Meetings & Conferences of the AMS

Ithaca, New York

Cornell University

September 10–11, 2011
Saturday – Sunday

Meeting #1072
Eastern Section
Associate secretary: Steven H. Weintraub
Announcement issue of *Notices*: July 2011
Program first available on AMS website: July 28, 2011
Program issue of electronic *Notices*: September 2011
Issue of *Abstracts*: Volume 32, Issue 4

Deadlines

For organizers: Expired
For consideration of contributed papers in Special Sessions: Expired
For abstracts: Expired

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

Invited Addresses

Mladen Bestvina, University of Utah, *Topology and geometry of out(F_n)*.

Nigel Higson, Pennsylvania State University, *C*-algebras and group representations*.

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

Katrin Wehrheim, Massachusetts Institute of Technology, *How to construct topological invariants via decompositions and the symplectic category*.

Special Sessions

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

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

Gauge Theory and Low-dimensional Topology, **Weimin Chen**, University of Massachusetts-Amherst, and **Daniel Ruberman**, Brandeis University.

Geometric Aspects of Analysis and Measure Theory, **Leonid Kovalev** and **Jani Onninen**, Syracuse University, and **Raanan Schul**, State University of New York at Stony Brook.

Geometric Structures on Manifolds with Special Holonomy, and Applications in Physics, **Tamar Friedmann**, University of Rochester, **Colleen Robles**, Texas A&M University, and **Sema Salur**, University of Rochester.

Geometric and Algebraic Topology, **Boris Goldfarb** and **Marco Varisco**, University at Albany, SUNY.

Geometry of Arithmetic Groups, **Mladen Bestvina**, University of Utah, and **Ken Brown**, **Martin Kassabov**, and **Tim Riley**, Cornell University.

Kac-Moody Lie Algebras, Vertex Algebras, and Related Topics, **Alex Feingold**, Binghamton University, and **Antun Milas**, State University of New York at Albany.

Mathematical Aspects of Cryptography and Cyber Security, **Benjamin Fine**, Fairfield University, **Delaram Kahrobaei**, City University of New York, and **Gerhard Rosenberger**, Passau University and Hamburg University, Germany.

Multivariable Operator Theory, **Ronald G. Douglas**, Texas A&M University, and **Rongwei Yang**, State University of New York at Albany.

Parabolic Evolution Equations of Geometric Type, **Xiaodong Cao**, Cornell University, and **Bennett Chow**, University of California San Diego.

Partial Differential Equations of Mixed Elliptic-Hyperbolic Type and Applications, **Marcus Khuri**, Stony Brook University, and **Dehua Wang**, University of Pittsburgh.

Representations of Local and Global Groups, **Mahdi Asgari**, Oklahoma State University, and **Birgit Speh**, Cornell University.

Set Theory, **Paul Larson**, Miami University, Ohio, **Justin Moore**, Cornell University, and **Ernest Schimmerling**, Carnegie Mellon University.

Species and Hopf Algebraic Combinatorics, **Marcelo Aguiar**, Texas A&M University, and **Samuel Hsiao**, Bard College.

Symplectic Geometry and Topology, **Tara Holm**, Cornell University, and **Katrin Wehrheim**, Massachusetts Institute of Technology.

Winston-Salem, North Carolina

Wake Forest University

September 24–25, 2011
Saturday – Sunday

Meeting #1073
Southeastern Section
Associate secretary: Matthew Miller
Announcement issue of *Notices*: June 2011
Program first available on AMS website: August 11, 2011
Program issue of electronic *Notices*: September 2011
Issue of *Abstracts*: Volume 32, Issue 4

Deadlines

For organizers: Expired
For consideration of contributed papers in Special Sessions: Expired
For abstracts: August 2, 2011

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

Invited Addresses

Benjamin B. Brubaker, Massachusetts Institute of Technology, *Square ice, symmetric functions, and their connections to automorphic forms.*

Shelly Harvey, Rice University, *4-dimensional equivalence relations on knots.*

Allen Knutson, Cornell University, *Modern developments in Schubert calculus.*

Seth M. Sullivant, North Carolina State University, *Algebraic statistics.*

Special Sessions

Algebraic and Geometric Aspects of Matroids (Code: SS 1A), **Hoda Bidkhori, Alex Fink**, and **Seth Sullivant**, North Carolina State University.

Applications of Difference and Differential Equations to Biology (Code: SS 2A), **Anna Mummert**, Marshall University, and **Richard C. Schugart**, Western Kentucky University.

Combinatorial Algebraic Geometry (Code: SS 6A), **W. Frank Moore**, Wake Forest University and Cornell University, and **Allen Knutson**, Cornell University.

Extremal Combinatorics (Code: SS 7A), **Tao Jiang**, Miami University, and **Linyuan Lu**, University of South Carolina.

Geometric Knot Theory and its Applications (Code: SS 12A), **Yuanan Diao**, University of North Carolina at Charlotte, **Jason Parsley**, Wake Forest University, and **Eric Rawdon**, University of St. Thomas.

Low-Dimensional Topology and Geometry (Code: SS 13A), **Shelly Harvey**, Rice University, and **John Etnyre**, Georgia Institute of Technology.

Modular Forms, Elliptic Curves, and Related Topics (Code: SS 11A), **Matthew Boylan**, University of South Carolina, and **Jeremy Rouse**, Wake Forest University.

New Developments in Graph Theory (Code: SS 10A), **Joshua Cooper** and **Kevin Milans**, University of South Carolina, and **Carlos Nicolas** and **Clifford Smyth**, University of North Carolina at Greensboro.

Noncommutative Algebra (Code: SS 5A), **Ellen E. Kirkman** and **James J. Kuzmanovich**, Wake Forest University.

Nonlinear Boundary Value Problems (Code: SS 9A), **Maya Chhetri**, University of North Carolina at Greensboro, and **Stephen B. Robinson**, Wake Forest University.

Nonlinear Dispersive Equations (Code: SS 4A), **Sarah Raynor**, Wake Forest University, **Jeremy Marzuola**, University of North Carolina at Chapel Hill, and **Gideon Simpson**, University of Toronto.

Recent Advances in Infectious Disease Modeling (Code: SS 8A), **Fred Chen** and **Miaohua Jiang**, Wake Forest University.

Set Theoretic Topology (Code: SS 14A), **Peter Nyikos**, University of South Carolina.

Symmetric Functions, Symmetric Group Characters, and Their Generalizations (Code: SS 3A), **Sarah Mason**, Wake Forest University, **Aaron Lauve**, Loyola University-Chicago, and **Ed Allen**, Wake Forest University.

Lincoln, Nebraska

University of Nebraska-Lincoln

October 14–16, 2011
Friday – Sunday

Meeting #1074
Central Section
Associate secretary: Georgia Benkart
Announcement issue of *Notices*: August 2011
Program first available on AMS website: September 1, 2011
Program issue of electronic *Notices*: October 2011
Issue of *Abstracts*: Volume 32, Issue 4

Deadlines

For organizers: Expired
For consideration of contributed papers in Special Sessions: Expired
For abstracts: August 23, 2011

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

Invited Addresses

Lewis P. Bowen, Texas A&M University, *Entropy theory for actions of sofic groups.*

Emmanuel Candes, Stanford University, *Recovering the unseen: Some recent advances in low-rank matrix reconstruction* (Erdős Memorial Lecture).

Alina Cojocaru, University of Illinois at Chicago and Mathematics Institute of the Romanian Academy, *Questions about the reductions modulo primes of an elliptic curve*.

Michael Zieve, University of Michigan, *The happy marriage between arithmetic geometry and dynamical systems*.

Special Sessions

Algebraic Geometry and Graded Commutative Algebra (Code: SS 8A), **Susan Cooper** and **Brian Harbourne**, University of Nebraska-Lincoln.

Algorithmic and Geometric Properties of Groups and Semigroups (Code: SS 10A), **Susan Hermiller** and **John Meakin**, University of Nebraska-Lincoln.

Association Schemes and Related Topics (Code: SS 1A), **Sung Y. Song**, Iowa State University, and **Paul Terwilliger**, University of Wisconsin Madison.

Asymptotic Behavior and Regularity for Nonlinear Evolution Equations (Code: SS 4A), **Petronela Radu** and **Lorena Bociu**, University of Nebraska-Lincoln.

Coding Theory (Code: SS 7A), **Christine Kelley** and **Judy Walker**, University of Nebraska-Lincoln.

Commutative Algebra (Code: SS 16A), **Christina Eubanks-Turner**, University of Louisiana at Lafayette, and **Aihua Li**, Montclair State University.

Computational and Applied Mathematics (Code: SS 13A), **Ludwig Kohaupt**, Beuth University of Technology Berlin, Germany, and **Yan Wu**, Georgia Southern University.

Continuous and Numerical Analysis in the Control of PDE's (Code: SS 9A), **George Avalos**, **Mohammad Rammaha**, and **Daniel Toundykov**, University of Nebraska-Lincoln.

Discrete Methods and Models in Biomathematics (Code: SS 18A), **Dora Matache** and **Jim Rogers**, University of Nebraska at Omaha, and **Alan Veliz-Cuba**, University of Nebraska-Lincoln.

Dynamic Systems on Time Scales with Applications (Code: SS 3A), **Lynn Erbe** and **Allan Peterson**, University of Nebraska-Lincoln.

Dynamical Systems and Operator Algebras (Code: SS 15A), **Lewis Bowen**, Texas A&M University, and **David Kerr**, Texas A&M University at Galveston.

Extremal and Probabilistic Combinatorics (Code: SS 5A), **Stephen Hartke** and **Jamie Radcliffe**, University of Nebraska-Lincoln.

Invariants in Knot Theory and Low-dimensional Topology (Code: SS 14A), **Mark Brittenham**, University of Nebraska-Lincoln, and **Robert Todd**, University of Nebraska at Omaha.

Local Commutative Algebra (Code: SS 11A), **H. Ananthnarayan**, University of Nebraska-Lincoln, **Inês B. Henriques**, University of California Riverside, and **Hamid Rahmati**, Syracuse University.

Matrices and Graphs (Code: SS 12A), **In-Jae Kim**, Minnesota State University, **Adam Berliner**, St. Olaf College, **Leslie Hogben**, Iowa State University, and **Bryan Shader**, University of Wyoming.

Quantum Groups and Representation Theory (Code: SS 2A), **Jonathan Kujawa**, University of Oklahoma, and **Natasha Rozhkovskaya**, Kansas State University.

Recent Directions in Number Theory (Code: SS 17A), **Alina Cojocaru**, University of Illinois at Chicago, and **Michael Zieve**, University of Michigan.

Recent Progress in Operator Algebras (Code: SS 6A), **Allan P. Donsig** and **David R. Pitts**, University of Nebraska-Lincoln.

