

---

# Mathematics Calendar

Please submit conference information for the Mathematics Calendar through the Mathematics Calendar submission form at <http://www.ams.org/cgi-bin/mathcal-submit.pl>. The most comprehensive and up-to-date Mathematics Calendar information is available on the AMS website at <http://www.ams.org/mathcal/>.

## September 2011

\* 13–15 **The Mathematics of the Climate System**, University of Reading, United Kingdom.

**Description:** This conference will be about the construction and use of mathematical models of the climate system. Such models aid our understanding of how certain climate processes interact. They also enable us to assess, interpret and diagnose more comprehensive climate models. Finally, they provide readily understandable paradigms for dynamical climate-system behaviour. The conference will focus on three related topics: 1) The extraction of mathematical models from climate data and climate-model output (homogenisation, stochastic model reduction, bistability and metastable states, low frequency variability, data-driven coarse-graining, set-oriented methods, trend identification, time-series analysis); 2) Reduced models and their dynamics (linear response theory, bifurcations, extreme events, uncertainty); and 3) Testing hypotheses about the climate system using statistical frameworks (emulators, Bayesian methods, non parametric methods, equitability).

**Information:** [http://www.ima.org.uk/conferences/conferences\\_calendar/mathematics\\_of\\_the\\_climate\\_system.cfm](http://www.ima.org.uk/conferences/conferences_calendar/mathematics_of_the_climate_system.cfm).

\* 22 **Recent Trends in Nonlinear Partial Differential Equations**, Graduate Center at CUNY, Manhattan, New York, New York.

**Description:** This one-day event starts a series of symposia in applied analysis organized during the academic year 2011–1012 at the

Graduate Center at CUNY. This first event will explore recent trends, applications, and future directions in the active area of nonlinear partial differential equations.

**Information:** <http://www.math.csi.cuny.edu/ciamcs>.

## October 2011

\* 8–9 **The 4th Dr. George Bachman Memorial Conference: Analysis, Measure Theory, Topology and Related Fields**, Department of Mathematics and Computer Science, St. John's College of Liberal Arts and Sciences, St. John's University, 101 Murray Street, New York, New York 10007.

**Description:** This year the 4th Dr. George Bachman Memorial Conference is additionally dedicated to the 70th birthday of two of Dr. Bachman's students: Dr. Lawrence Narici, Professor Emeritus, St. John's University, and Dr. Edward Beckenstein, Professor, St. John's University. NOTE: Even if you cannot attend the event in person, we recommend you submit an abstract of your paper for a concurrently run Web Conference, and later a full paper for the Proceedings, dedicated to the memory of Dr. George Bachman and the 70th birthday of Dr. Lawrence Narici and Dr. Edward Beckenstein.

**Sponsor:** St. John's University, New York.

**Organizers:** Charles Traina, Ph.D., Chair, Professor; email: [trainac@stjohns.edu](mailto:trainac@stjohns.edu); Daniel Gallo, Ph.D., Deputy Chair, Professor; email: [gallod@stjohns.edu](mailto:gallod@stjohns.edu); Alexander Katz, Ph.D., Associate Professor; email: [katza@stjohns.edu](mailto:katza@stjohns.edu).

**Deadline for abstracts:** October 1, 2011.

---

This section contains announcements of meetings and conferences of interest to some segment of the mathematical public, including ad hoc, local, or regional meetings, and meetings and symposia devoted to specialized topics, as well as announcements of regularly scheduled meetings of national or international mathematical organizations. A complete list of meetings of the Society can be found on the last page of each issue.

An announcement will be published in the *Notices* if it contains a call for papers and specifies the place, date, subject (when applicable), and the speakers; a second announcement will be published only if there are changes or necessary additional information. Once an announcement has appeared, the event will be briefly noted in every third issue until it has been held and a reference will be given in parentheses to the month, year, and page of the issue in which the complete information appeared. Asterisks (\*) mark those announcements containing new or revised information.

In general, announcements of meetings and conferences carry only the date, title of meeting, place of meeting, names of speakers (or sometimes a general statement on the program), deadlines for abstracts or contributed papers, and source of further information. If there is any application deadline with respect to participation in the meeting, this fact should be noted. All communications on meetings and conferences

in the mathematical sciences should be sent to the Editor of the *Notices* in care of the American Mathematical Society in Providence or electronically to [notices@ams.org](mailto:notices@ams.org) or [mathcal@ams.org](mailto:mathcal@ams.org).

