MEETINGS & CONFERENCES OF THE AMS

OCTOBER TABLE OF CONTENTS

The Meetings and Conferences section of the Notices gives information on all AMS meetings and conferences approved by press time for this issue. Please refer to the page numbers cited on this page for more detailed information on each event. Invited Speakers and Special Sessions are listed as soon as they are approved by the cognizant program committee; the codes listed are needed for electronic abstract submission. For some meetings the list may be incomplete. Information in this issue may be dated.

The most up-to-date meeting and conference information can be found online at: www.ams.org/meetings/.

Important Information About AMS Meetings: Potential organizers, speakers, and hosts should refer to page 88 in the January 2016 issue of the Notices for general information regarding participation in AMS meetings and conferences.

Abstracts: Speakers should submit abstracts on the easy-to-use interactive Web form. No knowledge of \LaTeX{} is necessary to submit an electronic form, although those who use \LaTeX{} may submit abstracts with such coding, and all math displays and similarly coded material (such as accent marks in text) must be typeset in \LaTeX{}. Visit www.ams.org/cgi-bin/abstracts/abstract.pl/1. Questions about abstracts may be sent to abs-info@ams.org. Close attention should be paid to specified deadlines in this issue. Unfortunately, late abstracts cannot be accommodated.

MEETINGS IN THIS ISSUE

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Conferences in Cooperation with the AMS

**Indian Mathematics Consortium**

December 14–17, 2016

Banaras Hindu University

Varanasi, India

See www.ams.org/meetings/ for the most up-to-date information on these conferences.

ASSOCIATE SECRETARIES OF THE AMS

**Central Section:** Georgia Benkart, University of Wisconsin-Madison, Department of Mathematics, 480 Lincoln Drive, Madison, WI 53706-1388; e-mail: benkart@math.wisc.edu; telephone: 608-263-4283.

**Eastern Section:** Steven H. Weintraub, Department of Mathematics, Lehigh University, Bethlehem, PA 18015-3174; e-mail: steve.weintraub@lehigh.edu; telephone: 610-758-3717.

**Southeastern Section:** Brian D. Boe, Department of Mathematics, University of Georgia, 220 D W Brooks Drive, Athens, GA 30602-7403, e-mail: brian@math.uga.edu; telephone: 706-542-2547.

**Western Section:** Michel L. Lapidus, Department of Mathematics, University of California, Surge Bldg., Riverside, CA 92521-0135; e-mail: lapidus@math.ucr.edu; telephone: 951-827-5910.
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 www.ams.org/meetings/. Final programs for Sectional Meetings will be archived on the AMS website accessible from the stated URL.

Denver, Colorado

University of Denver

October 8–9, 2016
Saturday – Sunday

Meeting #1122
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of Notices: August 2016
Program first available on AMS website: To be announced
Issue of Abstracts: Volume 37, Issue 3

Deadlines
For organizers: 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

Ron Hadani, University of Texas at Austin, Representation theoretic patterns in three dimensional cryo-electron microscopy.
Chelsea Walton, Temple University, Quantum Symmetry.

Special Sessions

If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

Above and Beyond Fluid Flow studies: In celebration of the 60th birthday of Prof. William Layton, Traian Iliescu, Virginia Polytechnic Institute and State University, Alexander Labovskiy, Michigan Technological University, Monika Neda, University of Nevada, Las Vegas, and Leo Rebholz, Clemson University.
Algebraic Combinatorics, Anton Betten, Colorado State University, Jason Williford, University of Wyoming, and Bangteng Xu, Eastern Kentucky University.
Algebraic Logic, Nick Galatos, University of Denver, and Peter Jipsen, Chapman University.
Analysis on Graphs and Spectral Graph Theory, Paul Horn and Mei Yin, University of Denver.
Aspects of PDE Arising from Modeling of the Flows in Porous Media, Akif Ibragimov, Texas Tech University, Viktoria Savatorova, University of Nevada, Las Vegas, and Aleksey Telyakovskiy, University of Nevada, Reno.
Discontinuous Galerkin methods for partial differential equations: Theory and applications, Mahboub Baccouch, University of Nebraska at Omaha.
Floer Theoretic Invariants of 3-manifolds and Knots, Jonathan Hanselman, University of Texas at Austin, and Kristen Hendricks, University of California, Los Angeles.
Foundations of Numerical Algebraic Geometry, Abraham Martin del Campo, CIMAT, Guanajuato, Mexico, and Frank Sottile, Texas A&M University.
Meetings & Conferences

Groups and Representation Theory, C. Ryan Vinroot, College of William and Mary, Juliane Rainbolt, Saint Louis University, and Amanda Schaeffer Fry, Metropolitan State University of Denver.

Integrable Systems and Soliton Equations, Anton Dzhamay, University of Northern Colorado, and Patrick Shipman, Colorado State University.

Nonassociative Algebra, Izabella Stuhl, University of Debrecen and University of Denver, and Petr Vojtěchovský, University of Denver.

Noncommutative Geometry and Fundamental Applications, Frederic Latremoliere, University of Denver.

Nonlinear Wave Equations and Applications, Mark J. Ablowitz, University of Colorado Boulder, and Barbara Primari, University of Colorado Colorado Springs.

Nonlinear and Stochastic Partial Differential Equations, Michele Coti Zelati, University of Maryland, Nathan Glatt-Holtz, Tulane University, and Geordie Richards, University of Rochester.

Operator Algebras and Applications, Alvaro Arias, University of Denver.

Quantum Algebra, Chelsea Walton, Temple University, Ellen Kirkman, Wake Forest University, and James Zhang, University of Washington, Seattle.

Random Matrices, Integrable Systems, and Applications, Sean D. O’Rourke, University of Colorado Boulder, and David Renfrew, University of California, Los Angeles.

Recent Advances in Structural and Extremal Graph Theory, Michael Ferrara, Stephen Hartke, Michael Jacobson, and Florian Pfender, University of Colorado Denver.

Recent Trends in Semigroup Theory, Michael Kinyon, University of Denver, and Ben Steinberg, City College of New York.

Set Theory of the Continuum, Natasha Dobrinen and Daniel Hathaway, University of Denver.

Unimodularity in Randomly Generated Graphs, Florian Sobieczky, University of Denver.

Vertex Algebras and Geometry, Andrew Linshaw, University of Denver, and Thomas Creutzig and Nicolas Guay, University of Alberta.

Zero Dimensional Dynamics, Nic Ormes and Ronnie Pavlov, University of Denver.

Minneapolis, Minnesota

University of St. Thomas (Minneapolis campus)

October 28–30, 2016
Friday – Sunday

Meeting #1123
Central Section
Associate secretary: Georgia Benkart
Announcement issue of Notices: August 2016
Program first available on AMS website: To be announced
Issue of Abstracts: Volume 37, Issue 4

October 2016 Notices of the AMS 1093

Deadlines
For organizers: 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

Thomas Nevins, University of Illinois at Urbana-Champaign, Algebraic Symplectic Varieties, Classical and Quantum.

Charles Rezk, University of Illinois Urbana-Champaign, On Some Approximations to Homotopy Theory.

Christof Sparber, Department of Mathematics, Statistics & Computer Science, University of Illinois at Chicago, Semiclassical quantum dynamics via Bohmian trajectories.

Samuel N. Stechmann, University of Wisconsin-Madison, Stochastic PDEs for Tropical Weather and Climate.

Special Sessions
If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

Advances in Algebraic Coding Theory, Sarah E. Anderson, University of St. Thomas, and Katie Haymaker, Villanova University.

Chip-Firing and Divisors on Graphs and Complexes, Caroline Klivans, Brown University, and Gregg Musiker and Victor Reiner, University of Minnesota.

Combinatorial Matrix Theory, Adam Berliner, St. Olaf College, Brenda Kroschel, University of St. Thomas, and Nathan Warnberg, University Wisconsin-LaCrosse.

Combinatorial Representation Theory, Michael Chmutov, University of Minnesota, Tom Halverson, Macalester College, and Travis Scrimshaw, University of Minnesota.

Discrete Structures: Analysis and Applications (IMA Reunion), Leslie Hogben and Ryan Martin, Iowa State University, and Elisabeth Werner, Case Western Reserve University.

Effective Mathematics in Discrete and Continuous Worlds, Wesley Calvert, Southern Illinois University, and Timothy McNicholl, Iowa State University.

Enumerative Combinatorics, Eric Egge, Carleton College, and Joel Brewster Lewis, University of Minnesota.

Extremal and Probabilistic Combinatorics, Andrew Beveridge, Macalester College, Jamie Radcliffe, University of Nebraska Lincoln, and Michael Young, Iowa State University.

Geometric Flows, Integrable Systems and Moving Frames, Joseph Benson, St. Olaf College, Gloria Mari-Beffa, University of Wisconsin-Madison, Peter Olver, University of Minnesota, and Rob Thompson, Carleton College.

Integrable Systems and Related Areas, Sam Evans, University of Notre Dame, Luen-Chau Li, Pennsylvania State University, and Zhaohu Nie, Utah State University.

Knotting in Physical Systems, in celebration of Kenneth C. Millett’s 75th birthday, Jorge Alberto Calvo, Ave Maria University, and Eric Rawdon, University of St. Thomas.
Mathematics and Physics of Tornado Modeling, Pavel Bélk, Augsburg College, and Douglas P. Dokken, Kurt Scholz, and Misha Shvartsman, University of St. Thomas. 

Modeling and Predicting the Atmosphere, Oceans, and Climate, Sam Stechmann, University of Wisconsin-Madison.

Multi-scale Phenomena in Linear and Nonlinear Partial Differential Equations, Zaher Hani, Georgia Tech, and Christof Sparber, University of Illinois at Chicago.

New Developments in the Analysis of Nonlocal Operators, Donatella Danielli and Arshak Petrosyan, Purdue University, and Camelia Pop, University of Minnesota.

Noncommutative Algebras and Their Representations, Miodrag Iovanov and Ryan Kinser, University of Iowa, and Peter Webb, University of Minnesota.

Quantum Field Theories and Geometric Representation Theory, Emily Cliff, University of Oxford, and Thomas Nevins, University of Illinois at Urbana-Champaign.

Representation Theory, Automorphic Forms and Related Topics, Kwangho Choiy, Southern Illinois University, Dihua Jiang, University of Minnesota, and Shuichiro Takeda, University of Missouri.

Symplectic Geometry and Contact Geometry, Tian-Jun Li and Cheuk Yu Mak, University of Minnesota, and Ke Zhu, Minnesota State University.

The Topology of 3- and 4-Manifolds, Maggy Tomova, University of Iowa, and Alexander Zupan, University of Nebraska-Lincoln.

Topology and Arithmetic, Tyler Lawson and Craig Westerland, University of Minnesota, Twin Cities.

Topology and Physics, Ralph Kaufmann, Purdue University, and Alexander Voronov, University of Minnesota, Twin Cities.

Women in Analysis and Partial Differential Equations, Svitlana Mayboroda, University of Minnesota.

p-Adic Analysis in Number Theory, C. Douglas Haessig, University of Rochester, and Steven Sperber, University of Minnesota.

Raleigh, North Carolina 

North Carolina State University 

November 12–13, 2016 
Saturday – Sunday 

Meeting #1124 
Southeastern Section 
Associate secretary: Brian D. Boe 
Announcement issue of Notices: September 2016 
Program first available on AMS website: September 22, 2016 
Issue of Abstracts: Volume 37, Issue 4 

Deadlines 
For organizers: 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 

Ricardo Cortez, Tulane University, Mathematical and Computational Modeling of Microorganism Swimming. 
Gaven J. Martin, Massey University, Siegel’s problem on small volume lattices (AMS-NZMS Maclaurin Lecture). 
Jason Metcalfe, University of North Carolina at Chapel Hill, Local Energy Decay for the Wave Equation. 
Agnes Szanto, North Carolina State University, Certification of Approximate Roots of Exact Polynomial Systems. 

Special Sessions 

If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstracts.pl. 

Advances in Numerical Methods for Partial Differential Equations, Andreas Aristotelous, West Chester University, and Thomas Lewis, The University of North Carolina at Greensboro. 


Applied Algebraic Geometry, Seth Sullivant and Agnes Szanto, North Carolina State University. 

Commutative Ring Theory (in honor of Jay Shapiro’s retirement), Neil Epstein, George Mason University, and Alan Loper, Ohio State University. 

Contemporary Geometric Methods in Mechanics and Control, Vakhtang Putkaradze, University of Alberta, and Dmitry Zenkov, North Carolina State University. 

Control, Optimization, and Differential Games, Lorena Bociu, North Carolina State University, and Tien Khai Nguyen, Penn State University. 

Difference Equations and Applications, Michael A. Radin, Rochester Institute of Technology, and Youssef Raffoul, University of Dayton. 

Geometry and Topology in Image and Shape Analysis, Irina Kogan, North Carolina State University, and Facundo Mémoli, The Ohio State University. 


Harmonic Analysis and Dispersive PDE, Robert Booth, Jason Metcalfe, and Katrina Morgan, University of North Carolina. 

Homological Methods in Commutative Algebra, Alina Iacob and Saeed Nasrseh, Georgia Southern University. 

Low-dimensional Topology, Caitlin Leverson, Georgia Tech, Tye Lidman, North Carolina State University, and Leonard Ng, Duke University. 

Mathematical Modeling of Infectious Disease and Immunity, Lauren Childs, Virginia Tech and Harvard Chan School of Public Health, and Stanca Ciupe, Virginia Tech.
Atlanta, Georgia

Hyatt Regency Atlanta and Atlanta Marriott Marquis

January 4–7, 2017
Wednesday–Saturday

Meeting #1125

Joint Mathematics Meetings, including the 123rd Annual Meeting of the AMS, 100th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

AMS Associate Secretary: Brian Boe

Program first available on AMS website: To be announced

Joint Invited Addresses

**Ingrid Daubechies**, Duke University, *Mathematics for art investigation* (MAA-AMS-SIAM Gerald and Judith Porter Public Lecture); Saturday, 3:00 pm.

**Lisa Jeffrey**, University of Toronto, *Cohomology of Symplectic Quotients*, (AWM-AMS Noether Lecture); Thursday, 10:05 am.

**Donald Richards**, Pennsylvania State University, *Distance Correlation Coefficients: A New Tool for Detecting Association and Measuring Correlation Between Data Sets* (AMS-MAA Invited Address); Friday, 11:10 am.

**Alice Silverberg**, University of California, Irvine, *Through the Cryptographer’s Looking Glass, and What Alice Found There* (AMS-MAA Invited Address); Wednesday, 11:10 am.

Joint Prize Session

In order to showcase the achievements of recipients of the various prizes, the AMS and MAA are co-sponsoring this event at 4:25 pm on Thursday. A cash bar reception will immediately follow. All participants are invited to attend. The AMS, MAA, and SIAM will announce the JPBM Communications Award winner. 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 Böcher Memorial Prize, Levi L. Conant Prize, the Frank Nelson Cole Prize in Number Theory, the Joseph L. Doob Prize, the Leonard Eisenbud Prize for Distinguished Scientific Achievement, the Leroy P. Steele Prize, and the Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics. The AWM will present the Louise Hay Award for Contributions to Mathematics Education, the M. Gweneth Humphreys Award for Mentorship of Undergraduate Women in Mathematics, and the Birman Prize in Geometry and Topology.

123rd Meeting of the AMS

AMS Invited Addresses

**Tobias Colding**, Massachusetts Institute of Technology, *Title to be announced*; Saturday, 9:00 am.

**Carlos E. Kenig**, University of Chicago, *Overview: The focusing energy critical wave equation* (AMS Colloquium Lectures: Lecture I), Wednesday, 1:00 pm.

**Carlos E. Kenig**, University of Chicago, *The focusing energy critical wave equation: the radial case in 3 space dimensions* (AMS Colloquium Lectures: Lecture II); Thursday, 1:00 pm.

**Carlos E. Kenig**, University of Chicago, *The focusing energy critical wave equation: the non-radial case* (AMS Colloquium Lectures: Lecture III); Friday, 1:00 pm.

**John Preskill**, California Institute of Technology, *Title to be announced* (AMS Josiah Willard Gibbs Lecture), Wednesday, 8:30 pm.
Barry Simon, California Institute of Technology, Spectral Theory Sum Rules, Meromorphic Herglotz Functions and Large Deviations; Wednesday, 10:05 am.

Gigliola Staffilani, Massachusetts Institute of Technology, The many faces of dispersive and wave equations; Thursday, 2:15 pm.

Richard Taylor, Institute for Advanced Study, Galois groups and locally symmetric spaces; Thursday, 3:20 pm.

Anna Wienhard, Heidelberg University, A tale of rigidity and flexibility-discrete subgroups of higher rank Lie groups; Friday, 10:05 am.

AMS Special Sessions

If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at jointmathematicsmeetings.org/meetings/abstracts/abstract.pl?type=jmm

Some sessions are co-sponsored with other organizations. These are noted within the parentheses at the end of each listing, where applicable.

Advanced Mathematical Programming and Applications, Ram N. Mohapatra, University of Central Florida, Ram U. Verma, University of North Texas, and Gayatri Pany, Indian Institute of Technology.

Advances in Mathematics of Ecology, Epidemiology and Immunology of Infectious Diseases, Abba Gumel, Arizona State University.

Advances in Operator Algebras, Michael Hartglass, University of California, Riverside, David Penneys, University of California, Los Angeles, and Elizabeth Gillaspy, University of Colorado, Boulder.

Algebraic Statistics (a Mathematics Research Communities Session), Daniel Irving Bernstein, North Carolina State University, Nathaniel Bushek, University of Alaska, Anchorage, and Mateja Raic, University of Illinois at Chicago.

An Amicable Combination of Algebra and Number Theory (Dedicated to Dr. Helen G. Grundman), Eva Goedhart, Lebanon Valley College, Pamela E. Harris, Williams College, Daniel P. Wisniewski, DeSales University, and Alejandra Alvarado, Eastern Illinois University.

Analysis of Fractional, Stochastic, and Hybrid Dynamic Systems and their Applications, Aghalaya S. Vatsala, University of Louisiana, Gangaram S. Ladde, University of South Florida, and John R. Graef, University of Tennessee at Chattanooga.

Analytic Number Theory and Arithmetic, Robert Lemke Oliver, Tufts University, Paul Pollack, University of Georgia, and Frank Thorne, University of South Carolina.

Analytical and Computational Studies in Mathematical Biology, Yanyu Xiao, University of Cincinnati, and Xiang-Sheng Wang, Southeast Missouri State University.

ApREUF: Applied Research Experience for Undergraduate Faculty, Shenglan Yuan, LaGuardia Community College, CUNY, Jason Callahan, St. Edwards University, Eva Strawbridge, James Madison University, and Ami Radunskaya, Pomona College.

Applications of Partially Ordered Sets in Algebraic, Topological, and Enumerative Combinatorics, Rafael S. González D'León, University of Kentucky, and Joshua Hallam, Wake Forest University.

Arithmetic Properties of Sequences from Number Theory and Combinatorics, Eric Rowland, Hofstra University, and Armin Straub, University of South Alabama.

Automorphic Forms and Arithmetic, Frank Calegari, University of Chicago, Ana Caraiani, Princeton University, and Richard Taylor, Institute for Advanced Study.

Bases in Function Spaces: Sampling, Interpolation, Expansions and Approximations, Shahaf Nitzan and Christopher Heil, Georgia Institute of Technology, and Alexander V. Powell, Vanderbilt University.

Character Varieties (a Mathematics Research Communities Session), Nathan Druivenga, University of Kentucky, Brett Frankel, Northwestern University, and Ian Le, Perimeter Institute for Theoretical Physics.

Coding Theory for Modern Applications, Christine A. Kelley, University of Nebraska-Lincoln, Iwan M. Duursma, University of Illinois Urbana-Champaign, and Gretchen L. Matthews, Clemson University.

Combinatorial and Cohomological Invariants of Flag Manifolds and Related Varieties, Martha Precup, Northwestern University, and Rebecca Goldin, George Mason University.

Commutative Algebra: Research for Undergraduate and Early Graduate Students, Nicholas Baeth, University of Central Missouri, and Courtney Gibbons, Hamilton College.

Complex Analysis and Special Functions, Brock Williams, Texas Tech University, Kendall Richards, Southwestern University, and Alex Solynin, Texas Tech University.

Continued Fractions, James McLaughlin, West Chester University, Geremias Polanco, Hampshire College, and Nancy J. Wyshinsky, Trinity College.

Control and Long Time Behavior of Evolutionary PDEs, Louis Tebou, Florida International University, and Luz de Teresa, Instituto de Matemáticas, UNAM.

Discrete Geometry and Convexity (Dedicated to András Bezdek on the occasion of his 60th birthday), Krystyna Kuperberg, Auburn University, Gergely Ambrus, Renyi Institute of Mathematics, Braxton Carrigan, Southern Connecticut State University, and Ferenc Fodor, University of Szeged.

Discrete Structures in Number Theory, Anna Haensch, Duquesne University, and Adriana Salerno, Bates College.

Dynamical Systems, Jim Wiseman, Agnes Scott College, and Aimee Johnson, Swarthmore College.

Dynamics of Fluids and Nonlinear Waves, Zhiwu Lin, Jiayin Jin, and Chongchun Zeng, Georgia Institute of Technology.

Ergodic Theory and Dynamical Systems, Mrinal Kanti Roychowdhury, University of Texas Rio Grande Valley, and Tamara Kucherenko, City College of New York.

Fusion Categories and Quantum Symmetries, Julia Plavnik, Texas A&M University, Paul Bruillard, Pacific Northwest National Laboratory, and Eric Rowell, Texas A&M University.
Gaussian Graphical Models and Combinatorial Algebraic Geometry, Rainer Sinn, Georgia Institute of Technology, Seth Sullivant, North Carolina State University, and Josephine Yu, Georgia Institute of Technology.