Graduate Student Poster Session

Graduate students are encouraged to participate in the AMS Poster session to be held 8-9 p.m., Friday, October 14, at the Downtown Holiday Inn. We expect a large crowd (there will be a cash bar), so this is a great chance to publicize your work and get to know people! In order to present a poster, you need to register for the poster session and submit an abstract. You can do this online at the Math Department's poster site: `http://www.math.unl.edu/~math-gsab/2011FallAMSSectionMeeting/AMSGRADPOST.html`. The deadline to submit an abstract is September 30.

Accommodations

Participants should make their own arrangements directly with a hotel of their choice as early as possible. Special rates have been negotiated with the hotels listed below. Rates quoted do not include taxes. The AMS is not responsible for rate changes or for the quality of the accommodations. When making a reservation with a conference hotel, participants should state that they are with the **American Mathematical Society (AMS) Sectional Meeting**. Cancellation and early checkout policies vary; be sure to check when you make your reservation. When making reservations please call the hotel directly and ask for "in house" reservations. You will not receive the conference discount if you book online.

Holiday Inn Downtown, 141 North 9th St., Lincoln, NE, 68508; Phone: 402–475–4011, fax: 402–475–4366; `http://www.holidayinn.com/hotels/us/en/lincoln/lnkdt/hoteldetail`. Rates are US$94 single, US$99 double, and include free WiFI, and complimentary breakfast. The hotel is only about four blocks away from the meeting site on campus. A shuttle to the airport is available on request. Cancellation and early checkout policies vary; be sure to check when you make your reservation. The deadline for reservations is **September 15, 2011**.

Embassy Suites, 1040 P Street, Lincoln, NE, 68508; Phone: 402–474–1111, `http://www.embassysuiteslincoln.com`. The rate is US$124 for up to 4 people and includes a complimentary breakfast. The hotel is only about three blocks away from the meeting site on campus. A shuttle to the airport is available on request. Cancellation and early checkout policies vary; be sure to check when you make your reservation. The deadline for reservations is **September 15, 2011**.

Cornhusker Marriott, 333 S. 13th Street, Lincoln, NE; Phone: 402–474–7474; `http://www.thecornhusker.com`. Rates are US$89 single/double. The hotel is about seven blocks away from the meeting site on campus. A shuttle

to the airport is available on request. Cancellation and early checkout policies vary; be sure to check when you make your reservation. The deadline for reservations is **September 15, 2011**.

Additional Housing Options can be found by visiting the University of Nebraska-Lincoln Mathematics Department website: `http://www.math.unl.edu/events/special/ams/2011/`.

Food Service

A list of on-campus and off-campus restaurants will be available at the registration desk.

Other Activities

Book Sales: Stop by the on-site AMS bookstore and review the newest titles from the AMS, enjoy up to 25% percent off all AMS publications, or take home an AMS t-shirt! Complimentary coffee will be served courtesy of AMS Membership Services.

AMS Editorial Activity: An acquisitions editor from the AMS book program will be present to speak with prospective authors. If you have a book project that you would like to discuss with the AMS, please stop by the book exhibit.

Parking

The closest public parking to the meeting site is found at the Stadium Drive parking garage.

From the Lincoln airport take I-80 to the Downtown exit I-180 (401A) going south. When you enter downtown Lincoln, you will be on 9th street, you will need to be in the far left lane. Turn left onto P Street; turn left onto 10th Street. You want to be in the far right lane once on 10th Street. After Q Street, you will want to take the second right which is T Street. Entry to parking garage will be to your left. Cost is about US$1 per hour up to a maximum of US$5 per day.

There are also a number of parking garages within a short walk (5–10 minute) from campus. Haymarket, Market Place, and Que Place are the three closest. For more information please see `http://www.ParkItDowntown.org`. Handicapped parking permits are available upon prior request; contact Marilyn Johnson at `mjohnson11@math.unl.edu`.

Registration and Meeting Information

Registration and the AMS Book Exhibit will be held in the lower level lobby of Avery Hall. Invited Addresses and all other sessions will be held in Avery Hall and nearby buildings. Please refer to the campus map at `http://maps.unl.edu/` for specific locations. The registration desk will be open on Friday, October 14, 2:00 p.m.–5:30 p.m. and Saturday, October 15, 7:30 a.m.–4:00 p.m. Fees are US$52 for AMS members, US$72 for nonmembers; and US$5 for students, unemployed mathematicians, and emeritus members. Fees are payable on-site via cash, check or credit card.

Special Social Event

The University of Nebraska Mathematics Department is hosting a reception on Saturday evening, October 15, between 5:30 p.m. and 6:30 p.m. following the **Erdős Lecture.** Join us for refreshments, hors d'oeuvres, and a cash bar.

Travel

By Plane: The University of Nebraska-Lincoln campus is four miles from the Lincoln Municipal Airport (LNK), which is served by Delta and United.

It is also possible to fly into Omaha (OMA), rent a car, and drive the 60-mile distance to Lincoln. Or take one of the two shuttles listed below from Omaha to Lincoln.

By Car: From I-80 take the Downtown exit I-180 (401A) going south, you will see Memorial Stadium on your left (difficult to miss). As I-180 South ends, it becomes 9th Street in downtown Lincoln. The first intersection you will approach will be 9th and Q Street. (The Downtown Holiday Inn is one block directly ahead on the right.)

To get to Avery Hall, you should get into the far left lane and turn left on P Street (one way), then turn left again on 10th street and work your way over to the farthest right lane on 10th street, so that you can turn right on T street—it comes just after a bend in the road. Then you can go left into a big parking garage. Avery Hall is the three-story building about 100 yards directly east of south entrance of the parking garage.

By bus or train: Amtrak train and Greyhound bus services are available into the Lincoln, Nebraska, area. Please check transportation availability from your area by visiting `www.Amtrak.com` or `www.greyhound.com` . Taxi service is available to the university from all mass transit locations.

Car Rental

Hertz Rent A Car is the official car rental company for the meeting. Depending on variables such as location, length of rental, and size of vehicle, Hertz will offer participants the best available rate which can range from 5-25 percent discount off regular rates. Participants must use the assigned Meeting Hertz Discount Number (**CV#04N30001**) and meet Hertz rate requirements to receive the discount. (Rate discounts are available at all corporate and participating licensee locations.) Reservations can be made by calling 800-654-2240 or online at `www.hertz.com`.

Weather

Climate summary for the month of October for Lincoln, NE:

Average High Temperature - 64° F or 18° C
Average Low Temperature - 41° F or 5° C
Average Monthly Precipitation - 2.3 inches or 5.8 cm

Information for International Participants

Visa regulations are continually changing for travel to the United States. Visa applications may take from three to four months to process and require a personal interview, as well as specific personal information. International participants should view the important information about traveling to the U.S. found at `http://sites.nationalacademies.org/pga/biso/visas/` and

http://travel.state.gov/visa/visa_1750.html. If you need a preliminary conference invitation in order to secure a visa, please send your request to pfs@ams.org.

If you discover you do need a visa, the National Academies website (see above) provides these tips for successful visa applications:

* Visa applicants are expected to provide evidence that they are intending to return to their country of residence. Therefore, applicants should provide proof of "binding" or sufficient ties to their home country or permanent residence abroad. This may include documentation of the following:

- family ties in home country or country of legal permanent residence
- property ownership
- bank accounts
- employment contract or statement from employer stating that the position will continue when the employee returns;

* Visa applications are more likely to be successful if done in a visitor's home country than in a third country;

* Applicants should present their entire trip itinerary, including travel to any countries other than the United States, at the time of their visa application;

* Include a letter of invitation from the meeting organizer or the U.S. host, specifying the subject, location and dates of the activity, and how travel and local expenses will be covered;

* If travel plans will depend on early approval of the visa application, specify this at the time of the application;

* Provide proof of professional scientific and/or educational status (students should provide a university transcript).

This list is not to be considered complete. Please visit the websites above for the most up-to-date information.

For additional local information please visit the University of Nebraska's Sectional Meeting website: http://www.math.unl.edu/events/special/ams/2011/.

Salt Lake City, Utah

University of Utah

October 22–23, 2011
Saturday – Sunday

Meeting #1075
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: August 2011
Program first available on AMS website: September 8, 2011
Program issue of electronic *Notices*: October 2011
Issue of *Abstracts*: Volume 32, Issue 4

Deadlines
For organizers: Expired
For consideration of contributed papers in Special Sessions: Expired
For abstracts: August 30, 2011

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

Invited Addresses

Graeme Milton, University of Utah, *Metamaterials: High contrast composites with unusual properties.*

Lei Ni, University of California San Diego, *Gap theorems on Kähler manifolds.*

Igor Pak, University of California Los Angeles, *The future of combinatorial bijections.*

Monica Visan, University of California Los Angeles, *Dispersive partial differential equations at critical regularity.*

Special Sessions

Algebraic Geometry (Code: SS 8A), **Tommaso de Fernex** and **Christopher Hacon**, University of Utah.

Applied Analysis (Code: SS 15A), **Marian Bocea**, North Dakota State University, and **Mihai Mihailescu**, University of Craiova Romania.

Category Theory in Graphs, Geometry and Inverse Problems (Code: SS 12A), **Robert Owczarek**, Enfitec. Inc., and **Hanna Makaruk**, Los Alamos National Laboratory NM.

Celestial and Geometric Mechanics (Code: SS 5A), **Lennard Bakker** and **Tiancheng Ouyang**, Brigham Young University.

Commutative Algebra (Code: SS 3A), **Chin-Yi Jean Chan**, Central Michigan University, and **Lance E. Miller** and **Anurag K. Singh**, University of Utah.

Computational and Algorithmic Algebraic Geometry (Code: SS 17A), **Zach Teitler**, Boise State University, and **Jim Wolper**, Idaho State University.

Electromagnetic Wave Propagation in Complex and Random Environments (Code: SS 4A), **David Dobson**, University of Utah, and **Peijun Li**, Purdue University.

Geometric Evolution Equations and Related Topics. (Code: SS 2A), **Andrejs Treibergs**, University of Utah Salt Lake City, **Lei Ni**, University of California San Diego, and **Brett Kotschwar**, Arizona State University.

Geometric, Combinatorial, and Computational Group Theory (Code: SS 1A), **Eric Freden**, Southern Utah University, and **Eric Swenson**, Brigham Young University.

Harmonic Analysis and Dispersive Partial Differential Equations (Code: SS 6A), **Xiaoyi Zhang**, University of Iowa, and **Monica Visan** and **Betsy Stovall**, University of California Los Angeles.

Hypergeometric Functions and Differential Equations (Code: SS 13A), **Laura F. Matusevich**, Texas A&M University, and **Christine Berkesch**, Stockholm University.

Inverse Problems and Homogenization (Code: SS 10A), **Elena Cherkaev** and **Fernando Guevara Vasquez**, University of Utah.

Noncommutative Geometry and Algebra (Code: SS 11A), **Kenneth R. Goodearl**, University of California Santa Barbara, and **Milen Yakimov**, Louisiana State University.

Nonlinear Waves (Code: SS 7A), **Zhi-Qiang Wang** and **Nghiem Nguyen**, Utah State University.