In order to allow participants to arrange their travel plans, organizers of meetings are urged to submit information for these listings early enough to allow them to appear in more than one issue of the *Notices* prior to the meeting in question. To achieve this, listings should be received in Providence eight months prior to the scheduled date of the meeting.

The complete listing of the Mathematics Calendar will be published only in the September issue of the *Notices*. The March, June/July, and December issues will include, along with new announcements, references to any previously announced meetings and conferences occurring within the twelve-month period following the month of those issues. New information about meetings and conferences that will occur later than the twelve-month period will be announced once in full and will not be repeated until the date of the conference or meeting falls within the twelve-month period.

The Mathematics Calendar, as well as Meetings and Conferences of the AMS, is now available electronically through the AMS website on the World Wide Web. To access the AMS website, use the URL: <http://www.ams.org/>.

**Information:** <http://atlas-conferences.com/cgi-bin/abstract/cbdcn-01>.

- \* 17–20 **Advanced Course and Workshop on Computational Algebraic Topology Applied to Medical Imagery**, Chipiona, Cádiz, Spain.

**Description:** This event will focus on the area of Computational Algebraic Topology applied to Medical Digital Imagery. Experts in the fields of Computational Algebraic Topology, Software Development, and Medical Imagery, will try to give us some insights of the potential of the methods of this mathematical discipline in Medical Imaging and will open some research lines concerning algebraic topological problems in Medical Image Context.

**Information:** <http://congreso.us.es/catmi2011/>.

### November 2011

- \* 3–6 **Mirror Symmetry in the Midwest**, Kansas State University, Manhattan, Kansas.

**Description:** A conference on the geometric and algebraic aspects of mirror symmetry.

**Information:** <http://www.math.ksu.edu/~galston/conference/>.

- \* 10–12 **The Fourth International Theoretical and Practical Conference: Object Systems–2011 (English session)**, Rostov-on-Don, Russia.

**Description:** The conference is devoted to the principles of design, implementation and support of object systems and includes discussion on a wide range of topics. Well-known scientists and major specialists in the field of corporate information systems, representatives of universities and commercial organizations in Russia and abroad (Greece, Poland, Spain) take part in the conference. The conference is correspondence. At the end of the conference a collection of scientific works of authors is published with assigning it ISBN-code, which will be sent to the major research libraries of Russia. The electronic version of the collection is housed in the leading information directories and it is available on the conference website. This website provides an electronic personal certificate confirming participation in the conference. Participation is free.

**Information:** <http://www.objectsystems.ru/>.

- \* 15–19 **Geometry and Arithmetic around Teichmüller Theory**, Galatasaray University, Istanbul, Turkey.

**Description:** This is a conference on Teichmüller theory. Sessions are devoted to talks by researchers (including Ph.D. students). The aim of the school is to introduce the geometry of the Teichmüller spaces to students and familiarize students with the new results concerning various Teichmüller spaces and their relation to arithmetic.

**Information:** <http://math.gsu.edu.tr/2011gatt.html>.

### December 2011

- \* 4–6 **National Conference on Ramanujan’s Work in the Field of Hypergeometric Series and its Applications**, Department of Mathematics, T.D.P.G. College, Jaunpur, India.

**Description:** Call for papers: The organizers of the Conference invite papers for presentation. The abstract not exceeding 200 words intended for presentation should be sent no later than October 31, 2011, preferably by email to Dr. S. N. Singh, 263, Line Bazar, Jaunpur . 222002 (U.P.) India. Contact No.: 05452 . 261922 Mob. No.: 09451159058, 09451161967; email: snsp39@yahoo.com. Citation: During the Conference distinguished service awards for the year 2011 will be given to Prof. R. Y. Denis and Prof. M. A. Pathan for their outstanding contributions to the cause of mathematics education and research. Proceedings of the Conference: The proceedings of the Conference will be published. The full length paper in duplicate along with a file formatted in AMS latex/ MS word/ Pdf may be submitted during the Conference by December 06, 2011. Travel

and Local Hospitality Financial support for travel (AC II class fare) will be provided to invited speakers.