Graphs and Matrices, Sudipta Mallik, Northern Arizona University, Keivan Hassani Monfared, University of Calgary, and Bryan Shader, University of Wyoming.

Group Actions and Geometric Structures, Anna Wiendahl, Universität Heidelberg, and Jeffrey Danciger, University of Texas at Austin.

Group Representations and Cohomology, Hung Nguyen, The University of Akron, Nham Ngo, The University of Arizona, Andrei Pavelescu, University of South Alabama, and Paul Sobaje, University of Georgia.

Harmonic Analysis (In Honor of Gestur Olafsson’s 65th Birthday), Jens Christensen, Colgate University, and Susanna Dann, Technische Universität Wien-Vienna, Austria.

History of Mathematics, Adrian Rice, Randolph-Macon College, Sloan Despeaux, Western Carolina University, and Daniel Otero, Xavier University (AMS-MAA-ICHM).

Hopf Algebras and their Actions, Henry Tucker, University of California, San Diego, Susan Montgomery, University of Southern California - Los Angeles, and Siu-Hung Ng, Louisiana State University.

Inverse Problems and Applications, Vu Kim Tuan and Amin Boumenir, University of West Georgia.

Inverse Problems and Multivariate Signal Analysis, M. Zuhair Nashed, University of Central Florida, Willi Freeden, University of Kaiserslautern, and Otmar Scherzer, University of Vienna.

Lie Group Representations, Discretization, and Gelfand Pairs (a Mathematics Research Communities Session), Matthew Dawson, CIMAT, Holley Friedlander, Dickenson College, John Hutchens, Winston-Salem State University, and Wayne Johnson, Truman State University.

Mapping Class Groups and their Subgroups, James W. Anderson, University of Southampton, UK, and Aaron Wootton, University of Portland.

Mathematics and Music, Mariana Montiel, Georgia State University, and Robert Peck, Louisiana State University.

Mathematics in Physiology and Medicine (a Mathematics Research Communities Session), Kamila Larripa, Humboldt State University, Charles Puelz, Rice University, Laura Strube, University of Utah, and Longhua Zhao, Case Western Reserve University.

Mathematics of Cryptography, Nathan Kaplan and Alice Silverberg, University of California, Irvine (AMS-MAA).

Mathematics of Signal Processing and Information, Rayan Saab, University of California, San Diego, and Mark Iwen, Michigan State University.

Measure and Measurable Dynamics (In Memory of Dorothy Maharam, 1917–2014), Cesar Silva, Williams College.

Minimal Integral Models of Algebraic Curves, Tony Shaska, Oakland University.

NSF Discretizations: Recent Advances, Applications, and Unresolved Issues, Talitha M. Washington, Howard University, and Ronald E. Mickens, Clark Atlanta University.

New Developments in Noncommutative Algebra & Representation Theory, Ellen Kirkman, Wake Forest University, and Chelsea Walton, Temple University.

Nonlinear Systems and Applications, Wenrui Hao, Ohio State University.

Open & Accessible Problems for Undergraduate Research, Allison Henrich, Seattle University, Michael Dorff, Brigham Young University, and Nicholas Scoville, Ursinus College.

Operator Theory, Function Theory, and Models, William Ross, Florida Gulf Coast University, and Alberto Condor, University of Richmond.

Orthogonal Polynomials, Doron Lubinsky and Jeff Geronimo, Georgia Institute of Technology.

PDE Analysis on Fluid Flows, Xiang Xu, Old Dominion University, and Geng Chen and Ronghua Pan, Georgia Institute of Technology.

PDEs for Fluid flow: Analysis and Computation, Thinh Kieu, University of North Georgia, Emine Celik, Texas Tech University, and Hashim Saber, University of North Georgia.

Partition Theory and Related Topics, Amita Malik, University of Illinois at Urbana-Champaign, Dennis Eichhorn, University of California, Irvine, and Tim Huber, University of Texas-Rio Grande Valley.

Problems in Partial Differential Equations, Alex Himonas, University of Notre Dame, and Dionyssios Mantzavinos, State University of New York at Buffalo.

Public School Districts and Higher Education Mathematics Partnerships, Virgil U. Pierce and Aaron Wilson, University of Texas Rio Grande Valley.

Pure and Applied Talks by Women Math Warriors Presented by EDGE (Enhancing Diversity in Graduate Education), Candice Price, University of San Diego, and Amy Buchman, Tulane University.

Quantum Groups, Shuzhou Wang and Angshuman Bhattacharya, University of Georgia.

Quaternions, Johannes Hamilton, Borough of Manhattan Community College, Terrence Blackman, Medgar Evers College, and Chris McCarthy, Borough of Manhattan Community College.

RE(UF)search on Graphs and Matrices, Cheryl Grood, Swarthmore College, Daniela Ferrero, Texas State University, and Mary Flagg, University of St. Thomas.

Random Matrices, Random Percolation and Random Sequence Alignments, Ruoting Gong, Illinois Institute of Technology, and Michael Damron, Georgia Institute of Technology.

Real Discrete Dynamical Systems with Applications, M. R. S. Kulenovic, University of Rhode Island, and Abdul-Aziz Yakubu, Howard University.

Recent Advances in Mathematical Biology, Zhisheng Shuai, University of Central Florida, Guihong Fan, Columbus State University, Andrew Nevisi, University of Central Florida, and Eric Numfor, Augusta University.

Recent Progress on Nonlinear Dispersive and Wave Equations, Dana Mendelson, Carlos Kenig, and Hao Jia, University of Chicago, Andrew Lawrie, University of California, Berkeley, Giigliola Staffilani, Massachusetts Institute of Technology, and Magdalena Czubak, University of Colorado Boulder.

Representations and Related Geometry in Lie Theory, Laura Rider, Massachusetts Institute of Technology, and Amber Russell, Butler University.

OCTOBER 2016

NOTICES OF THE AMS
Meetings & Conferences

Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, Darren A. Narayan, Rochester Institute of Technology, Tamas Forgacs, California State University, Fresno, and Ugur Abdulla, Florida Institute of Technology (AMS-MAA-SIAM).

Sheaves in Topological Data Analysis, Mikael Vejdemo-Johansson, CUNY College of Staten Island, Elizabeth Munch, University at Albany, SUNY, and Martina Scolamiero, École polytechnique fédérale de Lausanne.

Spectral Calculus & Quasilinear Partial Differential Equations, Shijun Zheng, Georgia Southern University, Marius Beceanu, State University of New York-Albany, and Tuoc Van Phan, University of Tennessee, Knoxville.

Spin Glasses and Disordered Media, Antonio Auffinger, Northwestern University, Aukosh Jagannath, New York University, and Dmitry Panchenko, University of Toronto.


Stochastic Matrices and Their Applications, Selcuk Koyuncu, University of North Georgia, and Lei Cao, Georgian Court University.

Stochastic Processes and Modelling, Erkan Nane, Auburn University, and Jebessa B. Mijena, Georgia College and State University.

Symmetries, Integrability, and Beyond, Maria Clara Nucci, Università di Perugia, Italy, and Sarah Post, University of Hawaii at Manoa.

Symplectic Geometry, Moment Maps and Morse Theory, Lisa Jeffrey, University of Toronto, and Tara Holm, Cornell University (AMS-AWM).

Teaching Assistant Development Programs: Why and How?, Solomon Friedberg, Boston College, Jessica Deshler, West Virginia University, Jeffrey Remmel, University of California, San Diego, and Lisa Townsley, University of Georgia.

The Mathematics of the Atlanta University Center, Talitha M. Washington, Howard University, Monica Jackson, American University, and Colm Mulcahy, Spelman College (AMS-NAM).

The Modeling First Approach to Teaching Differential Equations, Chris McCarthy, City University of New York, and Brian Winkel, US Military Academy, West Point.

Theory and Applications of Numerical Algebraic Geometry, Daniel Brake, University of Notre Dame, Robert Krone, Queen’s University, and Jose Israel Rodriguez, University of Chicago.

Topics in Graph Theory, Songling Shan, Vanderbilt University, and Xiaofeng Gu, University of West Georgia. Topology, Representation Theory, and Operator Algebras (A Tribute to Paul Baum), Efton Park and Jose Carion, Texas Christian University.

Women in Analysis (In Honor of Cora Sadosky), Alexander Reznikov, Vanderbilt University, Oleksandra Beznosova and Hyun-Kyoung Kwon, University of Alabama, and Katharine Ott, Bates College.

Women in Topology, Jocelyn Bell, Hobart and William Smith Colleges, Eleanor Ollhoff, University of Tennessee, Candice Price, University of San Diego, and Arunima Ray, Brandeis University.

AMS Sessions for Contributed Papers

There will be sessions of ten-minute contributed talks. Although an individual may present only one contributed paper at a meeting, any combination of joint authorship may be accepted, provided no individual speaks more than once on the program. Contributed papers will be grouped together by related subject classifications into sessions.

Submission of Abstracts for AMS Sessions

Authors must submit abstracts of talks through joint mathematicsmeetings.org/meetings/abstracts/abstract.pl?type=jmm. Indicate the number of authors for the paper, click on the “New Abstract” button, and you will be taken to the submission form. Simply follow the step-by-step instructions (read them carefully) until you receive your unique abstract receipt number. No submission is complete until you are given this number. The deadline for all submissions is September 20, 2016. Late papers cannot be accommodated. Please e-mail abstract@ams.org if you have questions. If you make an inquiry about your specific abstract, please include your abstract receipt number.

Other AMS Sessions

AMS Committee on the Profession Panel Discussion: Diversity and Inclusion in the Mathematical Sciences, organizers are Pamela Gorkin, Bucknell University; Monica Jackson, American University and John McCleary, Vassar College; Wednesday, 4:30–6:00 pm. Representation, recruitment and retention of a diverse set of students continue to be critical in higher education and in the workplace. To involve the best talent possible in the enterprise of mathematics, departments will need to bring the widest possible base of students to the field, nurturing students from marginalized communities and providing support for underrepresented students who choose to pursue a career in mathematics. From the panel we hope to hear how the speakers’ experiences and expertise can help us shape new approaches to the challenge of increasing diversity in the mathematical community. Moderator for this panel will be Helen G. Grundman, AMS. Panelists will include Carlos Castillo-Chavez, Arizona State University; Kristin Lauter, Microsoft Corporation and Talithia Williams, Harvey Mudd College.

Conversation on Nonacademic Employment, Thursday, 10:30 am–noon. This session will concentrate on how to find nonacademic positions, types of jobs, the interview process, work environments, and advancement opportunities. The discussion will be led by a panel of mathematical scientists working in government and industry.

MAA-AMS Joint Panel Session on Design (or improve) Preparation of Your Graduate Students to Teach: Using MAA’s CoMInDS Resource Suite, organized by Jessica Deshler, West Virginia University; Thursday, 10:35–11:55 am. CoMInDS is a MAA project, funded by the NSF, to support teaching-related professional development (PD) for beginning college mathematics instructors (CMIs),
e.g., graduate student teaching assistants. CoMInDS aims to provide resources and support networks for those: (1) who deliver the PD in their departments (2) who create PD materials for CMIs and (3) who conduct research on CMI PD. One component of the project is an online collection of instructional materials and research-related resources for use in CMI PD. In this session, we will illustrate how to use the resource suite to design PD programs for CMIs. We will provide an overview of the contents of the suite and then we will illustrate how to identify specific resources. In particular, we will provide a guided tour of how items from the resources suite can be used to create a pre-semester orientation session for new CMIs. We will also illustrate how to locate and use research-based resources from the suite, such as research articles, to use as readings and research reports that can be used to support the need for such programs. At the close of the session we will present opportunities for participants to get involved in the project and to contribute their own materials to the resources suite.

This panel is being organized and offered in conjunction with a complementary AMS Special Session on Saturday morning and afternoon, Teaching Assistant Development Programs: Why and How? (see AMS sessions).

Panelists are Jack Bookman, Duke University; Natasha Speer, University of Maine; Jessica Deshler, West Virginia University; and Sarah Schott, Duke University. This panel is sponsored by the MAA Committee on Professional Development and AMS-MAA Joint Committee on TAs and Part-Time Instructors.

AMS and SIAM Committees on Education Joint Panel Discussion: Broadening Research Experiences for Doctoral Students in the Mathematical Sciences, organized by Loek Helming, NC State University; Rachel Levy, Harvey Mudd College; Douglas Mupasiri, University of Northern Iowa and Suzanne L. Weekes, Worcester Polytechnic Institute; Thursday, 1:00–2:30 pm. AMS survey data demonstrate that a substantial portion of doctoral students are taking positions outside of academia. In this panel, we will hear about efforts to improve the training of mathematical sciences doctoral students by involving them in research activities outside of their main dissertation research in order to better them for a broader range of careers.

Programs have been designed to encourage connections between mathematical sciences and other academic departments, and between academia and business, industry, government and non-profits. The goal is to produce students who are able to recognize opportunities for the development of mathematics and statistics in problems originating in a variety of settings, and who can apply advance mathematics and statistics to help solve such problems. Panelists are Peter Constantin, Princeton University; Susan Minkoff, University of Texas at Dallas; Stephen Pankavich, Colorado School of Mines; and Carlos Tolmasky, Institute for Mathematics and its Applications, University of Minnesota.

Grad School Fair, Friday, 8:30–10:30 am. 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 60 graduate programs. If your school has a graduate program and you are interested in participating, for US$80 a table will be provided for your posters and printed materials (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. Co-sponsored by the AMS and MAA.

Who Wants to Be a Mathematician / National Contest, organized by Michael A. Breen, AMS, and William T. Butterworth, DePaul University; Saturday, 1:00 pm–2:45 pm. Show your support for ten of the nation’s best high school students as they compete for a US$5,000 first prize for themselves and US$5,000 for their school’s math department. Semifinals are at 1:00 pm and finals are at 2:00 pm. Come and match wits with the contestants.

Current Events Bulletin, organized by David Eisenbud, Mathematical Sciences Research Institute; Friday, 1:00 pm–5:00 pm. 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 will also be available online at www.ams.org/ams/current-events-bulletin.html after the conclusion of the meeting.

AMS Committee on Science Policy Panel Discussion: Grassroots Advocacy for Mathematics and Science Policy, organized by Jeffrey Hakim, American University; Douglas Mupasiri, University of Northern Iowa and Scott Wolpert, University of Maryland; Friday, 2:30–4:00 pm.

Congressional Fellowship Session, Friday, 4:30–6:30 pm. This fellowship provides a public policy learning experience, demonstrates the value of science-government interaction and brings a technical background and external perspective to the decision-making process in Congress. Learn more about this program and speak with current and former AMS Fellows. Application deadline for the 2017–18 AMS Congressional Fellowship is February 15, 2017.

Other AMS Events
Council, Tuesday, 2:30 pm.
Business Meeting, Saturday, 11:45 am. 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 13, 2016.

AMS Short Course on Random Growth Models
This two-day course will take place on Monday and Tuesday before the meeting actually begins. It is co-organized by Michael Damron, Georgia Institute of Technology; Firas Rassoul-Agha, University of Utah; and Timo Seppäläinen, University of Wisconsin-Madison. Michael Damron will give an Introduction to Random Growth Models in two lectures, followed by Jack Hanson, The City College of New York, Infinite Geodesics, Asymptotic Directions, and Busemann Functions; Philippe Sosoe, Harvard University, Concentration in First-Passage Percolation; Firas Rassoul-Agha, University of Utah, Busemann Functions, Geodesics, and the Competition Interface for Directed Percolation; Timo Seppäläinen, University of Wisconsin-Madison, Stationary Versions and Fluctuation Exponents for Exactly Solvable Models; and Ivan Corwin, Columbia University, KPZ Fluctuations in Exactly Solvable Models.

There are separate registration fees to participate in this course. Advance registration (before December 20, 2016): Member, US$112; Non-member, US$170; Student, unemployed, or emeritus, US$60. On-site registration: Member, US$146; Nonmember, US$200; Student, unemployed, or emeritus, US$81. Please see the complete Short Course article on page 1087 of this issue or go to www.ams.org/meetings/short-courses/short-course-general.

NSF-EHR Grant Proposal Writing Workshop
Developing a Competitive Proposal for NSF-EHR, Monday (two days before the first day of the JMM), 3:00 pm–6:00 pm. Workshop goals are to familiarize participants with current direction/priorities in EHR, familiarize participants with key EHR education research and development programs, consider common issues of competitive proposals, and prepare participants to write a competitive proposal. There is no registration fee for this workshop, but participants must register separately in advance. Please contact the AMS Washington Office at 401-455-4116 or amsdc@ams.org for further information.

Department Chairs Workshop
This annual one-day workshop for department chairs and leaders is held on Tuesday, 8:00 am–6:30 pm, the day before the JMM actually begins, and is designed to stimulate discussion on a wide 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 and fee to participate. Interested participants should also consider attending the NSF-EHR Grant Proposal Writing Workshop to be held on Monday, January 2. For further information, please contact the AMS Washington Office at 401-455-4116 or amsdc@ams.org.

100th Meeting of the MAA

MAA Invited Addresses
Jason Cantarella, University of Georgia, Random polygons, Grassmannians, and a problem of Lewis Carroll; Wednesday, 3:20 pm.
Ingrid Daubechies, Duke University, Mathematics for art investigation; Saturday, 3:00 pm (MAA-AMS-SIAM Gerald and Judith Porter Public Lecture).
Susan Holmes, Stanford University, Finding meaningful patterns: the decoding of the human microbiome; Saturday, 10:05 am.
Lillian Pierce, Duke University, From Gauss to today: class numbers and $p$-torsion in class groups of number fields; Thursday, 9:00 am.
Matthew Richey, St. Olaf College, Take what you have gathered from coincidence: understanding and using randomness; Friday, 1:00 pm (Lecture for Students).
Francis Su, Harvey Mudd College, Mathematics for human flourishing, Friday, 9:00 am (Retiring Presidential Address).
Laura Taalman, James Madison University, Math by design: 3D printing for the Working Mathematician; Wednesday, 2:15 pm.

Presentations by MAA Teaching Award Recipients
Friday, 2:30–3:50 pm, organized by MAA Secretary Barbara Faires, Westminster College, and MAA President Francis Su. Harvey Mudd 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
Current Trends in Mathematical and Computational Biology, organized by Raina Robeva, Sweet Briar College; Erin Bodine, Rhodes College; and Brian Walton, James Madison University; Saturday, 8:00–11:50 am. Mathematical and computational biology encompasses a diverse range of biological phenomena and quantitative methods for exploring those phenomena. The pace of research at this junction continues to accelerate and substantial advancements in problems from gene regulation, genomics, phylogenetics, RNA folding, evolution,
infectious disease dynamics, neuroscience, growth and control of populations, ecological networks, drug resistance modeling, and medical breakthroughs related to cancer therapies have increasingly ensued from utilizing mathematical and computational approaches. Our session on current trends will sample from this diversity of important questions from biology and medicine and their mathematical treatments, with a goal of maximizing the range of topics and research methods presented at the session. Mathematical approaches will include deterministic and stochastic continuous dynamical models, as well as finite dynamical systems and combinatorial and algebraic methods. This session is sponsored by BIO SIGMAA.

**L-functions and Other Animals**, organized by Caroline Turnage-Butterbaugh, Duke University, and Maria Nastasescu, Duke University; Part A: Friday, 8:00–10:50 am and Part B: Friday, 1:00 – 2:50 pm. The Riemann zeta function famously encodes the properties of the prime numbers, and generalizations of the zeta function, called L-functions, are ubiquitous in number theory. Yet like the Riemann zeta function, many properties of L-functions remain unproved. This session will highlight a variety of approaches to studying L-functions and to applying properties of L-functions to other problems in number theory. This session complements the MAA Invited Address by Lillian B. Pierce.

**Role of Modeling in Understanding Environmental Risks**, organized by Ben Fusaro, Florida State University; Wednesday afternoon. Systems and structures can collapse unexpectedly. The challenge is to quantitatively and qualitatively analyze such events and perhaps be in a better position to prevent or mitigate damage—e.g., dam collapse (Mariana, Brazil; Mosul, Iraq), mining & resource extraction (fracking, subsidence, ecosystem impact, occupational & public health), spread of disease (Ebola, TB, Zika, TB), nuclear power (Fukushima), etc. This session is sponsored by SIGMAA EM and and the SIAM Activity Group on the Mathematics of Planet Earth (SIAG/MPE).

**New Directions in Quantitative Literacy for General Education, in honor of Lynn Steen** organized by Catherine Crockett, Point Loma Nazarene University; Gary Franchy, Southwestern Michigan College; and Andy Miller, Belmont University; Saturday, 8:30–10:50 am. In a number of influential books, articles, and collaborations at the turn of the twenty-first century, Lynn A. Steen (1941–2015) laid the foundation for contemporary quantitative literacy education. In Mathematics and Democracy (2001), he wrote, “Quantitatively literate citizens...need a predisposition to look at the world through mathematical eyes ....Quantitative literacy empowers people by giving them the tools to think for themselves, to ask intelligent questions of experts, and to confront authority confidently.”

Over the last two decades, a number of mathematicians have written new textbooks, designed new courses, founded or revived journals, connected quantitative literacy to new social contexts, and used quantitative literacy to reframe developmental mathematics. In this session, we will hear from some of these innovators and consider the future of quantitative literacy in general education programs. This session is sponsored by SIGMAA QL.

**Office Hours with a Geometric Group Theorist**, organized by Dan Margalit, Georgia Tech, and Matthew Clay, University of Arkansas; Part A: Wednesday, 9:00 – 10:50 am and Part B: Wednesday, 2:15–4:35 pm. Each talk will be a broadly accessible introduction to some topic within the exciting world of geometric group theory. The speakers are all contributing authors of the forthcoming introductory textbook Office Hours with a Geometric Group Theorist.

