

# 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 2013

1-5 **Motivic Galois Groups**, Alfréd Rényi Institute of Mathematics, Budapest, Hungary. (Mar. 2013, p. 362)

**Description:** Mini-courses by: Yves André (Institut de Mathématiques de Jussieu, Paris), Joseph Ayoub (Universität Zürich), Marc Levine (Universität Duisburg-Essen).

**Invited Lecturers:** Michael Dettweiler (Universität Bayreuth), Hélène Esnault (Freie Universität Berlin), Jochen Heinloth (Universität Duisburg-Essen), Annette Huber-Klawitter (Albert-Ludwigs-Universität Freiburg), Peter Jossen (Université de Paris-Sud, Orsay), Bruno Kahn (Institut de Mathématiques de Jussieu, Paris).

**Organizers:** Stefan Müller-Stach (Universität Mainz), Tamás Szamuely (Rényi Institute, Budapest).

**Information:** <http://renyi.mta.hu/~szamuely/mgg.html>.

1-6 **Kangro-100, Methods of Analysis and Algebra, International Conference dedicated to the Centennial of Professor Gunnar Kangro**, University of Tartu, Tartu, Estonia. (Feb. 2013, p. 264)

**Description:** Professor Gunnar Kangro (1913-1975), member of the Estonian Academy of Sciences, was the most famous Estonian mathematician of his time. He was a world-class professional in his main research area — summability theory. His excellent courses and textbooks in algebra and analysis advocated the use of new theories developed in the first half of the twentieth century, and led the transition of Estonian mathematics to modern basis. Having also supervised 23 Cand. Sci. Theses, he is fully considered the founder of contemporary Estonian mathematical school.

**Topics:** Modern methods of analysis and algebra. The working program of the conference consists of plenary lectures in the mornings and parallel sessions in afternoons.

**Proceedings:** Peer-reviewed contributions will be published in a special issue of the open access journal “Acta et Commentationes Universitatis Tartuensis de Mathematica”; <http://math.ut.ee/acta>.

**Social events:** Include excursions introducing Estonia <http://www.visitestonia.com> and an accompanying persons' program.

**Information:** <http://kangro100.ut.ee>.

\* 1-7 **51st Summer School on Algebra and Ordered Sets**, Hotel Troyer, Trojanovice, Czech Republic.

**Description:** A traditional conference focused on general algebra and ordered sets. The scientific program consists of 20- or 30-minute talks by the participants, plus plenary lectures by invited speakers.

**Information:** <http://ameql.math.muni.cz/ssaos>.

1-August 31, 2014 **Call for Research Programmes 2013-2014**, Centre de Recerca Matemàtica, Bellaterra, Barcelona, Spain. (Sept. 2012, p. 1175)

**Description:** The Centre de Recerca Matemàtica (CRM) invites proposals for Research Programmes for the academic year 2013-2014. CRM Research Programmes consist of periods ranging between two to five months of intensive research in a given area of mathematics and its applications. Researchers from different institutions are brought together to work on open problems and to analyse the state and perspectives of their area.

**Deadline:** The deadline for submission of proposals is November 18, 2011.

**Information:** Guidelines and application instructions can be found at [http://www.crm.cat/CALLS/CALLS\\_RESEARCH\\_PROGRAMS/Call\\_Research\\_Program\\_1314.htm](http://www.crm.cat/CALLS/CALLS_RESEARCH_PROGRAMS/Call_Research_Program_1314.htm).

\* 1-November 30 **Research Programme on Geometry and Dynamics of Integrable Systems**, Centre de Recerca Matemàtica, Bellaterra, Barcelona.

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/>.

**Description:** This research Programme wants to focus on the geometrical and the dynamical aspects in the study of integrable systems. We want to specially stress the following topics in the study of integrable systems: Connections of several aspects showing up in the geometry, topology and dynamics of integrable systems in symplectic manifolds such as singular aspects of integrable systems, symplectic topology of integrable systems, integrability criteria and obstructions to integrability, connection with geometric quantization and integrable systems in contact and Poisson manifolds; study of geodesic flows, their integrability and non-integrability: methods and examples; applications to mathematical physics and classical differential geometry.

**Scientific Committee:** Vladimir Matveev, Eva Miranda, Francisco Presas and Iskander Taimanov.

**Information:** <http://www.crm.cat/2013/RPIntegrable-Systems>.

1-December 20 **Research Program on Automorphisms of Free Groups: Algorithms, Geometry and Dynamics**, Centre de Recerca Matemàtica, Bellaterra, Barcelona, Spain. (Dec. 2012, p. 1596)

**Description:** The study of automorphisms of free groups is a classical subject, with more than 100 years of history. The last 25 years have witnessed the development of many interesting new tools, resulting in the subject's diversification into algorithmic, geometric and dynamical aspects. While these aspects continue to be heavily intertwined, they have meanwhile taken root in several other areas of mathematics. The purpose of the proposed program is to assemble experts from these three aspects, with the object of finding innovative approaches to the main open questions from each.

**Information:** <http://www.crm.cat/2012/RPAutomorphisms>.

2-5 **XXII International Fall Workshop on Geometry and Physics**, University of Évora, Évora, Portugal. (Mar. 2013, p. 362)

**Description:** The Fall Workshops on Geometry and Physics have been held yearly since 1992, and bring together Spanish and Portuguese geometers and physicists, along with an ever increasing number of participants from outside the Iberian peninsula. The meetings aim to provide a forum for the exchange of ideas between researchers of different fields in Differential Geometry, Applied Mathematics and Physics, and always include a substantial number of enthusiastic young researchers amongst the participants.

**Information:** <http://www.ifwgp2013.uevora.pt/>.

\* 2-6 **School and Workshop on Conformal Blocks, Vector Bundles on Curves and Moduli of Curves**, Mathematics Department, G. Castelnuovo Sapienza, Università di Roma, Rome, Italy.

**Aim:** Of this school/workshop is to give an introduction to conformal blocks, their construction and use as research tools and objects in different branches of algebraic geometry and topology, in particular moduli spaces of algebraic curves and of vector bundles on curves. Four mini-courses of 5 hours each will be held.

**Speakers:** Prakash Belkale (Univ. North Carolina at Chapel Hill), Angela Gibney (Univ. of Georgia at Athens), Christian Pauly (Univ. de Nice Sophia-Antipolis), Aaron Pixton (Princeton University).

**Funding:** It is possible for Ph.D. students and young post-docs to apply for funding for lodging guaranteed by our sponsors. Subscribe to the conference on the registration page to apply.

**Deadline:** For applying for funding is May 31st, 2013.

**Information:** <http://conformalmoduli.sciencesconf.org/>.

3-4 **Connections for Women: Mathematical General Relativity**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1175)

**Description:** Ever since the epic work of Yvonne Choquet-Bruhat on the well-posedness of Einstein's equations initiated the mathematical study of general relativity, women have played an important role in many areas of mathematical relativity. In this workshop, some of the leading women researchers in mathematical relativity present their work.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm9551>.

3-6 **CAI 2013: 5th Conference on Algebraic Informatics**, ERISCS and IML, Aix-Marseille University, IGESA, Porquerolles Island, France. (Dec. 2012, p. 1596)

**Description:** CAI 2011 continues the tradition established by the previous sessions: to bring together researchers from theoretical computer science and algebra. This should enhance the understanding of syntactic and semantic problems by algebraic models; and it should also propagate the application of modern techniques from informatics in algebraic computation. Authors are invited to submit papers (in PDF format) presenting original research work, electronically to [cai2013@acrypta.fr](mailto:cai2013@acrypta.fr). All submissions should be formatted according to the usual LNCS article style and should not exceed 12 pages. The Proceedings of CAI 2013 will be published in the Lecture Notes in Computer Science Series (LNCS) by Springer.