- \* 5–9 **Quantitative Geometry in Computer Science**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** Geometric problems which are inherently quantitative occur in various aspects of theoretical computer science, including a) Algorithmic tasks for geometric questions such as clustering and proximity data structures. b) Geometric methods in the design of approximation algorithms for combinatorial optimization problems, including the analysis of semidefinite programs and embedding methods. c) Geometric questions arising from computational complexity, particularly in hardness of approximation. These include isoperimetric and Fourier analytic problems. This workshop aims to present recent progress in these directions.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm576>.

- \* 7–9 **Mathematics of Traffic Flow Modeling, Estimation and Control**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** Traffic congestion has a significant impact on economic activity throughout much of the world. An essential step towards active congestion control is the creation of accurate, reliable traffic monitoring and control systems. These systems usually run algorithms which rely on mathematical models of traffic used to power estimation and control schemes. The workshop will gather experts from various domains which range from transportation engineering to mathematics, to discuss modeling, estimation and control. Application and registration forms are available online. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM’s mission and we welcome their applications.

**Information:** <http://www.ipam.ucla.edu/programs/tra2011/>.

- \* 12–15 **13th IMA International Conference on Cryptography and Coding**, University of Oxford, United Kingdom.

**Description:** The mathematical theory and practice of cryptography and coding underpins the provision of effective security and reliability for data communication, processing and storage. Theoretical and practical advances in the fields of cryptography and coding are therefore a key factor in facilitating the growth of data communications and data networks of various types. Thus, this thirteenth International Conference in an established and successful IMA series on the theme of “Cryptography and Coding” is both timely and relevant. **Invited Speakers:** Professor Ivan Damgård (Aarhus University, Denmark) Professor Paddy Farrell (Lancaster University and University of Kent, UK) Professor Jonathan Jedwab (Simon Fraser University, Canada) Professor David Naccache (ENS, France).

**Information:** [http://www.ima.org.uk/conferences/conferences\\_calendar/cryptography\\_and\\_coding.cfm](http://www.ima.org.uk/conferences/conferences_calendar/cryptography_and_coding.cfm).

### January 2012

- \* 9–13 **Large Scale Multimedia Search**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** The proliferation of digital multimedia data has fundamentally changed the way images, video, audio and three-dimensional data are stored and used. The huge and ever growing volume of data in online repositories such as YouTube and Flickr requires novel approaches to content based multimedia search and retrieval. The goal of this workshop is to bring together an interdisciplinary community from mathematics, computer vision, computer audition, engineering and machine learning to present and discuss the different facets of this problem. We will discuss both domain specific issues and broader topics in machine learning and large-scale computational schemes, such as metric learning, “learning to rank”

and nearest neighbors search in high dimensions. Application and registration forms are available online. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission and we welcome their applications.

**Information:** <http://www.ipam.ucla.edu/programs/ms2012/>.

\* 9–May 18 **Random Spatial Processes Program**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** In recent years probability theory has made immense progress in understanding the basic two-dimensional models of statistical mechanics and random surfaces. Prior to the 1990s the major interests and achievements of probability theory were with respect to one-dimensional objects: Brownian motion and stochastic processes, random trees, and the like. Inspired by work of physicists in the 1970s and 1980s on conformal invariance and field theories in two dimensions, a number of leading probabilists and combinatorialists began thinking about spatial process in two dimensions: percolation, polymers, dimer models, Ising models. Major breakthroughs by Kenyon, Schramm, Lawler, Werner, Smirnov, Sheffield, and others led to a rigorous underpinning of conformal invariance in two-dimensional systems and paved the way for a new era of two-dimensional probability theory.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm140>.

\* 12–13 **Connections for Women: Discrete Lattice Models in Mathematics, Physics, and Computing**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** The workshop gathers discrete mathematics, probability theory, theoretical computer science and statistical physics researchers to explore topics at their interface. It focuses on combinatorial structures, probabilistic algorithms and physical systems models. This includes the study of phase transitions, probabilistic combinatorics, Markov chain Monte Carlo methods, random structures and randomized algorithms. Since discrete lattice models stand at the interface of these fields, the workshop starts with background talks in each of the three areas: Statistical and mathematical physics; Combinatorics of lattice models; Sampling and computational issues. These talks describe the general framework and recent developments in the field and is followed with shorter talks highlighting recent research in the area. The workshop celebrates academic and gender diversity, bringing together women and men at junior and senior levels of their careers from mathematics, physics, and computer science.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm577>.