**Random Polygons and Knots**, organized by Jason Cantarella, University of Georgia; Thursday morning. Random knotting occupies an interesting corner of the intersection of mathematics, physics, and biology, as it provides a foundational model for knotted polymers like DNA. Recently, it has been proposed as a potentially powerful method for constructing examples in knot theory as well. The field has seen a lot of progress in recent years as new techniques are imported from other areas of mathematics and old problems solved. One of the appealing features of the area is that many of the techniques and arguments are fairly understandable for a general mathematical audience. In this session, a cross-section of speakers will deliver accessible talks from a variety of perspectives on the subject. This MAA Invited Paper Session accompanies Jason Cantarella’s invited address on the same topic.

**Research in Improving Undergraduate Mathematical Sciences Education: Examples Supported by the National Science Foundation’s IUSE: EHR Program**, organized by Ron Buckmire, John Haddock, Teri (TJ) Murphy, Sandra Richardson, and Lee Zia, National Science Foundation; Directorate for Education and Human Resources; Division of Undergraduate Education; Friday, January 6, 8:00–10:50 am. In this Invited Paper Session, research and findings will be presented from projects funded by the National Science Foundation Division of Undergraduate Education’s Improving Undergraduate STEM Education (IUSE) Program. The purpose of this session is to provide a venue for the mathematical sciences community to share recent research from innovations related to undergraduate mathematical sciences.

The session will highlight research from ongoing IUSE-funded projects, with a focus on the study of the teaching and learning of undergraduate mathematical sciences. Session topics will include research findings from one or more of the following themes related to undergraduate mathematical sciences education: (1) Systemic structures to support effective teaching and broadening participation; (2) Curricular and pedagogical innovations to strengthen student experiences in mathematical sciences learning; and (3) Effective use of digital tools and other sources as teaching and learning resources. Because some projects...
are in early stages of project development and analysis, research findings may be preliminary.

Technical Tools for Mathematical 3D Printing, organized by Elizabeth Denne, Washington & Lee University, and Laura Taalman, James Madison University; Thursday, 1:00–4:15 pm. Speakers will go through the nitty-gritty technical details involved in designing mathematical models for 3D printing, including the strengths and quirks of using software such as Rhino, Grasshopper, Cinema4D, and OpenSCAD. Session participants will learn multiple ways to produce models that reflect and illustrate their own mathematical research.

MAA Minicourses

MAA 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 should read the descriptions of each minicourse thoroughly as some require participants to bring their own laptops and special software; laptops will not be provided in any minicourse. The enrollment in each minicourse is limited to 50; the cost is US$100.

Minicourse #1. Complex Analysis and Geometry/Topology as Introductions to Proofs Courses, presented by Neelesh Tiruviluamala, University of Southern California; David Crombecque, University of Southern California; Part A, Wednesday, 4:45–6:45 pm, and Part B, Friday, 3:30–5:30 pm. An "Introduction to Proofs" course is valuable for young math majors who are transitioning to more rigorous areas in the curriculum. Several departments lack the resources to implement such a course. Furthermore, students often do not have the time or the necessary units to incorporate such a course into their four-year plan. Complex Analysis and Geometry/Topology courses are natural substitutes because the material involved is inspiring, accessible, and not always intuitive. As such, students discover for themselves that they cannot always rely on their intuition and this organically leads to several tractable and elucidating proofs. Furthermore, Complex analysis and Geometry/Topology incorporate concepts and proof techniques from a wide range of mathematical subjects. This minicourse will provide instructors with the specific tools necessary to extend their Complex analysis and Geometry/Topology courses to function dually as introduction to proofs courses.

Minicourse #2. Directing Undergraduate Research, presented by Aparna Higgins, University of Dayton; Part A, Wednesday, 2:15–4:15 pm, and Part B, Friday, 1:00–3:00 pm. This minicourse is designed as a guide for faculty who are interested in directing undergraduate research at their own institutions during the academic year, and who are new to directing undergraduate research. The minicourse will cover many aspects of facilitating research by undergraduates, such as getting students involved in research, finding appropriate problems, deciding how much help to provide, and presenting and publishing the results. Ideas for short projects will be provided. Certain questions, that can be used to generalize research in any area 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 #3. Flipping your Linear Algebra Course using Open Educational Resources, presented by Sarah Eichhorn, University of California, Irvine; David Farmer, American Institute of Mathematics; Jim Fowler, The Ohio State University; and Petra Bonfert-Taylor, Dartmouth College; Part A, Wednesday, 2:15–4:15 pm, and Part B, Friday, 1:00–3:00 pm. The flipped classroom is an instructional strategy in which instructional content is delivered outside of class (often online) and classroom time is utilized for activities traditionally done as homework. Open educational resources (OERs) are openly licensed, online course materials that can be freely used by instructors and students. Participants in this minicourse will learn to design a flipped mathematics course using OERs. We will specifically focus building a flipped linear algebra course using a particular set of OER materials, however the instructional strategies learned in this workshop would apply equally well to other mathematical subject areas. Upon completion of this minicourse, participants will be able to apply best practices in flipped classroom design, identify appropriate OER materials for their mathematics courses, design assessments to check for knowledge of pre-class content, facilitate an active, problem-solving based classroom session, and utilize a particular set of linear algebra OER materials and provide meaningful feedback for the continuous improvement of these community resources.

Minicourse #4. Incorporating Randomization Methods into Introductory Statistics, presented by Patti Frazer Lock, St. Lawrence University; Robin H. Lock, St. Lawrence University; Allan Rossman, Cal Poly–San Luis Obispo; Beth Chance, Cal Poly–San Luis Obispo; Soma Roy, Cal Poly–San Luis Obispo; Part A, Wednesday, 9:00B–11:00 am, and Part B, Friday, 9:00–11:00 am. The goal of this minicourse is to help participants see how to use simulation-based methods to introduce students to concepts of statistical inference in an introductory statistics course. The Common Core State Standards in Mathematics recommend these methods, so instructors teaching pre-service teachers are particularly welcomed. Through easy to use free online tools and class activities, participants will see how to engage students and make these methods readily accessible. We illustrate how to use these methods to build conceptual understanding and how to integrate them into an existing introductory statistics course without requiring a major overhaul. This course is sponsored by the SIGMAA on Statistics Education.

Minicourse #5. Introductory Proposal Writing for Grant Applications to the National Science Foundation EHR Division of Undergraduate Education, presented by Ron Buckmire, John Haddock, Teri Jo Murphy, Sandra Richardson, and Lee Zia, Division of Undergraduate Education, National Science Foundation; Part A, Wednesday, 2:15–4:15 pm, and Part B, Thursday, 9:00–11:00 am. Presenters will describe the general NSF grant proposal process and consider particular details relevant to programs in the Division of Undergraduate Education. This short course is geared towards those who have not
submitted a proposal to NSF and are unfamiliar with the organization. If you believe you have an idea, project or program worthy of Federal support that will positively impact undergraduate education in mathematics you should attend this session. This two-part short course will provide information on the specific components of a NSF proposal, demonstrate the NSF peer review process, provide access to previously funded proposals and explicate the NSF merit review criteria by which proposals are reviewed. Participants should leave this short course with a draft of a project summary.

Minicourse #6. Linear Algebra in Computer Graphics and Data Mining, presented by Tim Chartier, Davidson College; Part A, Wednesday, 4:45–6:45 pm, and Part B, Friday, 3:30–5:30 pm. This minicourse is designed to help participants who wish to integrate linear algebra applications into classes. Application topics will range from those that require little mathematical background (such as submatrices, matrix arithmetics) which would be suitable in a first year seminar or general education course, to more sophisticated topics (eigenanalysis, singular value) that can supplement a linear algebra course or elective course for mathematics majors or minors. Examples will come from computer graphics and data mining. Participants will find many of the issues covered are discussed in the MAA published book When Life is Linear: From Computer Graphics to Bracketology by Tim Chartier and on the free edX MOOC Applications of Linear Algebra Parts 1 and 2 created through a partnership through Davidson College and edX. This course is sponsored by the MAA Subcommittee on Mathematics Across the Disciplines (MAD)

Minicourse #7. Mathematical Modeling Contest Papers: Insights for Instructors and Students, presented by Gregory Rhoads, Appalachian State University; William Bauldry, Appalachian State University; Part A, Thursday, 1:00–3:00 pm, and Part B, Saturday, 1:00–3:00 pm. Mathematical modeling has been identified as an important connection between classroom mathematical content and the types of problems that could be encountered in future employment. Modeling contests gives students an experience solving “real-world” type problems and participation in these contests has been steadily increasing in the past decade. This minicourse will give the participants insight into what constitutes a good paper for these contests. Participants will read a stratified set of papers from an actual contest and analyze them for strengths and weaknesses, which will then be compared to comments from actual contest graders. The course will include discussions about the modeling process and how this process is reflected in the submissions, ideas for creating and assessing modeling problems used as classroom assignments, and how to prepare a team for a contest. This minicourse is intended for both students and faculty. A limited number of scholarships are available for undergraduate students interested in attending this minicourse. Please contact Gregory Rhoads at rroadsgs@appstate.edu for more information.

Minicourse #8. (Re)Designing Your Own Mathematics Course using Backwards Course Design, presented by Joel Kilty, Centre College and Alex M. McAllister, Centre College; Part A, Wednesday, 9:00–11:00 am, and Part B, Friday, 9:00–11:00 am. As mathematics faculty, we are often tasked with designing, or redesigning, courses to meet the specific needs of the students at our institutions. However, our educational background is typically in mathematics and we have little formal training in or experience with educational theory. This minicourse introduces “backwards” course design theory and provides participants with a workshop type atmosphere to begin the process of designing or redesigning a course of their choice through a process of articulating (1) the goals for their course, (2) acceptable evidence of goal attainment, and (3) learning experiences as specific approaches to achieving these goals.

Minicourse #9. Statistical Education of Teachers; presented by Anna E. Bargagliotti, Loyola Mount University; Christine Franklin, University of Georgia; Denise Spangler, University of Georgia; Part A, Thursday, 9:00–11:00 am and Part B, Saturday, 9:00–11:00 am. The Common Core State Standards for Mathematics place a large emphasis on statistics, especially in the middle- and high-school grades. Although statistics has been included as an important branch of K–12 mathematics education, there is a great need for preparing and supporting teachers trying to integrate statistics learning into the classroom. The American Statistical Association commissioned the Statistical Education of Teachers (SET) report to clarify the statistics teachers must know to effectively address current K–12 needs. At many institutions preservice and inservice teachers, particularly pre-K–8 teachers, learn their statistics content in mathematics courses. Thus, it is imperative that mathematicians and mathematics educators be well-versed in issues of statistics education so that they can orchestrate conversations with statisticians and those who teach mathematics content courses about the statistical preparation of teachers. This minicourse will present the recommendations of the SET report. Participants will work through grade-band specific examples, examine teacher work, and discuss difficulties and potential “roadblocks” that could emerge. This course is sponsored by the SIGMAA on Statistics Education.

Minicourse #10. Teaching an Applied Topology Course, presented by Colin Adams, Williams College and Robert Franzosa, University of Maine; Part A, Thursday, 9:00–11:00 am, and Part B, Saturday, 9:00–11:00 am. Applications of topology have proliferated in recent years. It is now possible to teach a course in topology, still covering much of the same material that would appear in a traditional topology course, but motivated entirely by applications. Typically, offering an “applied” topology course immediately doubles the enrollments. Applications include areas such as geographic information systems, robotics, chaos, fixed point theory in economics, knots in DNA and synthetic chemistry, and the topology of the spatial universe. Through the applications, students become engaged with the material. In this minicourse, we will introduce the various applications, and provide participants with the background necessary to design and teach their own applied topology course.
Minicourse #11. Teaching an Introduction to the Mathematics of Computer Graphics, presented by Nathan C. Carter, Bentley University; Part A, Thursday, 9:00–11:00 am, and Part B, Saturday, 9:00–11:00 am. This minicourse introduces a project-based, general-population elective on the mathematics of computer graphics. Participants will see some new mathematics and receive a course outline and syllabus, and more importantly, a hands-on introduction to the free software used in the course projects. The minicourse also covers how to extend the course for more advanced audiences, such as mathematics majors or computer science majors. The free software POV-Ray has been around for decades, but is still updated and released today. It creates realistic 3D images and animations from mathematical descriptions of the objects in a scene. This requires students to master the mathematical content in pursuit of their creative goals, but also gives them immediate and enjoyable practical applications of that content. Students no longer ask, “What is this good for?” They immediately see the purpose of the mathematics in their own creative projects, and in the computer graphics industry. Participants receive a list of suggested student projects with grading rubrics, interactive online tools, references for further reading, and more. Prerequisites for this general-population course are algebra and polynomial differentiation; linear algebra and/or computer programming are not required.

Minicourse #12. Teaching Introductory Statistics, GAISE 2016, presented by Carolyn K. Cuff, Westminster College; Part A, Wednesday, 9:00–11:00 am, and Part B, Friday, 9:00–11:00 am. This minicourse, intended for instructors new to teaching statistics, exposes participants to the big ideas of statistics and the 2016 Guidelines for Assessment and Instruction in Statistics Education (GAISE) recommendations. It considers ways to engage students in statistical thinking, and emphasizes the contrast between conceptual and procedural understanding in the first statistics course. Participants will engage in many of the classic activities that all statistics instructors should know. A set of approximately 6–8 hands-on classroom-ready activities will be given to participants. Parts of each activity will be done by the participants, other parts will be summarized by the presenter and the main statistical ideas of the activity will be explained to the participants. The activities have been chosen so that they require minimal adaptation for a wide variety of classrooms, use freely available applets and other software and are easy to implement. Each activity includes goals, key ideas, prerequisite skills and concepts, connection to other statistical concepts, objectives, known student difficulties and assessment questions. Internet sources of real data, activities, and best practices articles will be examined. An annotated list of additional resources will be discussed. This course is sponsored by the SIGMAA on Statistics Education and the MAA-ASA Joint Committee on Undergraduate Statistics.

Minicourse #13. Teaching Modeling-First Differential Equations—Technology and Complete End Game Efforts, presented by Brian Winkel, SIMIODE; Rosemary Farley, Manhattan College; Jon Paynter, US Military Academy; Therese Shelton, Southwestern College; and Patrice Tiffany, Manhattan College; Part A, Thursday, 1:00–3:00 pm, and Part B, Saturday, 1:00–3:00 pm. We offer experiences for building and teaching mathematical models with differential equations: epidemic model of school infirmary, Torricelli’s Law, fishery management effort, post-operative retinal fluid dissipation, fair stadium design, sublimation of carbon dioxide, chemical kinetics, ant tunnel building, spread of oil slick, pursuit efforts, pharmacokinetics of LSD and paracetamol, shuttlecock fall, and lake algae. We discuss the role technology plays in the end game modeling efforts of parameter estimation, non-linear regression analysis, and model comparison. Through hands-on small group learning, faculty will experience the use of modeling and technology to teach differential equations. We use SIMIODE—Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations, an online (www.simiode.org) community of teachers.

Minicourse #14. Teaching Quantitative Reasoning with Common Sense and Common Knowledge, presented by Ethan D. Bolker, UMass Boston; Maura B. Mast, Fordham University; Part A, Wednesday, 2:15–4:15 pm, and Part B, Friday 1:00–3:00 pm. Ten years from now, what do you want or expect your Quantitative Reasoning students to remember? Our answers to this question profoundly shaped our approach to teaching Quantitative Reasoning. We realized that in ten years, what matters will be how students approach a problem using the tools they carry with them – common sense and common knowledge – not the particular mathematics we chose for the curriculum. That changed how and what we teach. In this interactive minicourse we will provide hands-on experience with class activities using our approach, discuss issues in teaching and learning quantitative reasoning, and practice creating examples and exercises from current news. New and experienced instructors will learn how to craft classes and problems that will help their students come to grips with numbers in the news while learning the necessary mathematics. This course is sponsored by SIGMAA QL.

Minicourse #15. Unraveling Four Interesting Ciphers, presented by Chris Christensen, Northern Kentucky University; and Jeffrey Ehme, Spelman College; Part A, Thursday, 1:00–3:00 pm, and Part B, Saturday, 1:00–3:00 pm. This minicourse will explore four cryptologically, historically, and mathematically interesting ciphers: the running key cipher, rotor machine ciphers, the Playfair cipher, and the ADFGX and ADFGVX ciphers. Running key ciphers were used by spies; the Playfair and ADFGX and ADFGVX ciphers were used during World War I; and machine ciphers, like the German Enigma, dominated cryptography from the 1920s until the 1970s. For each cipher, the method of enciphering will be explained and a method of attack will be discussed.

Minicourse #16. Using and Making Integrated Online Textbooks with MathBook XML, presented by Karl-Dieter Crisman, Gordon College; Part A, Wednesday, 4:45–6:45 pm, and Part B, Friday, 3:30–5:30 pm. In this minicourse participants will learn how to effectively use online textbooks authored with the AIM-sponsored MathBook XML (MBX, mathbook.pugetsound.edu/), as well as to begin creating their own course supplements with this
tool. First, we will explore the power of having online (and print) texts in subjects from Abstract Algebra to Calculus with embedded online WeBWorK problems and Sage computational cells. In the second session, participants will try their hands at creating a small supplement to one of their own classes using MBX, experiencing the “write once, read anywhere” philosophy that creates output in print, pdf, webpages, and computational notebooks. In both cases, the presenter’s own free Number Theory text will be used as a case study of how to create a project like this. No previous experience with Sage or WeBWorK necessary; you should be ready to try a few necessary command line tools. You will need to bring a wireless-enabled laptop, and will receive instructions regarding software in pre-workshop correspondence. This course is sponsored by the MAA Committee on Technology in Mathematics Education (CTiME).

MAA Contributed Papers
The MAA Committee on Contributed Paper Sessions solicits papers pertinent to the sessions listed below. Contributed Paper Session presentations are limited to fifteen minutes, except in the general session where they are limited to ten minutes. Each session room is equipped with a computer projector and a screen. Please note that the days and times scheduled for these sessions remain tentative. Several of these sessions have specific suggestions for the appropriateness of submissions. Potential submitters are advised to read the full descriptions of these sessions at jointmathematicsmeetings.org/meeting/national/jmm2017/2180_maacall. The deadline for submission of abstracts is Tuesday, September 20, 2016.

MAA Contributed Paper Sessions with Themes
The Advancement of Open Educational Resources, organized by Benjamin Atchison, Framingham State University; and Jeremy Russell, The College of New Jersey; Saturday morning.

Assessment in Distance Learning Environments, organized by Miriam Harris-Bozum, Lehigh Carbon Community College; William O. Martin, North Dakota State University; Sarah Cook, Washburn University; and Semra Kilic-Bahi, Colby-Sawyer College; Wednesday afternoon. Sponsored by the MAA Assessment Committee.

The Creation and Implementation of Effective Homework Assignments, organized by Sarah Greenwald, Appalachian State University; and Judy Holdener, Kenyon College; Saturday morning. Sponsored by Problems, Resources, and Issues in Undergraduate Mathematics Studies (PRIMUS).

Cryptography for Undergraduates, organized by Robert Lewand, Goucher College; Joshua Holden, Rose-Hulman Institute of Technology; and Chris Christensen, Northern Kentucky University; Wednesday morning.

Discrete Mathematics in the Undergraduate Curriculum - Ideas and Innovations for Teaching, Organized by John S. Caughman, Portland State University; Elise Lockwood, Oregon State University; and Art Duval, University of Texas El Paso; Saturday afternoon.

Do Mathematicians Really Need Philosophy?, organized by Bonnie Gold, Monmouth University; and Carl Behrens, Alexandria VA; Saturday afternoon. Sponsored by POM SIGMAA.

Humanistic Mathematics, organized by Eric S. Marilyn, Appalachian State University; and Gizem Karaali, Pomona College; Thursday afternoon. Sponsored by the MAA Committee on Curriculum Renewal Across the First Two Years (CRAFTY) and the Journal of Humanistic Mathematics.

Humor and Mathematics, Organized by Debra K. Borkovitz, Wheelock College; Gizem Karaali, Pomona College; Semra Kilic-Bahi, Colby-Sawyer College; and Cesar Martinez-Garza, Penn State Berks; Friday morning.

Incorporating Big Data Ideas in the Mathematics and Statistics Classroom, organized by Sue Schou, Idaho State University; Stacey Hancock, University of California, Irvine; and Patti Frazer Lock, St. Lawrence University; Thursday afternoon. Sponsored by the SIGMAA on Statistics Education.

Innovative and Effective Ways to Teach Linear Algebra, organized by Megan Wawro, Virginia Tech; Gil Strang, MIT; and David Strong, Pepperdine University; Friday morning.

Innovative Strategies to Inspire & Prepare Potential STEM Majors Who Are Not Yet Ready for Calculus, organized by Rebecca Hartzler, Seattle Central College; Suzanne I. Doree, Augsburg College; Frank Savina, University of Texas at Austin; and Michael Oehrtman, Oklahoma State University; Thursday afternoon. Sponsored by the MAA Committee on Curriculum Renewal Across the First Two Years (CRAFTY).

Innovative Teaching through Recreational Mathematics, organized by Matthew Jura, Manhattan College; Tyler Markkanen, Springfield College; and Oscar Levin, University of Northern Colorado; Wednesday morning.

Inquiry-Based Teaching and Learning, Organized by Brian P. Katz, Augustana College; Judith Covington, Louisiana State University in Shreveport; Theron Hitchman, University of Northern Iowa; Angle Hodge, University of Nebraska Omaha; Alison Marr, Southwestern University; and Victor Piercey, Ferris State University; Friday afternoon. Sponsored by the SIGMAA IBL.

Integrating Research into the Undergraduate Classroom, organized by Timothy B. Flowers, Indiana University of Pennsylvania; and Shannon R. Lockard, Bridgewater State University; Thursday morning.