Recent Progress in Numerical Partial Differential Equations (Code: SS 9A), **Jichun Li**, University of Nevada-Las Vegas, and **Shue-Sum Chow**, Brigham Young University.

Reductive Groups and Hecke Algebras (Code: SS 14A), **Dan Ciubotaru**, University of Utah, **Cathy Kriloff**, Idaho State University, and **Peter Trapa**, University of Utah.

Understanding Bio-fluids via Modeling, Simulation and Analysis (Code: SS 16A), **Christel Hohenegger**, University of Utah.

Accommodations

Participants should make their own arrangements directly with a hotel of their choice as early as possible. Special rates have been negotiated with the hotels listed below. Rates quoted do not include taxes. The AMS is not responsible for rate changes or for the quality of the accommodations. When making a reservation with a conference hotel, participants should state that they are with the **American Mathematical Society (AMS) Sectional Meeting**. Cancellation and early checkout policies vary; be sure to check when you make your reservation. When making reservations please call the hotel directly and ask for "in house" reservations.

Salt Lake City Marriott–University Park, 480 Wakara Way, Salt Lake City, UT; reservations: 800-228-9290, group name is under AMS Fall Meeting; hotel direct: 801-581-1000; fax: 801-584-3321; www.saltlakecitymarriott.com. Rates are US$89 single/double; includes parking and wireless Internet, complimentary shuttle service within two miles of the hotel, and complimentary parking. The hotel is full-service with an on-site restaurant/bar and is less than one mile from the meeting site on campus. Cancellation and early checkout policies vary; be sure to check when making your reservation. **Deadline for reservations is September 21, 2011**.

University Guest House, 110 South Fort Douglas Blvd., Salt Lake City, UT; 801-587-1000 or 888-416-4075; visit: www.universityguesthouse.com; US$89 single/double. **Deadline for reservations is September 21, 2011**. Be sure to mention you are with the **AMS Math Conference** and check cancellation and early checkout policies.

Red Lion Hotel, 161 West 600 South, Salt Lake City, UT; Call 800-RED-LION (800-733-5466). US$84 single, US$89 double; includes "Roaring Start full buffet breakfast". Visit: www.saltlakecityredlion.com. **Deadline for reservations is September 23, 2011**. Be sure to mention you are with the **AMS Math Conference** and check cancellation and early checkout policies.

Additional Salt Lake City housing is available at:

Hyatt Place, Salt Lake City/Downtown/The Gateway, 55 North 400 West, Salt Lake City, UT 84101; Phone: 801-456-6300.

Hilton, 255 South West Temple, Salt Lake City, UT 84101; Phone: 801-328-2000 or 877-776-4936.

Food Service

There are a number of restaurants adjacent to the campus. A list of restaurants will be available at the registration desk.

Local Information

Please visit the website maintained by the Department of Mathematics at www.math.utah.edu, the University of Utah website www.utah.edu., or Salt Lake Convention and Visitors Bureau site at www.visitsaltlake.com.

Other Activities

Book Sales: Stop by the on-site AMS bookstore and review the newest titles from the AMS, enjoy up to 25 percent off all AMS publications, or take home an AMS t-shirt! Complimentary coffee will be served courtesy of AMS Membership Services.

AMS Editorial Activity: An acquisitions editor from the AMS book program will be present to speak with prospective authors. If you have a book project that you would like to discuss with the AMS, please stop by the book exhibit.

Parking

Parking is not enforced on weekends (except in the obvious do not park zones and special reserved spots) and participants can park in any of the posted lots free of charge. (See map at http://www.map.utah.edu/).

Registration and Meeting Information

Registration and AMS Book Exhibit will be held in the John Widtsoe Building (JWB). Invited Addresses and the book sale will also be in this room. All other sessions will be held in nearby buildings. Please refer to the campus map at http://www.map.utah.edu/index.html for specific locations. The registration desk will be open on Saturday, October 22, 7:30 a.m.–4:00 p.m. and Sunday, October 23, 7:30 a.m.–12:00 p.m. Fees are US$52 for AMS members, US$72 for nonmembers; and US$5 for students, unemployed mathematicians, and emeritus members. Fees are payable on-site via cash, check or credit card.

Travel

By Air: The Salt Lake City International Airport is served by most major airlines and is located ten minutes from downtown Salt Lake City. Taxi fare is approximately US$25–US$30.

Driving: From the Salt Lake International Airport: Take I-80 East approximately 1.5 miles to the North Temple exit. Follow North Temple approximately 3 miles to State Street (one block beyond the Mormon Temple). Turn right on State Street and go south three blocks to 200 South. Turn left proceeding east on 200 South for approximately 2 miles until you reach University Street (1400 East).

From I-15 Northbound: Take the eastbound 600 South exit. At State Street turn left, proceeding 4 blocks north until you reach 200 South. Turn right proceeding east on 200 South for approximately 2 miles until you reach University Street (1400 East).

From I-15 South Bound: Take the eastbound 600 South exit. At 300 West turn right proceeding approximately 1.5 miles south until you reach 200 South. Turn left proceeding east on 200 South for approximately 2 miles until you reach University Street (1400 East).

Once you get to University Street you will be facing "President's Circle". This is a one-way street that you enter on the south. Drive ¾ of the way around the circle to the Mathematics Complex.

By bus or train: Amtrak train and Greyhound bus services are available into the Salt Lake City, Utah, area. Both services are very convenient to recommended hotels as the terminal is based downtown. Please check transportation availability from your area by visiting www.Amtrak.com or www.greyhound.com. Taxi and bus service is available from hotels to the university.

Car Rental

Hertz Rent A Car is the official car rental company for the meeting. Depending on variables such as location, length of rental, and size of vehicle, Hertz will offer participants the best available rate which can range from 5–25 percent discount off regular rates. Participants must use the assigned Meeting Hertz Discount Number (**CV#04N30001**) and meet Hertz rate requirements to receive the discount. (Rate discounts are available at all corporate and participating licensee locations.) Reservations can be made by calling 800-654-2240 or online at www.hertz.com.

Weather

Temperatures vary from 70 F to 50 F in October. Fall is the favorite season of many who visit and live in Utah. Vibrant colors splash across the mountains and canyons as the cooler temperatures turn the leaves all shades of gold, purple, red, green, and brown. For up-to-date forecasts visit: www.visitsaltlake.com.

Information for International Participants

Visa regulations are continually changing for travel to the United States. Visa applications may take from three to four months to process and require a personal interview, as well as specific personal information. International participants should view the important information about traveling to the U.S. found at http://sites.nationalacademies.org/pga/biso/visas/ and http://travel.state.gov/visa/visa_1750.html. If you need a preliminary conference invitation in order to secure a visa, please send your request to pfs@ams.org.

If you discover you do need a visa, the National Academies website (see above) provides these tips for successful visa applications:

* Visa applicants are expected to provide evidence that they are intending to return to their country of residence. Therefore, applicants should provide proof of "binding" or sufficient ties to their home country or permanent residence abroad. This may include documentation of the following:

- family ties in home country or country of legal permanent residence
   - property ownership
   - bank accounts
- employment contract or statement from employer stating that the position will continue when the employee returns;

* Visa applications are more likely to be successful if done in a visitor's home country than in a third country;

* Applicants should present their entire trip itinerary, including travel to any countries other than the United States, at the time of their visa application;

* Include a letter of invitation from the meeting organizer or the U.S. host, specifying the subject, location and dates of the activity, and how travel and local expenses will be covered;

* If travel plans will depend on early approval of the visa application, specify this at the time of the application;

* Provide proof of professional scientific and/or educational status (students should provide a university transcript).

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Port Elizabeth, Republic of South Africa

Nelson Mandela Metropolitan University

November 29 – December 3, 2011
Tuesday – Saturday

Meeting #1076
First Joint International Meeting between the AMS and the South African Mathematical Society.
Associate secretary: Matthew Miller
Announcement issue of *Notices*: July 2011
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: Not applicable

Deadlines

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

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

Invited Addresses

Mark J. Ablowitz, University of Colorado, *Nonlinear systems—from oceans to number theory.*

Mikhail Petrov, University of Swaziland, *Title to be announced.*

James Raftery, University of Kwazulu Natal, *Title to be announced.*

Daya Reddy, University of Cape Town, *Title to be announced.*

Peter Sarnak, Princeton University, *Title to be announced.*

Amanda Weltman, University of Cape Town, *Title to be announced*.

Special Sessions

Combinatorial and Computational Group Theory with Applications, **Gilbert Baumslag**, City College of New York, **Mark Berman**, University of Cape Town, and **Vladimir Shpilrain**, City College of New York.

Combinatorics and Graph Theory, **Michael Henning**, University of Johannesburg, **Robin Thomas**, Georgia Institute of Technology, and **Jacques Verstraete**, University of California, San Diego.

Finite Groups and Combinatorial Structures, **Jashmid Moori**, North-West University, Mafikeng, and **B. Rodrigues**, University of Kwazulu-Natal, Westville.

Geometry and Differential Equations, **Jesse Ratzkin**, University of Cape Town.

High Performance Computing and Imaging, **Steven B. Damelin**, Georgia Southern University and University of the Witswatersrand, and **Hari Kumar**, University of the Witswatersrand.

Nonlinear Waves and Integrable Systems, **Mark Ablowitz**, University of Colorado at Boulder, and **Barbara Prinari**, University of Colorado at Colorado Springs.

Operator and Banach Algebras, and Noncommutative Analysis, **David Blecher**, University of Houston, **Garth Dales**, University of Leeds, **Louis Labuschagne**, North-West University, Potchefstroom Campus, and **Anton Stroh**, University of Pretoria.

Recent Advances in Computational Methods for Partial Differential Equations, **Kailash C. Patidar**, University of the Western Cape.

Topology and Categories, **Hans-Peter Kuenzi**, University of Cape Town.

Boston, Massachusetts

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

January 4–7, 2012
Wednesday – Saturday

Meeting #1077

Joint Mathematics Meetings, including the 118th Annual Meeting of the AMS, 95th Annual Meeting of the Mathematical Association of America, annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: October 2011
Program first available on AMS website: November 1, 2011

Program issue of electronic *Notices*: January 2012
Issue of *Abstracts*: Volume 33, Issue 1

Deadlines

For organizers: Expired
For consideration of contributed papers in Special Sessions: July 28, 2011
For abstracts: September 22, 2011

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

Joint Invited Addresses

Erik Demaine, Massachusetts Institute of Technology, *Title to be announced* (AMS-MAA-SIAM Gerald and Judith Porter Public Lecture).

AMS Invited Addresses

George E. Andrews, Penn State University, *Title to be announced* (AMS Retiring Presidential Address).

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

Edward Frenkel, University of California Berkeley, *Langlands program, trace formulas, and their geometrization, I* (AMS Colloquium Lectures: Lecture I).

Edward Frenkel, University of California Berkeley, *Langlands program, trace formulas, and their geometrization, II* (AMS Colloquium Lectures: Lecture II).