\* 23–27 **Mathematical Challenges in Graphical Models and Message-Passing Algorithms**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** Graphical models are used and studied within a variety of disciplines of computer science, mathematics and statistics. The purpose of this meeting is to highlight various mathematical questions and issues associated with graphical models and message-passing algorithms, and to bring together a group of researchers for discussion of the latest progress and challenges ahead. Application and registration forms are available online. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission and we welcome their applications.

**Information:** <http://www.ipam.ucla.edu/programs/gm2012/>.

\* 30–31 **Annual International Conference on Computational Mathematics, Computational Geometry & Statistics (CMCGS 2012)**, Hotel Fort Canning, Singapore.

**Description:** The goal of the conference is to bring together active researchers from the various disciplines to showcase their state-of-

the-art research results and hopefully to forge new cross-disciplinary interactions among the participants. The conference provides a unique opportunity for in-depth technical discussions and exchange of ideas in mathematical and computational sciences, as well as explores the potential of their applications in natural and social sciences, engineering and technology and industry and finance.

**Information:** <http://www.mathsstat.org/>.

## February 2012

\* 6–10 **Challenges in Synthetic Aperture Radar**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** This interdisciplinary workshop will address challenging problems in radar imaging. The focus will be on the following issues: 1. Exploiting data from multiple viewpoints to obtain three-dimensional information; 2. Forming images of challenging targets, such as moving targets, non-rigid targets, or targets that scatter weakly; 3. Exploiting prior information and properties such as sparsity to improve image formation; 4. Forming images through complex media, and; 5. Including more sophisticated target modeling, such as multiple scattering, polarimetric scattering, and stochastic target models, in the image formation process. Application and registration forms are available online. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission and we welcome their applications.

**Information:** <http://www.ipam.ucla.edu/programs/sar2012/>.

\* 16–18 **2nd International Conference on Advances in Control and Optimization of Dynamical Systems**, Indian Institute of Science, Bangalore, India.

**Description:** The aim of 2nd ACODS-2012 is to bring together engineers, scientists, and academics working in advanced areas of control and optimization of dynamical systems. The theme of the conference is broad enough to encompass both theory and applications. Application areas include, but are not restricted to robotics, aerospace vehicles, manufacturing, process control, computer aided control, biomedical engineering, automation, and mechanical and electrical systems. Papers are invited in these and other areas where control and optimization of dynamical systems plays an important role. The conference will have several special sessions as well.

**Information:** <http://www.acods.org>.

\* 27–March 2 **Nonlocal PDEs, Variational Problems and their Applications**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** The last decade has seen vigorous research activity to understand systems involving long-range effects, and to directly incorporate such effects in the modeling and analysis. This research has led to fundamental questions about several classes of nonlocal partial differential equations (PDEs), such as their long-time existence and regularity. This workshop will bring together both pure and applied mathematicians with a focus on (i) partial differential equations with nonlocal diffusive and/or transport terms, and their probabilistic interpretations (ii) nonlocal problems in pattern formation and phase transitions and biology, and (iii) nonlocal techniques in image processing. Application and registration forms are available online. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission and we welcome their applications.

**Information:** <http://www.ipam.ucla.edu/programs/pde2012/>.

## April 2012

\* 23–25 **5TH IMA International Conference on Analytical Approaches to Conflict**, Royal Military Academy, Sandhurst, United Kingdom.

**Description:** This is an international event and will attract contributors from many countries. The conference is intended as a meeting

place for those who operate directly in arenas of conflict (e.g. the military, staff of NGOs, mediators), those who provide support or advice (e.g. analysts, contractors, counsellors) and others who offer theoretical concepts and practical frameworks for handling conflict (e.g. academic researchers). While the organisers, by locating this conference at RMAS, are deliberately setting out to indicate a strong military dimension, this will not be an exclusive focus: indeed it is only by working with other communities of practice that the military missions are likely to succeed.

**Information:** [http://www.ima.org.uk/conferences/conferences\\_calendar/analytical\\_approaches\\_to\\_conflict.cfm](http://www.ima.org.uk/conferences/conferences_calendar/analytical_approaches_to_conflict.cfm).

### May 2012

\* 7–11 **AIM Workshop: Motivic Donaldson-Thomas theory and singularity theory**, Renyi Institute, Budapest, Hungary.

