: Georgia Benkart

Announcement issue of *Notices*: August 2011

Program first available on AMS website: September 1, 2011

Program issue of electronic *Notices*: October 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: March 14, 2011

For consideration of contributed papers in Special Sessions: June 28, 2011

For abstracts: August 23, 2011

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Lewis Bowen, Texas A&M University, *Title to be announced.*

Emmanuel Candes, Stanford University, *Title to be announced* (Erdős Memorial Lecture).

Alina Cojocaru, University of Illinois at Chicago, *Title to be announced.*

Michael Zieve, University of Michigan, *Title to be announced.*

Salt Lake City, Utah

University of Utah

October 22–23, 2011

Saturday – Sunday

Meeting #1075

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: August 2011

Program first available on AMS website: September 8, 2011

Program issue of electronic *Notices*: October 2011

Issue of *Abstracts*: To be announced

Deadlines

For organizers: March 22, 2011

For consideration of contributed papers in Special Sessions: July 5, 2011

For abstracts: August 30, 2011

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Graeme Milton, University of Utah, *Title to be announced.*

Lei Ni, University of California San Diego, *Title to be announced.*

Igor Pak, University of California Los Angeles, *Title to be announced.*

Monica Visan, University of California Los Angeles, *Title to be announced.*

Port Elizabeth, Republic of South Africa

Nelson Mandela Metropolitan University

November 29 – December 3, 2011

Tuesday – Saturday

Meeting #1076

First Joint International Meeting between the AMS and the South African Mathematical Society.

Associate secretary: Matthew Miller

Announcement issue of *Notices*: To be announced

Program first available on AMS website: Not applicable

Program issue of electronic *Notices*: Not applicable

Issue of *Abstracts*: Not applicable

Deadlines

For organizers: To be announced

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

For abstracts: To be announced

Boston, Massachusetts

John B. Hynes Veterans Memorial Convention Center, Boston Marriott Hotel, and Boston Sheraton Hotel

January 4–7, 2012

Wednesday – Saturday

Joint Mathematics Meetings, including the 118th Annual Meeting of the AMS, 95th 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), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: October 2011

Program first available on AMS website: November 1, 2011

Program issue of electronic *Notices*: January 2012

Issue of *Abstracts*: Volume 33, Issue 1

Deadlines

For organizers: April 1, 2011

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

For abstracts: To be announced

Honolulu, Hawaii

University of Hawaii

March 3–4, 2012

Saturday – Sunday

Western Section

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: March 2012

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: To be announced

Issue of *Abstracts*: To be announced

Deadlines

For organizers: August 3, 2011

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

For abstracts: To be announced

Tampa, Florida

University of South Florida

March 10–11, 2012

Saturday – Sunday

Southeastern Section

Associate secretary: Matthew Miller

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: March 2012

Issue of *Abstracts*: To be announced

Deadlines

For organizers: August 10, 2011

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

For abstracts: To be announced

Washington, District of Columbia

George Washington University

March 17–18, 2012

Saturday – Sunday

Eastern Section

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: March 2012

Issue of *Abstracts*: To be announced

Deadlines

For organizers: August 17, 2011

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

For abstracts: To be announced

Lawrence, Kansas

University of Kansas

March 30 – April 1, 2012

Friday – Sunday

Central Section

Associate secretary: Georgia Benkart

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

New Orleans, Louisiana

Tulane University

October 13–14, 2012

Saturday – Sunday

Southeastern Section

Associate secretary: Matthew Miller

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: January 13, 2012

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

For abstracts: To be announced

San Diego, California

San Diego Convention Center and San Diego Marriott Hotel and Marina

January 9–12, 2013

Wednesday – Saturday

Joint Mathematics Meetings, including the 119th Annual Meeting of the AMS, 96th 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), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Georgia Benkart

Announcement issue of *Notices*: October 2012

Program first available on AMS website: November 1, 2012

Program issue of electronic *Notices*: January 2012

Issue of *Abstracts*: Volume 34, Issue 1

Deadlines

For organizers: April 1, 2012

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

For abstracts: To be announced

Ames, Iowa

Iowa State University

April 27–28, 2013

Saturday – Sunday

Central Section

Associate secretary: Georgia Benkart

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 27, 2012

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

For abstracts: To be announced

Alba Iulia, Romania

June 27–30, 2013

Thursday – Sunday

Associate secretary: Robert J. Daverman

Announcement issue of *Notices*: To be announced

Program first available on AMS website: Not applicable

Program issue of electronic *Notices*: Not applicable

Issue of *Abstracts*: Not applicable

Deadlines

For organizers: To be announced

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

For abstracts: To be announced

Baltimore, Maryland

Baltimore Convention Center, Baltimore Hilton, and Marriott Inner Harbor

January 15–18, 2014

Wednesday – Saturday

Joint Mathematics Meetings, including the 120th Annual Meeting of the AMS, 97th 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 of Symbolic Logic, with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Matthew Miller

Announcement issue of *Notices*: October 2013

Program first available on AMS website: November 1, 2013

Program issue of electronic *Notices*: January 2013

Issue of *Abstracts*: Volume 35, Issue 1

Deadlines

For organizers: April 1, 2013

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

For abstracts: To be announced

San Antonio, Texas

Henry B. Gonzalez Convention Center and Grand Hyatt San Antonio

January 10–13, 2015

Saturday – Tuesday

Joint Mathematics Meetings, including the 121st Annual Meeting of the AMS, 98th 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 of Symbolic Logic, with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: October 2014

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2015

Issue of *Abstracts*: Volume 36, Issue 1

Deadlines

For organizers: April 1, 2014

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

For abstracts: To be announced

Seattle, Washington

Washington State Convention & Trade Center and the Sheraton Seattle Hotel

January 6–9, 2016

Wednesday – Saturday

Joint Mathematics Meetings, including the 122nd Annual Meeting of the AMS, 99th 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 of Symbolic Logic, with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: October 2015

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2016

Issue of *Abstracts*: Volume 37, Issue 1

Deadlines

For organizers: April 1, 2015

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

For abstracts: To be announced

Atlanta, Georgia

Hyatt Regency Atlanta and Marriott Atlanta Marquis

January 4–7, 2017

Wednesday – Saturday

Joint Mathematics Meetings, including the 123rd Annual Meeting of the AMS, 100th 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 of Symbolic Logic, with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Georgia Benkart

Announcement issue of *Notices*: October 2016

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2017

Issue of *Abstracts*: Volume 38, Issue 1

Deadlines

For organizers: April 1, 2016

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

For abstracts: To be announced