Edward Frenkel, University of California Berkeley, *Langlands program, trace formulas, and their geometrization, III* (AMS Colloquium Lectures: Lecture III).

Larry Guth, University of Toronto, *The polynomial method in combinatorial geometry*.

Assaf Naor, Courant Institute of Mathematical Sciences, *The Ribe program*.

Eric Rains, California Institute of Technology, *Beyond q: Special functions on elliptic curves*.

Wilhelm Schlag, University of Chicago, *Invariant manifolds and dispersive Hamiltonian evolution equations*.

AMS Special Sessions

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

Advanced Investigations on Applied Optimization and Multiple Fractional Programming (Code: SS 6A), **Ram U. Verma**, Texas A&M University, and **Alexander J. Zaslavski**, Technion, Israel.

Advances in Coding Theory (Code: SS 10A), **Sarah Spence Adams**, Olin College of Engineering, **Gretchen L. Matthews**, Clemson University, and **Judy L. Walker**, University of Nebraska-Lincoln.

Advances in Mathematical Biology (Code: SS 56A), **David Chan** and **Rebecca Segal**, Virginia Commonwealth University.

Algebraic and Geometric Aspects of Integrable Systems and Random Matrices (Code: SS 58A), **Anton Dzhamay**, University of Northern Colorado, and **Kenichi Maruno** and **Virgil Pierce**, University of Texas, Pan American.

Arithmetic Geometry (Code: SS 51A), **Bo-Hae Im**, Chung-Ang University, South Korea, **Jennifer Johnson-Leung**, University of Idaho, and **Jennifer Paulhus**, Villanova University.

Calculus of Functors and Its Applications (Code: SS 11A), **Brian Munson** and **Ismar Volic**, Wellesley College.

Classical Fourier Analysis and Partial Differential Equations (Code: SS 27A), **William O. Bray**, University of Maine, and **Mark A. Pinsky**, Northwestern University.

Climate Modeling and Geophysical Fluid Dynamics (Code: SS 39A), **Qingshan Chen**, Florida State University, and **Nathan Glatt-Holtz**, Indiana University.

Combinatorial Geometry of Polytopes (Code: SS 42A), **Egon Schulte**, Northeastern University, and **Asia Ivic Weiss**, York University.

Control Theory and Inverse Problems for Partial Differential Equations (Code: SS 18A), **Shitao Liu**, University of Virginia, and **Ting Zhou**, University of California, Irvine.

Control of Biological and Physical Systems (Code: SS 36A), **Wandi Ding**, Middle Tennessee State University, **Volodymyr Hrynkiv**, University of Houston-Downtown, and **Suzanne Lenhart**, University of Tennessee, Knoxville, and NIMBioS.

Difference Equations and Applications (Code: SS 3A), **Michael Radin**, Rochester Institute of Technology.

Differential Algebraic Geometry and Galois Theory (in memory of Jerald Kovacic) (Code: SS 7A), **Phyllis Joan Cassidy**, Smith College and the City University of New York, **Richard Churchill**, Hunter College and Graduate Center at CUNY, **Claude Mitschi**, Université de Strasbourg, France, and **Michael Singer**, North Carolina State University.

Dynamical Systems in Algebraic and Arithmetic Geometry (Code: SS 19A), **Patrick Ingram**, University of Waterloo, Canada, **Michelle Manes**, University of Hawaii, Honolulu, and **Clayton Petsche**, Hunter College (CUNY).

Enumerative and Algebraic Combinatorics (Code: SS 40A), **Ira Gessel**, Brandeis University, and **Alexander Posnikov** and **Richard Stanley**, Massachusetts Institute of Technology.

Fractal Geometry in Pure and Applied Mathematics (in memory of Benoit Mandelbrot) (Code: SS 4A), **Michael L. Lapidus**, University of California, Riverside, **Erin Pearse**, University of Oklahoma, and **Machiel van Frankenhuijsen**, Utah Valley University.

Fractional, Hybrid, and Stochastic Dynamical Systems with Applications (Code: SS 12A), **John Graef**, University of Tennessee at Chattanooga, **Gangaram S. Ladde**, University of South Florida, Tampa, and **Aghala S. Vatsala**, University of Louisiana at Lafayette.

Frontiers in Geomathematics (Code: SS 55A), **Willi Freeden**, University of Kaiserslautern, **Volker Michel**, University of Siegen, and **M. Zuhair Nashed**, University of Central Florida.

Generalized Cohomology Theories in Engineering Practice (Code: SS 37A), **Robert Kotiuga**, Boston University.

Geometric Invariants of Groups and Related Topics (Code: SS 14A), **Nic Koban**, University of Maine, Farmington, and **Peter N. Wong**, Bates College.

Global Dynamics of Rational Difference Equations with Applications (Code: SS 33A), **Mustafa R. S. Kulenovic**, **Gerasimos Ladas**, and **Orlando Merino**, University of Rhode Island.

Groups, Algorithms, Complexity, and Theory of Security (Code: SS 28A), **Maggie Habeeb** and **Delaram Kahrobaei**, City University of New York.

History of Mathematics (Code: SS 65A), **Sloan Despeaux**, Western Carolina University, **Craig Fraser**, University of Toronto, and **Deborah Kent**, Hillsdale College (AMS-MAA).

Homotopy Theory (Code: SS 5A), **Mark Behrens**, Massachusetts Institute of Technology, **Mark W. Johnson**, Pennsylvania State University, Altoona, **Haynes R. Miller**, Massachusetts Institute of Technology, **James Turner**, Calvin College, and **Donald Yau**, Ohio State University.

Hyperbolicity in Manifolds and Groups (Code: SS 25A), **David Futer**, Temple University, and **Genevieve Walsh**, Tufts University.

Knot Theory (Code: SS 0A), **Tim Cochran** and **Shelly Harvey**, Rice University.

Linear Algebraic Groups: Their Arithmetic, Geometry, and Representations (Code: SS 49A), **R. Skip Garibaldi**, Emory University, and **George McNinch**, Tufts University.

Local Field Properties, Microstructure, and Multiscale Modeling of Heterogeneous Media (Code: SS 23A), **Silvia Jiménez** and **Bogdan Vernescu**, Worcester Polytechnic Institute.

Mathematical Principles and Theories of Integrable Systems (Code: SS 35A), **Wen-Ziu Ma**, University of South Florida, **Syed Tauseef Mohyud-Din**, HITEC University, and **Zhijun Qiao**, University of Texas, Pan American.

Mathematical Theory of Control of Quantum Systems (Code: SS 38A), **Francesca Albertini**, University of Padua, **Domenico D'Alessandro**, Iowa State University, **Raffaele Romano**, University of Trieste, and **Francesco Ticozzi**, University of Padua.

Mathematics and Education Reform (Code: SS 41A), **William Barker**, Bowdoin College, **William McCallum**, University of Arizona, and **Bonnie Saunders**, University of Illinois at Chicago (AMS-MAA-MER).

Mathematics and Statistics in Computational Biology. (Code: SS 52A), **Mark A. Kon**, Boston University.

Mathematics in Industry (Code: SS 34A), **Kirk E. Jordan**, IBM T. J. Watson Research, **Donald Schwendeman**, Rensselaer Polytechnic Institute, and **Burt S. Tilley** and **Suzanne L. Weekes**, Worcester Polytechnic Institute.

Mathematics in Natural Resource Modeling (Code: SS 9A), **Catherine Roberts**, College of the Holy Cross.

Mathematics of Computation: Algebra and Number Theory (Code: SS 16A), **Jean-Marc Couveignes**, Université de Toulouse, **Michael J. Mossinghoff**, Davidson College, and **Igor E. Shparlinski**, Macquarie University, Australia (AMS-SIAM).

Mathematics of Computation: Differential Equations, Linear Algebra, and Applications (Code: SS 26A), **Chi-Wang Shu**, Brown University (AMS-SIAM).

Mathematics of Decisions, Elections, and Games (Code: SS 57A), **Karl-Dieter Crisman**, Gordon College, **Michael Jones**, *Mathematical Reviews*, and **Michael Orrison**, Harvey Mudd College.

Matrices and Graphs (Code: SS 50A), **Leslie Hogben**, Iowa State University and American Institute of Mathematics, and **Bryan L. Shader**, University of Wyoming.

My Favorite Graph Theory Conjectures (Code: SS 29A), **Ralucca Gera**, Naval Postgraduate School, and **Craig Larson**, Virginia Commonwealth University.

Noncommutative Birational Geometry and Cluster Algebras (Code: SS 44A), **Arkady Berenstein**, University of Oregon, and **Vladimir Retakh**, Rutgers University.

Nonlinear Analysis of Partial Differential Equation Models in Biology and Chemical Physics (Code: SS 48A), **Zhonghai Ding**, University of Nevada, Las Vegas, and **Zhaosheng Feng**, University of Texas-Pan American.

Nonlinear Hyperbolic Partial Differential Equations (Code: SS 32A), **Barbara Lee Keyfitz** and **Charis Tsikkou**, Ohio State University (AMS-AWM).

Operator Theory on Analytic Function Spaces (Code: SS 43A), **Robert F. Allen**, University of Wisconsin, La Crosse, and **Katherine C. Heller** and **Matthew A. Pons**, North Central College.

Optimal Control in Applied Mathematical Modeling (Code: SS 45A), **Natali Hritonenko**, Prairie View A&M University, and **Yuri Yatsenko**, Houston Baptist University.

Progress in Free Analysis (Code: SS 46A), **J. William Helton**, University of California, San Diego, and **Paul S. Muhly**, University of Iowa.

Radon Transforms and Geometric Analysis (in honor of Sigurdur Helgason's 85th birthday) (Code: SS 17A), **Jens Christensen**, University of Maryland, and **Fulton Gonzalez** and **Todd Quinto**, Tufts University.

Rational Points on Varieties (Code: SS 30A), **Jennifer Balakrishnan** and **Bjorn Poonen**, Massachusetts Institute of Technology, **Bianca Viray**, Brown University, and **Kirsten Wickelgren**, Harvard University.

Reaction Diffusion Equations and Applications (Code: SS 31A), **Jerome Goddard II** and **Shivaji Ratnasingham**, Mississippi State University, and **Junping Shi**, College of William and Mary.

Recent Advances in Mathematical Biology, Ecology, and Epidemiology (Code: SS 21A), **Sophia R. Jang**, Texas Tech University, **Andrew L. Nevai**, University of Central Florida, and **Lih-Ing W. Roeger**, Texas Tech University.

Recent Trends in Graph Theory (Code: SS 24A), **Ralucca Gera**, Naval Postgraduate School.

Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs (Code: SS 66A), **Bernard Brooks** and **Jobby Jacob**, Rochester Institute of Technology, **Jacqueline Jensen**, Sam Houston State University, and **Darren A Narayan**, Rochester Institute of Technology (AMS-MAA).

Science for Policy and Policy for Science: Career Opportunities at the Intersection of Science and Policy (Code: SS 59A), **Cynthia Robinson** and **Shar Steed**, AAAS Science & Technology Fellowships (AMS-AAAS).