**Description:** This workshop, sponsored by AIM, the Renyi Institute, and the NSF, will bring together experts from Donaldson-Thomas theory and singularity theory to explore the exciting connections which have recently emerged between these two fields.

**Information:** <http://aimath.org/ARCC/workshops/motivicdt.html>.

### July 2012

\* 22–27 **Vibration and structural acoustics measurement and analysis**, Universidade do Porto, Porto, Portugal.

**Abstracts:** Extended abstracts are due by November 30, 2011. A sample abstract is available at: [http://paginas.fe.up.pt/clme/icem15/abstract\\_sample.doc](http://paginas.fe.up.pt/clme/icem15/abstract_sample.doc).

**Information:** <http://paginas.fe.up.pt/clme/icem15>.

\* 23–27 **Algebraic Topology: applications and new directions Stanford Symposium 2012**, Stanford University, Palo Alto, California.

**Description:** A conference to be held in honour of Gunnar Carlsson, Ralph Cohen and Ib Madsen to celebrate their 60th and 70th birthdays.

**Information:** <http://people.maths.ox.ac.uk/tillmann/StanfordSymposium.html>.

### August 2012

\* 6–8 **The Sixth Global Conference on Power Control and Optimization PCO 2012**, Monte Carlo Resort and Casino, Las Vegas, Nevada.

**Description:** It is our great pleasure to announce the sixth Global Conference on Power Control and Optimization PCO 2012, which will be held in the Mount Carlo Hotel, Las Vegas, United States of America, from 6 - 8 August 2012. The scope of the conference is contemporary and original research and educational development in the area of mechanical, electrical, communication, sustainable energy, controllers, robotics, wireless sensors, biomedicine, computing, nano-science, management, environment, business, continuous and hybrid optimization. Prospective authors from universities or other educational institutes and industry are invited to submit abstract and/or full paper by email before the deadline. All papers submitted before the deadline will be peer reviewed by independent specialists.

**Information:** <http://www.pcoglobal.com>.

\* 20–December 21 **Cluster Algebras Program**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** Cluster algebras were conceived in the Spring of 2000 as a tool for studying dual canonical bases and total positivity in semisimple Lie groups. They are constructively defined commutative algebras with a distinguished set of generators (cluster variables) grouped into overlapping subsets (clusters) of fixed cardinality. Both the generators and the relations among them are not given from the outset, but are produced by an iterative process of successive mutations. The program will focus on links between cluster algebras and other areas, such as: polyhedral combinatorics; triangulations of surfaces; Y, Q, and T-systems; additive categorification via quiver

representations; quivers with potentials and Donaldson-Thomas invariants; Lie theory and monoidal categorification; Poisson geometry and Teichmüller theory.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm144>.

### September 2012

\* 10–December 14 **Materials Defects: Mathematics, Computation and Engineering**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** Material defects present a huge challenge for mathematical modeling and simulation, as anything that breaks up the regular, homogenous structure of a calculation requires special consideration. In recent years, there has been particular focus on the multiscale nature of materials research—how computational methods and mathematical models for describing materials vary from the atomistic to the continuum scale. This program aims to promote collaboration among scientists to assess the current status of defect modeling, promote the development of new computational techniques, and stimulate new applications. An application is available online. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission and we welcome their applications.

**Information:** <http://www.ipam.ucla.edu/programs/md2012/>.

**The following new announcements will not be repeated until the criteria in the next to the last paragraph at the bottom of the first page of this section are met.**

### October 2012

\* 3–6 **International Conference on Applied and Computational Mathematics (ICACM)**, Middle East Technical University (METU), Ankara, Turkey.

**Description:** We are going to celebrate the 10th anniversary of the Foundation of the Institute of Applied Mathematics (IAM).

### January 2013

\* 14–May 24 **Noncommutative Algebraic Geometry and Representation Theory**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** Over the last few decades noncommutative algebraic geometry (in its many forms) has become increasingly important, both within noncommutative algebra/representation theory, as well as having significant applications to algebraic geometry and other neighbouring areas. The goal of this program is to explore and expand upon these subjects and their interactions. Topics of particular interest include noncommutative projective algebraic geometry, noncommutative resolutions of (commutative or noncommutative) singularities, Calabi-Yau algebras, deformation theory and Poisson structures, as well as the interplay of these subjects with the algebras appearing in representation theory—like enveloping algebras, symplectic reflection algebras and the many guises of Hecke algebras.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm145>.