**Important dates:** Submission Due: March 1, 2013. Notification: April 25, 2013. Proceedings Version Due: May 14, 2013.

**Information:** <http://iml.univ-mrs.fr/ati/conferences/CAI2013/>.

4-6 **Loday Memorial Conference**, Institut de Recherche Mathématique Avancée (IRMA), Strasbourg, France. (May 2013, p. 654)

**Description:** Jean-Louis Loday, directeur de recherche CNRS in Strasbourg, suddenly passed away on June 6, 2012. This conference, in his memory, aims to give a general picture of the research that he passed down to the mathematical community, notably the study of the interplays between algebraic K-theory and cyclic homology, and the applications of the theory of algebraic operads.

**Speakers:** Pierre Cartier (IHES), Alain Connes (Collège de France), Pierre-Louis Curien (Université Paris 7), Vladimir Dotsenko (Trinity College Dublin), Alice Fialowski (Eötvös Loránd University), Hebert Gangl (Durham University), Grégory Ginot (Université Paris 6), Lars Hesselholt (Nagoya University), Mikhail Kapranov (Yale University), Teimuraz Pirashvili (Leicester University), Maria Ronco (Talca University), Christophe Soulé (IHES), Jean-Yves Thibon (Université Paris Est), Boris Tsygan (Northwestern University), Bruno Vallette (Université de Nice).

**Information:** <http://www-irma.u-strasbg.fr/article1351.html>.

\* 4-6 **Semiclassical Origins of Density Functional Approximations**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** Density functional theory (DFT) has become an enormously successful tool for electronic structure calculations. Recent work has sought to re-examine the link between DFT, semiclassical approximations, and functional analysis. Numerical and heuristic results suggest a close (but subtle) underlying link. Understanding of these links, and using them to build new and more powerful approximations, could have tremendous impact in modern electronic structure calculations. The aim of this workshop is to reunite these disparate strands and begin a conversation among the different communities, including researchers from mathematics, physics, and theoretical chemistry. An application and registration form are available online.

**Information:** <http://www.ipam.ucla.edu/programs/dft2013/>.

\* 6-12 **Conference on Integrability, Topological Obstructions to Integrability and Interplay with Geometry**, Centre de Recerca Matemàtica, Bellaterra, Barcelona, Spain.

**Description:** The main goal of this workshop is to gather specialists in different aspects, dynamical aspects and connection with other areas like mathematical physics.

**List of speakers:** Alain Albouy (CNRS), Sergey Bolotin (UW-Madison), Alexey V. Borisov (Udmurt State Univ.), Vincent Colin (Univ.

de Nantes), Lucia Di Vizio (Univ. de Versailles-St. Quentin), Christian Duval (Centre National de la Recherche Scientifique Marseille, France), Rui Loja Fernandes (Univ of Illinois at Urbana-Champaign), Valerij Vasilievich Kozlov (Russian Academy of Sciences), Boris Kruglikov (Univ. of Tromsø), Ivan Sergeevich Mamaev (Institute of Computer Science), Valentin Ovsienko (Univ. Claude Bernard-Lyon), Daniel Peralta (ICMAT), Jean-Pierre Ramis (Univ. Paul Sabatier), Tudor Ratiu (EPFL), Dmitry Treschev (Steklov Mathematical Institute) and Jacques-Arthur Weil (Univ. de Limoges).

**Information:** <http://www.crm.cat/2013/CIntegrability>.

8-14 **Combinatorial Methods in Topology and Algebra**, Il Palazzone, Cortona, Italy. (Feb. 2013, p. 264)

**Description:** CoMeTA is an opportunity of meeting and sharing ideas among emerging researchers, enhanced by the interaction with a small group of experts. We plan to organize talks, poster sessions, and thematic discussions. The proceedings of the conference will be published in the "Springer INdAM series". We particularly welcome young researchers and female researchers.

**Venue:** "Il Palazzone" is a beautiful Renaissance palace, whose frescoed halls have hosted several important scientific events. It is located in Cortona, one of the most well-preserved medieval cities in Tuscany, on a hilltop with free-ranging views of the surrounding countryside.

**Organizers:** Bruno Benedetti (KTH), Emanuele Delucchi (Bremen), Luca Moci (INdAM Fellow). Funding: INdAM (Istituto Nazionale di Alta Matematica).

**Information:** <http://www.cometa2013.org/>.

9-11 **Aachen Conference on Computational Engineering Science (AC.CES)**, AC.CES takes place at RWTH Aachen University (SuperC building), Germany. (May 2013, p. 654)

**Description:** AC.CES will bring together leading experts in theory, method development, and applications in computational engineering. The main objectives of the conference are to present cutting-edge research and to foster the growth of a stronger CES community, as well as to facilitate collaborations and cross-fertilization of ideas across the different CES disciplines. The conference consists of a series of plenary sessions featuring invited talks by leading experts; these will be accompanied by poster sessions. During the three days topics such as uncertainty quantification, inverse problems in materials science, computational biology, model order reduction, optimization and control, as well as imaging/tomographic inversion will be presented and discussed. The following invited speakers have confirmed their attendance at AC.CES: <http://www.ac-ces.rwth-aachen.de/MainContents/KeynoteLect.php>. If you have specific questions contact the organizers at [aces@ices.rwth-aachen.de](mailto:aces@ices.rwth-aachen.de).

**Information:** <http://www.ac-ces.rwth-aachen.de/>.

9-11 **S.Co. 2013 - Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction**, Politecnico di Milano, Milano, Italy. (Apr. 2013, p. 515)

**Description:** The conference provides a forum for the discussion of new developments and applications of statistical models and computational methods for the analysis of complex and high dimensional data.

**Information:** <http://mox.polimi.it/sco2013/>.

\*9-11 **Seventh International Workshop Meshfree Methods for Partial Differential Equations**, Universität Bonn, Germany.

**Organizers:** Ivo Babuska (University of Texas, Austin, USA), Ted Belytschko (Northwestern University, USA), Jiun-Shyan Chen (University of California, USA), Michael Griebel (Universität Bonn, Germany), Wing Kam Liu (Northwestern University, USA), Marc Alexander Schweitzer (Universität Bonn, Germany), Harry Yserentant (Technische Universität Berlin, Germany).

**Contact:** <http://wissrech.ins.uni-bonn.de/meshfree>; email: [meshfree@ins.uni-bonn.de](mailto:meshfree@ins.uni-bonn.de).

**Deadlines and Important Dates:** Online Registration Open: May 1, 2013. 2013 Abstract Submission: June 15, 2013. Notification of Acceptance: July 15, 2013.

**Information:** <http://wissrech.ins.uni-bonn.de/meshfree>.

\*9-13 **AIM Workshop: Definability and decidability problems in number theory**, American Institute of Mathematics, Palo Alto, California.

**Description:** This workshop, sponsored by AIM and the NSF, will be devoted to studying definability and decidability questions in number theory, more specifically over rational numbers and their algebraic extensions, as well as over rings of functions of natural interest.

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

9-13 **European Conference on Combinatorics, Graph Theory and Applications - Eurocomb 2013**, National Research Council of Italy (CNR), Pisa, Italy. (Mar. 2013, p. 362)

**Description:** In the tradition of EuroComb'01 (Barcelona), Eurocomb'03 (Prague), EuroComb'05 (Berlin), Eurocomb'07 (Seville), Eurocomb'09 (Bordeaux), and Eurocomb'11 (Budapest), this conference will cover the full range of combinatorics and graph theory including applications in other areas of mathematics, computer science and engineering.

**Topics:** Include, but are not limited to: Algebraic combinatorics, combinatorial geometry, combinatorial number theory, combinatorial optimization, designs and configurations, enumerative combinatorics, extremal combinatorics, graph theory, ordered sets, random methods, topological combinatorics.