Set-Valued Optimization and Variational Problems (Code: SS 47A), **Andreas H. Hamel**, Yeshiva University, **Akhtar A. Khan**, Rochester Institute of Technology, and **Miguel Sama**, E.T.S.I. Industriales.

Several Complex Variables and Multivariable Operator Theory (Code: SS 8A), **Ronald Douglas**, Texas A&M University, and **John McCarthy**, Washington University.

Some Nonlinear Partial Differential Equations — Theory and Application (Code: SS 54A), **Jerry L. Bona**, University of Illinois, Chicago, and **Laihan Luo**, New York Institute of Technology.

Stability Analysis for Infinite Dimensional Hamiltonian Systems (Code: SS 63A), **Wilhelm Schlag**, University of Chicago, and **Gene Wayne**, Boston University.

Stochastic Analysis (in honor of Hui-Hsiung Kuo) (Code: SS 1A), **Julius Esunge**, University of Mary Washington, and **Aurel Stan**, Ohio State University.

Tensor Categories and Representation Theory (Code: SS 22A), **Deepak Naidu**, Texas A&M University, and **Dmitri Nikshych**, University of New Hampshire.

The Life and Legacy of Alan Turing (Code: SS 13A), **Damir Dzhafarov**, University of Chicago and University of Notre Dame, **Jeff Hirst**, Appalachian State University, and **Carl Mummert**, Marshall University (AMS-ASL).

Theory and Applications of Stochastic Differential and Partial Differential Equations (Code: SS 15A), **Edward Allen**, Texas Tech University, **Mahmoud Anabtawi**, American University of Sharjah, **Armando Arciniega**, University of Texas at San Antonio, **Gangaram S. Ladde**, University of South Florida, and **Sivapragasam Sathananthan**, Tennessee State University.

Topological Graph Theory: Structure and Symmetry (Code: SS 20A), **Jonathan L. Gross**, Columbia University, and **Thomas W. Tucker**, Colgate University.

Trends in Representation Theory (Code: SS 2A), **Donald King**, Northeastern University, and **Alfred Noel**, University of Massachusetts, Boston.

Uniformly and Partially Hyperbolic Dynamical Systems (Code: SS 53A), **Todd Fisher**, Brigham Young University, and **Boris Hasselblatt**, Tufts University.

Call for MAA Contributed Papers

The MAA Committee on Contributed Paper Sessions solicits contributed 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, an overhead projector, and a screen. Please note that the dates and times scheduled for these sessions remain tentative.

Arts and Mathematics, Together Again, organized by **Douglas E. Norton**, Villanova University; Thursday morning and afternoon. SIGMAA-Arts again sponsors its series of sessions on the connections between Mathematics and the Arts. Mathematical interpretations, analysis, constructions, or motivations for art; aesthetic interpretations, analysis, constructions, or motivations for mathematics; visual or verbal or vocal, dance or drama, geometry or algebra or number theory or topology, theoretical discoveries or teaching experiences: all are welcome! Come! Contribute! Share! Learn! Presentations should reflect ongoing research or pedagogical innovation at the intersection of Mathematics and the Arts.

The Capstone Course: Innovations and Implementations, organized by **Kathryn Weld**, Manhattan College, and **Agnes Rash**, St. Joseph's College; Wednesday morning. There are a variety of models for capping the major, and often these take the form of a special capstone course or senior seminar. We invite papers describing innovative implementations of the capstone course, and evidence of success in the classroom.

What content is covered? If the course involves problem solving or undergraduate presentations, how are topics chosen? What are the goals and outcomes for the course and how is success measured? Does the course play a role in departmental assessment of the major? Does the course make connections for students to regional undergraduate mathematics conferences, and if so, how? What are the special problems (if any) posed by student collaboration and the use of the Internet, and how does the course address them? Sponsored by PRIMUS: Problems, Resources, and Issues in Undergraduate Mathematics Studies. Papers from the session may be considered for a special issue of PRIMUS on the capstone course.

Developmental Mathematics Education: Helping Underprepared Students Transition to College-Level Mathematics, organized by **Kimberly Presser** and **J. Winston Crawley**, Shippensburg University; Friday afternoon. The struggle to assist underprepared students to be successful in college-level mathematics is not new. However, in recent years, the number of underprepared or math anxious students coming to our colleges and universities has been growing. In order to help these students to be successful, we need to undertake new strategies for support services; courses offered; and perhaps even in our programs themselves. This session invites papers on all aspects of developmental mathematics education. In particular, what classroom practices are effective with such students and how does research in student learning inform these practices? For students interested in math-intensive majors such as the sciences, how can we best prepare these students for several subsequent mathematics courses? How can we best coordinate support services with the courses offered in our mathematics departments? We are interested in hearing presentations from across the spectrum of community colleges through four-year universities at this session.

Early Assessment: Find Out What Your Students Understand (and Don't Understand) Before They Take the Test, organized by **Miriam Harris-Botzum**, Lehigh Carbon Community College, and **Bonnie Gold**, Monmouth University; Saturday afternoon. Assessment has two aspects, formative and summative. Both can be used to improve student learning. But where summative assessment looks at long-term comprehension and retention of material, and is generally used to assign grades, formative assessment is more short-term—what did the students get out of this lecture, or this concept, and what don't they quite get yet? And formative assessment need not be counted towards a student's grade; the goal of formative assessment is to inform your teaching and your students' studying. Angelo and Cross's Classroom Assessment Techniques is full of good ideas for finding out where students' understanding is, and there are quite a few chapters in the *MAA Notes* volume 49, "Assessment Practices in Undergraduate Mathematics" devoted to formative assessment methods. This session invites talks sharing methods, and evidence for their effectiveness, you have used in your classes to find out what your students have learned so far and, with that information, help them learn the rest better. Sponsored by the MAA Committee on Assessment.

Effective Use of Dynamic Mathematical Software in the Classroom, organized by **M. E. Waggoner**, Simpson College, and **Therese Shelton**, Southwestern University; Wednesday morning. Although using dynamic mathematical software programs, such as GeoGebra or Fathom, can be very effective as a teaching tool, it is often difficult to find the time to develop the files needed for a classroom experience. The purpose of this session is to provide a jump start to using software in the classroom. We are looking for talks that present one specific mathematics lesson using some dynamic software. The presentation will describe how the software was used in the classroom, and the files used in the lesson will be made available online. As a result, the audience will have a ready-made lesson to use. The lesson could be for any mathematical course and use any third-party software including GeoGebra, Fathom, Geometer's Sketchpad, calculator simulators, spreadsheets or a computer algebra system. It is preferred that the lesson include hands-on use of the software by students and not simply a classroom demonstration. Preference will be given to uses of widely used software such as those listed above or freeware.

The History of Mathematics and its Uses in the Classroom, organized by **Amy Shell-Gellasch**, Beloit College; Saturday morning. This session features talks about original research in the history of mathematics, ideas for the inclusion of the history of mathematics in mathematics courses, or ideas for courses dedicated to the history of mathematics.

Interest in the history of mathematics has grown rapidly in the last decades. Specialists and non-specialists alike contribute to the field. Many mathematicians use history to enhance the teaching of college mathematics. Sponsored by the SIGMAA on the History of Mathematics.

Innovations in Teaching Statistics in the New Decade, organized by **Andrew Zieffler**, University of Minnesota; **Brian Gill**, Seattle Pacific University; and **Nancy Boynton**, SUNY Fredonia; Friday afternoon. What have you found that is working particularly well in your statistics class? What did you try that really didn't work? What went wrong? Are there new technologies, websites, textbook ancillary materials activities or other teaching methods that are working well for you? What shouldnÆt we let go of from the traditional courses? And what should we let go of? Tell us about your course—especially what makes it successful. We encourage contributions concerning either an introductory or a more advanced undergraduate course. Sponsored by the SIGMAA on Statistics Education. Presenters will be considered for the Dex Whittinghill Award for Best Contributed Paper.

Innovative and Effective Ways to Teach Linear Algebra, organized by **David Strong**, Pepperdine University; **Gil Strang**, MIT; and **David Lay**, University of Maryland;

Wednesday afternoon. Linear algebra is one of the most interesting and useful areas of mathematics, because of its beautiful and multifaceted theory, as well as the enormous importance it plays in understanding and solving many real world problems. Consequently, many valuable and creative ways to teach its rich theory and its many applications are continually being developed and refined. This session will serve as a forum in which to share and discuss new or improved teaching ideas and approaches. These innovative and effective ways to teach linear algebra include, but are not necessarily limited to: (1) hands-on, in-class demos; (2) effective use of technology, such as Matlab, Maple, Mathematica, Java Applets, or Flash; (3) interesting and enlightening connections between ideas that arise in linear algebra and ideas in other mathematical branches; (4) interesting and compelling examples and problems involving particular ideas being taught; (5) comparing and contrasting visual (geometric) and more abstract (algebraic) explanations of specific ideas; and (6) other novel and useful approaches or pedagogical tools.

The Mathematical Preparation of Teachers: The Impact of the Common Core State Standards Initiative, organized by **Kenneth C. Millett**, University of California Santa Barbara; **Elizabeth Burroughs**, Montana State University; **Holly Peters Hirst**, Appalachian State University; and **William McCallum**, The University of Arizona; Saturday morning. How has the mathematical preparation of teachers been influenced by the widespread state adoption of the Common Core State Standards? Papers describing the changes in mathematics curricula and teacher preparation programs at a range of institutions will provide the context for exploring the implications of the CCSS on the content and emphasis of mathematics courses and the consideration of options available to faculty members and their departments in addressing the CCSS mathematics objectives. Sponsored by the Committee on the Mathematical Education of Teachers (COMET).

Mathematics and Sports, organized by **R. Drew Pasteur**, College of Wooster; Wednesday morning. Applications of mathematics are plentiful in sports, relating to probability, statistics, linear algebra, calculus, and numerical analysis, among other areas. This contributed paper session will feature various uses of mathematics to study phenomena arising from multiple sports. The success of the 2010 Mathematics Awareness Month, with this theme, and the increasing prominence of a peer-reviewed academic journal in this area are both evidence of its growth. The expanding availability of play-by-play data for professional and some collegiate sports is leading to innovative kinds of analysis. This session will include both expository talks and presentations of original research; undergraduate students and their mentors are particularly encouraged to submit abstracts for consideration.

Mathematics Experiences in Business, Industry and Government, organized by **Carla D. Martin**, James Madison University; **Phil Gustafson**, Mesa State College; and **Michael Monticino**, University of North Texas; Thursday morning. The MAA Business, Industry and Government Special Interest Group (BIG SIGMAA) provides resources and a forum for mathematicians working in Business, Industry and Government (BIG) to help advance the mathematics profession by making connections, building partnerships, and sharing ideas. BIG SIGMAA consists of mathematicians in BIG as well as faculty and students in academia who are working on BIG problems.