### March 2013

\* 11–14 **Interactions Between Analysis and Geometry**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** Within mathematics, as within science in general, there is a need for greater communication between workers from different research specialties. The purpose of this program is to promote the interaction between two core areas of mathematics—analysis and geometry. Geometers can give analysts new perspectives and focus for their research; geometers can benefit from an exchange of ideas with

analysts by becoming more familiar with the powerful tools of their field. An application is available online. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission and we welcome their applications.

**Information:** <http://www.ipam.ucla.edu/programs/iag2013/>.

### May 2013

- \* 19–23 **SIAM Conference on Applications of Dynamical Systems (DS13)**, Snowbird Ski and Summer Resort, Snowbird, Utah.

**Description:** The application of dynamical systems theory to areas outside of mathematics continues to be a vibrant, exciting and fruitful endeavor. These application areas are diverse and multidisciplinary, ranging over all areas of applied science and engineering, including biology, chemistry, physics, finance, and industrial applied mathematics. This conference strives to achieve a blend of application-oriented material and the mathematics that informs and supports it. The goals of the meeting are a cross-fertilization of ideas from different application areas, and increased communication between the mathematicians who develop dynamical systems techniques and applied scientists who use them.

**Information:** <http://www.siam.org/meetings/ds13/>.

### July 2013

- \* 8–10 **SIAM Conference on Control and Its Applications (CT13)**, Town and Country Resort and Convention Center, San Diego, California.

**Description:** The field of control theory is central to a wide range of aerospace, industrial, automotive and advanced technological systems and increasingly recognized as fundamental for emerging fields ranging from nanotechnology to cell regulation. Moreover, in addition to its traditional ubiquity in process regulation for the physical sciences and engineering, control concepts now pervade the biological, computer, and social sciences. This conference will showcase a wide range of topics in control and systems theory. The topics and applications include real-time optimization and data assimilation, cellular and biological regulation, control of hybrid systems, numerical methods for control and optimization, control techniques for financial mathematics, cooperative control for unmanned autonomous vehicles, differential games, biomedical control, risk sensitive control and filtering, control of smart systems, flow control and quantum control.

**Information:** <http://www.siam.org/meetings/ct13/>.

### August 2013

- \* 19–December 20 **Mathematical General Relativity**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** The study of Einstein's general relativistic gravitational field equation, which has for many years played a crucial role in the modeling of physical cosmology and astrophysical phenomena, is increasingly a source for interesting and challenging problems in geometric analysis and PDE. This semester-long program aims to bring together researchers working in mathematical relativity, differential geometry, and PDE who wish to explore this rapidly growing area of mathematics.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm8946>.

- \* 19–December 20 **Optimal Transport: Geometry and Dynamics**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** In the past two decades, the theory of optimal transportation has emerged as a fertile field of inquiry, and a diverse tool for exploring applications within and beyond mathematics. This transformation occurred partly because long-standing issues could finally be resolved, but also because unexpected connections emerged which linked these questions to classical problems in geometry, partial differential equations, nonlinear dynamics, natural

sciences, design problems and economics. The aim of this program will be to gather experts in optimal transport and areas of potential application to catalyze new investigations, disseminate progress, and invigorate ongoing exploration.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm8952>.

- \* 20–May 24 **Commutative Algebra Program**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** Commutative algebra was born in the 19th century from algebraic geometry, invariant theory, and number theory. Today it is a mature field with activity on many fronts. The year-long program will highlight exciting recent developments in core areas such as free resolutions, homological and representation theoretic aspects, Rees algebras and integral closure, tight closure and singularities, and birational geometry. In addition, it will feature the important links to other areas such as algebraic topology, combinatorics, mathematical physics, noncommutative geometry, representation theory, singularity theory, and statistics. The program will reflect the wealth of interconnections suggested by these fields, and will introduce young researchers to these diverse areas.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm142>.

### January 2014

- \* 20–May 23 **Model Theory and Number Theory**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** The program aims to further the flourishing interaction between model theory and other parts of mathematics, especially number theory and arithmetic geometry. At present the model theoretical tools in use arise primarily from geometric stability theory and o-minimality. Current areas of lively interaction include motivic integration, valued fields, diophantine geometry, and algebraic dynamics.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm146>.