**Information:** <http://www.eurocomb2013.it/>.

9-13 **Introductory Workshop: Mathematical General Relativity**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1175)

**Description:** Mathematical relativity is a very widely ranging area of mathematical study, spanning differential geometry, elliptic and hyperbolic PDE, and dynamical systems. We introduce in this workshop some of the leading areas of current interest, with a special focus on those areas which are related to the geometry and physics of the initial data of general relativity, and those which primarily involve Riemannian geometry and elliptic PDE.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm9552>.

\*9-14 **Advanced Course on Geometry and Dynamics of Integrable Systems**, Centre de Recerca Matemàtica, Bellaterra, Barcelona, Spain.

**Objectives:** This advanced course aims at describing different aspects in the study of integrable systems from a geometrical, algebraic and dynamical point of view.

**Organizing and scientific committee:** Vladimir Matveev (Jena), Eva Miranda (UPC), Francisco Presas (ICMAT) and Iskander Taimanov (Novosibirsk).

**Speakers at Minicourses:** There are 4 sessions in each group. Alexey Bolsinov (Loughborough), "singularities of bi-Hamiltonian systems and stability analysis"; Juan Jose Morales-Ruiz (UPM), "integrable systems and differential galois theory"; Nguyen Tien Zung (Toulouse), "geometry of integrable non-Hamiltonian systems"

**Information:** <http://www.crm.cat/2013/ACIntegrable-Systems>.

9-December 6 **ICERM Semester Program on "Low-Dimensional Topology, Geometry, and Dynamics"**, Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, Rhode Island. (Sept. 2012, p. 1176)

**Description:** The program focuses on the recent impact of computation and experiment on the study of the pure mathematics sides of topology, geometry, and dynamics. Specific areas include 3-dimensional topology, the study of locally symmetric spaces, low-dimensional dynamics, and geometric group theory. Included are

areas where computation has not yet had an impact, but might do so in the near future.

**Information:** <http://icerm.brown.edu/sp-f13>.

\* 11–13 **BioDynamics 2013**, Bristol, United Kingdom.

**Description:** Rhythms in biological systems – the theme for our first in a series of annual international workshops designed to bring together biologists, mathematicians, clinicians, physicists, and computer scientists who are interested in dynamical systems in the biological and medical sciences. These workshops will provide a unique forum for multidisciplinary interactions, which we hope will lead to rewarding collaborations between theoretical, experimental, and clinical scientists.

**Confirmed keynote speakers:** Professor Russell Foster, University of Oxford, UK; Dr. Michael Hastings, MRC Laboratory of Molecular Biology, Cambridge, UK; Professor David Hazlerigg, University of Aberdeen, UK; Professor Allan Herbison, University of Otago Centre for Neuroendocrinology, New Zealand; Professor Kevin O’Byrne, King’s College, London, UK; Professor David Rand, University of Warwick, UK; Professor James Sneid, University of Auckland, New Zealand.

**Information:** <http://www.bio-dynamics2013.org>.

11–13 **14th IMA Conference on Mathematics of Surfaces**, University of Birmingham, United Kingdom. (Sept. 2012, p. 1176)

**Description:** Computer-based methods for the capture, construction, representation, fitting, interrogation and manipulation of complicated surfaces have led to a wide interest in, and need for, the mathematics of surfaces and related curves. Many applications require the use of surface descriptions, especially in such fields as computer aided design and manufacturing, computer graphics and computer vision. The description of surfaces is also of interest in geographic information systems, multimedia, and many other areas of science and medicine. This diversity and the wide range of applicability of the subject have already enabled the IMA to hold thirteen very successful international conferences in the Mathematics of Surfaces series. Several international authorities are being invited to present papers. The Institute of Mathematics and its Applications is a not-for-profit organisation registered as a charity in the UK.

**Information:** [http://www.ima.org.uk/conferences/conferences\\_calendar/14th\\_mathematics\\_of\\_surfaces.cfm](http://www.ima.org.uk/conferences/conferences_calendar/14th_mathematics_of_surfaces.cfm)

11–14 **The Sixth International Workshop on Differential Equations and Applications**, Izmir University of Economics, Izmir, Turkey. (Apr. 2013, p. 515)

**Description:** The scope of the conference is to bring together members of the mathematical community whose interest lies in applied mathematics to assess new developments, ideas and methods. The conference will cover a wide range of topics of differential equations, difference equations, dynamic equations and stochastic differential equations.

**Information:** <http://dm.ieu.edu.tr/wdea2013>.

12–14 **The Algerian-Turkish International Days on Mathematics 2013**, Fatih University, Istanbul, Turkey. (May 2013, p. 654)

**Description:** The aim of this conference is to provide a platform for scientific expertise in mathematics to present their recent works, exchange ideas and to bring together mathematicians to improve collaboration between local and international participants.

**Information:** <http://atim.fatih.edu.tr/>.

15–20 **ICERM Workshop: Exotic Geometric Structures**, ICERM, Providence, Rhode Island. (Jan. 2013, p. 116)

**Description:** This workshop will focus on recent advances in the study of geometric structures and their associated group representations. As well as featuring hyperbolic structures, the workshop will

also consider more exotic structures, such as projective structures, complex hyperbolic and spherical CR-structures and locally homogeneous space-times. A related focus includes aspects of coarse or non-positively curved geometry such as Gromov hyperbolic spaces and CAT(0) complexes. We will explore the interaction between experimental evidence and rigorous proof.

**Information:** <http://icerm.brown.edu/sp-f13-w1>.

16–20 **Mathematics for an Evolving Biodiversity**, Centre de Recherches Mathématiques, Montréal, Canada. (Dec. 2012, p. 1596)

**Description:** This workshop will provide an overview of recent theoretical and methodological developments for modeling the complex evolutionary dynamics that have shaped the structure of contemporary biodiversity. Theoretical work at the interface between ecology and evolutionary studies will be presented, as well as its applications to empirical data.

**Support:** Financial support is available.

**Information:** <http://www.crm.math.ca/Biodiversity2013/>.

16–20 **MatTriad’2013 - Conference on Matrix Analysis and its Applications**, Herceg-Novi, Montenegro. (Dec. 2012, p. 1596)

**Description:** The aim is to bring together researchers sharing an interest in a variety of aspects of matrix analysis and its applications in other fields of mathematics and offer them a possibility to discuss current developments in these subjects.

**Information:** <http://matriad2013.pmf.uns.ac.rs>.

16–October 11 **Mathematics and Physics of the Holographic Principle**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom. (Dec. 2012, p. 1596)

**Description:** Holographic duality relates a string theory to a quantum field theory without gravity. Currently it is an area of research located at the confluence of previously seemingly distant fields in physics and mathematics including superconductivity and other exotic phases of strongly coupled quantum matter, string theory, numerical general relativity and the theory of non-linear partial differential equations. The main aim of the programme is to tackle questions which the traditional methods within each discipline have proved inadequate to address, with special emphasis on strongly correlated condensed matter systems and non-equilibrium dynamics. Preliminary progress includes the application of the duality to concrete experimental questions about the quark-gluon plasma and the emergence of various fascinating condensed matter phenomena from the physics of AdS black holes. A number of workshops will take place during the programme. For full details see: <http://www.newton.ac.uk/programmes/HOL/ws.html>.

**Information:** <http://www.newton.ac.uk/programmes/HOL/>.

\* 19–22 **Conference on Applied and Industrial Mathematics - CAIM 2013**, Faculty of Mathematics and Computer Science, University of Bucharest, Romania.

**Description:** Caim 2013 provides a forum for the review of the recent trends in applied mathematics: mathematical modeling, studies of models coming from industry, biology, economy, etc., either from a qualitative or from a numerical point of view. Since theoretical studies find sooner or later their applicability, the conference has also sections for more theoretical branches of mathematics like algebra or geometry. Computer science communications are welcome.