Intertwining Mathematics with Social Justice in the Classroom, organized by Joanna Wares, University of Pennsylvania; and Shari Klimek, Southwestern University; Thursday afternoon. Sponsored by the SIGMAA Statistics Classroom.
Richmond; Carl Yerger, Davidson College; Zeynep Teymuroglu, Rollins College; and Catherine Buell, Fitchburg State University; Saturday morning. Sponsored by Problems, Resources, and Issues in Undergraduate Mathematics Studies (PRIMUS).

**Mathematical Technology in the Calculus Classroom**, organized by Joel Kilty and Alex M. McAllister, Centre College; Thursday morning.

**Mathematics and the Arts**, organized by Douglas Norton, Villanova University; Wednesday morning. Sponsored by the SIGMAA on Mathematics and the Arts.

**Mathematics and Sports**, organized by Drew Pasteur, College of Wooster; and John David, Virginia Military Institute; Wednesday afternoon.


**Meaningful Modeling in the First Two Years of College**, organized by Stuart Boersma, Central Washington University; and Jason Douma, University of Sioux Falls; Thursday morning. Sponsored by MAA Mathematics Across the Disciplines (MAD) Subcommittee and the MAA Curriculum Renewal Across the First Two Years (CRAFTY) Subcommittee.

**Methods of Engaging Math Learners with Physical Impairments**, organized by Rebekah Gilbert and Steven Schluchter, George Mason University; Thursday afternoon.

**Modern Data Sets for the Intro Statistics Classroom and Beyond**, organized by Sue Schou, Idaho State University; Stacey Hancock, University of California, Irvine; and Patti Frazer Lock, St. Lawrence University; Friday afternoon. Sponsored by the SIGMAA on Statistics Education.

**PIC Math and Preparing Students for Nonacademic Careers**, organized by Suzanne Weekes, Worcester Polytechnic Institute; Michael Dorff, Brigham Young University; and Elly Farnell, Kenyon College; Saturday morning. Sponsored by the MAA BIG committee, BIG SIGMAA, and SIAM.

**Preparing Pre-service and In-service Teachers to Support the Common Core State Standards Assessments**, organized by Bonnie Gold, Monmouth University; Karen Morgan, New Jersey City University; and Gulden Karakok, University of Northern Colorado; Friday afternoon.

**Preserving and Writing the History of Mathematics Departments**, organized by Toke Knudsen, SUNY Oneonta; and Lawrence D’Antonio, Ramapo College; Friday morning. Sponsored by the HOM SIGMAA.

**Proofs and Mathematical Reasoning in the First Two Years of College**, organized by Dean Gooch, Santa Rosa Junior College; Chris Oehrlein, Oklahoma City Community College; and Joanne Peeples, El Paso Community College; Thursday morning. Sponsored by the MAA Committee on Two-Year Colleges.

**Research in Undergraduate Mathematics Education (RUME)**, organized by Karen Keene, North Carolina State University; and Megan Wawro, Virginia Tech; Thursday morning and afternoon. Sponsored by the SIGMAA RUME.

**Revitalizing Complex Analysis**, organized by Russell W. Howell, Westmont College; and Paul Zorn, St. Olaf College; Friday morning.

**The Scholarship of Teaching and Learning in Collegiate Mathematics**, organized by Jacqueline Dewar, Loyola Marymount University; Thomas Banchoff, Brown University; Curtis Bennett, Loyola Marymount University; Pam Crawford, Jacksonville University; and Edwin Herman, University of Wisconsin-Stevens Point; Wednesday morning and afternoon.

**Successful Implementation of Innovative Models for Developmental and General Education Mathematics**, organized by Christopher Oehrlein, Oklahoma City Community College; Phil Mahler, Middlesex Community College; Tom Hagedorn, The College of New Jersey; and Christina H. Lee, Oxford College of Emory University; Thursday afternoon. Sponsored by the MAA Committee on Two-Year Colleges.

**Teaching Abstract Algebra: Topics and Techniques**, organized by Kristi Meyer, Wisconsin Lutheran College; and Jessie Lenarz, St. Catherine University; Wednesday afternoon.

**The Teaching and Learning of Undergraduate Ordinary Differential Equations**, organized by Christopher S. Goodrich, Creighton Preparatory School; and Beverly H. West, Cornell University; Saturday afternoon. Sponsored by the Community of Ordinary Differential Equations Educators (CODEE).

**Trends in Undergraduate Mathematical Biology Education**, organized by Timothy D. Comar, Benedictine University; and Daniel Hrozencik, Chicago State University; Friday afternoon. Sponsored by the SIGMAA on Mathematical and Computational Biology.

**Unexpected Topics for a Math Circle**, organized by Robert M. Klein, Ohio University; and Phillip Yasskin, Texas A&M University; Friday morning. Sponsored by the SIGMAA MCST.

**Women in Mathematics**, organized by Semra Kilic-Bahi, Colby-Sawyer College; Meghan De Witt, St. Thomas Aquinas College; and Kim Roth, Juniata College; Saturday afternoon.

**General Contributed Paper Sessions**, organized by Emelie Kenney, Siena College; Kimberly Presser, Shippensburg University; and Melvin Royer, Indiana Wesleyan University; Wednesday, Thursday, Friday, and Saturday, mornings and afternoons. These sessions accept...
contributions in all areas of mathematics, curriculum, and pedagogy. When you submit your abstract you will be asked to classify it according to the following scheme: Algebra; Analysis; Applied Mathematics; Assessment; Geometry; Graph Theory; History or Philosophy of Mathematics; Interdisciplinary Topics in Mathematics; Linear Algebra; Logic and Foundations; Mathematics and Technology; Mentoring; Modeling and Applications; Number Theory; Outreach; Probability and Statistics; Teaching and Learning Advanced Mathematics; Teaching and Learning Calculus; Teaching and Learning Developmental Mathematics; Teaching and Learning Introductory Mathematics; Topology; or Other.

An Electronic Poster Session

*Me and My Gadgets—Teaching with Technology,* organized by Karl R. B. Schmitt, Valparaiso University; John Travis, Mississippi College; Thomas Hagedorn, The College of New Jersey; and Michael Scott, California State University at Monterey Bay; Saturday, 10:00–11:55 am. Constantly changing technology presents an exciting and shifting opportunity to engage students and improve learning. This electronic poster session will consist of live, interactive demonstrations of applets, widgets or other technology for teaching mathematics. Rather than preparing a traditional printed poster, presenters will showcase how students engage mathematics through their application using some electronic device such as a tablet, smartphone, or laptop. Preference will be given to presenters demonstrating their own or new applications or to novel approaches in using existing ones.

In addition to the active displays, all participants will give a 3–5 minute “Lightning Talk” to demonstrate their application, highlighting where it fits into a mathematics curriculum. These will be scheduled in the middle of the session, and included in the program.

Abstracts should include a short description of the application/software (or a web-link to it) and explain the pedagogical use of the application.

Sponsored by the MAA Committee for Technology in Mathematics Education (CTiME) and Web SIGMAA.

Submission Procedures for MAA Contributed Paper Abstracts

Abstracts may be submitted electronically at jointmathematicsmeetings.org/meetings/abstracts/abstract.pl?type=jmm. Simply fill in the number of authors, click “New Abstract”, and then follow the step-by-step instructions. The deadline for abstracts submission is Tuesday, September 20, 2016.

Each participant may make at most one presentation in an MAA Contributed Paper Session, either a presentation in one of the themed sessions or a presentation in one of the general sessions. If your paper cannot be accommodated in the themed session for which it was submitted, it will automatically be considered for the general contributed paper sessions. 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. The session rooms are equipped with computer projectors and screens. Please note that the dates and times scheduled for these sessions remain tentative. Questions concerning the submission of abstracts should be addressed to abs-coord@ams.org.

**MAA Panels, Posters, Workshops, and Other Sessions**

*Refocusing Your Career: Making Time and Space,* organized by Brian P. Katz, Augustana College, and Rachelle Bouchat, Indiana University of Pennsylvania; Wednesday, 8:00–9:20 am. The ongoing work of an educator, scholar, colleague, leader, and advisor can and does fill all of the time we, as mathematicians, have to give. And yet, many of us have projects we are passionate about that we struggle to fit into this time, including issues of social justice, community outreach, exploration of novel areas of mathematics, and incorporation of students into our research. Some are struggling to make time rather than to make more time, while others are struggling to define the work of a mathematician so that it includes their passion projects. Panelists will discuss their varied experiences pursuing these kinds of projects and share advice that can help others navigate this career passage. There will be time for questions and discussion about applying these ideas to our own careers. This panel is sponsored by the MAA Project NExT Pine’09 cohort. Many members of this cohort are moving into phases of their careers in which both time pressures and self-determination have grown, making this issue particularly salient. While the needs of this group generated this panel, we intend the discussion to be accessible and useful for all conference attendees. Panelists are: Colin Adams, Williams College; Gizem Karaali, Pomona College; Katherine Socha, Park School of Baltimore; Michael Starbird, University of Texas at Austin; Laura Taalman, James Madison University; and Diana White, University of Colorado Denver. This panel is sponsored by MAA Project NExT.

**NSF Funding Opportunities for the Learning and Teaching of the Mathematical Sciences**, organizers and panelists are Ron Buckmire, John Haddock, Teri Jo Murphy, Sandra Richardson, and Lee Zia, Division of Undergraduate Education, NSF; Karen King, Division of Research on Learning, NSF; Tasha Inniss, Division of Human Resource Development, NSF; Tara Smith, Division of Graduate Education, NSF and Jennifer Slimowitz Pearl, Division of Mathematical Sciences, NSF. A number of NSF divisions offer a variety of grant programs that support innovations in learning and teaching in the mathematical sciences. These programs will be discussed along with examples of successful projects in two sessions. Anticipated budget highlights and other new initiatives for the next fiscal year, as appropriate, will also be presented. These programs will be discussed in two sessions.

**Part I: Undergraduate/Graduate Education, Department of Mathematics Infrastructure, and Human Resource Development (DUE/DGE/DMS/HRD)**

Wednesday, 8:00–9:15 am, and

**Part II: The K–16 Continuum: Learning Science & Research and Pre- and In-Service Teachers (DUE/DRL)**

Wednesday, 9:30–10:30 am.
What Belongs in a Twenty-First Century Geometry Course?, organized by Stephen Kennedy, MAA Press; Wednesday, 9:35–10:55 am. The members of the panel are all well-known authors of successful textbooks for the college geometry course. Panelists will attempt to address all the relevant questions a faculty member teaching that course might face. What is the proper role of axiomatics? What topics are absolutely essential to include? What is important for future high-school teachers in your class to master? How does the Common Core affect the answer to that question? At what level should technology be used and what are some good options? Particular attention will be paid to the recommendations contained in the most recent MAA CUPM Guide. Panelists are: Matthew Harvey, University of Virginia College at Wise; Tom Sibley, St. John's University; and Gerard Venema, Calvin College.

What Every Student Should Know about the JMM, organized by Violeta Vasilevska, Utah Valley University; Wednesday, 2:15–3:35 pm. Navigating a large conference can be overwhelming, even for those who have previously attended such an event. Panelists Joyati Debnath, Winona State University; Michael Dorff, Brigham Young University; and Matt DeLong, Taylor University, will provide guidance for students attending the Joint Mathematics Meetings, including answers to some common questions: How do I get the most out of the program? What sessions are especially for students? What other events should I be on the lookout for? Will I understand any of the invited addresses or should I not bother attending them? If I am presenting a poster, where do I go to set it up? How can I get some cool, free math stuff? Students and their faculty mentors are encouraged to attend. Panelists are: Joyati Debnath, Winona State University; Michael Dorff, Brigham Young University; and Matt DeLong, Taylor University. This panel is sponsored by the MAA Committee for Undergraduate Student Activities and Chapters (CUSAC).

Preparing for the Data Deluge: Mathematics Programs and the Future of Undergraduate Statistics Education organized by Sue Schou, Idaho State University; Stacey Hancock, University of California, Irvine; and Patti Frazer Lock, St. Lawrence University; Wednesday, 2:15–3:35 pm. The McKinsey report states that “by 2018, the United States alone could face a shortage of 140,000 to 190,000 people with deep analytical skills as well as 1.5 million managers and analysts with the know-how to use the analysis of big data to make effective decisions.” With terms like “Big Data” and “Analytics” being used in the media and among academics, the question arises as to how to best prepare undergraduates for careers in statistics. Employers value statistics skills and the demand is high, perhaps higher than it has ever been due to the “data deluge.” In response, there is a trend in the growth of and creation of statistics undergraduate programs. Programs, especially those housed within mathematics departments, need to determine the best options to train and teach future statisticians. Our panel will host several members of the mathematics and statistics community who have created innovative curriculum and programs to meet the demand for statistics training. These panelists will share their experiences in creating programs in statistics, the advantages and disadvantages of creating separate Mathematics and Statistics majors, and how to incorporate new ASA guidelines for Statistics Programs into new or existing programs. Panelists are: Robin Lock, St. Lawrence University; Nicholas Horton, Amherst College; and K. Scott Alberts, Truman State University. This panel is sponsored by the SIGMAA on Statistics Education.

Professional Development at the Section Level: Section NEXT, Opportunities for Graduate Students, & More, organized by Julie Barnes, Western Carolina University; Benjamin V. C. Collins, University of Wisconsin-Platteville; Jessica Deshler, West Virginia University; Eric Eager, University of Wisconsin La Crosse; and David Torain, Hampton University; Wednesday, 3:50–5:10 pm. MAA sections can provide a great set of faculty-development resources for individuals throughout the entire spectrum of the mathematical community. For example, yearly or bi-yearly section meetings are a great place for faculty to interact and learn from each other without the expense of attending national meetings. Section NEXT retreats and panels offer early-career faculty with the opportunity to be mentored, without the time and financial commitment that come with national MAA Project NEXT. However, that’s the only thing that sections can do to provide professional development opportunities. In this panel, mathematicians from three different sections will share ideas from their Section NEXT programs; an additional panelist will discuss professional development being offered for graduate students in one section. We will include time at the end not only for questions, but also for people to share ideas about any form of professional development available in their sections. Panelists are: Brian Birgen, Wartburg College; Eric Eager, University of Wisconsin La Crosse; Jon Ernstberger, LaGrange College; and Sarah Frick, Furman University. This panel is sponsored by the MAA Committee on Professional Development; MAA Committee on Sections; MAA Committee on Early Career Mathematicians; and MAA Project NEXT.

Research Support Networks organized by Louis Deaett, Quinnipiac University; Wednesday, 3:50–5:10 pm. Faculty in the early and middle part of their careers may find it challenging to maintain an active program of scholarship that extends beyond their thesis work. A support network of fellow mathematicians with similar expectations of scholarship and background in a common area of mathematics can be vital to success. Diverse programs exist offering faculty opportunities to foster such research support networks. Panelists representing three such programs will share features that make each program unique, while panelists who have participated in one or more of these programs will speak to the benefits of their experiences. Panelists are: Margaret Cozzens, Rutgers University; Ulrica Wilson, Morehouse College/ICERM; Joyati Debnath, Winona State University; and T. Christine Stevens, American Mathematical Society. This panel is sponsored by the MAA Committee on Professional Development.

Bylaws for a New Century: Q&A Forum on Proposed Changes in MAA Governance, Thursday, 8:00 – 8:50 am. Come hear about and ask questions about the revised MAA bylaws which will be voted on at the Saturday MAA Business Meeting. Moderators for this forum are Jim...
Daniel, MAA Treasurer, and Matt Boelkins, MAA First Vice President.

Pushing for Change: the MAA and Advocacy, organized by Karen Saxe, Macalester College, and David Manderscheid, Ohio State University; Thursday, 9:00-10:20 am. This panel will update the community on the policy and advocacy activities of the Mathematical Association of America. After a broad overview of the history of policy and advocacy work of the MAA, we will discuss more recent work of the MAA Science Policy Committee, and future directions for this committee, the MAA, and indeed all professional associations moving forward working with both federal and state governments. Panelists for this session are: Daniel Goroff, Alfred P. Sloan Foundation; David Manderscheid, Ohio State University; and Michael Pearson, MAA.

MAA Session for Chairs: Data, Information, Knowledge using Annual Survey of Math Science & CBMS Survey, organized by Catherine M. Murphy, Purdue University Calumet, and Daniel Maki, Indiana University; Thursday, 9:00-10:35 am. This will be an interactive session for Chairs to learn how the AMS-ASA-MAA-SIAM Annual Survey of the Mathematical Sciences (ASMS) and the Conference Board of the Mathematical Sciences (CBMS) Survey are conducted and how to effectively use these and other surveys to address issues such as course enrollments, teaching loads, trends in hiring faculty, patterns in compensation, and diversity in the work force and student population. Participants will have the opportunity to work in groups and consult with presenters on questions of their own choosing or from a suggested list. Having a notebook computer with browser and spreadsheet application would be most useful during the consulting process. Panelists are: Thomas Barr, American Mathematical Society, and Ellen Kirkman, Wake Forest University. This panel is sponsored by the AMS-ASA-MAA-SIAM Joint Data Committee.

Mathematical Outreach Programs, organized by Elizabeth Yanik, Emporia State University; Thursday, 10:00 am -12:00 noon. This poster session is designed to highlight special programs which have been developed to encourage students 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. This poster session encompasses a wide variety of outreach efforts for a variety of age groups. For example, programs might be designed to reach out to underrepresented groups. The projects supported by MAA Tensor and Summa grants will find this an ideal venue in which to share the progress of their funded projects. Another possible type of outreach might involve mathematical enrichment programs. For example, recipients of Dolciani Mathematics Enrichment Grants might wish to highlight their programs. Other examples might include innovative programs to motivate undergraduates to study mathematics. We encourage everyone involved with offering mathematical outreach activities to consider submitting an abstract to the session organizer, Betsy Yanik, eyanik@emporia.edu.

Models for Mathematicians Working with K–12 Mathematics Teachers, organized by Ben Ford, Sonoma State University, and Debbie Gochenaur, Shippensburg University; Thursday, 10:35-11:55 am. In addition to work preparing teachers before they enter the classroom, many mathematical science departments are integral to professional development efforts for practicing teachers in their regions. Panelists will discuss successful models in which they participate, including statewide networks, masters programs for in-service teachers, math teacher circles, and national programs. Panelists are: James A. M. Epperson, The University of Texas at Arlington; Davida Fischman, California State University, San Bernardino; and Robert M. Klein, Ohio University. This panel is sponsored by the MAA Committee on the Mathematical Education of Teachers (COMET).

MAA-AMS Joint Panel Session on Design (or improve) Preparation of Your Graduate Students to Teach: Using MAA’s CoMInDS Resource Suite, organized by Jessica Deshler, West Virginia University; Thursday, 10:35-11:55 am. CoMInDS is a MAA project, funded by the NSF, to support teaching-related professional development (PD) for beginning college mathematics instructors (CMIs), e.g., graduate student teaching assistants. CoMInDS aims to provide resources and support networks for those: (1) who deliver the PD in their departments (2) who create PD materials for CMIs and (3) who conduct research on CMI PD. One component of the project is an online collection of instructional materials and research-related resources for use in CMI PD. In this session, we will illustrate how to use the resource suite to design PD programs for CMIs. We will provide an overview of the contents of the suite and then we will illustrate how to identify specific resources. In particular, we will provide a guided tour of how items from the resources suite can be used to create a pre-semester orientation session for new CMIs. We will also illustrate how to locate and use research-based resources from the suite, such as research articles, to use as readings and research reports that can be used to support the need for such programs. At the close of the session we will present opportunities for participants to get involved in the project and to contribute their own materials to the resources suite.

This panel is being organized and offered in conjunction with a complementary AMS Special session on Saturday morning and afternoon, Teaching Assistant Development Programs: Why and How? (see AMS sessions). Panelists are Jack Bookman, Duke University; Natasha Speer, University of Maine; Jessica Deshler, West Virginia University; and Sarah Schott, Duke University. This panel is sponsored by the MAA Committee on Professional Development and AMS-MAA Joint Committee on TAs and Part-Time Instructors.

Perspectives on Inquiry Based Learning: Novice, Experienced, and Master, organized by Theron J. Hitchman, University of Northern Iowa; Judith Covington, Louisiana State University Shreveport; Angie Hodge, University of Nebraska Omaha; Brian Katz, Augustana College; Alison Marr, Southwestern University; and Victor Piercey, Ferris State University; Thursday, 1:00 – 2:20 pm. Panelists will share their experiences in getting started
with Inquiry Based Learning (IBL) and perspectives on maintaining these techniques over time. They will share a quick thought on the opportunities and challenges of IBL courses, but a large fraction of the time will be reserved for a questions from the audience. Our panelists include someone new to IBL teaching, someone with enough experience to feel comfortable designing a new course, and an acknowledged master teacher who has mentored others in IBL teaching. Panelists are Carol Schumacher, Kenyon College; Theron Hitchman, University of Northern Iowa; and Susan Crook, Loras College. This panel is sponsored by IBL SIGMAA.

**Women and Scholarly Publishing**, organized by Semra Kilic-Bahi, Colby-Sawyer College; Kim Roth, Juniata College; and Jenna Carpenter, Campbell University; Thursday, 1:00–2:20 pm. Data on the publications emphasize the gender gap among the authorship of published scholarly work. A further analysis of the data reveals that the number of submissions by women to professional journals is considerably less than men’s. There is a wide array of publishing venues and format to present scholarly work to diverse audiences. Panelists will share tips on how to integrate writing to our busy schedules, how to best frame articles for a variety of journals, and how to become successful authors. The exploration of possible reasons on the gender discrepancy in scholarly publishing will be an important theme of the panel. Panelists are Jackie Jensen-Vallin, Lamar University; Susan Colley, Oberlin College; Gizem Karaali, Pomona College; Marjorie Senechal, Smith College; Cathy Kessel, Illustrative Mathematics; and Dorothy Wallace, Dartmouth College.

**Projects Supported by the NSF Division of Undergraduate Education**, organized by Jon Scott, Montgomery College; Thursday, 2:00–4:00 pm. 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.