Mathematicians, including those in academia, with BIG experience are invited to present papers or discuss projects involving the application of mathematics to BIG problems. The goal of this contributed paper session sponsored by BIG SIGMAA is to provide a venue for mathematicians with experience in business, industry, and government to share projects and mathematical ideas in this regard. Anyone interested in learning more about BIG practitioners, projects, and issues, will find this session of interest.

The Mathematics of Sudoku and Other Pencil Puzzles, organized by **Laura Taalman** and **Jason Rosenhouse**, James Madison University; Wednesday and Thursday afternoons. This session is for talks about mathematical research, classroom use, and possible undergraduate research projects that relate to Sudoku or other pencil puzzles such as Ken Ken, Slitherlink, Masyu, Kakuro, and so on. We invite papers for any type of pencil puzzle, from any mathematical perspective, including graph theory, game theory, Gröbner bases, Latin squares, integer programming, probability, rook problems, exact cover problems, and NP- completeness. Speakers whose talks are accepted to the session will be encouraged to submit puzzles to the organizers for inclusion in a handout that will be made available at the session.

The Mathematics of Sustainability, organized by **Elton Graves**, Rose-Hulman Institute of Technology, and **Peter Otto**, Willamette University; Friday afternoon. This session is intended to encourage papers from colleagues who have used sustainability models or discussion in their undergraduate mathematics classroom.

Topics such as sustainable harvesting of food and natural resources, development of sustainable energy sources, conservation and recycling, greenhouse gas emissions, global warming, new types of "green" buildings, etc. are ideas which have now become global issues.

Papers for this session should describe how mathematical sustainability models/discussions have been used in the undergraduate mathematics classroom. Models/discussion may include but are not limited to: global warming; green house gas models; sustainable use of resources including food, water, minerals; power generation; alternative fuel generation; conservation; recycling; and sustainable structures including retrofitting older buildings.

Faculty members who have participated in interdisciplinary programs, classes, projects, or assignments are encouraged to present. Papers from all undergraduate mathematical courses or interdisciplinary courses with a mathematics component are welcome and encouraged.

Modeling Across the Mathematics Curriculum, organized by **Benjamin Galluzzo**, Shippensburg University; **Mariah Birgen**, Wartburg College; and **Joyati Debnath**, Winona State University; Friday morning. By answering the question: How can I apply my education to the "real

world"? Mathematical modeling offers a great opportunity to attract and retain outstanding students. While some departments offer mathematical modeling in a single course setting, inclusion of application-based activities across the full range of the curriculum presents a greater challenge. The 2004 MAA CUPM Curriculum Guide recommends that "every course in the undergraduate mathematics program—from the most basic to the most advanced—should strive to include meaningful application that genuinely advance students' ability to analyze real-life situations and construct and analyze appropriate mathematical models". Inside or outside of the classroom, as an individual project or a semester long theme, as an introduction to mathematical applications for entry level students or as a gateway to undergraduate research, mathematical modeling serves as an excellent platform for satisfying CUPM expectations and reaching a broad student audience. This session invites scholarly papers that discuss how modeling is used to engage and excite students—at all levels—about mathematics.

Motivating Statistical and Quantitative Learning through Social Engagement, organized by **Brian Gill**, Seattle Pacific University; **Eric Gaze**, Bowdoin College; **Andrew Zieffler**, University of Minnesota; and **Stuart Boersma**, Central Washington University; Saturday morning and afternoon. It is important for our students to learn to apply statistics and quantitative methods to real problems. Our students are interested in service learning and civic engagement and they provide important ways for students to both do useful work and also better understand the techniques that they learn in their courses. Social justice is not often discussed in mathematics or statistics courses; however, we can use quantitative techniques to better understand the differences in the lives of people in various segments of society. We invite submissions that describe successful statistics or quantitative literacy courses that include a service learning, social justice or civic engagement component. Sponsored by the SIGMAA on Statistics Education and the SIGMAA on Quantitative Literacy. Presenters identifying their presentation as being about a statistics course will be considered for the Dex Whittinghill Award for Best Contributed Paper.

My Most Successful Math Club Activity, organized by **Jacqueline Jensen**, Slippery Rock University, and **Deanna Haunsberger**, Carleton College; Thursday morning. Math clubs enhance the culture of a mathematics department and inspire students to study and major in mathematics. How does one develop a new group? How about refreshing an existing one? What successful math club activities have your students engaged in recently that is replicable at other schools?

This session features presentations from math club advisors and others who will share their favorite non-standard activity for math clubs. Our goal is to provide ideas and support for mentors of math clubs, especially those trying to begin or reactivate a group. Speakers should focus on a single activity that motivates and engages students, and, when applicable, include suggestions for acquiring funding for such activities. It is our hope that these talks will spur immediate discussion between speakers and audience members, and lead to re-energizing math clubs and engaging students. Sponsored by the MAA Committee on Undergraduate Student Activities and Chapters.

Philosophy of Mathematics and Mathematical Practice, organized by **Dan Sloughter**, Furman University, and **Bonnie Gold**, Monmouth University; Friday afternoon. Philosophers search for insights into the most general epistemological and ontological questions: How do we know, and what is it that we know? Since mathematical knowledge is a significant piece of what we know, an explanation of the nature of mathematics plays an important role in philosophy. To this end, a philosopher of mathematics must pay careful attention to mathematical practice, what it is that mathematicians claim to know and how they claim to know it.

A philosopher's explanation of mathematics cannot be a local explanation: it must fit within the larger picture of knowledge as a whole. A mathematician may have an account of mathematics which suffices for her work, but unless this account fits coherently into a larger epistemological and ontological picture, it will not suffice as a philosophy of mathematics.

This session will address questions concerning the relationship between the philosophy and the practice of mathematics. We encourage papers to address questions such as: Should the philosophy of mathematics influence, or be influenced by, the practice of mathematics? Is it necessary for the philosophy of mathematics to influence the practice of mathematics for it to be relevant to mathematicians? Sponsored by the SIGMAA on the Philosophy of Mathematics.

Preparing College Students for Calculus, organized by **Andrew Bennett**, Kansas State University; Thursday morning. What do students need to know and be able to do in order to succeed in calculus? More mathematics? More mathematical ways of thinking? More about how to learn and study? (Or, perhaps, all of the above?) This session is intended to solicit a wide range of perspectives on the issues related to and successful approaches in preparing college students to succeed in calculus. This work is part of the MAA CRAFTY committee's information gathering process to inform our upcoming examination of the topic.

We encourage talks on illustrative examples of the mathematics or mathematical thinking necessary for calculus; new and innovative approaches to pre-calculus or calculus with review courses; research on the factors involved in student readiness or success in calculus; and successful extra-course support programs (such as supplemental instruction). In all cases, speakers should present evidence of success in these approaches or offer reflective insight on the core challenges. (While we gratefully acknowledge the critical role that high school curricula play in this conversation, we are interested in talks about courses or programs housed in colleges and universities). Sponsored by the CUPM Subcommittee on Curriculum Renewal Across the first Two Years (CRAFTY).

Projects, Demonstrations, and Activities that Engage Liberal Arts Mathematics Students, organized by **Sarah Mabrouk**, Framingham State University; Thursday afternoon. Many colleges and universities offer liberal arts

mathematics courses (lower-level courses other than statistics, college algebra, precalculus, and calculus) designed for students whose majors are in disciplines other than mathematics, science, social science, or business. Students taking such courses have a variety of backgrounds and strengths and differing levels of interest and comfort with mathematics.

This session invites papers regarding projects, demonstrations, and activities that can be used to enhance the learning experience for students taking liberal arts mathematics courses. Papers should include information about the topic(s) related to the project/demonstration/activity, preliminary information that must be presented, and the goal(s)/outcome(s) for the project/demonstration/activity. Presenters discussing demonstrations and activities are encouraged to give the demonstration or perform the activity, if time and equipment allow, and to discuss the appropriateness of the demonstration/activity for the learning environment and the class size. Presenters discussing projects are encouraged to address how the project was conducted (individual or group), how the project was presented for evaluation (in-class or online presentation, written paper, poster session, or online discussion), grading issues, if any, and the rubric used to appraise the students' work. Each presenter is encouraged to discuss how the project/demonstration/activity fits into the course, the use of technology, if any, the students' reactions, and the effect of the project/demonstration/activity on the students' attitudes towards and understanding of mathematics.

Quantitative Literacy and Decision Making, organized by **Eric Gaze**, Bowdoin College; **Cinnamon Hillyard**, University of Washington Bothell; and **Semra Kilic-Bahi**, Colby Sawyer College; Friday morning. Our students are being asked to make decisions in an increasingly complex world that require fundamental quantitative literacy in diverse fields such as personal health, finance, and public policy. The ability to reason from evidence by questioning assumptions and premises, and assessing the veracity of claims is especially critical when arguments are based on data and mathematical models. Students' abilities to obtain, process, and understand information related to such issues is crucial for them in making well-informed decisions and participating in a democratic society.

This session seeks papers that discuss courses, classroom materials, curricular and/or extracurricular activities that focus on exploring the use and misuse of mathematical concepts related to making important decisions that affect the personal, professional, and academic lives of our students. All presentations are expected to be scholarly in nature, including some evidence (qualitative or quantitative) of the effectiveness of the activity. Sponsored by the SIGMAA on Quantitative Literacy.

Research on the Teaching and Learning of Undergraduate Mathematics, organized by **Sean Larsen**, Portland State University; **Stacy Brown**, Pitzer College; and **Karen Marrongelle**, Portland State University; Thursday morning and afternoon. This session sponsored by the SIGMAA on RUME (Special Interest Group of the MAA on Research in Undergraduate Mathematics Education) presents papers that address issues concerning the teaching and learning of undergraduate mathematics, including theoretical and empirical investigations that employ quantitative and qualitative methodologies.

Proposals for reports of Research on Undergraduate Mathematics Education are invited. The research should build on the existing research literature and use established methodologies to investigate important issues in undergraduate mathematics teaching and learning. The goals of the session are to share high quality research on undergraduate mathematics education with the broader mathematics community. The session will feature research in a number of mathematical areas including linear algebra, advanced calculus, abstract algebra, and mathematical proof.

The Scholarship of Teaching and Learning in Collegiate Mathematics, organized by **Jackie Dewar**, Loyola Marymount University; **Thomas Banchoff**, Brown University; **Pam Crawford**, Jacksonville University; and **Edwin Herman**, and **Nathan Wodarz**, University of Wisconsin-Stevens Point; Wednesday morning and afternoon. The Scholarship of Teaching and Learning is a growing field in which faculty bring disciplinary knowledge to bear on questions of teaching and learning and use student-based evidence to support their conclusions. Work in this area emphasizes pedagogical techniques and questions. The scope of the research can range from small, relatively informal investigations about teaching innovations in the classroom to larger or more formal investigations of student learning.

Reports that address issues concerning the teaching and learning of postsecondary mathematics are invited. Appropriate for this session are reports of classroom-based investigations of teaching methods, student learning difficulties, or curricular assessment. Papers must discuss more than anecdotal evidence. For example, papers might reference the following types of evidence: student work, pre/post tests, interviews, surveys, think-alouds, etc.