**Information:** [http://www.romai.ro/conferintele\\_romai/caim2013\\_en.html](http://www.romai.ro/conferintele_romai/caim2013_en.html).

21–23 **The First International Conference on New Horizons in Basic and Applied Science Session “Aspects of Mathematics and its Applications”**, Hurghada, Egypt. (May 2013, p. 654)

**Description:** The first international conference “New horizons in basic and applied science” (ICNHBAS) provides a unique opportunity for scientists, scholars, engineers and students from the universities, technologists, entrepreneurs and policy makers all around the world to present current researches being carried out in basic and applied science area. The conference promotes for the delegates

to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration. The conference will also have numerous invited talks from distinguished scientists from all over the world, to interact with the experts in their fields and to foster interdisciplinary collaborations required to meet the challenges of modern science, technology and society. All the papers that are submitted to the conference will undergo a review process for either oral or poster presentation.

**Information:** <http://www.nhbas2013.com>.

21–27 “Wavelets and Related Multiscale Methods” within ICNAAM2013: 11th International Conference of Numerical Analysis & Applied Mathematics, Rodos Palace Hotel, Rhodes, Greece. (Apr. 2013, p. 515)

**Aim:** To bring together specialists in both theory and application of multiscale harmonic analysis.

**Topics:** The topics include but are not restricted to: Wavelet bases and frames (construction, properties, etc.), applications of wavelet and other multiscale decompositions to computational problems, modeling multiscale (fractal) structures and anomalous (multiscale self-similar) kinetics, mathematical modeling and analysis biophysical (e.g., in acoustics, oscillating chemical reactions, neuroscience, etc.) signals with non-stationary multifrequent periodicity. Thus, presentations of researchers developing mathematical basics of multiscale analysis as well as those who apply these methods for practical computational applications are welcomed.

**Information:** [http://www.icnaam.org/sessions\\_minisym-posia.htm](http://www.icnaam.org/sessions_minisym-posia.htm).

\* 22–26 18th Annual cum 3rd International Conference of Gwalior Academy of Mathematical Sciences (GAMS), Department of Mathematics Maulana Azad National Institute of Technology, Bhopal, India 462051.

**Description:** The academic program of the conference will consist of keynote, plenary and invited talks, and paper presentations in mathematical biology, statistics, air pollution, differential equations, special functions and other allied topics.

**Theme:** Mathematical, Computational and Integrative Sciences.

**Call for Papers:** Original research papers on recent developments in Mathematical and Computational Sciences are invited for presentation in the conference. Intended participants are invited to send the abstracts (not exceeding 250 words) on or before May 31, 2013. After receiving the acceptance the authors will have to submit full-length papers no later than June 30, 2013. The author will have to follow “Instructions to Authors” as given in the website <http://www.gamsinfo.com> for the GAMS Journal. All abstracts should be submitted online to the Organizing Secretary.

**Important dates:** Deadline for Submission of Abstract: May 31, 2013. Notification of Acceptance: June 15, 2013. Early bird Registration: June 15, 2013. Full length Paper Submission: June 30, 2013.

**Information:** <http://www.gamsinfo.com> and <http://www.manit.ac.in>.

23–27 Mathematics of Sequence Evolution: Biological Models and Applications, Centre de Recherches Mathématiques, Montréal, Canada. (Dec. 2012, p. 1596)

**Description:** Models of evolution of biological sequences have gone a long way since Jukes and Cantor. First, it is no longer acceptable to consider that mutations of a given type occur independently and uniformly across time and space. A large number of factors affect the rate at which mutations occur. Second, selective pressure makes that the probability of fixation of a mutation depends on the fitness of the mutated individual, which sometimes places unexpected constraints on the mutational process and induces strong dependencies between positions along the sequences.

**Support:** Financial support is available.

**Information:** <http://www.crm.math.ca/Biodiversity2013/>.

\* 23–27 Solar Cells, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** This is the first workshop in the long program “Materials for a Sustainable Energy Future.” The workshop will include a poster session; a request for posters will be sent to registered participants in advance of the workshop.

**Organizing committee:** Claudia Draxl (Humboldt-Universität), Jeff Neaton (Lawrence Berkeley Laboratory), and Keith Promislow (Michigan State University, Mathematics).

**Registration:** An application and a registration form is available online.

**Application deadline:** July 29, 2013.

**Information:** <http://www.ipam.ucla.edu/programs/msews1/>.

\* 23–28 International conference “Complex Analysis and Related Topics”, Lviv Ivan Franko National University, Lviv, Ukraine.

**Description:** The following topics will be presented on the conference: - complex analysis of one variable; - complex analysis of several variables; - complex approximation.

**Information:** <http://analysis13.mathlviv.org.ua>.

\* 27–28 The twelfth annual Prairie Analysis Seminar, Kansas State University, Manhattan, Kansas.

**Description:** The conference features Gui-Qiang Chen, University of Oxford, who will give two one-hour talks, and Mikhail Feldman, University of Wisconsin, Augusto Ponce, Université Catholique de Louvain, and Mónica Torres, Purdue University, who will each give a one-hour talk. There is time scheduled for contributed talks; all participants, especially mathematicians early in their careers, are encouraged to contribute a 20-minute talk. The conference is supported by the NSF and funding is available with priority given to students, postdocs and those early in their careers.

**Organizers:** Marianne Korten, Charles Moore, Kansas State University; Estela Gavosto, Rodolfo Torres, University of Kansas

**Information:** <http://www.math.ksu.edu/pas/2013/PrairieAnalysisSeminar/2013.html>.

28–29 Mathematics of Planet Earth 2013 - Pan-Canadian Thematic Program - Mathematical Modeling of Indigenous Population Health, BIRS, Banff, Canada. (Sept. 2012, p. 1176)

**Description:** In Canada, the 2009 influenza H1N1 pandemic disproportionately affected Indigenous populations with severe disease outcomes often necessitating hospitalization and intensive care unit admission. The maintenance of surge capacity for the healthcare was seriously challenged in many several geographic areas, including northern remote communities and First Nation reserves. The reasons for this disproportionate impact are not well understood, but important factors may include the prevalence of pre-disposing health conditions, limited access to healthcare, and environmental and demographic characteristics including the transportation network. Same factors apply to other diseases and hence the inequity issues arise from many other diseases and settings.

**Information:** [http://www.crm.umontreal.ca/act/theme\\_2013\\_1\\_en/indigenous\\_population13\\_e.php](http://www.crm.umontreal.ca/act/theme_2013_1_en/indigenous_population13_e.php).

\* 30–October 3 57th Annual Meeting of the Australian Mathematical Society, The University of Sydney, Sydney, Australia.

**Description:** This is the largest annual event in Australian mathematics. The meeting features plenary talks and special sessions on a wide range of topics. Special events include public lectures and an education afternoon.

**Information:** <http://www.maths.usyd.edu.au/u/austms2013/>.

### October 2013

5–6 2013 Fall Southeastern Section Meeting, University of Louisville, Louisville, Kentucky. (Sept. 2012, p. 1176)

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

7-11 **Coalescent Theory: New Developments and Applications**, Centre de Recherches Mathématiques, Montréal, Canada. (Dec. 2012, p. 1596)

**Description:** Coalescent theory is one of the most elegant and powerful probabilistic approaches in mathematical population genetics. It formalizes the backward perspective on evolution in large finite populations by considering a population evolving forward in time under the effects of various factors, conditional on genetic data observed in the current generation, providing a link between evolutionary models and empirical data.

**Support:** Financial support is available.

**Information:** <http://www.crm.math.ca/Biodiversity2013/>.

\* 7-11 **Differential Geometry and Global Analysis**, Leipzig University, Department of Mathematics, Leipzig, Germany.

**Description:** International conference, topics include (Pseudo-) Riemannian and conformal geometry, geometry of metric spaces, geometry of differential operators, geometric variational problems, Hamiltonian systems, symplectic geometry and topology.