**MAA Panel on the Dolciani Award: Mathematicians in K–16 Education**, organized by David Stone, Georgia Southern University; Will Abram, Hillsdale College; Judith Grabiner, Pitzer College; Bill Hawkins, University of the District of Columbia; Betty Mayfield, Hood College; Susan Wildstrom, Walt Whitman HS, Bethesda MD; and Glenn Stevens, Boston University; Thursday, 2:35–3:55 pm. The MAA Mary P. Dolciani Award, funded by the Dolciani Halloran Foundation, recognizes a pure or applied mathematician who is making a distinguished contribution to the mathematical education of K–16 students in the United States or Canada. Although it is new and relatively unknown, it is one of the MAA’s major awards. Its recipients form an impressive list of mathematicians who are widely recognized as having contributed to mathematics education:

- 2015 Sybilla Beckmann, University of Georgia
- 2014 Alan Schoenfeld, University of California at Berkeley
- 2013 Hyman Bass, University of Michigan
- 2012 William G. McCallum, University of Arizona

The panel will feature recipients of the award and other mathematicians who have been involved in mathematics education. The panelists will address why they believe it is important that research mathematicians become involved in K–16 mathematics education, can provide examples of positive engagement and provide a road map for others who wish to follow their lead. They will highlight the key issues, the roadblocks and rewards in such endeavors. In an address at a previous JMM, Hy Bass said “There are three issues in which every mathematician should be engaged: research, applications and education.” This session is an opportunity to hear from mathematicians who have been leaders in all of these arenas. The panel will conclude with an interactive Q&A session. Panelists are: Hyman Bass, University of Michigan; Sybilla Beckman, University of Georgia; and Bill McCallum, University of Arizona.

**MAA-AMS-SIAM Panel on Multiple Paths to Mathematics Careers in Business, Industry and Government (BIG)**, organized by Rachel Levy, Harvey Mudd College; Allen Butler, Daniel H Wagner Associates; and Douglas Mupasiri, University of Northern Iowa Thursday, 2:35–3:55 pm. Career opportunities in Business, Industry and Government (BIG) are growing as tenure track academic job opportunities are shrinking. Yet many Mathematics PhD programs do not include preparation for BIG career options as part of the standard curriculum. At this panel you will have the opportunity to hear about multiple career paths to BIG. Panelists will share (a) what they wish they had known and done as graduate students/postdocs and (b) what you can do at your career stage if you are interested in making connections with business, industry or government. Panelists are: Natalie Durgan, Spiceworks; Mary Morley, State of New Jersey; Frank Cullen, Emeritus Principal with Blackstone & Cullen, Inc.; Dan Sanders, Columbia University; and Prasad Tetali, Georgia Tech. Sponsors for this panel are AMS, BIG SIGMAA, MAA, and SIAM.

**Poetry + Math**, organized by Gizem Karaali, Pomona College; Lawrence M. Lesser, University of Texas at El Paso; and Douglas Norton, Villanova University; Thursday, 5:30–7:00 pm. In the last few years, JMM attendees have enjoyed eclectic poetry readings. This year’s poetry reading continues the tradition. All who are interested in mathematical poetry and/or mathematical art are invited. Come to share your poetry or simply enjoy the evening’s offerings! Though we do not discourage last-minute decisions to participate, we invite and encourage poets to submit poetry (no more than three poems, no longer than five minutes) and a bio in advance—and, as a result, be listed on our printed program. Inquiries and submissions (by December 1, 2016) may be made to Gizem Karaali (gizem.karaali@pomona.edu) Sponsors for this event are the Journal of Humanistic Mathematics and SIGMAA ARTS.

**Developing the MAA Instructional Practices Guide**, organized by Martha Abell, Georgia Southern University, and Linda Braddy, Tarrant County Community College; Friday, 9:35–10:55 am. In the process of revising the Curriculum Guide, the MAA Committee on the Undergraduate Program in Mathematics (CUPM) encountered questions related to “how we teach” as well as “what we teach.” As a result,
the MAA Committee on the Teaching of Undergraduate Mathematics (CTUM) was charged with developing an Instructional Practices (IP) Guide to help faculty become more aware of research-based pedagogical approaches, course design, and assessment of student learning. Panelists are lead writers or project PIs who will discuss various aspects of the Guide, including structure, content, and review process. This panel discussion provides an opportunity for members of the mathematics community to learn more about the Guide and to provide feedback as it is being developed. Panelists are: Ben Braun, University of Kentucky; Julie Phelps, Valencia College; Lew Ludwig, Denison University; and Hortensia Soto, University of Northern Colorado. Sponsored by the MAA Committee on the Teaching of Undergraduate Mathematics (CTUM).

Insights from MAA studies of College Algebra, Pre-calculus, and Calculus, organized by David Bressoud, Macalester College, and Marilyn Carlson, Arizona State University; Friday, 9:35–10:55 am. The MAA has been running two large NSF-sponsored studies of introductory undergraduate mathematics: Using Research to Shape Instruction and Placement in Algebra and Precalculus (URSIP) and Progress through Calculus (PtC). The latter builds on the findings of Characteristics of Successful Programs in College Calculus to provide tools for departments to improve the precalculus through calculus sequence. It also is studying the obstacles and affordances to the implementation of beneficial changes. This panel will consist of researchers from these two projects summarizing their most significant findings and seeking feedback from the audience for future directions. Panelists are: Jess Ellis, Colorado State University; Bernie Madison, University of Arkansas; Chris Rasmussen, San Diego State University; and Michael Tallman, Oklahoma State University.

Presentations by MAA Teaching Award Recipients, organized by Barbara Faires, Westminster College, and Francis Su, Harvey Mudd College.; Friday, 2:30–3:50 pm. Winners of the Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching will give presentations on the secrets of their success.

Highlighting Contributions to Mathematics Education from Members of Departments of Mathematical Sciences, organized by Beth Burroughs, Montana State University; Jacqueline Dewar, Loyola Marymount; and Pao-sheng Hsu; 2:35–3:55 pm. There are a variety of ways in which members of departments of mathematical sciences contribute to work in mathematics education. This panel is designed to illustrate the breadth and range of these activities and to provide a forum for discussion of particular issues that might arise from such work. It will highlight examples and include the perspectives of mathematicians and mathematics education researchers who contribute in areas such as: teacher education (pre- and in-service); instructional materials development in K–16 mathematics; equity issues in mathematics; and mathematics education research. Panelists will discuss their work in mathematics education and may reflect on how their work is received in their departments. Panelists will update the community on the project. The moderator for this panel is Robert Klein, Ohio University. Panelists are: Viveka Borum, Spelman College; LouAnn Lovin, James Madison University; Megan Wawro, Virginia Polytechnic and State University; and Nina White, University of Michigan. This panel is co-sponsored by the MAA Committee on the Mathematical Education of Teachers (COMET) and AWM Committee on Education.

MAA Student Poster Session, organized by Chasen Smith, Georgia Southern University, and Eric Ruggieri, College of the Holy Cross; Friday, 4:30–6:00 pm. This session features research done by undergraduate students. First-year graduate students are eligible to present if their research was completed while they were still undergraduates. Research by high school students can be accepted if the research was conducted under the supervision of a faculty member at a post-secondary institution.

Appropriate content for a poster includes, but is not limited to, a new result, a new proof of a known result, a new mathematical model, an innovative solution to a Putnam problem, or a method of solution to an applied problem. Purely expository material is not appropriate for this session.

Participants should submit an abstract describing their research in 250 words or less by midnight, Friday, October 7, 2016. Notification of acceptance or rejection will be sent by November 1, 2016. See www.maa.org/programs/students/undergraduate-research/jmm-student-poster-session for further information on what should be included in the abstract and a link to the abstract submission form.

Posters will be judged during the session and award certificates will be mailed to presenters with the highest scores. Trifold, self-standing 48" by 36" tabletop poster boards will be provided. Additional materials and equipment are the responsibility of the presenters. Participants must set up posters between 2:30 and 3:30 pm and must be available at their posters from 3:30 to 6:00 pm. Judging will begin at 3:30 pm, and general viewing will begin at 4:30 pm. Judges results will be available at the MAA Pavilion in the Exhibit Hall the following day until the exhibits close.

Questions regarding this session should be directed to Chasen Smith csmith@georgiasouthern.edu and Eric Ruggieri eruggieriholycross.edu. This session is sponsored by the MAA Committee on Undergraduate Student Activities and Chapters.

Actuarial Science at the JMM: 25 Years and Counting, organized by Patrick Brewer, Lebanon Valley College; Robert Buck, Slippery Rock University; Bettye Case, Florida State University; Kevin Charlwood, Washburn University; Michelle Guan, Indiana University Northwest; Steve Paris, Florida State University; and Sue Staples, Texas Christian University; Friday, 5:00–7:00 pm. In 1992, James Daniel, University of Texas, began organizing actuarial science sessions to keep faculty members informed of ever-evolving actuarial curriculum changes and career information. Commemorating the 25th anniversary celebration of that first session, Jim will be the opening speaker. He will offer some historical perspective of the past 25 years and a view of the future challenges and rewards for actuarial science faculty. Dwayne Husbands and Jonathan Applewhite, representing the International
Association of Black Actuaries will discuss a new initiative involving a pilot program at Florida State University. The next panel section, “From the Field,” will feature working actuaries from the Atlanta area; this popular tradition of the sessions generates lively questions from the audience. Because exam content and credentialing requirements change much faster than the usual academic pace, annual updates from the major credentialing organizations are essential: Rick Gorvett represents the Casualty Actuarial Society and Stuart Klugman represents the Society of Actuaries—there are big changes in the exams structure and content which are anticipated very soon. Panelists are: 

James Daniel, University of Texas; Stuart Klugman, Society of Actuaries; Rick Gorvett, Casualty Actuarial Society; Dwayne Husbands and Jonathan Applewhite, Ernst and Young, representing the International Association of Black Actuaries; two Atlanta area practicing actuaries.

Mathematically Bent Theater, featuring Colin Adams and the Mobiusbandaid Players; Friday, 6:00–7:00 pm. Which Greek letter has more cachet, epsilon, delta or sigma? How many mathematicians does it take to change a light bulb? Who walked off with my copy of “Green’s Kernels and Meso-Scale Approximations in Perforated Domains” at the Project NExT Reception at the Seattle Joint Meetings? These are just a few of the questions we will not answer in this theatrical presentation of several short mathematically inclined humorous pieces.

Backgammon! organized by Arthur Benjamin, Harvey Mudd College; Friday, 8:00–10:00 pm. Learn to play backgammon from expert players. It’s a fun and exciting game where players with a good mathematics background have a decisive advantage. Boards and free lessons will be provided by members of the US Backgammon Federation. Stop by anytime!

Roadblocks for Implementing Active Learning Strategies in Calculus Courses, organized by Debbie Gochenaur, Shippensburg University, and Larissa Schroeder, University of Hartford; Saturday, 9:00–10:20 am. Faculty members who would like to begin implementing active learning strategies in their Calculus course(s) may become overwhelmed by apparent roadblocks, often quitting before getting very far. Panelists will discuss roadblocks they have encountered through their own journey towards integrating active learning in calculus courses, as well as successful models for implementation. Ample time will be given for questions from the audience. Panelists are: Angie Hodge, University of Nebraska Omaha; Matthew Boelkins, Grand Valley State University; and Darryl Yong, Harvey Mudd College.

Outside the Equation - Exploring Alternative Forms of Mathematical Communication, organized by Samuel Hansen, ACMEScience; Saturday, 9:00–10:20 am. Talks, classes, articles, and books. We all know the basics about how mathematics is typically communicated, but there is no reason to limit ourselves to such a narrow set of communication tools. The more ways mathematics is communicated, the more people will develop a meaningful connection to mathematics and the more people with a deep connection to our beloved subject the more positive the public perception of mathematics, which is something we can all would be a boon. There are many cases of different types of mathematical communication in the world from videos to art to audio shows to live performances to music. This panel will feature talks from the people on the front lines of this work discussing how they transform mathematics from the classroom and the page into something engaging and new to be enjoyed by many types of different audiences. The panel is made up of people who communicate mathematics through music, mime, art, and podcasts. Panelists are: Anna Haensch, Duquesne University; Robert Schneider, Emory University; Edmund Harriss, University of Arkansas; and Tim Chartier, Davidson College.

Weird Ways to Multiply (and Isn’t the Spelling of “Weird” Weird?), organized by Deanna Haunsperger, Carleton College; Saturday, 10:00–10:50 am. Presenter, James Tanton, MAA, will share a whole slew of strange and wild techniques for performing multiplication. Will you be able to figure out why these crazy techniques work? This interactive lecture welcomes students of all ages, and teachers, parents, mathematicians, and math enthusiasts of all ages. Sponsored by the MAA Council on Outreach.

Me and My Gadgets—Teaching with Technology, organized by Karl R. B. Schmitt, Valparaiso University; John Travis, Mississippi College; Thomas Hagedorn, The College of New Jersey; and Michael Scott, California State University at Monterey Bay; Saturday, 10:00–11:55 am. Constantly changing technology presents an exciting and shifting opportunity to engage students and improve learning. This electronic poster session will consist of live, interactive demonstrations of applets, widgets or other technology for teaching mathematics. Rather than preparing a traditional printed poster, presenters will showcase how students engage mathematics through their application using some electronic device such as a tablet, smartphone, or laptop. Preference will be given to presenters demonstrating their own or new applications or to novel approaches in using existing ones.

In addition to the active displays, all participants will give a 3–5 minute “Lightning Talk” to demonstrate their application, highlighting where it fits into a mathematics curriculum. These will be scheduled in the middle of the session, and included in the program.

Abstracts should include a short description of the application/software (or a web-link to it) and explain the pedagogical use of the application.

Sponsored by the MAA Committee for Technology in Mathematics Education (CTiME) and Web SIGMAA.

The Impact of High School Calculus on the Transition to College Mathematics, organized by David Bressoud, Macalester College, and Brendan Murphy, John Bapst High School; Saturday, 10:35–11:55 am. Three-quarters of the students who begin calculus each year do so in high school. Roughly half of all students who matriculate as full-time undergraduates in a four-year program have completed a calculus course before leaving high school. The MAA, NCTM, and College Board are all concerned about differences between students who have and those who have not had access to calculus in high school, particularly the effects on both students’ interest in taking and the success experienced in college mathematics courses. This panel will report on what we know about the effects
of this “rush to calculus” and discuss what we might need to know and how such information can be gathered. Panelists are: Vilma Mesa, University of Michigan; Dixie Ross, Pflugerville High School; Philip Sadler, Harvard University; and Bill Trapp, The College Board. This panel is sponsored by the College Board/MAA Joint Committee on Mutual Concerns.

What We Talk About When We Talk About Mathematics, organized by Samuel Hansen, ACMEScience; Saturday, 10:35–11:55 am. Mathematics is not always the easiest thing to talk or write about, especially when the audience is not other mathematicians. This panel of journalists, authors, and online mathematical communicators will discuss how they take high level mathematics and present them to a general audience in such a way that the audience can not only understand but enjoy the mathematics. The panel will be moderated by Samuel Hansen, the host of the mathematics podcast Relatively Prime. Panelists are: Beth Malmskog, Villanova University; Evelyn Lamb, Scientific American Blog Network and Freelance Journalist; and Colin Adams, Williams College and Author

Math Circle Demonstration, organized by Gabriella Pinter, University of Wisconsin Milwaukee; Tatiana Shubin, San Jose State University; and Bob Klein, Ohio University; Saturday, 11:00–11:55 am. A math circle is an enrichment experience that brings mathematics professionals in direct contact with pre-college students and/or their teachers. Circles foster passion and excitement for deep mathematics. This demonstration session offers the opportunity for conference attendees to observe and then discuss a math circle experience designed for local students. While students are engaged in a mathematical investigation, mathematicians will have a discussion focused on appreciating and better understanding the organic and creative process of learning that circles offer, and on the logistics and dynamics of running an effective circle. The sponsor for this demonstration is SIGMAA MCST.

Introductory Statistics: Where Are We and Where Do We Need to Go? organized by Gail Burdill, Michigan State University; Saturday, 2:35–3:35 pm. The content and focus of current introductory statistics courses vary considerably across institutions. In this session, the panelists will discuss the changing audience for the course, new approaches to structuring a course to meet the needs of more students, the changing landscape for the role of statistics and how it is taught, the overarching concepts that should be part of any course, and what the statistics education community should be doing to prepare teachers at all levels for these changes. Questions for the audience will include what they see as barriers to rethinking current courses, what might be done to overcome these barriers, and suggestions for other concerns and considerations in promoting better student learning. Panelists are Roxy Peck, Cal Poly, San Luis Obispo; Uri Triesman, University of Texas at Austin; Rob Gould, University of California Los Angeles; and Nathan Tintle, Dordt College. This panel is sponsored by MAA/College Board Mutual Concerns Committee.

SAT Test Development Committee Reflections, organized by Bill Trapp, College Board; Saturday, 1:00–2:20 pm. The College Board administered a fully redesigned SAT in March 2016. Some of the changes to the SAT included a narrower content focus, separate calculator portion and no-calculator portion, and no penalty for guessing. Subject matter experts in mathematics began reviewing new questions in 2013 and continue to review hundreds of new questions yearly. This panel will share their experiences and their impressions which have been gathered during their participation as SAT question reviewers for the College Board. Panelists are: Rinav Mehta, Central Piedmont Community College; Gloria Barrett, North Carolina School of Mathematics and Science; Luke Wilcox, East Kentwood High School; and Katrina Piatek-Jimenez, Central Michigan University. This panel is sponsored by the College Board/MAA Committee on Mutual Concerns.

Math Wrangle, organized by Mark Saul, MAA; Ed Keppelmann, University of Nevada Reno and Paul Zeitz, University of San Francisco Saturday, 1:00–2:30 pm. Math Wrangle will pit teams of students against each other, the clock, and a slate of great math problems. The format of a Math Wrangle is designed to engage students in mathematical problem solving, promote effective teamwork, provide a venue for oral presentations, and develop critical listening skills. A Math Wrangle incorporates elements of team sports and debate, with a dose of strategy tossed in for good measure. The intention of the Math Wrangle demonstration at the Joint Math Meetings is to show how teachers, schools, circles, and clubs can get students started in this exciting combination of mathematical problem solving with careful argumentation via public speaking, strategy and rebuttal. Sponsors for this event is SIGMAA-MCST.

Special Interest Groups of the MAA (SIGMAAs)
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 www.maa.org/community/sigmaas.

SIGMAA Officers Meeting, Thursday, 10:30 am to noon; chaired by Andrew Miller, Belmont University.

SIGMAA on Mathematics and the Arts (SIGMAA ARTS)
Mathematics and the Arts, Wednesday morning (see MAA Contributed Paper Sessions).
Poetry+Math, Thursday, 5:30–7:00 pm.

SIGMAA on Business, Industry, and Government (BIG SIGMAA)
PIC Math and Preparing Students for Nonacademic Careers, Saturday morning (see MAA Contributed Paper Sessions).
Guest Lecture, Friday, 5:30–6:20 pm.
SIGMAA on Mathematical and Computational Biology (BIO SIGMAA)  
**Business Meeting and Reception**, Thursday, 6:00–7:00 pm.  
**Guest Lecture**, Thursday, 7:00–7:50 pm, Martin Meltzer, Centers for Disease Control.

*Trends in Undergraduate Mathematical Biology Education*, Friday afternoon (see MAA Contributed Paper Sessions).  
*Current Trends in Mathematical and Computational Biology*, Saturday morning (see MAA Invited Paper Sessions).

SIGMAA on Environmental Mathematics (SIGMAA EM)  
**Business Meeting**, Wednesday, 6:00–6:30 pm.  
**Reception**, Wednesday, 6:30–7:00 pm.  
**Guest Lecture**, Wednesday, 7:00–7:50 pm, Glen Van Brummelen.  
*Preserving and Writing the History of Mathematics Departments*, Friday morning (see MAA Contributed Paper Sessions).  
*SIGMAA on Inquiry Based Learning (SIGMAA IBL)*  
*Perspectives on Inquiry Based Learning: Novice, Experienced, and Master*, Thursday, 1:00–2:20 pm (see MAA Panels).  
*Inquiry-Based Teaching and Learning*, Friday afternoon (see MAA Invited Paper Sessions).

SIGMAA on Math Circles for Students and Teachers (SIGMAA MCST)  
*Unexpected Topics for a Math Circle*, Friday morning (see MAA Contributed Paper Sessions).  
*Math Wrangle*, Saturday, 1:00–2:30 pm.

SIGMAA on the History of Mathematics (HOM SIGMAA)  
**Business Meeting**, Wednesday, 6:00–6:30 pm.  
**Reception**, Wednesday, 6:30–7:00 pm.  
**Guest Lecture**, Wednesday, 7:00–7:50 pm, Glen Van Brummelen.

SIGMAA on Inquiry Based Learning (SIGMAA IBL)  
*Perspectives on Inquiry Based Learning: Novice, Experienced, and Master*, Thursday, 1:00–2:20 pm (see MAA Panels).  
*Inquiry-Based Teaching and Learning*, Friday afternoon (see MAA Invited Paper Sessions).

SIGMAA on the History of Mathematics (HOM SIGMAA)  
**Business Meeting**, Wednesday, 6:00–6:30 pm.  
**Reception**, Wednesday, 6:30–7:00 pm.  
**Guest Lecture**, Wednesday, 7:00–7:50 pm, Glen Van Brummelen.  
*Preserving and Writing the History of Mathematics Departments*, Friday morning (see MAA Contributed Paper Sessions).

SIGMAA on Inquiry Based Learning (SIGMAA IBL)  
*Prespectives on Inquiry Based Learning: Novice, Experienced, and Master*, Thursday, 1:00–2:20 pm (see MAA Panels).  
*Inquiry-Based Teaching and Learning*, Friday afternoon (see MAA Invited Paper Sessions).