The goals of this session are to: feature scholarly work focused on teaching of postsecondary mathematics; provide a venue for mathematicians to make public their scholarly work on teaching; and highlight evidence-based arguments for the value of teaching innovations.

Topics and Techniques for Teaching Real Analysis, organized by **Paul Musial**, Chicago State University; **James Peterson**, Benedictine College; **Erik Talvila**, University of the Fraser Valley; and **Robert Vallin**, Slippery Rock University of Pennsylvania; Friday morning. Analysis of the real numbers and of functions of a real variable is an integral part of the mathematics curriculum. An instructor of a real analysis class must have deep content knowledge, but also must have ways of motivating the learning of this important but technically difficult subject. The organizers propose a contributed paper session at which mathematicians can share their ideas for teaching an undergraduate real analysis course. This session was given at the 2007 New Orleans and 2008 San Diego Joint Mathematics Meetings where each time the sessions had to be spread out over two days due to the large volume of speakers. Every session was well-attended (between 50 and 100 people at

each talk) and generated good and important discussions within the audience in the time between speakers.

The intended audience for the session is instructors teaching undergraduate real analysis courses at a college or university. Participants will find new ways of understanding the material taught in a real analysis course and new ways of presenting this material. It is assumed that the participants have taken at least one real analysis course and have a graduate degree in mathematics.

Touch It, Feel It, Learn It: Tactile Learning Activities in the Undergraduate Mathematics Classroom, organized by **Jessica Mikhaylov**, U.S. Military Academy at West Point, and **Julie Barnes**, Western Carolina University; Wednesday afternoon. This session invites presentations describing activities that use tactile teaching methods in any undergraduate mathematics classes. Some examples of tactile methods could include props that students can touch to understand concepts better, projects where students create physical models that represent a concept, or in-class activities where students work together to create a hands-on demonstration of their understanding of a particular concept. This session seeks presentations that focus on engaging students through interaction with props, use of manipulative materials, or even inviting students to physically become a part of a function or concept; this does not include technology demonstrations such as computer visualizations. We seek innovative and creative ways for physically involving students in mathematics. Presentations that include how to integrate a particular activity into class, student reactions, educational benefits, difficulties to avoid, and/or possible modifications of the activity are desired.

Trends in Teaching Mathematics Online, organized by **Michael B. Scott**, California State University, Monterey Bay; Saturday afternoon. This session will highlight the challenges, triumphs and emerging trends in teaching mathematics online. It will also provide a forum for instructors to share and discuss new or improved teaching ideas, approaches and technologies for teaching mathematics courses online. Presentations will be geared to both instructors teaching mathematics online for the first time and veteran practitioners. The demand for effective online courses continues to grow. Although teaching online has been around for some time, technologies and techniques continue to evolve. This evolution can present new and more effective learning experiences for students. The focus of the reports include, but are not necessarily limited to descriptions of and solutions to challenges and pitfalls when teaching mathematics online, effective practices of online instruction, experiences using new and emerging technologies in online instruction, innovative pedagogical and assessment models, strategies for teaching upper-division courses, and analysis of the effectiveness of teaching mathematics online. Sponsored by the Committee on Technologies in Mathematics Education (CTiME) and SIGMAA on Mathematics Instruction Using the Web.

Trends in Undergraduate Mathematical Biology Education, organized by **Timothy D. Comar**, Benedictine University; Thursday morning and afternoon. This session highlights successful implementations of biomathematics courses and content in undergraduate curriculum, entire biomathematics curricula, efforts to recruit students into biomathematics courses, involvement of undergraduate students in biomathematics research, preparation for graduate work in biomathematics and computational biology or for medical careers, and assessment of how these courses and activities impact the students. Several reports emphasize that aspects of biological research are becoming more quantitative and that life science students should be introduced to a greater array of mathematical and computational techniques and to the integration of mathematics and biological content at the undergraduate level. These reports include "Bio 2010" (National Research Council, 2003) and "A New Biology for the 21st Century" (National Research Council, 2009). Additionally, the 2009 document, "Scientific Foundations for Future Physicians", co-published by the Association of American Medical Colleges and the Howard Hughes Medical Institute, recommends that future physicians need increased quantitative training.

Moreover, presenting quantitative approaches to biological problems to all biology majors, not just those who intend to pursue research or medical careers, in their introductory college mathematics courses provides these students with a wider range of tools and can better motivate the mathematics. It is also important for mathematics majors to be made aware of current issues at the intersection of mathematics and biology because mathematical and computational biology provides interesting, approachable problems for research even at the undergraduate level and mathematics students need to be trained to collaborate with scientists in other disciplines particularly including biology.

Topics may include scholarly work addressing the issues related to the design of effective biomathematics courses and curricula, how best to gear content toward pre-med students, integration of biology into existing mathematics courses, collaborations between mathematicians and biologists that have led to new courses, course modules, or undergraduate research projects, effective use of appropriate technology in biomathematics courses, and assessment issues. Sponsored by the SIGMAA on Mathematical and computational Biology.

Wavelets in Undergraduate Education, organized by **Caroline Haddad**, SUNY Geneseo; **Catherine Beneteau**, University of South Florida; **David Ruch**, Metropolitan State College of Denver; and **Patrick Van Fleet**, University of St. Thomas; Friday afternoon. Wavelets are functions that satisfy certain mathematical properties and are used to represent data or other functions. They work extremely well in analyzing data with finite domains having different scales or resolutions. Interesting applications include digital image processing, FBI fingerprint compression, signal processing of audio files, de-noising noisy data, earthquake prediction, and solving partial differential equations. Wavelets have typically been studied at the graduate level, but are making their way into the undergraduate curriculum. We are interested in presentations that effectively incorporate wavelets in an innovative way at the undergraduate level. This may include an undergraduate

course in wavelets; a topic on wavelets in some other course using, but not limited to, hands-on demonstrations, projects, labs that utilize technology such as Matlab, Mathematica, Maple, Java applets, etc.; or research opportunities for undergraduates.

Writing the History of the MAA, organized by **Victor J. Katz**, University of the District of Columbia; **Janet Beery**, University of Redlands; and **Amy Shell-Gellasch**, Beloit College; Friday morning. In preparation for the MAA centennial celebration in 2015, it is important to fill in gaps in the history of the organization and its sections. Many sections do not have written histories, and there are many facets of the MAA's history that have not been fully explored. We invite section historians or other officers or individuals to begin research on the histories of their sections and to present their preliminary findings at this session. We also invite members to begin research and to present their findings on other topics related to the history of the MAA, particularly in the last 50 years. Examples of topics include the history of any MAA sponsored projects, the history of electronic services in the MAA, the changes in membership over the years, the development of the publication program, or the history and accomplishments of a particular committee. This session is sponsored by the History Subcommittee of the Centennial Committee and is a follow-up to the Panel Discussion of the same name at the 2011 JMM. Sponsored by the History Subcommittee of the MAA Centennial Committee.

General Contributed Paper Session, organized by **Jennifer Beineke**, Western New England College; **Lynnette Boos**, Providence College; and **Aliza Steurer**, Dominican University; Wednesday, Thursday, Friday, and Saturday mornings and afternoons. Papers may be presented on any mathematical topic. Papers that fit into one of the other sessions should be sent to that session, not to the general session.

Submission Procedures for MAA Contributed Paper Abstracts

Abstracts may be submitted electronically at `http://jointmathematicsmeetings.org/meetings/abstracts/abstract.pl?type=jmm`. Simply fill in the number of authors, and then follow the step-by-step instructions. **The deadline for abstracts is Thursday, September 22, 2011**.

Participants may submit at most one abstract for MAA contributed paper sessions at this meeting. If your paper cannot be accommodated in the session in which it is submitted, it will automatically be considered for the general session.

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

Honolulu, Hawaii

University of Hawaii

March 3–4, 2012
Saturday – Sunday

Meeting #1078
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: October 2012
Program first available on AMS website: January 26, 2012
Program issue of electronic *Notices*: March 2012
Issue of *Abstracts*: Volume 33, Issue 2

Deadlines
For organizers: August 3, 2011
For consideration of contributed papers in Special Sessions: November 22, 2011
For abstracts: December 13, 2011

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

Invited Addresses

Zhiqin Lu, University of California Irvine, *To be announced*.

Peter Schroder, California Institute of Technology, *To be announced*.

Pham Tiep, University of Arizona, Tucson, *To be announced*

Lauren Williams, University of California Berkeley, *To be announced*.

Special Sessions

Automorphic and Modular Forms (Code: SS 4A), **Pavel Guerzhoy**, University of Hawaii, and **Zachary A. Kent**, Emory University.

Geometry and Analysis on Fractal Spaces (Code: SS 3A), **Michel Lapidus**, University of California, Riverside, **Hung Lu**, Hawaii Pacific University, **John A. Rock**, California State Polytechnic University, Pomona, and **Machiel van Frankenhuijsen**, Utah Valley University.

Kaehler Geometry and Its Applications (Code: SS 1A), **Zhiqin Lu**, University of California Irvine, **Jeff Streets**, Princeton University, **Li-Sheng Tseng**, Harvard University, and **Ben Weinkove**, University of California San Diego.

Linear and Permutation Representations (Code: SS 2A), **Robert Guralnick**, University of Southern California, and **Pham Huu Tiep**, University of Arizona.

Tampa, Florida

University of South Florida

March 10–11, 2012

Saturday – Sunday

Meeting #1079

Southeastern Section
Associate secretary: Matthew Miller
Announcement issue of *Notices*: January
Program first available on AMS website: February 2, 2012
Program issue of electronic *Notices*: March 2012
Issue of *Abstracts*: Volume 33, Issue 2

Deadlines

For organizers: August 10, 2011
For consideration of contributed papers in Special Sessions: November 29, 2011
For abstracts: January 18, 2012

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

Invited Addresses

Anne Condon, University of British Columbia, *Title to be announced.*

Mark Ellingham, Vanderbilt University, *Title to be announced.*

Mauro Maggioni, Duke University, *Digital data sets: Geometry, random walks, multiscale analysis, and applications.*

Weiqiang Wang, University of Virginia, *Title to be announced.*

Special Sessions

Algebraic and Combinatorial Structures in Knot Theory (Code: SS 2A), **J. Scott Carter**, University of South Alabama, and **Mohamed Elhamdadi** and **Masahico Saito**, University of South Florida.

Analysis in Metric Spaces (Code: SS 3A), **Thomas Bieske**, University of South Florida, and **Jason Gong**, University of Pittsburgh.

Applications of Complex Analysis in Mathematical Physics (Code: SS 9A), **Razvan Teodorescu**, University of South Florida, **Mihai Putinar**, University of California, Santa Barbara, and **Pavel Bleher**, Indiana University-Purdue University Indianapolis.

Complex Analysis and Operator Theory (Code: SS 8A), **Sherman Kouchekian**, University of South Florida, and **William Ross**, University of Richmond.