**Information:** <http://www.math.uni-leipzig.de/~rademacher/dgga13.html>.

10-12 **International Conference on Statistical Distributions and Applications**, Mt. Pleasant, Michigan. (Mar. 2013, p. 362)

**Description:** This international conference is being organized to provide a platform for researchers and practitioners to share and discuss recent advancements on distribution theory and applications, and to provide opportunities for collaborative work. The scope includes, but not limited to (1) new methodology for generating discrete and continuous (univariate and multivariate) distributions, (2) properties, estimation techniques, and goodness of fit tests on generalized distributions from both frequentist and Bayesian perspectives, (3) Bayesian priors using generalized distributions, (4) statistical modeling using generalized distributions, and (5) applications of generalized distributions in disciplines including biosciences, medical sciences, finance, insurance, and engineering.

**Information:** <http://people.cst.cmich.edu/lee1c/icosda/>.

\* 11-13 **International Symposium on Biomathematics and Ecology: Education and Research**, Marymount University, Arlington, Virginia.

**Description:** This is the sixth annual meeting which traditionally covers a wide spectrum of topics in biomathematics, biology, exology, biostatistics focused on both education and research.

**Information:** <http://www.biomath.ilstu.edu/beer>.

12-13 **2013 Eastern Sectional Meeting**, Temple University, Philadelphia, Pennsylvania. (Sept. 2012, p. 1176)

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

\* 12-13 **Fifth Dr. George Bachman Memorial Conference**, Manhattan Campus of St. John's University, New York, New York.

**Description:** The conference invites articles from all disciplines, and welcomes the participation of graduate students.

**Deadline:** Abstracts should be submitted by September 5, 2013 to the organizers: Dr. Edward Beckenstein ([drbeckense@aol.com](mailto:drbeckense@aol.com)), and Dr. Charles Traina ([trainac@stjohns.edu](mailto:trainac@stjohns.edu)).

14-18 **Fluid Mechanics, Hamiltonian Dynamics, and Numerical Aspects of Optimal Transportation**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1176)

**Description:** The workshop will be devoted to emerging approaches to fluid mechanical, geophysical and kinetic theoretical flows based on optimal transportation. It will also explore numerical approaches to optimal transportation problems.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/all-workshops/show/-/event/Wm9227>.

\* 14-18 **Fuels from Sunlight**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** This workshop seeks to enhance the quality of research on chemical energy conversion and open new directions. We invite colleagues from materials science, physics, chemistry, chemical engineering, applied mathematics and statistics, and computer science.

**Organizing Committee:** Rupert Klein (Freie Universität Berlin), Jens Norskov (Stanford University), and Matthias Scheffler (Fritz-Haber-Institut der Max-Planck-Gesellschaft).

**Registration:** An application and a registration form are available online.

**Application deadline:** August 19, 2013.

**Information:** <http://www.ipam.ucla.edu/programs/msews2/>.

\* 14-18 **Topological and Combinatorial Problems in One-dimensional Complex Dynamics**, Centro di Ricerca Matematica "Ennio De Giorgi", Piazza dei Cavalieri 3, Pisa, Italy.

**Description:** One dimensional complex dynamics involves the usage of many different tools taken from other areas of mathematics. We would like to focus on the interaction of holomorphic dynamics with topology on one side, and with combinatorics on the other side. The goal of this workshop is to investigate these two themes from the threefold view-point of local dynamics, dynamics of transcendental maps, and dynamics of rational maps, emphasizing the similarities between these problems in the three settings. This will outline a fairly complete summary of the current topological and combinatorial methods available in the three areas, with the hope of suggesting new applications. Emphasis will be on open problems and interrelations between the two major themes of the workshop. A side goal is to encourage the participation of graduate students and recent Ph.D.'s in the field.

**Registration:** On-line registration required. No attendance fee. Support for selected young participants available.

**Deadline:** Application: June 23, 2013.

**Information:** <http://www.crm.sns.it/event/271/>.

15-19 **VII Moscow International Conference on Operations Research (ORM2013)**, Dorodnicyn Computing Center of RAS (CC of RAS) and Lomonosov Moscow State University (MSU), Moscow, Russian Federation. (Jan. 2013, p. 117)

**Description:** The conference will bring together scientists from all over the world to discuss theoretical aspects and various applications of operations research.

**Language:** Working language of the conference is English. Some sections might be in Russian.

**Information:** <http://io.cs.msu.su/>.

18-20 **2013 Fall Central Section Meeting**, Washington University, St. Louis, Missouri. (Sept. 2012, p. 1176)

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

\* 19-20 **The 23rd annual Route 81 Conference on Commutative Algebra and Algebraic Geometry**, Syracuse University, Syracuse, New York.

**Description:** The Route 81 Conference on Commutative Algebra and Algebraic Geometry rotates between the campuses of Cornell University (Ithaca), Queen's University (Kingston), and Syracuse University (Syracuse), along the Route 81 corridor in New York State. This year's conference will feature 6-10 talks of approximately one hour. Persons interested in giving a talk are invited to submit a title and abstract to one of the organizers. There is no formal registration process, but it would be helpful if you would let the organizers know if you plan to attend.

**Information:** <http://www.commalg.org/Rte81-2013/>.

21-25 **ICERM Workshop: Topology, Geometry and Group Theory, Informed by Experiment**, ICERM, Providence, Rhode Island. (Jan. 2013, p. 117)

**Description:** The mathematical focus of this workshop will include all aspects of the topology and geometry of low-dimensional manifolds and geometric group theory. It has been understood for over a century that these subjects are tightly connected, but the connections have become even deeper as the subjects have matured. Recent advances have given dramatic evidence of this. The workshop aims to further extend the interplay between these subjects.

**Information:** <http://icerm.brown.edu/sp-f13-w2>.

21–25 **Mathematics of Planet Earth 2013 - Pan-Canadian Thematic Program - Sustainability of Aquatic Ecosystem Networks**, AARMS, Fredericton, New Brunswick, Canada. (Sept. 2012, p. 1176)

**Description:** The Canadian landscape is dotted with thousands of lakes, mighty rivers and uncountable streams run through it, and three oceans border it. For many decades, Canadians have taken clean and available water for granted: for transport and hydro-power, for consumption and recreation. But the impact of human activities is clearly visible: many rivers are polluted and their flow regime altered; algal blooms destroy lake ecosystems; invasive species threaten native species assemblages, oceans are overfished. Many initiatives are under way to understand and manage aquatic ecosystems in a sustainable way.

**Information:** [http://www.crm.umontreal.ca/act/theme/theme\\_2013\\_1\\_en/ecosystem\\_network13\\_e.php](http://www.crm.umontreal.ca/act/theme/theme_2013_1_en/ecosystem_network13_e.php)

21–December 20 **Mathematics for the Fluid Earth**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom. (Dec. 2012, p. 1597)

**Description:** The fluid Earth is an excellent example of a forced, dissipative non-equilibrium system dominated by nonlinear processes and featuring multi-scale interactions, so that its understanding can be approached using the tools of dynamical systems theory and non-equilibrium statistical mechanics. The purpose of this programme is to bring together scientists from very different perspectives in models of the dynamics of the fluid components of the Earth system. **Aim:** This programme aims to prove that there is a close connection between “core” questions and problems of pure and applied mathematics and “core” questions of geophysical fluid dynamics relevant for the investigation of the climate system and of its component.’

**Themes:** The programme features three main macro-themes of interest: a) Dynamical Systems and Statistical Mechanics; b) Extreme Events; c) Partial Differential Equations. Each theme has a huge potential for future breakthroughs at the boundary between mathematics and natural science.