SIGMAA on the Philosophy of Mathematics (POM SIGMAA)  
**Math Wrangle**, Saturday, 1:00–2:30 pm.

SIGMAA on Quantitative Literacy (SIGMAA QL)  
*New Directions in Quantitative Literacy for General Education, in honor of Lynn Steen*, Saturday morning (see MAA Invited Paper Sessions).

SIGMAA on Research in Undergraduate Mathematics Education (SIGMAA RUME)  
*Research in Undergraduate Mathematics Education*, Thursday morning and afternoon (see MAA Contributed Paper Sessions).

SIGMAA on Statistics Education (SIGMAA Stat Ed)  
*MAA Minicourse: Incorporating Randomization Methods into Introductory Statistics*, Part A: Wednesday 9:00–11:00 am and Part B: Friday 9:00–11:00 am (see MAA Minicourses).  
*MAA Minicourse: Statistical Education of Teachers*, Part A: Thursday 9:00–11:00 am and Part B: Saturday 9:00–11:00 am (see MAA Minicourses).  
**Reception**, Thursday, 5:30–6:00 pm.  
**Business Meeting**, Thursday, 6:00–6:45 pm.  
**Guest Lecture**, Thursday, 6:50–7:40 pm, Brian Gurbaxani, Centers for Disease Control and Prevention, *Applied Mathematics and Statistics at the CDC–2017 and Beyond Modern Data Sets for the Intro Statistics Classroom and Beyond*, Friday afternoon (see MAA Contributed Paper Sessions).

SIGMAA on the Teaching of Advanced High School Mathematics (SIGMAA TAHSM)  
**Meeting and Reception**, Friday, 10:00–10:45 am.  
**Business Meeting and Reception**, Friday, 5:30–6:00 pm.  
**Guest Lecture**, Friday, 6:00–6:50 pm, Rob Beezer, University of Puget Sound, *Textbooks for the Web from MathBook XML*.  
**Poster Session**: Me and My Gadgets–Teaching with Technology, Saturday, 10:00–11:55 am.

**MAA Sessions for Students**  
Radical Dash! organized by Stacey Muir, University of Scranton, and Janine Janoski, Kings College; Radical Dash Kickoff Meeting: Wednesday, 10:00–10:45 am and Radical Dash Prize Session: Friday, 10:00–10:45 am. The Radical Dash is a multi-day scavenger hunt for teams of undergraduates filled with math challenges and creative activities. Clues will be released periodically via Instagram (follow us now @MAARadicalDash) tasking teams with doing things such as solving math problems, finding mathematical objects in everyday life, and hunting down locations throughout the conference. Team posts will be judged based on completion of tasks as well as creativity. Join us for the Radical Dash Kickoff on Wednesday, January 4, 10:00–10:45 am where team sign ups take place and more details will be provided. Individuals are welcome and encouraged to participate; they will be formed into teams on-site at our kickoff. Winners and prizes will be announced at the Radical Dash Prize Session on Friday, January 6, 10:00–10:45 am. Questions? E-mail us at MAARadicalDash@gmail.com. The Radical Dash! is sponsored by MAA Committee on Undergraduate Student Activities and Sections (CUSAC).  
*What Every Student Should Know about the JMM*, organized by Violeta Vasilevska, Utah Valley University;
Wednesday, 2:15–3:35 pm. Navigating a large conference can be overwhelming, even for those who have previously attended such an event. Panelists Joyati Debnath, Winona State University; Michael Dorff, Brigham Young University; and Matt DeLong, Taylor University, will provide guidance for students attending the Joint Mathematics Meetings, including answers to some common questions: How do I get the most out of the program? What sessions are especially for students? What other events should I be on the lookout for? Will I understand any of the invited addresses or should I not bother attending them? If I am presenting a poster, where do I go to set it up? How can I get some cool, free math stuff? Students and their faculty mentors are encouraged to attend. Panelists are: Joyati Debnath, Winona State University; Michael Dorff, Brigham Young University; and Matt DeLong, Taylor University. This panel is sponsored by the MAA Committee for Undergraduate Student Activities and Chapters (CUSAC).

Grad School Fair, Friday, 8:30–10:30 am. 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 60 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$80 (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. Co-sponsored by the AMS and MAA.

MAA Lecture for Students, Friday, 1:00–1:50 pm, will be given by Matthew Richey, St. Olaf College, on Take What You Have Gathered from Coincidence: Understanding and Using Randomness.

MAA Student Poster Session, organized by Chasen Smith, Georgia Southern University, and Eric Ruggieri, College of the Holy Cross; Friday, 4:30–6:00 pm. This session features research done by undergraduate students. First-year graduate students are eligible to present if their research was completed while they were still undergraduates. Research by high school students can be accepted if the research was conducted under the supervision of a faculty member at a post-secondary institution.

Appropriate content for a poster includes, but is not limited to, a new result, a new proof of a known result, a new mathematical model, an innovative solution to a Putnam problem, or a method of solution to an applied problem. Purely expository material is not appropriate for this session.

Participants should submit an abstract describing their research in 250 words or less by midnight, Friday, October 7, 2016. Notification of acceptance or rejection will be sent by November 1, 2016. See www.maa.org/programs/students/undergraduate-research/jmm-student-poster-session for further information on what should be included in the abstract and a link to the abstract submission form.

Posters will be judged during the session and award certificates will be mailed to presenters with the highest scores. Trifold, self-standing 48” by 36” tabletop poster boards will be provided. Additional materials and equipment are the responsibility of the presenters. Participants must set up posters between 2:30 and 3:30 pm and must be available at their posters from 3:30 to 6:00 pm. Judging will begin at 3:30 pm, and general viewing will begin at 4:30 pm. Judges results will be available at the MAA Pavilion in the Exhibit Hall the following day until the exhibits close.

Questions regarding this session should be directed to Chasen Smith csmith@georgiasouthern.edu and Eric Ruggieri eruggieri@holycross.edu. This session is sponsored by the MAA Committee on Undergraduate Student Activities and Chapters.

Weird Ways to Multiply (and Isn’t the Spelling of "Weird" Weird?), organized by Deanna Haunsperger, Carleton College; Saturday, 10:00–10:50 am. Presenter, James Tanton, MAA, will share a whole slew of strange and wild techniques for performing multiplication. Will you be able to figure out why these crazy techniques work? This interactive lecture welcomes students of all ages, and teachers, parents, mathematicians, and math enthusiasts of all ages. Sponsored by the MAA Council on Outreach.

Project NExT

Project NExT Workshop, Wednesday–Saturday, 8:00–6:00 pm.
Project NExT Lecture on Teaching, Thursday, 11:10–12 noon, will be given by Daniel Goroff, Sloan Foundation on Behavioral and Bayesian Approaches to Classroom Decision Making.

See details about the reception on Friday in Social Events.

Other MAA Events

Board of Governors, Tuesday, 9:00 am–5:00 pm.
Department Liaisons Meeting, Wednesday, 9:30–11:00 am.
MAA Section Officers Meeting, Wednesday, 4:00–5:00 pm, chaired by Betty Mayfield, Hood College. Section officers will meet with members of the Committee on Sections and MAA staff to share information and discuss current initiatives.
SIGMAA Officers Meeting, Thursday, 10:30–12:00 noon, chaired by Andrew Miller, Bellmont University.
MAA Business Meeting, Saturday, 11:10–11:40 am, chaired by MAA President Francis Su, Harvey Mudd College, and organized by MAA Secretary Barbara Faires, Westminster College.

MAA Workshops

Implementing and Orchestrating Active Learning Strategies in Calculus, organized by Larissa B. Schroeder, University of Hartford, and Debbie Gochenaur, Shippensburg University; Thursday, 1:00–2:20 pm. In this workshop,
participants will engage in pedagogical discussions focused on developing practical strategies for incorporating active learning strategies (e.g., student presentation, inquiry-based learning activities, writing to learn, etc.) into their Calculus courses. The emphasis will be on using existing curricular materials (e.g., activities from Active Calculus (Boelkins, Austin, & Schlicker, 2015), classroom voting questions, concept tests, etc.) to support active learning. Active learning strategies are those that engage students in activities that promote analysis, synthesis and evaluation of course content. This workshop, intended for the novice user, will include small group discussions and interactive discussions with the organizers and will focus on helping participants move beyond the initial difficulties associated with first-time implementation of active learning strategies.

Course Design with Active Learning, organized by Victor Piercey, Ferris State University, and Luke Tunstall, Michigan State University; Thursday, 2:35–3:55 pm. Faculty are often called upon to create new courses and redesign existing courses. Participants in this workshop will outline the design for a sample learning module using “backwards design.” Backwards design is a technique for course design which begins with what students should be able to do or demonstrate at the end of the course, followed by how this will be assessed, and concludes with preparing learning activities. We will identify learning outcomes appropriate for active learning, discuss assessment techniques, and conclude by outlining supporting learning activities. Regardless of whether you are addressing general education reform or redesigning advanced courses for graduate students, if you are working on a designing a new course then this workshop will be for you.

Using Interactive Dynamic Technology in Teaching Introductory Statistics: Simulation-Based Inference, organized by Gail Burrill, Michigan State University; presenters for this workshop are Darren Starnes, The Lawrenceville School; Chris Franklin, American Statistics Association; and Beth Chance, California Polytechnic State University, San Luis Obispo; Saturday, 9:00–10:20 am. The use of software packages to analyze data is considered a core part of introductory statistics courses. But technology can also be used to introduce fundamental concepts of statistical inference using simulation-based methods. This shift from methods based on the normal distribution can provide new insights into statistical reasoning. Participants will engage in activities using interactive dynamic technology to explore the underlying logic of confidence intervals and significance tests with real data.

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 those details.

Association for Symbolic Logic (ASL)

This two-day program on Friday and Saturday will include sessions of contributed papers as well as invited addresses by Matthew Foreman, University of California Irvine; Clinton Conley, Carnegie Mellon University; Alfred Dolich, Kingsborough Community College; Rahim Moosa, University of Waterloo; Linda Brown Westrick, University of Connecticut; Alexandra Shlapentokh, East Carolina University; and Henry Towsner, University of Pennsylvania.

Association for Women in Mathematics (AWM)

Thirty-Eighth Annual Noether Lecture, Thursday, 10:05 am, will be given by Lisa Jeffre, University of Toronto, Cohomology of Symplectic Quotients.

Also see the sessions on Symplectic Geometry, Moment Maps and Morse Theory, jointly sponsored by the AWM, in the “AMS Special Sessions” listings.

Association for Women in Mathematics Panel: "Mentoring Women in Mathematics," organized by Michelle Manes, University of Hawaii at Manoa; Wednesday, 2:15–3:40 pm. Mentors play many roles: They may give specific advice about mathematics, schools, and career; or they may convey informal “common wisdom” about the life of a mathematician and how to live it. They may be a role model, an embodiment of what might be possible down the line. They may be the person a student turns to for guidance when she faces a difficult situation either personally or professionally. Relationships with mentors might be official or unofficial, and they may be short-lived or decades long. Mentors might be teachers, advisors, collaborators, colleagues, or friends. Women in mathematics face all the same challenges as their male colleagues: the challenge of doing a very difficult job well, imposter syndrome, fear of failure, the job search, two-body problems, and work-life balance questions. But they are more likely than their male colleagues to face sexism, discrimination, and even harassment. Effective mentors offer guidance through difficult times, know about opportunities, and help with goal setting. Hear from panelists with extensive and varied experiences mentoring women at all stages of their mathematics studies and careers. This session is open to all JMM attendees. Panelists include Helen Grundman, Bryn Mawr College; Ruth Hass, Smith College; Deanna Haunsperger, Carleton College; Kristin Lauter, Microsoft Research, and other panelists to be announced. https://sites.google.com/site/awmpanel2017/

Business Meeting, Wednesday, 3:45–4:15 pm. Chair, Kristen Lauter, AWM President

Workshop Poster Presentations and Reception, Friday, 6:00–7:15 pm. AWM will conduct its workshop poster presentations by women graduate students. AWM seeks volunteers to serve as mentors for workshop participants. If you are interested, please contact the AWM office at awm@awm-math.org. This session is open to all JMM attendees. Organizers for these presentations are Rosa Orellana, Dartmouth College and Anne Shepler, University of North Texas. The Poster Judging Coordinator is Sylvia Wiegand, University of Nebraska at Lincoln.

AWM Workshop: Special Session on Number Theory, Saturday, 8:00–5:00 pm. AWM will conduct its workshop with presentations by senior and junior women researchers. Updated information about the workshop is available at www.awm-math.org/workshops.html. All JMM attendees are invited to attend the program. Organizers for this
workshop are Alina Bucur, University of California, San Diego and Ellen Eischen, University of Oregon.

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

See also the sessions cosponsored by the AWM on Symplectic Geometry, Moment Maps and Morse Theory on Friday in the “AMS Special Sessions” listings. Organizers for these sessions are Lisa Jeffery, University of Toronto, and Tara Holm, Cornell University.

National Association of Mathematicians (NAM)

Granville-Brown-Hayes Session of Presentations by Recent Doctoral Recipients in the Mathematical Sciences, Friday, 1:00–4:00 pm. Organizer: Talitha Washington, Howard University/NAM.

Cox-Talbot Address, to be given Friday after the banquet by Garikai Campbell, Provost, Morehouse College, title to be announced. See details about the banquet on Friday in the “Social Events” section.

Panel Discussion; Transforming Post-Secondary Education (TPSE) Mathematics: Implications for the Preparation of African American Undergraduates and Institutions, Saturday, 9:00–9:50 am, Moderator: Duane Cooper, Morehouse; Panelists to be announced.

Claytor-Woodward Lecture, Saturday, 1:00 pm, Wilfrid Gangbo, Georgia Institute of Technology, Paths of minimal lengths on the set of exact differential k-forms.

See also the special session on Thursday co-sponsored by NAM in the “AMS Special Sessions” listings: The Mathematics of the Atlanta University Center, organized by Talitha M. Washington, Howard University, Monica Jackson, American University, and Colm Mulcahy, Spelman College.

Business Meeting, Saturday, 10:00–10:50 am.

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 as the exhibits. Times that staff will be available will be posted at the booth.

Pi Mu Epsilon (PME)

Council Meeting, Thursday, 8:00–11:00 am.

Rocky Mountain Consortium Board Meeting, Friday, 2:15–4:00 pm

Society for Industrial and Applied Mathematics (SIAM)

This program consists of an Invited Address, The dynamics of systems interacting across statistical scales, at 11:10 am on Thursday given by Irene M. Gamba, University of Texas at Austin, and a series of Minisymposia to include Recent Advances in Linear Algebra, James Nagy, Emory University; Applications of Algebra, Geometry, and Topology, Frank Sottile, Texas A&M University; The GAIMME Report on Mathematical Modeling in K-16, Kathleen Fowler, Clarkson University; Topics in Analysis and Numerical Methods for Collisional Kinetic Equations, Ricardo Alonso, Pontifical Catholic University of Rio de Janeiro, Irene M. Gamba, University of Texas at Austin, and Robert Strain, University of Pennsylvania; Recent Advances in Uncertainty Quantification, Noemi Petra, University of California Merced, and Juan C. Meza, University of California Merced; Recent Developments in Computational Inverse Problems and Imaging, Kui Ren, University of Texas, Austin, Fernando Guevara Vasquez, University of Utah, and Alexander V. Mamonov, University of Houston; Mathematics of Planet Earth, Hans Kaper, Georgetown University, and PDEs in Biology and Materials Science, Yuliya Gorb, University of Houston, and Sunčica Canić, University of Houston.

The Program also includes the following co-sponsored panel discussions: AMS-SIAM Committees on Education, Panel on Broadening Research Experiences for Doctoral Students in the Mathematical Sciences, Thursday, 1:00 – 2:30 pm (see AMS Panels); and the MAA-AMS-SIAM Panel on Multiple Paths to Mathematics Careers in Business, Industry and Government (BIG), Thursday, 2:35–3:55 pm. (See AMS and MAA Panels).

In this panel, we will hear about efforts to improve the training of mathematics doctoral students by involving them in research activities outside of their main dissertation research topic in order to better prepare them for a broader range of careers.

Programs have been designed to encourage connections between mathematical sciences and other academic departments, and between academia and business, industry, government, and non-profit organizations.

The aim is to produce students who are able to recognize opportunities for the development of mathematics and statistics in problems originating in a variety of settings, and who can apply advanced mathematics and statistics to help solve such problems.

See also the AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs in the “AMS Special Session” listings. The organizers for this session are Darren A. Narayan, Rochester Institute of Technology, Tamas Forgacs, California State University, Fresno, and Ugur Abdulla, Florida Institute of Technology.

Others

Hrabowski-Gates-Tapia-McBay Session, organized by Ricardo Cortez, Tulane University; Wednesday, 9:00–9:50 am. The Hrabowski-Gates-Tapia-McBay Session is named after four influential scientists of color: (1) Freeman Hrabowski, President of the University of Maryland at Baltimore County; (2) James S. Gates, University of Maryland, College Park; (3) Richard Tapia, Rice University; and (4) Shirley McBay, President of Quality Education for Minorities (QEM). Through multiple mechanisms, these Sessions expect to facilitate and accelerate the participation of scientists in the building of sustainable communities of mathematicians and mathematical scientists. In particular, the intention is to systematically recruit, welcome, encourage, mentor, and support individuals from underrepresented groups in the USA. This year the 2017 session will consist of a lecture will be given by Mariel Vazquez, University of California Davis.
From Calculus to a Bachelor's Degree: Encouraging and Developing Undergraduate Mathematics Majors, organized by Jenna P. Carpenter, Campbell University; Thursday, 1:00–2:30 pm. This panel will address how to identify, encourage, and develop undergraduate mathematics majors. This is of particular relevance to women, since recent studies show that only half as many women as men who start in first semester Calculus continue on to the second semester. The panel will cover steps that faculty members and departments can take to identify and develop majors, educate students about careers, and create exciting and relevant courses and opportunities. It will also be of particular interest to undergraduate students. Panelists are Alison Henrich, Seattle University; Sylvia Bozeman, Spelman, Infinite Possibilities; Federico Ardila, San Francisco State University; and Christine Kelley, University of Nebraska-Lincoln. Sponsored by the Joint Committee on Women in the Mathematical Sciences.

Mathematical Art Exhibition, organized by Robert Fathauer, Tessellations Company; Anne Burns, Long Island University C. W. Post Campus; Nathan Selikoff, Digital Awakening Studios, and Elizabeth Whiteley, studio artist, Washington, D.C. A popular feature at the 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. Topology, fractals, polyhedra, 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 located inside the Joint Mathematics Exhibits and open during the same exhibit hours.

Summer Program for Women in Mathematics (SPWM) Reunion, organized by Murli M. Gupta, George Washington University; Thursday, 1:00–3:00 pm. This is a reunion of the summer program participants from all 19 years (1995–2013) who are in various states of their mathematical careers: some are students and, others are in various jobs, both in academia as well as government and industry. The participants will describe their experiences relating to all aspects of their careers. There will also be a discussion on the increasing participation of women in mathematics over the past two decades and the national impact of SPWM and similar programs. See www.gwu.edu/~spwm.

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 tickets to the Mathematics Meetings Service Bureau (MMSB) by December 29, 2016. After that date no refunds can be made. Special meals are available at banquets upon advance request, but this must be indicated on the Advanced Registration/Housing Form.

2017 AMS Dinner, Join your colleagues on this special occasion of celebration in the mathematical community. The AMS will recognize long-term members as well as honor the recipients of Programs That Make a Difference Awards and the Exemplary Programs Award. Enjoy delicious meals from gourmet food stations, special entertainment, and enter to win fun prizes at the raffle table! This evening of celebration will be held on Saturday, January 7th with a reception at 6:30 pm and doors opening at 7:30 pm. Tickets are US$69 including tax and gratuity. The student ticket price is US$30.

Association of Christians in the Mathematical Sciences (ACMS) Reception and Lecture, Thursday, 5:30–7:30 pm. The reception will take place between 5:30 and 6:30 pm, followed by a short program and 20 minute talk at 6:30 pm. The talk will be given by Satyan Devadoss from the University of San Diego. Students are encouraged to attend. Opportunity will be provided afterwards for delegates to go to dinner at local restaurants.

Association of Lesbian, Gay, Bisexual, and Transgendered Mathematicians Reception, Thursday, 6:00–8:00 pm. Annual reception for lesbian, gay, bisexual, and transgender mathematicians. We are affiliated with NOGLSTP, the National Organization of Gay and Lesbian Scientists and Technical Professionals, Inc. www.1gbtmath.org.

Association for Women in Mathematics Reception and Awards Presentation, the AWM Reception which is open to all JMM attendees will be held on Wednesday at 9:30 pm after the AMS Gibbs Lecture. The AWM President at 10:00 pm will recognize all of the honorees of the AWM Alice T. Schafer Prize for Excellence in Mathematics by an Undergraduate Woman, the recipients of the AWM Dissertation Prize and the AWM Service Awards.

Backgammon! organized by Arthur Benjamin, Harvey Mudd College; Friday, 8:00–10:00 pm. Learn to play backgammon from expert players. It’s a fun and exciting game where players with a good mathematics background have a decisive advantage. Boards and free lessons will be provided by members of the US Backgammon Federation. Stop by anytime on Friday evening.

Budapest Semesters in Mathematics Annual Alumni Reunion, Thursday, 5:30 pm.

Budapest Semesters in Mathematics Education Informational Session, Friday, 12:00–1:00 pm. BSME is a semester-long program in Budapest, Hungary, designed for American and Canadian undergraduates (and recent graduates) interested in teaching middle school or high school mathematics. Participants will study the Hungarian approach to learning and teaching, in which a strong and explicit emphasis is placed on problem solving, mathematical creativity, and communication. Come learn more about this exciting new program.

George Washington University Math Alumni Reception, Thursday, 7:00 - 8:00 pm. The George Washington University Department of Mathematics invites all of our graduates attending the Joint Mathematics Meetings in Atlanta. Please come and meet the math faculty and other alumni; refreshments will be served.