Discrete Models in Molecular Biology (Code: SS 1A), **Alessandra Carbone**, Université Pierre et Marie Curie and Laboratory of Microorganisms Genomics, **Natasha Jonoska**, University of South Florida, and **Reidun Twarock**, University of York.

Hopf Algebras and Galois Module Theory (Code: SS 7A), **James Carter**, College of Charleston, and **Robert Underwood**, Auburn University Montgomery.

Interaction between Algebraic Combinatorics and Representation Theory (Code: SS 4A), **Mahir Can**, Tulane University, and **Weiqiang Wang**, University of Virginia.

Modeling Crystalline and Quasi-Crystalline Materials (Code: SS 5A), **Mile Krajcevski** and **Gregory McColm**, University of South Florida.

Solvability and Integrability of Nonlinear Evolution Equations (Code: SS 6A), **Wen-Xiu Ma**, University of South Florida, and **Ahmet Yildirim**, Ege University and University of South Florida.

Washington, District of Columbia

George Washington University

March 17–18, 2012

Saturday – Sunday

Meeting #1080

Eastern Section
Associate secretary: Steven H. Weintraub
Announcement issue of *Notices*: January 2012
Program first available on AMS website: February 9, 2012
Program issue of electronic *Notices*: March 2012
Issue of *Abstracts*: Volume 33, Issue 2

Deadlines

For organizers: August 17, 2011
For consideration of contributed papers in Special Sessions: December 6, 2011
For abstracts: January 31, 2012

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

Invited Addresses

Jim Geelen, University of Waterloo, *Title to be announced.*

Boris Solomyak, University of Washington, *Title to be announced.*

Gunther Uhlmann, University of Washington, *Title to be announced* (Einstein Public Lecture in Mathematics).

Anna Wienhard, Princeton University, *Title to be announced.*

Special Sessions

Homology Theories Motivated by Knot Theory (Code: SS 3A), **Jozef H. Przytycki**, George Washington University, **Radmila Sazdanovic**, University of Pennsylvania, and **Alexander N. Shumakovitch** and **Hao Wu**, George Washington University.

Matroid Theory (Code: SS 1A), **Joseph E. Bonin**, George Washington University, and **Sandra Kingan**, Brooklyn College.

Optimization: Theory and Applications (Code: SS 2A), **Roman Sznajder**, Bowie State University.

Self-organization Phenomena in Reaction Diffusion Equations (Code: SS 5A), **Xiaofeng Ren**, George Washington University, and **Junping Shi**, College of William and Mary.

Structural and Extremal Problems in Graph Theory (Code: SS 4A), **Daniel Cranston**, Virginia Commonwealth University, and **Gexin Yu**, College of William & Mary.

Tilings, Substitutions, and Bratteli-Vershik Transformations (Code: SS 6A), **E. Arthur Robinson**, George Washington University, and **Boris Solomyak**, University of Washington.

Lawrence, Kansas

University of Kansas

March 30 – April 1, 2012

Friday – Sunday

Meeting #1081
Central Section
Associate secretary: Georgia Benkart
Announcement issue of *Notices*: February 2012
Program first available on AMS website: March 8, 2012
Program issue of electronic *Notices*: March 2012
Issue of *Abstracts*: Volume 33, Issue 2

Deadlines

For organizers: August 31, 2011
For consideration of contributed papers in Special Sessions: December 20, 2011
For abstracts: February 14, 2012

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

Invited Addresses

Frank Calegari, Northwestern University, *Title to be announced*.

Christopher Leininger, University of Illinois at Urbana-Champaign, *Title to be announced*.

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

Catherine Yan, Texas A&M University, *Title to be announced*.

Special Sessions

Combinatorial Commutative Algebra (Code: SS 1A), **Christopher Francisco** and **Jeffrey Mermin**, Oklahoma State University, and **Jay Schweig**, University of Kansas.

Partial Differential Equations (Code: SS 2A), **Milena Stanislavova** and **Atanas Stefanov**, University of Kansas.

Rochester, New York

Rochester Institute of Technology

September 22–23, 2012

Saturday – Sunday

Meeting #1082
Eastern Section
Associate secretary: Steven H. Weintraub
Announcement issue of *Notices*: May 2012
Program first available on AMS website: July 19, 2012
Program issue of electronic *Notices*: September 2012
Issue of *Abstracts*: Volume 33, Issue 3

Deadlines

For organizers: February 22, 2012
For consideration of contributed papers in Special Sessions: May 15, 2012
For abstracts: July 10, 2012

New Orleans, Louisiana

Tulane University

October 13–14, 2012

Saturday – Sunday

Meeting #1083
Southeastern Section
Associate secretary: Matthew Miller
Announcement issue of *Notices*: June 2012
Program first available on AMS website: September 6, 2012
Program issue of electronic *Notices*: October 2012
Issue of *Abstracts*: Volume 33, Issue 3

Deadlines

For organizers: March 13, 2012
For consideration of contributed papers in Special Sessions: July 3, 2012
For abstracts: August 28, 2012

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

Invited Addresses

Anita Layton, Duke University, *Title to be announced*.
Lenhard Ng, Duke University, *Title to be announced*.
Henry K. Schenck, University of Illinois at Urbana-Champaign, *From approximation theory to algebraic geometry: The ubiquity of splines*.
Milen Yakimov, Louisiana State University, *Title to be announced*.

Akron, Ohio

University of Akron

October 20–21, 2012
Saturday – Sunday

Meeting #1084
Central Section
Associate secretary: Georgia Benkart
Announcement issue of *Notices*: August 2012
Program first available on AMS website: September 27, 2012
Program issue of electronic *Notices*: October 2012
Issue of *Abstracts*: Volume 33, Issue 4

Deadlines

For organizers: March 22, 2012
For consideration of contributed papers in Special Sessions: July 10, 2012
For abstracts: September 4, 2012

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

Invited Addresses

Tanya Christiansen, University of Missouri, *Title to be announced.*

Tim Cochran, Rice University, *Title to be announced.*

Ronald Solomon, Ohio State University, *Title to be announced.*

Ben Weinkove, University of California San Diego, *Title to be announced.*

Tucson, Arizona

University of Arizona, Tucson

October 27–28, 2012
Saturday – Sunday

Meeting #1085
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: August 2012
Program first available on AMS website: October 4, 2012
Program issue of electronic *Notices*: October 2012
Issue of *Abstracts*: Volume 33, Issue 4

Deadlines

For organizers: March 27, 2012
For consideration of contributed papers in Special Sessions: July 17, 2012
For abstracts: September 11, 2012

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

Invited Addresses

Michael Hutchings, University of California Berkeley, *Title to be announced.*

Kenneth McLaughlin, University of Arizona, Tucson, *Title to be announced.*

Ken Ono, Emory University, *Title to be announced* (Erdős Memorial Lecture).

Jacob Sterbenz, University of California San Diego, *Title to be announced.*

Goufang Wei, University of California, Santa Barbara, *Title to be announced.*

Special Sessions

Harmonic Maass Forms and q-series (Code: SS 1A), **Ken Ono**, Emory University, **Amanda Folsom**, Yale University, and **Zachary Kent**, Emory University.

San Diego, California

San Diego Convention Center and San Diego Marriott Hotel and Marina

January 9–12, 2013
Wednesday – Saturday

Meeting #1086
Joint Mathematics Meetings, including the 119th Annual Meeting of the AMS, 96th Annual Meeting of the Mathematical Association of America, annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).
Associate secretary: Georgia Benkart
Announcement issue of *Notices*: October 2012
Program first available on AMS website: November 1, 2012
Program issue of electronic *Notices*: January 2012
Issue of *Abstracts*: Volume 34, Issue 1

Deadlines

For organizers: April 1, 2012
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Chestnut Hill, Massachusetts

Boston College

April 6–7, 2013

Saturday – Sunday
Eastern Section
Associate secretary: Steven H. Weintraub
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: September 6, 2012
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Ames, Iowa

Iowa State University

April 27–28, 2013

Saturday – Sunday
Central Section
Associate secretary: Georgia Benkart
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: April 2013
Issue of *Abstracts*: To be announced

Deadlines

For organizers: September 27, 2012
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

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

Special Sessions

Operator Algebras and Topological Dynamics (Code: SS 1A), **Ken Ono**, Emory University, **Amanda Folsom**, Yale University, and **Zachary Kent**, Emory University.

Alba Iulia, Romania

June 27–30, 2013

Thursday – Sunday
First Joint International Meeting of the AMS and the Romanian Mathematical Society, in partnership with the "Simion Stoilow" Institute of Mathematics of the Romanian Academy.
Associate secretary: Steven H. Weintraub
Announcement issue of *Notices*: To be announced
Program first available on AMS website: Not applicable
Program issue of electronic *Notices*: Not applicable
Issue of *Abstracts*: Not applicable

Deadlines

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

St. Louis, Missouri

Washington University

October 18–20, 2013

Friday – Sunday
Central Section
Associate secretary: Georgia Benkart
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: March 20, 2013
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Riverside, California

University of California Riverside

November 2–3, 2013

Saturday – Sunday
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 2, 2013
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Baltimore, Maryland

Baltimore Convention Center, Baltimore Hilton, and Marriott Inner Harbor

January 15–18, 2014

Wednesday – Saturday

Joint Mathematics Meetings, including the 120th Annual Meeting of the AMS, 97th Annual Meeting of the Mathematical Association of America, annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic, with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Matthew Miller

Announcement issue of *Notices*: October 2013

Program first available on AMS website: November 1, 2013

Program issue of electronic *Notices*: January 2013

Issue of *Abstracts*: Volume 35, Issue 1

Deadlines

For organizers: April 1, 2013

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

For abstracts: To be announced

Tel Aviv, Israel

Bar-Ilan University, Ramat-Gan and Tel-Aviv University, Ramat-Aviv

June 16–19, 2014

Monday – Thursday

The 2nd Joint International Meeting between the AMS and the Israel Mathematical Union.

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: To be announced

Issue of *Abstracts*: To be announced

Deadlines

For organizers: To be announced

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

For abstracts: To be announced

San Antonio, Texas

Henry B. Gonzalez Convention Center and Grand Hyatt San Antonio

January 10–13, 2015

Saturday – Tuesday

Joint Mathematics Meetings, including the 121st Annual Meeting of the AMS, 98th Annual Meeting of the Mathematical Association of America, annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of Symbolic Logic, with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

Associate secretary: Steven H. Weintraub

Announcement issue of *Notices*: October 2014

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2015

Issue of *Abstracts*: Volume 36, Issue 1

Deadlines

For organizers: April 1, 2014

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

For abstracts: To be announced

Porto, Portugal

University of Porto

June 11–14, 2015

Thursday – Sunday

Associate secretary: Robert J. Daverman

Announcement issue of *Notices*: To be announced

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: To be announced

Issue of *Abstracts*: Not applicable

Deadlines

For organizers: To be announced

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

For abstracts: To be announced