**Information:** <http://www.newton.ac.uk/programmes/MFE/>.

23–25 **International Conference in Modeling Health Advances ICMHA 2013**, Berkeley, California. (Mar. 2013, p. 363)

**Description:** Modeling is important because it gives important insight into the method of treatment. The conference ICMHA’13 is held under the World Congress on Engineering and Computer Science, WCECS 2013.

**Organizer:** The WCECS 2013 is organized by the International Association of Engineers (IAENG), a non-profit international association for the engineers and the computer scientists.

**Information:** <http://www.jaeng.org/WCECS2013>.

24 **3rd IMA Mathematics in Defence**, QinetiQ, Malvern, United Kingdom. (May 2013, p. 654)

**Description:** This conference brings together a wide variety of mathematical methods with defence and security applications. The conference programme will include keynote speakers, contributed presentations and poster sessions as well as refreshment breaks for informal discussions. It is intended for mathematicians, scientists and engineers from industry and academia, as well as government and military personnel who have an interest in how mathematics can be applied to defence problems.

**Information:** [http://www.ima.org.uk/conferences/conferences\\_calendar/3rd\\_mathematics\\_in\\_defence.cfm](http://www.ima.org.uk/conferences/conferences_calendar/3rd_mathematics_in_defence.cfm).

28–31 **Groups, Group Rings, and Related Topics GRRRT 2013**, United Arab Emirates University, Al Ain, United Arab Emirates. (May 2013, p. 654)

**Description:** The conference will include talks given by well-known invited algebraists and a poster session. In parallel, a workshop on GAP (Groups, Algorithms, and Programming) System for Computational Discrete Algebra will be given by the GAP Development Group of St. Andrews University (UK). Conference proceedings will be electronically edited by the scientific committee. In addition, selected peer-reviewed papers will be published in a special edition of the *International Journal of Group Theory*. The social activities will include a short trip to Jebel Hafeet, a conference dinner, and a trip to Dubai ending with a dinner on a boat cruising along Dubai Creek. **Registration and abstract submission:** Must be before September 15th, 2013. A discount will be given for early registration (before June 15th, 2013).

**Information:** [http://www.cos.uaeu.ac.ae/department/mathematical/conferences/GRRRT\\_2013/](http://www.cos.uaeu.ac.ae/department/mathematical/conferences/GRRRT_2013/).

28–November 9 **Lévy Processes and Self-similarity 2013**, Tunis, Tunisia. (Feb. 2013, p. 264)

**Description:** A CIMPA school will be coupled with a conference under the name “Lévy Processes and Self-similarity 2013”. The conference is a follow up to those organized in Clermont-Ferrand (2002), Toulouse (2005), Angers (2009) and Le Touquet-Paris-Plage (2011).

**Organizers:** Lévy and self-similar processes will be studied under many aspects through a series of 5 lectures: Philippe Biane, Free probability and free Lévy processes; Loïc Chaumont, An introduction to self-similar processes; Sonia Fourati, Complex analysis and exit problem for Lévy processes; Jean Jacod, Lévy Processes and statistics; René Schilling, Probabilistic and analytic aspects of subordination. The conference Lévy Processes and Self-similarity will be held during the second week.

**Information:** <http://levy-autosimilarity-tunis2013.math.cnrs.fr/index.html>.

## November 2013

2–3 **2013 Western Fall Section Meeting**, University of California Riverside, Riverside, California. (Sept. 2012, p. 1176)

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

\*4–8 **Batteries and Fuel Cells**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** An energy economy fueled by renewable resources will require significant improvement in existing materials for energy conversion and storage. It is the goal of this workshop to bring together mathematicians, physicists, computer scientists, materials scientists and engineers who work in the area of batteries and fuel cells to spark collaborations across disciplines and seed new interdisciplinary research directions. This workshop will include a poster session; a request for posters will be sent to registered participants in advance of the workshop. An application and registration form are available online.

**Application deadline:** September 9, 2013.

**Information:** <http://www.ipam.ucla.edu/programs/msews3/>.

4–8 **Biodiversity and Environment: Viability and Dynamic Games Perspectives**, Centre de Recherches Mathématiques, Montréal, Canada. (Dec. 2012, p. 1596)

**Description:** Although alarming news is accumulating by the day on the impact of human activities on biodiversity, ecosystems and climate change, the response by the international community has not yet been up to the faced challenges. The pursuit of self-interest

has often been pointed out as a major obstacle to reach the much-needed global or regional agreements to tackle these problems. Another difficulty in dealing with these issues is that they are of the long-term variety and involve a high degree of uncertainty.

**Support:** Financial support is available.

**Information:** <http://www.crm.math.ca/Biodiversity2013/>.

09–16 (NEW DATE) **International Conference on Fractals and Wavelets**, Rajagiri School of Engineering & Technology Kakkanad Cochin, Kerala, India. (Feb. 2013, p. 264)

**Conference focus on following areas:** Fractals, self similarity, holomorphic dynamics, wavelets, image processing, signal processing.

**Information:** <http://rajagiritech.ac.in>.

10–15 **Mathematics of Planet Earth 2013 - Pan-Canadian Thematic Program - Current Challenges for Mathematical Modelling of Cyclic Populations**, BIRS, Banff, Canada. (Sept. 2012, p. 1176)

**Description:** We propose to bring together ecologists and mathematicians with expertise in cyclic populations to discuss recent advances in our theoretical understanding of the causes and implications of population cycles from both the ecological and mathematical points of view.

**Information:** <http://www.birs.ca/events/2013/5-day-workshops/13w5151>.

11–14 **SIAM Conference on Geometric and Physical Modeling (GD/SPM13)**, The Curtis, A DoubleTree by Hilton Hotel, Denver, Colorado. (May 2013, p. 654)

**Description:** This conference is sponsored by the SIAM Activity Group on Geometric Design, incorporating the 2013 SIAM Conference on Geometric Design and the 2013 Symposium on Solid and Physical Modeling.

**Information:** <http://www.siam.org/meetings/gdspm13/>.

11–15 **Mal'tsev Meeting 13**, Sobolev Institute of Mathematics SB RAS, Novosibirsk, Russia. (May 2013, p. 654)

**Description:** Mal'tsev Meeting is an annual conference on algebra, mathematical logic, and their applications. In 2013, the event is dedicated to an anniversary of Professor Larisa L. Maksimova.

**Topics:** Include nonclassical logics, computability, theories of groups, rings, and other classical algebras, model theory and universal algebra, applications in computer science, and other related areas of mathematics.

**Information:** <http://www.math.nsc.ru/conference/mal-meet/13/index.html>.

12–14 **2013 IEEE International Conference on Technologies for Homeland Security (IEEE HST.13)**, The Westin, Waltham, Boston, 70 Third Avenue, Waltham, Massachusetts 02451. (Apr. 2013, p. 515)

**Description:** The meeting will bring together innovators from leading academic, industry, business, homeland security centers of excellence, and government programs to provide a forum to discuss ideas, concepts, and experimental results. Produced by IEEE with technical support from DHS S&T, IEEE Boston Section, and IEEE-USA and organizational support from MIT Lincoln Laboratory, Raytheon, Battelle, and MITRE, this year's event will once again showcase selected technical paper and posters highlighting emerging technologies in the areas of cyber security, attack and disaster preparation, recovery, and response, land and maritime border security and biometrics & forensics.

**Information:** <http://ieee-hst.org>.

12–14 **The Second International Conference on Informatics Engineering & Information Science (ICIEIS2013)**, University Technology Malaysia (UTM), Kuala Lumpur, Malaysia. (Dec. 2012, p. 1597)

**Description:** Researchers are encouraged to submit their work electronically. All papers will be fully refereed by a minimum of two specialized referees. Before final acceptance, all referees comments must be considered.

**Important dates:** Submission Deadline: August 1, 2013. Notification of Acceptance: August 20, 2013. Camera Ready Submission: August 30, 2013. Registration: September 2, 2013.