Reception for Graduate Students and First-Time Participants, Wednesday, 5:30–6:30 pm. The AMS and 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. Light refreshments will be served.

University of Illinois at Urbana-Champaign, Friday, 5:30–7:30pm. Department of Mathematics, Math Reception. Everyone ever connected with the Department is encouraged to get together for conversation and to hear about mathematics at the University of Illinois.

Joint Prize Reception, Thursday 5:30–6:30 pm.

Knitting Circle, Thursday, 8:00–9:30 pm. Bring your needlework and come knit (crochet, cross-stitch, etc.) with us while talking about math or other relaxing subjects. Catch up with your friends and meet new ones during this fun social event.

MAA/Project NExT Reception, Friday, 8:00–10:00 pm, organized by Julia Barnes, Western Carolina University; Alissa Crans, Loyola Marymount University; Matt DeLong, Taylor University; and Dave Kung, St. Mary’s College of Maryland. All Project NExT Fellows, consultants, and other friends of Project NExT are invited.

MAA Two-Year College Reception, Wednesday, 5:45–7:00 pm, 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.

Mathematical Reviews Reception, Friday, 6:00–7:00 pm. All friends of the Mathematical Reviews (MathSciNet) are invited to join reviewers and MR editors and staff (past and present) for a reception in honor of all of the efforts that go into the creation and publication of the Mathematical Reviews database. Refreshments will be served.

Mathematical Institutes Open House, Wednesday, 5:30–8:00 pm. Members of the AMS and MAA who are attending the Joint Mathematics Meetings are warmly invited to come to the Mathematical Institutes Open House Reception, co-sponsored by several of the mathematical sciences institutes in North America. This reception precedes the Gibbs Lecture. We hope to see you there! https://icerm.brown.edu/events/mioh/2017

MSRI Reception for Current and Future Donors, Thursday, 6:30–8:00pm. MSRI invites current and prospective donors to an informal reception with appetizers and drinks. Directors David Eisenbud and Helene Barcelo will speak about present and upcoming events and programs, as well as the impact of private support on the Institute.

MSRI thanks and acknowledges mathematicians who support MSRI’s programs and workshops through membership in the Archimedes Society or the Gauss Society. Archimedes Society members support MSRI with annual gifts. Gauss Society members support MSRI with a planned gift through arrangements in their wills and estates.

For more information about the event and how to join the Archimedes or Gauss Societies, please contact, Heike Friedman, Director of Development, hfriedman@msri.org; 510.643-6056. www.msri.org

National Association of Mathematicians Banquet, Friday, 6:00–8:40 pm. A cash bar reception will be held at 6:00 pm, and dinner will be served at 6:30 pm. Tickets are US$65 each, including tax and gratuity. The Cox-Talbot Invited Address will be given after the dinner.

NSA Women in Mathematics Society Networking Session, Thursday, 6:00–8:00 pm.

PROMYS and Ross Reception for Alumni and Friends, Thursday, 6:30–8:30 pm. There will be hors d’oeuvres, a cash bar, old friends, new friends, and good conversation!

Texas A&M University Mathematics Department Reception for Alumni, Students, and Faculty, Friday, 5:30–7:30 pm. All alumni, current students, faculty, and current and former post-docs are invited to join us for this reception.

Reception for Undergraduates, Wednesday, 4:30–5:30 pm.

University of Waterloo Alumni and Friends Reception, Thursday, 6:00–8:00 pm. Dean Stephen M. Watt would like to invite all UW Math Alumni and Friends attending the JMM to join him in celebrating the 50th Anniversary of the Faculty of Mathematics at the University of Waterloo.

YP17 HCSSiM Reunion Breakfast, Friday, 7:34 am.

Welcoming Environment Policy

The AMS and MAA strive to ensure that participants in the Joint Mathematics Meetings (JMM) enjoy a welcoming environment. In all JMM activities, the two organizations seek to foster an atmosphere that encourages the free expression and exchange of ideas. The AMS and MAA support equality of opportunity and treatment for all participants, regardless of gender, gender identity or expression, race, color, national or ethnic origin, religion or religious belief, age, marital status, sexual orientation, disabilities, or veteran status.

Harassment is a form of misconduct that undermines the integrity of JMM activities as well as the AMS and MAA missions. The AMS and MAA will make every effort to maintain an environment that is free of harassment, even though they do not control the behavior of third parties. A commitment to a welcoming environment is expected of all attendees at JMM activities, including mathematicians, students, guests, staff, contractors and exhibitors, and participants in scientific sessions and social events. To this end, the AMS and MAA will include a statement concerning their expectations toward maintaining a welcoming environment in registration materials, and have put in place a mechanism for reporting violations. Violations may be reported confidentially and anonymously to 855-282-5703 or at www.mathsociety.ethicspoint.com. The reporting mechanism ensures the respect of privacy while alerting the AMS and MAA to the situation.

Registering in Advance

The importance of registering for the meeting cannot be overemphasized. Advanced registration fees are considerably lower than on-site registration fees. The AMS and the MAA encourage all participants to register for the meeting. When a participant pays a registration fee, he or she is helping to support a wide range of activities associated with planning, organizing, and executing the meetings.

All participants 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
Joint Mathematics Meetings (JMM) Exhibits, the Employment Center, to obtain discounts at the AMS and MAA Book Sales, and to cash a check with the Joint Meetings cashier.

All JMM registrations are processed by the Mathematics Meetings Service Bureau (MMSB). Participants who register by November 22, 2016, may receive their badges, programs, and tickets (where applicable) in advance by US mail approximately three weeks before the meetings. Those who do not want their materials mailed should check the appropriate box on the Registration and Housing Form. Materials cannot be mailed to Canada, Mexico, or other countries outside of the US. Participants from these countries must pick up their materials at the Joint Meetings Registration Desk, which will be located on the Lower Level 2 of the Hyatt Regency Atlanta. Please note that a replacement fee of US$5 will be charged for programs and badges that were mailed but not brought to the meeting.

Online Registration: To register and reserve a hotel room online, visit www.jointmathematicsmeetings.org/meetreg?meetnum=2180. VISA, MasterCard, Discover, and American Express are the only methods of payment accepted for online registrations, and charges to credit cards will be made in US funds. Registration acknowledgments will be sent by e-mail to the e-mail address provided.

Paper Form Registration: Download and print the paper form that can be found at the following website: www.jointmathematicsmeetings.org/meetings/national/jmm2017/jmm17_regform.pdf. If you are using the paper form to register for the meeting and do not have a credit card, please contact the MMSB at mmsb@ams.org for further instructions. If you are using a check to reserve your hotel room, your reservation and check must be received by the MMSB no later than December 1, 2016.

Forms must be mailed or faxed to the MMSB at MMSB, P.O. Box 6887, Providence, RI 02940 or 401-455-4004. For security reasons, credit card numbers by e-mail or fax cannot be accepted. If a participant is registering by paper form and would like to pay for his or her registration via credit card, he or she should indicate this on the form. Someone from the MMSB will then call that person.

Badges: All registered participants (including guests) for the meeting will receive a badge. Each badge of a registered mathematician will include an embedded vCard (electronic business card) in the form of a QR Code; placed on the back of the badge. This code will include name, postal address, phone number, e-mail address, and subject classification code (if given). It will enable exhibitors to retrieve the same information they would receive from a business card with one quick scan. Allowing an exhibitor to scan the code on a badge will be strictly voluntary by each participant and any participant may choose to cover his or her code.

Participant Lists and Mailing Lists: If a participant would like to opt-out of any mailing lists or participant lists that are generated for the meeting, he or she should check the appropriate box on the Registration and Housing Form. All participants who do not opt-out will be included in all mailing lists and participant lists that are generated and distributed for the meeting.

Cancellation Policy: Participants who cancel their registrations for the meetings, minicourses, Short Course, or banquet tickets by December 29, 2016, will be eligible to receive a 50 percent refund of fees paid. No refunds will be issued after this date.

Joint Mathematics Meetings Registration Fees

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<th>Category</th>
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<td>Non-mathematician Guest</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Commercial Exhibitor</td>
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<td>0</td>
</tr>
<tr>
<td>MAA Minicourses</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Grad School Fair Table</td>
<td>80</td>
<td>80</td>
</tr>
</tbody>
</table>

AMS Short Course:

<table>
<thead>
<tr>
<th>Category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of AMS</td>
<td>112</td>
</tr>
<tr>
<td>Non-member</td>
<td>170</td>
</tr>
<tr>
<td>Student/Unemployed/Emeritus</td>
<td>60</td>
</tr>
</tbody>
</table>

Registration Category Definitions

Full-Time Students: Any person who is currently working toward a degree or diploma is eligible for this category. Students are asked to determine whether their status can be described as a graduate (working toward a degree beyond the bachelor’s), an undergraduate (working toward a bachelor’s degree), or high school (working toward a high school diploma) and to mark the Registration and Housing Form accordingly. See membership distinctions below.

Graduate Student Member: Any graduate student who is a member of the AMS, ASL, CMS, MAA, or SIAM is eligible for this category. Students should check with their department administrator to verify their membership status.

Undergraduate Student: Any undergraduate student who is a member of the AMS, ASL, CMS, MAA, SIAM, PME, or KME is eligible for this category. Students should check with their department administrator to verify their membership status.

Emeritus: Any person who has been a member of the AMS for 20 years or more and who retired because of age.
or a long-term disability from his or her latest position is eligible for this category. Any person who has been a member of the MAA for 25 years or more and who is 70+ years of age is eligible for this category.

Librarian: Any librarian who is not a professional mathematician is eligible.

Unemployed: Any person who is currently unemployed, actively seeking employment, and is not a student is eligible. This category is not intended to include anyone 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 not commensurate with those in the US is eligible.

Temporarily Employed: Any person currently employed but who will become unemployed by June 1, 2017, and who is actively seeking employment is eligible.

Non-mathematician Guest: Any family member or friend, who is not a mathematician, and who is accompanied by a participant in the meetings is eligible for this category. Guests will receive a badge and may accompany a mathematician to a session or talk. Guests may also enter the exhibit area.

Commercial Exhibitor: Any person exhibiting in the Joint Mathematics Meetings Exhibits and in the Mathematical Art Exhibition is eligible for this category. This does not include anyone participating in any poster sessions. Any exhibitor who is a mathematician and wants to attend sessions, talks, etc. is expected to register separately for the meeting.

Registration Deadlines

There are two separate registration deadlines, each with its own benefits:

ORDINARY meeting registration (hotel reservations, registration materials mailed)—November 22

FINAL meeting registration (advanced registration, short course, minicourses)—December 20

Ordinary Registration: Participants who register by November 22 can still receive their materials by mail, if they choose. Participants may reserve rooms through the MMSB until December 12.

Final Registration: Participants who register after November 22 and by December 20 must pick up their badges, programs, and any tickets for social events at the meeting. Registration materials may be picked up at the Meetings Registration Desk, located on the Lower Level 2 of the Hyatt Regency Atlanta.

Hotel Accommodations

The importance of reserving a hotel room at one of the official Joint Mathematics Meetings (JMM) hotels cannot be stressed enough. The AMS and the MAA make every effort to keep participants expenses at the meeting, registration fees, and hotel rooms for the meeting as low as possible. They work hard to negotiate the best hotel rates and to make the best use of your registration dollars to keep the meetings affordable. The AMS and MAA encourage all participants to register for the meeting. When anyone pays the registration fee and reserves a room with an official JMM hotel, he or she is helping to support not only the JMM in 2017, but also future meetings.

General: Participants are encouraged to register for the JMM in order to reserve hotel rooms at the contracted JMM rates. If a participant needs to reserve a hotel room before they are registered for the JMM, he or she must contact the Mathematics Meetings Services Bureau (MMSB) at mmsb@ams.org or 1-800-321-4267 ext. 4137 or ext. 4144 for further instructions.

Special rates have been negotiated exclusively for this meeting at the following hotels: Hyatt Regency Atlanta, Marriott Marquis Atlanta, and Hilton Atlanta. (See details on these hotels below.)

To receive the JMM rates, reservations for these hotels must be made through the MMSB. The hotels will not be able to accept reservations directly until after December 14, 2016, and at that time, rooms and rates will be based on availability. Any rooms reserved directly with the hotels after December 14, 2016 are subject to rates higher than the JMM rates.

A link to the 2017 JMM housing site will be included in e-mail confirmations of all registrations. If a participant needs to have the link e-mailed again, requests should be sent to mmsb@ams.org. Participants requiring assistance in reserving a hotel room should send e-mail to mmsb@ams.org.

Any participant who needs to reserve a hotel room and does not have a credit card should contact the MMSB at mmsb@ams.org for further instructions. If a check is being used to reserve a hotel room, the reservation and check must be received by the MMSB no later than December 1, 2016.

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. If special assistance, auxiliary aids, or other reasonable accommodations to fully participate in this meeting is required, it should be indicated in the appropriate section on the Registration and Housing Form or emailed to the MMSB at mmsb@ams.org. Requests for ADA-accessible rooms should also be clearly indicated when making hotel reservations. 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 obtained about any disability will remain confidential.

Cancellation Policies: There is a 48-hour cancellation policy prior to check-in at the Hilton Atlanta.

There is a 72-hour cancellation policy prior to check-in: at both the Hyatt Regency Atlanta and Marriott Marquis Atlanta.

Check-in/Check-out: Check-in at the Hilton Atlanta is 3:00 pm and check-out is at 11:00 am. Check-in at the Hyatt Regency Atlanta is at 3:00 pm and check-out is at noon. Check-in at the Marriott Marquis Atlanta is at 4:00 pm and check-out is at noon.

Confirmations: An e-mail confirmation number will be provided for each hotel reservation made online. This
confirmation number will give participants direct access to edit their reservations up to December 12, 2016. Those who did not receive a confirmation number or who have any questions about the reservation process should contact the MMSB at mmsb@ams.org or 1-800-321-4267, ext. 4137 or 4144.

**Deadlines:** The deadline to make changes or cancellations to hotel reservations through the MMSB is December 12.

**Environmental Policies:** All of the hotels listed have environmental-friendly programs in place.

**Internet Access/Wireless:** Complimentary wireless internet is available in all public areas, the lobby, and all sleeping rooms at the Hilton Atlanta.

Complimentary wireless internet is available in the lobby and all sleeping rooms at the Hyatt Regency Atlanta.

Complimentary wireless internet is available in all public places and the lobby at the Marriott Marquis Atlanta. There is a daily charge of US$14.95 for wired or wireless internet in the sleeping rooms. Free internet is provided in the guest room of any Marriott Rewards member. To become a Marriott Rewards member, visit https://www.marriott.com/rewards/createAccount/createAccountPage1.mi?segmentId=elite.nonrewards to sign up for a free membership if you do not already have one.

**Location:** The Hyatt Regency Atlanta and the Marriott Marquis Atlanta will be co-headquarter hotels for this meeting. The JMM Registration Desk, exhibits, poster sessions, and AMS Employment Center will be located in the Hyatt Regency Atlanta. Sessions, committee meetings, and other meetings will be held in both the Hyatt Regency Atlanta and the Marriott Marquis Atlanta. All three hotels will be connected by sky bridges and will together occupy approximately 3 city blocks.

**Hyatt Regency Atlanta (co-headquarter):** 265 Peachtree Street NE, Atlanta, GA, 30303. Room rates are US$175 for a single/double and US$140 for a single/double student rate room. This property is a smoke-free hotel. Restaurants on-site include Sway, Polaris, Twenty-Two Storys Lobby Bar, and the Marketplace. Amenities at this property include a fitness center, outdoor pool and a 24-hour business center available to registered guests. Full amenities are available in guest rooms including laptop-sized safes. Windows in guest rooms do not open. Children under 17 are free in a room with an adult and cribs are available upon request at no additional charge. Rollaways are available for use in king-bedded rooms only. Pets under 75 pounds are allowed in guest rooms. Valet parking is available for a charge of US$36 per day and includes in/out privileges. Parking rates are subject to change. This hotel does not offer an airport shuttle. Confirmations will be sent by e-mail only.

**Marriott Marquis Atlanta (co-headquarter),** 265 Peachtree Center Avenue, Atlanta, GA, 30303. Room rates are US$175 for a single/double and US$140 for a single/double student rate room. This property is a smoke-free hotel. Restaurants on-site include Sear, High Velocity, Pulse, and Starbucks. Amenities at this property include a fitness center, outdoor pool and a 24-hour business center available to registered guests. Full amenities are available in guest rooms including laptop-sized safes. Windows in guest rooms do not open. Children under 17 are free in a room with an adult and cribs are available upon request at no additional charge. Rollaways are available for use in king-bedded rooms only. Pets allowed. Valet parking is available for a charge of US$35 per day and includes in/out privileges. Parking rates are subject to change. This hotel does not offer an airport shuttle. Confirmations will be sent by e-mail only.

**Hilton Atlanta,** 255 Courtland Street NE, Atlanta, GA, 30303. First tier room rates are US$139 for a single/double and second tier rates are US$149 for a single/double room. First Tier rates will be applicable while rooms in that category are available. Second Tier rates will only be available when the inventory of First Tier rates is entirely reserved. Participants who want First Tier rates are advised to reserve their rooms early. This property is a smoke-free hotel. Restaurants on site include Trader Vic’s, Marketplace, Nikolai’s Roof, and Southern Elements. Amenities at this property include a fitness center, outdoor pool and a 24-hour business center available to registered guests. Full amenities are available in guest rooms including laptop-sized safes. Windows in guest rooms do not open. Children under 17 are free in room with an adult and cribs are available upon request at no additional charge. Rollaways are available for use in king-bedded rooms only. Pets under 75 pounds are allowed in guest rooms. Valet parking is available for a charge of US$36 per day and includes in/out privileges. Parking rates are subject to change. This hotel does not offer an airport shuttle. Confirmations will be sent by e-mail only.

**Parking:** Please see the parking section under Travel for parking options. Parking information for each hotel has been listed above in the description of each property.

**Rates:** All rates are subject to applicable local and state taxes in effect at the time of check-in; currently the tax rate is 16% (8% State Sales Tax plus 8% Hotel Occupancy Tax), plus an additional State of Georgia Hotel/Motel fee of US$5 per day.

**Roommates:** Looking for a Roommate? An interactive search board will be available for participants looking for a roommate. See jointmathematicsmeetings.org/jmm for more details

**Miscellaneous**

**Audio-Visual Equipment:** A projection screen is included as standard equipment in all Session rooms. Invited 50-minute speakers are automatically provided with an ELMO visual presenter (document camera/projector), and a laptop projector; AMS Special Sessions and Contributed Papers, and MAA Invited and Contributed Paper Sessions, are provided with a screen and a laptop projector. Blackboards and white boards are not available, nor are Internet connections 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 available to registered guests. Full amenities are available in guest rooms including laptop-sized safes. Windows in guest rooms do not open. Children under 17 are free in a room with an adult and cribs are available upon request at no additional charge. Rollaways are available for use in king-bedded rooms only. No pets allowed. Valet parking is available for a charge of US$35 per day and includes in/out privileges. Parking rates are subject to change. This hotel does not offer an airport shuttle. Confirmations will be sent by e-mail only.
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.

Child Care: The AMS and the MAA will provide reimbursement grants of US$250 per family to help with the cost of child care for a number of registered participants at JMM 2017. The funds may be used for child care that frees a parent to participate more fully in JMM.

Information about child care grants and deadlines for requesting support will be available prior to the opening of advance registration in September; watch the website at jointmathematicsmeetings.org/meetings/national/jmm2017/2180_childcare.

E-mail Services: Limited e-mail access for all Joint Meetings participants will be available in an e-mail center located in Hanover Hall, on the exhibit level in the Hyatt Regency. The hours of operation will be published in the program. Participants should be aware that complimentary internet access will also be available in that space.

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 AMS Director of Meetings and Conferences 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 coordinator, 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 Atlanta.net

Photograph and Video Policy: The videotaping of any AMS or joint sponsored events, talks, and sessions is strictly forbidden without the explicit written permission of the AMS Director of Meetings and Conferences. The policy for videotaping of any MAA events, talks, and sessions is posted at www.maa.org/about-ama/policies-and-procedures/recording-or-broadcasting-of-maa-events. Photographs and videos of meeting interactions will be taken by professional photographers hired by the Joint Mathematics Meetings or by AMS and MAA staff. These photographs and videos may occasionally be used for publicity purposes. By participating in the Joint Mathematics Meetings, attendees acknowledge that their photograph or a video that includes them may be published in material produced by the Joint Meetings, AMS or MAA. AMS and MAA are not responsible for unauthorized photographs or other images not taken by professional photographers hired by the Joint Mathematics Meetings or AMS and MAA staff.

Telephone Messages: It will be possible to leave a message for any registered participant at the meetings registration desk from January 4 through 7 during the hours that the desk is open. These messages will be posted on the Mathematics Meetings Message Board in the networking center; 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

The 2017 Joint Mathematics Meetings will be held in Atlanta, GA, at the Hyatt Regency Atlanta and the Marriott Marquis Atlanta. The Hyatt Regency is located at 265 Peachtree Street NE Atlanta, GA 30303, and the Marriott is located at 265 Peachtree Center Avenue, Atlanta, GA 30303. Both hotels are connected by a skywalk. Atlanta is on Eastern Standard Time.

Air Transportation

The principal airport in Atlanta is Hartsfield-Jackson Atlanta International Airport (ATL), which is served by most major airlines. See www.atlanta-airport.com. Hartsfield-Jackson is located 20 minutes south of downtown Atlanta. The address of the main terminal at Hartsfield-Jackson is 6000 North Terminal Parkway, Atlanta, GA 30320. The international terminal has a separate entrance at 2600 Maynard H. Jackson, Jr. Blvd, Atlanta, GA 30254. Terminal maps can be found at www.atlanta-airport.com/Passenger/Terminal/.