**Information:** <http://sdiwc.net/conferences/2013/icieis2013/>.

\* 13–15 **School on Quantum Ergodicity and Harmonic Analysis (Part III)**, Philipps University, Marburg, Germany.

**Description:** This school is aimed at doctoral students and also welcomes more experienced researchers. Its third part will consist of four lecture series: N. Anantharaman: Entropy and the localization of eigenfunctions; J. Hilgert: Introduction to quantum ergodicity and related topics; S. Nonnenmacher: Resonances in chaotic scattering: a semiclassical gap in terms of topological pressure; R. Schubert: On the rate of quantum ergodicity. This activity is a continuation of events held in Göttingen in January 2013 and in Marburg in September 2012. It can be attended without earlier participation.

**Support:** Financial support can be provided.

**Information:** <http://www.uni-math.gwdg.de/QEMarburg2013>.

\* 15 (NEW DATE) **Information, Instability and Fragility in Networks: Methods and Applications**, University of Colorado, Boulder, Colorado.

**Description:** The recent financial crisis raised the specter of cascading disruptions across financial institutions, due to their growing interconnectedness and the speed at which disruptions may propagate across them. Quantitative “Connectionist” research in the physical sciences, engineering and information theory has modeled analogous phenomena, using techniques that are less familiar to economists, financial researchers and regulators and social scientists in general. This conference will bring the seemingly disparate researchers together, in order to share ideas and jump start future collaborations. Early researchers coped with the limited micro-level data about large networks by adopting information-theoretic estimation techniques (e.g., the maximum entropy method). The conference is especially interested in papers employing information-theoretic, Bayesian techniques for additional purposes.

**Information:** <http://www.american.edu/cas/economics/info-metrics/workshop/conference-2013-fall.cfm>.

\* 18–22 **Energy Conservation and Waste Heat Recovery**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** A most effective, though still underestimated, issue in dealing with the energy requirements of modern societies concerns the conservation of energy. It is the goal of this workshop to bring together mathematicians, physicists, computer scientists, materials scientists and engineers who work in the area of energy conservation and waste heat recovery. An application and registration form is available online.

**Organizing Committee:** Giulia Galli (University of California, Davis), Richard James (University of Minnesota, Twin Cities), Jennifer Lukes (University of Pennsylvania), and Matthias Scheffler (Fritz-Haber-Institut der Max-Planck-Gesellschaft).

**Information:** <http://www.ipam.ucla.edu/programs/msews4/>.

18–22 **Evolution Problems in General Relativity**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1176)

**Description:** With cosmic censorship, the formation of black holes, and the stability of Kerr black holes as focus problems, the study of the evolution of solutions of Einstein's equations has made dramatic progress in recent years. In this workshop, we highlight some of this recent development, and examine the major areas in which future progress is likely.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm9554>.

18–22 **ICERM Workshop: Geometric Structures in Low-Dimensional Dynamics**, ICERM, Providence, Rhode Island. (Jan. 2013, p. 117)

**Description:** This workshop will present topics in low-dimensional dynamics such as billiards, flows on flat surfaces, dynamics on moduli spaces, and piecewise isometric maps. One theme in the workshop will be the appearance of geometric structures such as hyperbolic space and Teichmüller space in connection with dynamical systems which are basically defined in terms of the Euclidean plane. Computer experiments are common in these areas, and will be discussed, but the emphasis will be on the mathematics that comes out of the experiments.

**Information:** <http://icerm.brown.edu/sp-f13-w3>.

19–21 **Gulf International Conference on Applied Mathematics (GICAM13)**, Mubarak Al-Abdullah Al-Jaber Area, Kuwait. (Feb. 2013, p. 264)

**Description:** This is a conference on applied mathematics organized and hosted by the Department of Mathematics & Natural Sciences at the Gulf University for Science & Technology. The objective is to bring together applied mathematicians and other researchers using mathematics as a problem solving tool. Some of the major areas of interest are mathematical biology, fluid mechanics, mathematics of finance & economics, numerical analysis and computational science.

**Information:** <http://conferences.gust.edu.kw>.

\* 24–29 **II International Conference on Applied Mathematics and Informatics - ICAMI 2013**, San Andres Island, Colombia.

**Description:** This conference is organized every three years (starting from 2010) in the region of Latin America and the Caribbean as an official event of the REALMA Network (Réseau Europa-Amérique Latine en Maths Appliquées, <http://www.realma.org/>) and targets to involve local researchers who have fewer opportunities to attend similar conferences held in Europe and USA.

**Main streams:** Applied analysis and geometry; applied probability, statistics, and stochastic processes; continuous and discrete dynamic systems; game theory and other economics applications; mathematical epidemiology and biosciences; mathematical geosciences; numerical methods and software tools; operations research, optimization methods and applications; partial differential equations and applications; robotics and mechanical engineering; uncertainty quantification (UQ) and visualization in scientific computing.

**Deadline:** For abstract submission: June 20, 2013.

**Information:** <http://matematicas.univalle.edu.co/icami/2013/>.

\* 24–29 **Multi-scale and Multi-field Representations of Condensed Matter Behavior**, Centro di Ricerca Matematica “Ennio De Giorgi”, Piazza dei Cavalieri 3, Pisa, Italy.

**Description:** The School will introduce and discuss recent trends in the theoretical and computational approaches for the modelling of condensed matter. There will be special emphasis on describing the various ways events at finer scales in both space and time affect the macroscopic behaviour of matter at the macroscopic scales. Topics in continuum mechanics, theory of PDEs, stochastic calculus, and scientific computing will be addressed. The School will be a unique interdisciplinary opportunity to foster interactions among scholars coming from different scientific environments. The list of lecturers is available on the website.

**Registration:** Is free but participants are requested to register on the website. Some funds will be made available to offer financial support to a number of selected young researchers and students for their participation in the School. Applications can be made online through the website.

**Deadlines:** For applications for financial support: October 31, 2013. Registration: November 18, 2013.

**Information:** <http://www.crm.sns.it/event/280/>.

26–28 **International Conference on Pure and Applied Mathematics, ICPAM-LAE 2013**, Png University of Technology, Lae, Morobe Province, Papua New Guinea. (Sept. 2012, p. 1176)

**Description:** The objective of the ICPAM-LAE, 2013 is to bring together international team of mathematicians that will contribute to the development of Pure and Applied Mathematics in Papua New Guinea. The conference aims at bringing together experts, who are already practicing in different fields of pure and applied mathematics, as well as researchers, undergraduates and postgraduate students from around the globe to discuss mathematical questions, exchange high level knowledge of methods and investigate diverse applications of Pure and Applied Mathematics to domains such as astronomy, biology, education, engineering, geosciences, security, health care, medicine etc. Academia and industries are invited to participate. Mathematics Educationists are also welcome.

**Information:** Please contact: [journal@cms.unitech.ac.pg](mailto:journal@cms.unitech.ac.pg); <http://www.unitech.ac.pg/>.

### December 2013

\* 7–8 **Infinite-Dimensional Geometry**, University of California, Berkeley (740 Evans Hall), California.

**Description:** The purpose of this workshop is to gather researchers working in various areas of geometry in infinite dimensions in order to facilitate collaborations and sharing of ideas.

**Topics:** Represented include optimal transport and geometries on densities, metrics on shape spaces, Euler-Arnold equations on diffeomorphism groups, the universal Teichmüller space, geometry of random Riemann surfaces, metrics on spaces of metrics, and related areas.