The official airline for this meeting is Delta. Participants are encouraged to book their flights for the meeting, if possible, with Delta and receive special pricing (in most cases, a 5 percent discount) on scheduled service to Atlanta. Discounts are applicable to US and Canada originating passengers. This discount is not valid with other discounts, certificates, coupons, or promotional offers.

To make a reservation, go to www.delta.com, and click on the box that says “Book a Trip”. At the bottom of the drop-down, click on “Advanced Search”. On the reservation screen, please enter the Meeting Event Code NMNJJC. It is located to the right of “Number of Passengers.” Reservations can also be made by calling Delta Meeting Network Reservations at 1-800-328-1111 and citing the meeting event code. A direct ticketing charge will apply for booking by phone.

Ground Transportation

Car Rental: All major rental car companies have offices at Hartsfield-Jackson. There is a separate rental car facility. From the north or south baggage claim areas, follow the overhead signs to the rental car center. Leave the west end of the terminal under the covered walkway, take the escalator up the station, and board the ATL SkyTrain for a five-minute ride to the rental car center. For more information and a map, please see www.atlanta-airport.com/Airport/Construction/RentalCarCenter/Access.aspx.
Hertz is the official car rental company for this meeting. A brochure with the information for this meeting is located at jointmathematicsmeetings.org/Hertz-info-Atlanta.pdf. To access the special meeting rates for the JMM at www.hertz.com, enter the standard information (pickup location, dates, etc.) and then click the box that says “Enter a discount or promo code” and enter 04N30007 as the convention number (CV#). Reservations can also be made by calling Hertz directly at 800-654-2240 (US and Canada) or 405-749-4434.

Meeting rates include unlimited mileage and are subject to availability. Advance reservations are recommended and blackout dates may apply. Government surcharges, taxes, tax reimbursement, airport-related fees, vehicle licensing fees and optional items are extra. Standard rental conditions and qualifications apply. Vehicles must be returned to the renting location. Minimum rental age is 20 (age differential charge for 20–24 applies).

Weekend rentals are available in the continental US and Canada for pickup between noon Thursday and noon Sunday and must be returned no later than Monday at 11:59 pm. Thursday pick-up requires a minimum three-day keep. Friday pick-up requires a minimum two-day keep, and Saturday and Sunday pick-up require a one-day keep. Weekly rentals are from five to seven days. Extra day keep. Minimum rental age is 20 (age differential charge for 20–24 applies).

Driving Directions from the airport to the meeting hotels:

**Hyatt and Marriott** - Take 75/85 North, and take the right-hand exit 248C to International Boulevard. Turn left onto International Boulevard, and turn right at the third traffic light onto Peachtree Center Avenue. The entrance to the Hyatt Regency Atlanta’s Motor Lobby is one block down on the left. The entrance to the Atlanta Marriott Marquis is two blocks down on the right.

**Hilton** - Take 75/85 North, and take exit 249B to Peachtree Street. At the first light, turn right onto Peachtree Street. At the next light, turn left onto Ralph McGill Boulevard. At the next light, take a right onto Courtland Street. The entrance to the hotel is one block down on your left.

**Parking**: All three meeting hotels have parking garages. Please see the hotel section for more information. In addition, there are several parking garages nearby. See an interactive map at www.atlantadowntown.com/guide/getting-around/parking/garage. The following is a listing of some of the nearby garages. Please note that rates are subject to change.

**Peachtree Center Garage**
221 Peachtree Center Avenue NE
Atlanta, GA 30303
www.atlantadowntown.com/go/221-peachtree-center-avenue
Current rates: US$2 for 20 Minutes; US$12 for two hours; daily maximum is US$18; US$5 after 4:00 pm.

**227 Courtland St. NE**
Atlanta, GA 30303
404-572-2900
www.atlantadowntown.com/go/227-courtland-street
Current rates: US$2 for 20 Minutes; US$12 for two hours; daily maximum is US$20, US$5 after 4:00 pm. If you arrive between 5:00 am and 9:00 am and leave between 2:00 pm and 7:00 pm, the early bird rate applies which is US$6 per day. Weekend rate is US$6 per day.

**Peachtree Center Parking Garage**
221 Peachtree Center Avenue NE
Atlanta, GA 30303
www.atlantadowntown.com/go/227-courtland-street
Current rates: US$2 for 20 Minutes; US$12 for two hours; daily maximum is US$20, US$5 after 4:00 pm. If you arrive between 5:00 am and 9:00 am and leave between 2:00 pm and 7:00 pm, the early bird rate applies which is US$6 per day. Weekend rate is US$6 per day.

**Peachtree Center Garage**
161 Peachtree Center Ave NE
Atlanta, GA 30303
404-572-2900
www.atlantadowntown.com/go/161-peachtree-center-ave
Current rates: US$2 for 15 minutes, US$2 each additional 15 minutes; daily maximum is US$20, US$5 after 4:00 pm. If you arrive between 5:00 am and 9:00 am and leave between 2:00 pm and 7:00 pm, the early bird rate applies which is US$6 per day. Weekend rate is US$6 per day.
Charleston, South Carolina  
*College of Charleston*

**Meeting #1126**  
Southeastern Section  
Announcement issue of *Notices*: To be announced  
Program first available on AMS website: To be announced  
Issue of *Abstracts*: To be announced  
Notices of the AMS Volume 63, Number 9

**March 10–12, 2017**  
Friday – Sunday

**Deadlines**  
For organizers: Expired  
For abstracts: January 17, 2017  
The scientific information listed below may be dated.  
For the latest information, see www.ams.org/amsmtgs/section1.html.

**Invited Addresses**  
- **Pramod N. Achar**, Louisiana State University, *Title to be announced*.  
- **Hubert Bray**, Duke University, *Title to be announced*.  
- **Alina Chertock**, North Carolina State University, *Title to be announced*.

**Special Sessions**  
If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

- **Active Learning in Undergraduate Mathematics** (Code: SS 21A), **Draga Vidakovic**, Georgia State University, **Harri-son Stalvery**, University of Colorado, Boulder, and **Darryl Chamberlain**, Jr., **Aubrey Kemp**, and **Leslie Meadows**, Georgia State University.  
- **Advances in Long-term Behavior of Nonlinear Dispersive Equations** (Code: SS 27A), **Brian Pigott**, Wofford College, and **Sarah Raynor**, Wake Forest University.  
- **Algebras, Lattices, Varieties** (Code: SS 19A), **George F. McNulty**, University of South Carolina, and **Kate S. Owens**, College of Charleston.  
- **Analysis and Control of Fluid-Structure Interactions and Fluid-Solid Mixtures** (Code: SS 6A), **Justin T. Webster**, College of Charleston, and **Daniel Toundykov**, University of Nebraska-Lincoln.  
- **Analysis, Control and Stabilization of PDE's** (Code: SS 13A), **George Avalos**, University of Nebraska-Lincoln, and **Scott Hansen**, Iowa State University.

**Commutative Algebra** (Code: SS 1A), **Bethany Kubik**, University of Minnesota Duluth, **Saeed Nasseh**, Georgia Southern University, and **Sean Sather-Wagstaff**, Clemson University.  
**Computability in Algebra and Number Theory** (Code: SS 8A), **Valentina Harizanov**, The George Washington University, **Russell Miller**, Queens College and College Graduate Center - City University of New York, and **Alexandra Shlapentokh**, East Carolina University.  
**Factorization and Multiplicative Ideal Theory** (Code: SS 16A), **Jim Coykendall**, Clemson University, and **Evan Houston** and **Thomas G. Lucas**, University of North Carolina, Charlotte.  
**Fluid-Boundary Interactions** (Code: SS 26A), **M. Nick Moore**, Florida State University.  
**Free-boundary Fluid Models and Related Problems** (Code: SS 7A), **Marcelo Disconzi**, Vanderbilt University, and **Lorena Bociu**, North Carolina State University.  
**Geometric Methods in Representation Theory** (Code: SS 15A), **Pramod N. Achar**, Louisiana State University, and **Amber Russell**, Butler University.  
**Graph Theory** (Code: SS 5A), **Colton Magnant**, Georgia Southern University, and **Zixia Song**, University of Central Florida.  
**Knot Theory and its Applications** (Code: SS 3A), **Elizabeth Denne**, Washington & Lee University, and **Jason Parsley**, Wake Forest University.  
**Oscillator Chain and Lattice Models in Optics, the Power Grid, Biology, and Polymer Science** (Code: SS 14A), **Alejandro Aceves**, Southern Methodist University, and **Brenton LeMesurier**, College of Charleston.  
**Recent Trends in Finite Element Methods** (Code: SS 9A), **Michael Neilan**, University of Pittsburgh, and **Leo Rebholz**, Clemson University.
Represention Theory and Algebraic Mathematical Physics (Code: SS 12A), Iana I. Anguelova, Ben Cox, and Elizabeth Jurisch, College of Charleston.


Rigidity Theory and Inversive Distance Circle Packings (Code: SS 4A), John C. Bowers, James Madison University, and Philip L. Bowers, The Florida State University.

Bloomington, Indiana
Indiana University

April 1–2, 2017
Saturday – Sunday

Meeting #1127
Central Section
Associate secretary: Georgia Benkart
Announcement issue of Notices: February 2017
Program first available on AMS website: February 23, 2017
Issue of Abstracts: Volume 38, Issue 2

Deadlines
For organizers: Expired
For abstracts: February 7, 2017

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

Invited Addresses

Ciprian Demeter, Indiana University, Title to be announced.
Sarah Koch, University of Michigan, title to be announced.

Special Sessions

If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

Algebraic and Enumerative Combinatorics with Applications (Code: SS 6A), Saúl A. Blanco, Indiana University, and Kyle Peterson, DePaul University.

Analysis of Variational Problems and Nonlinear Partial Differential Equations (Code: SS 11A), Nam Q. Le and Peter Sternberg, Indiana University.

Automorphic Forms and Algebraic Number Theory (Code: SS 2A), Patrick B. Allen, University of Illinois at Urbana-Champaign, and Matthias Strauch, Indiana University Bloomington.

Computability and Inductive Definability over Structures (Code: SS 3A), Siddharth Bhaskar, Lawrence Valby, and Alex Kruckman, Indiana University.

Dependence in Probability and Statistics (Code: SS 7A), Richard C. Bradley and Lanh T. Tran, Indiana University.

Discrete Structures in Conformal Dynamics and Geometry (Code: SS 5A), Sarah Koch, University of Michigan, and Kevin Pilgrim and Dylan Thurston, Indiana University.

Harmonic Analysis and Partial Differential Equations (Code: SS 9A), Lucas Chaffee, Western Washington University, William Green, Rose-Hulman Institute of Technology, and Jarod Hart, University of Kansas.


Randomness in Complex Geometry (Code: SS 1A), Turgay Bayraktar, Syracuse University, and Norman Levenberg, Indiana University.

Self-similarity and Long-range Dependence in Stochastic Processes (Code: SS 10A), Takashi Owada, Purdue University, Yi Shen, University of Waterloo, and Yizao Wang, University of Cincinnati.

Spectrum of the Laplacian on Domains and Manifolds (Code: SS 4A), Chris Judge and Sugata Mondal, Indiana University.

Pullman, Washington
Washington State University

April 22–23, 2017
Saturday – Sunday

Meeting #1128
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of Notices: February 2017
Program first available on AMS website: March 9, 2017
Issue of Abstracts: Volume 38, Issue 2

Deadlines
For organizers: September 22, 2016
For abstracts: February 28, 2017

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

Special Sessions

If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

Combinatorial and Algebraic Structures in Knot Theory (Code: SS 5A), Sam Nelson, McKenna College, and Allison Henrich, Seattle University.

Commutative Algebra (Code: SS 3A), Jason Lutz and Katharine Shultis, Gonzaga University.
Fixed Point Methods in Differential and Integral Equations (Code: SS 1A), Theodore A. Burton, Southern Illinois University in Carbondale.

Inverse Problems (Code: SS 2A), Hanna Makaruk, Los Alamos National Laboratory (LANL), and Robert Owczarek, University of New Mexico, Albuquerque & Los Alamos.

Special Session on Analytic Number Theory and Automorphic Forms (Code: SS 6A), Steven J. Miller, Williams College, and Sheng-Chi Liu, Washington State University.

Theory and Applications of Linear Algebra (Code: SS 4A), Judi McDonald and Michael Tsatsomeros, Washington State University.

New York, New York

Hunter College, City University of New York

May 6–7, 2017
Saturday – Sunday

Meeting #1129
Eastern Section
Associate secretary: Steven H. Weintraub
Announcement issue of Notices: March 2017
Program first available on AMS website: March 22, 2017
Issue of Abstracts: Volume 38, Issue 2

Deadlines
For organizers: October 6, 2016
For abstracts: March 14, 2017

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

Invited Addresses

Jeremy Kahn, City University of New York, Title to be announced.

Fernando Coda Marques, Princeton University, Title to be announced.

James Maynard, Magdalen College, University of Oxford, Title to be announced (Erdős Memorial Lecture).

Kavita Ramanan, Brown University, Title to be announced.

Special Sessions

If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

Banach Space Theory and Metric Embeddings (Code: SS 10A), Mikhail Ostrovski, St Johns University, and Beata Randrianantoanina, Miami University of Ohio.


Commutative Algebra (Code: SS 1A), Laura Ghezzi, New York City College of Technology-CUNY, and Jooyoun Hong, Southern Connecticut State University.

Computability Theory: Pushing the Boundaries (Code: SS 9A), Johanna Franklin, Hofstra University, and Russell Miller, Queens College and Graduate Center, City University of New York.

Computational and Algorithmic Group Theory (Code: SS 7A), Denis Serbin and Alexander Ushakov, Stevens Institute of Technology.

Cryptography (Code: SS 3A), Xiaowen Zhang, College of Staten Island and Graduate Center-CUNY.

Current Trends in Function Spaces and Nonlinear Analysis (Code: SS 2A), David Cruz-Urbina, University of Alabama, Jan Lang, The Ohio State University, and Osvaldo Mendez, University of Texas at El Paso.


Geometry and Topology of Ball Quotients and Related Topics (Code: SS 5A), Luca F. Di Cerbo, Max Planck Institute, Bonn, and Matthew Stover, Temple University.

Infinite Permutation Groups, Totally Disconnected Locally Compact Groups, and Geometric Group Theory (Code: SS 4A), Delaram Kahrobaei, New York City College of Technology and Graduate Center-CUNY, and Simon Smith, New York City College of Technology-CUNY.

Special Session on Hydrodynamic and Wave Turbulence (Code: SS 11A), Tristan Buckmaster, Courant Institute of Mathematical Sciences, New York University, and Vlad Vicol, Princeton University.

Special Session on Nonlinear and Stochastic Partial Differential Equations: Theory and Applications in Turbulence and Geophysical Flows (Code: SS 8A), Nathan Glatt-Holtz, Tulane University, Geordie Richards, Utah State University, and Xiaoming Wang, Florida State University.

Montréal, Quebec Canada

McGill University

July 24–28, 2017
Monday – Friday

Meeting #1130

The second Mathematical Congress of the Americas (MCA 2017) is being hosted by the Canadian Mathematical Society (CMS) in collaboration with the Pacific Institute for the Mathematical Sciences (PIMS), the Fields Institute (FIELDS), Le Centre de Recherches Mathématiques (CRM), and the Atlantic Association for Research in the Mathematical Sciences (AARMS).

Associate secretary: Brian D. Boe
Announcement issue of Notices: To be announced
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced
Deadlines
For organizers: Expired
For abstracts: To be announced

Denton, Texas
University of North Texas
September 9–10, 2017
Saturday – Sunday
Meeting #1131
Central Section
Associate secretary: Georgia Benkart
Announcement issue of Notices: June 2017
Program first available on AMS website: July 27, 2017
Issue of Abstracts: Volume 38, Issue 3

Invited Addresses
Mirela Çiperiani, University of Texas at Austin, Title to be announced.
Adrianna Gillman, Rice University, Title to be announced.
Kevin Pilgrim, Indiana University, Title to be announced.

Special Sessions
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Dynamics, Geometry and Number Theory (Code: SS 1A), Lior Fishman and Mariusz Urbanski, University of North Texas.
Real-Analytic Automorphic Forms (Code: SS 2A), Olav K Richter, University of North Texas, and Martin Westerholt-Raum, Chalmers University of Technology.

Buffalo, New York
State University of New York at Buffalo
September 16–17, 2017
Saturday – Sunday
Meeting #1132
Eastern Section
Associate secretary: Steven H. Weintraub
Announcement issue of Notices: June 2017
Program first available on AMS website: August 3, 2017
Issue of Abstracts: Volume 38, Issue 3

Invited Addresses
Christine Heitsch, Georgia Institute of Technology, Title to be announced.
Jonathan Kujawa, University of Oklahoma, Title to be announced.
Christopher D Sogge, Johns Hopkins University, Title to be announced.

Special Sessions
If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

Commutative Algebra: Interactions with Algebraic Geometry and Algebraic Topology (Code: SS 1A), Joseph Brennan, University of Central Florida, and Alina Iacob and Saeed Nasseh, Georgia Southern University.
Meetings & Conferences

Riverside, California
University of California, Riverside
November 4–5, 2017
Saturday – Sunday

Meeting #1134
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of Notices: September 2017
Program first available on AMS website: September 21, 2017
Issue of Abstracts: Volume 38, Issue 4

Deadlines
For organizers: April 14, 2017
For abstracts: September 12, 2017

Invited Addresses
Paul Balmer, University of California, Los Angeles, Title to be announced.
Pavel Etingof, Massachusetts Institute of Technology, Title to be announced.
Monica Vazirani, University of California, Davis, Title to be announced.

San Diego, California
San Diego Convention Center and San Diego Marriott Hotel and Marina
January 10–13, 2018
Wednesday – Saturday

Meeting #1135
Joint Mathematics Meetings, including the 124th Annual Meeting of the AMS, 101st Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).
Associate secretary: Georgia Benkart
Announcement issue of Notices: October 2017
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced

Deadlines
For organizers: April 1, 2017
For abstracts: To be announced

Inverse Problems (Code: SS 2A), Hanna Makaruk, Los Alamos National Laboratory (LANL), and Robert Owczarek, University of New Mexico, Albuquerque & Los Alamos.
Pattern Formation in Crowds, Flocks, and Traffic (Code: SS 1A), J. J. P. Veerman, Portland State University, Alethea

Columbus, Ohio
Ohio State University
March 24–25, 2018
Saturday – Sunday
Central Section
Associate secretary: Georgia Benkart
Announcement issue of Notices: To be announced
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced

Deadlines
For organizers: To be announced
For abstracts: To be announced

Portland, Oregon
Portland State University
April 14–15, 2018
Saturday – Sunday
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of Notices: To be announced
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced

Deadlines
For organizers: 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/sectional.html.

Special Sessions
If you are volunteering to speak in a Special Session, you should send your abstract as early as possible via the abstract submission form found at www.ams.org/cgi-bin/abstracts/abstract.pl.

Invited Addresses
Sandor Kovacs, University of Washington State, Title to be announced.
Elena Mantovan, California Institute of Technology, Title to be announced.
Dmitri Shlyakhtenko, University of California, Los Angeles, Title to be announced.

Inverse Problems (Code: SS 2A), Hanna Makaruk, Los Alamos National Laboratory (LANL), and Robert Owczarek, University of New Mexico, Albuquerque & Los Alamos.
Pattern Formation in Crowds, Flocks, and Traffic (Code: SS 1A), J. J. P. Veerman, Portland State University, Alethea
Barbaro, Case Western Reserve University, and Bassam Bamieh, UC Santa Barbara.

Nashville, Tennessee

Vanderbilt University

April 14–15, 2018

Saturday – Sunday
Southeastern Section
Associate secretary: Brian D. Boe
Announcement issue of Notices: To be announced
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced

Deadlines
For organizers: To be announced
For abstracts: To be announced

Boston, Massachusetts

Northeastern University

April 21–22, 2018

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
Issue of Abstracts: To be announced

Deadlines
For organizers: September 21, 2017
For abstracts: March 6, 2018

People's Republic of China

Fudan University

June 11–14, 2018

Monday – Thursday
Associate secretary: Carla D. Savage
Announcement issue of Notices: To be announced
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced

Deadlines
For organizers: To be announced
For abstracts: To be announced

Baltimore, Maryland

Baltimore Convention Center, Hilton Baltimore, and Baltimore Marriott Inner Harbor Hotel

January 16–19, 2019

Wednesday – Saturday
Joint Mathematics Meetings, including the 125th Annual Meeting of the AMS, 102nd Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of 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 2018
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced

Deadlines
For organizers: April 2, 2018
For abstracts: To be announced

Honolulu, Hawaii

University of Hawaii at Manoa

March 29–31, 2019

Friday – Sunday
Central Section
Associate secretaries: Georgia Benkart and Michel L. Lapidus
Announcement issue of Notices: To be announced
Program first available on AMS website: To be announced
Issue of Abstracts: To be announced

Deadlines
For organizers: To be announced
For abstracts: To be announced

Denver, Colorado

Colorado Convention Center

January 15–18, 2020

Wednesday – Saturday
Joint Mathematics Meetings, including the 126th Annual Meeting of the AMS, 103rd Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM)
Associate secretary: Michel L. Lapidus
Announcement issue of Notices: To be announced
Program first available on AMS website: November 1, 2019
Issue of Abstracts: To be announced
Meetings & Conferences

Deadlines
For organizers: April 1, 2019
For abstracts: To be announced

Washington, District of Columbia

Walter E. Washington Convention Center

January 6–9, 2021

Wednesday – Saturday

Joint Mathematics Meetings, including the 127th Annual Meeting of the AMS, 104th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Brian D. Boe

Announcement issue of Notices: October 2020

Program first available on AMS website: November 1, 2020

Issue of Abstracts: To be announced

Deadlines
For organizers: April 1, 2020
For abstracts: To be announced