**Funded:** By an NSF grant.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/all-workshops/show/-/event/Wm10168>.

7–11 **“ATCM+TIME 2013”: A joint session of 18th Asian Technology Conference in Mathematics and 6th Technology & Innovations in Mathematics Education**, Department of Mathematics, Indian Institute of Technology, Powai, Mumbai 400076, India. (Mar. 2013, p. 363)

**Description:** The ATCM conferences are international conference addressing technology-based issues in all Mathematical Sciences. The 17th ATCM December 16–20, 2012, was held at SSR University, Bangkok, Thailand. About 400 participants coming from over 30 countries around the world participated in the conference. The TIME conferences are national (Indian) conferences held every two years. TIME conferences serve a dual role: as a forum in which mathematics educators and teachers will come together to discuss and to probe major issues associated with the integration of technology in mathematics teaching and learning, and as a place where they can share their perspectives, personal experiences, and innovative teaching practices.

**Information:** <http://atcm.mathandtech.org> and <http://www.math.iitb.ac.in/TIME2013>.

\* 16–18 **International Conference on Role of Statistics in the Advancement of Science and Technology**, Department of Statistics, University of Pune, Pune, Maharashtra, India.

**Description:** The Department of Statistics, University of Pune is organizing “Diamond Jubilee Year & International Year of Statistics Conference” to commemorate 60 years of establishment.

**Aim:** To explore the role of statistics in the advancement of science and technology.

**Topics:** Statistical inference, inference in stochastic processes, statistical computing, biostatistics, reliability, survival analysis, industrial statistics, actuarial, financial statistics, data mining, probability theory, decision theory, design of experiments, distribution theory, econometrics, multivariate analysis, neural networks, nonparametric inference, operations research, queuing theory, simulation methods,

statistical genetics, statistical quality control, survey sampling, time series analysis, etc.

**Information:** <http://stats.unipune.ac.in/Conf13.html>.

- \* 16-19 **International Conference on Advances in Applied Mathematics**, Hammamet, Tunisia.

**Description:** The Tunisian Association of Applied Mathematics and Industrial organizes its first conference in Applied Mathematics "ICAAM 2023". The purpose of this conference is to highlight some of the major theoretical advances and applications in the fields of: Spectral theory, operator theory, optimization, numerical analysis, partial differential equations, ordinary differential equations, control theory, dynamical systems, nonlinear systems and matrix, probability and statistics.

**Information:** <http://sites.google.com/site/icaam2013/>.

- 16-20 **Fundamental Groups in Arithmetic and Algebraic Geometry**, Centro di Ricerca Matematica Ennio De Giorgi, Pisa, Italy. (Mar. 2013, p. 363)

**Description:** The study of fundamental groups of algebraic varieties has been an important theme in algebraic geometry for a long time. With the introduction of purely algebraic-geometric variants, due to Grothendieck, Deligne, Nori and others, it has become crucial in arithmetic geometry, revealing deep connections with Galois theory and algebraic number theory.

**Purpose:** Of this conference is to present a wide range of recent relevant advances, in complex geometry, algebraic geometry in positive characteristic and in arithmetic geometry. We aim at gathering experts in different aspects of this vast subject, thus painting a multifaceted yet unified picture of it.

**Information:** <http://www.crm.sns.it/event/281/>.

- \* 16-20 **The XXIVth Edition of the International Workshop on Operator Theory and its Applications (IWOTA)**, Indian Institute of Sciences, Bangalore, India.

**Description:** As usual there will be special sessions at IWOTA 2013. Proposals should be submitted to [iwota2013@gmail.com](mailto:iwota2013@gmail.com) and should contain a brief description of the session and a preliminary list of speakers and tentative lecture titles. We plan to have at least eight special sessions and each session will have between six to eight hours of time.

**Information:** The webpage will soon have information about registration, registration fee, hotel booking etc. There is a rudimentary website at the address <http://math.iisc.ernet.in/~iwota2013>.

- \* 17-20 **Marrakesh International Conference on Probability and Statistics (MICPS-2013)**, Marrakesh, Morocco.

**Organizing Committee:** M. Eddahbi, K. Es-Sebaiy, I. Ouassou, Y. Ouknine and M. Rachdi.

**Registration and submission:** For all the actions related to the MICPS-2013 (abstract submission, registration, conference fee, etc) please check the conference website.

**Accommodation/Transportation:** Special prices have been arranged with some hotels for MICPS 2013 participants.

**Information:** <http://www.ensa.ac.ma/micps2013/>; email: [k.essebaiy@uca.ma](mailto:k.essebaiy@uca.ma).

- 18-20 **6th Indian International Conference on Artificial Intelligence**, Tumkur (near Bangalore), India. (May 2013, p. 655)

**Description:** The 2013 International Conference on Advances in Data Mining and Security Informatics (DMSI-13) and the 2013 International Conference on Image, Video and Signal Processing (IVSP-13) will also be held at the same time and place. We invite draft paper submissions. IICAI is a series of high quality technical events in Artificial Intelligence (AI) and is also one of the major AI events in the world. The conference will be held every two years to make it an ideal platform for people to share views and experiences in AI and related areas.

**Information:** For more details visit: <http://www.iiconference.org>.

- \* 18-21 **HiPC 2013: 20th IEEE International Conference on High Performance Computing**, Hyderabad, India.

**Description:** You are invited to submit original unpublished research work that demonstrates current research in all areas of high performance computing including design and analysis of parallel and distributed systems, embedded systems, and their applications in scientific, engineering, and commercial areas. All accepted papers will be published in printed conference books/proceedings (ISBN) or on a CD. In addition, please assist in printing the CFP and displaying it on your organization's message boards. The details of CFP (call for papers) can be found at <http://www.hipc.org/hipc2013/papers.php>. In addition to technical sessions consisting of contributed papers, the conference will include invited presentations, a student research symposium, tutorials, and vendor presentations in the industry, user and research symposium. Further details about call for student research symposium, workshops, tutorials, and exhibits, as well as submission guidelines are available at the conference website.

**General Co-Chairs:** Badrinath Ramamurthy, HP, India; Rama Govindaraju, Google, California, USA.

**Vice-General Chair:** Jigar Halani, Wipro, India.

**Deadline:** Paper submission: May 16, 2013.

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

- \* 21-22 **The International Congress on Science and Technology**, Allahabad, U.P., India.

**Description:** The ICST-2013 is organized by the CWS, a non-profit society for the scientists and the technocrats and will take place in Allahabad, U.P., INDIA, from Dec. 21-22, 2013. The conference has the focus on the current trends on frontier topics of the science and technology (Applied Engineering) subjects. The ICST conferences serve as good platforms for our members and the entire science and technological community to meet with each other and to exchange ideas.

**Information:** <http://sites.google.com/site/intcongressonsciandtech/>.

- \* 21-23 **7th International Conference of IMBIC on "Mathematical Sciences for Advancement of Science and Technology" (MSAST 2013)**, Hotel Indismart, Kolkata, India.

**Description:** The main objective of the conference is to bring specialized topics in mathematics, statistics, computer science, information technology, bioinformatics and closely related interdisciplinary areas to the forefront. Original full papers are invited. All papers are to be screened and accepted papers will be published in the *Proceedings of IMBIC*, Volume 2 (2013), having ISBN 978-81-925832-1-1, except for a few full scientific papers of high quality, which may be published in the highly acclaimed series of monographs of IMBIC in Volume 2 (2014).

**Contact:** All correspondence in respect to the conference is to be addressed to Dr. Avishek Adhikari, Convenor MSAST 2013 & Secretary, IMBIC; email: [msast.paper@gmail.com](mailto:msast.paper@gmail.com); [http://www.isical.ac.in/~avishek\\_r/](http://www.isical.ac.in/~avishek_r/).

**Information:** <http://www.indismart.in/kol-index.php>; <http://www.imbic.org/forthcoming.html>.

- 28-30 **3rd International Conference on Mathematics & Information Science (ICMIS 2013)**, Luxor, Egypt. (Oct. 2012, p. 1303)

**Description:** The conference will feature advances in mathematical science and technology presented by leading African and international researchers. The conference will provide the opportunity to showcase research in mathematics, theoretical physics and information science and technology to engender dialogue and collaboration between Egyptian and international researchers. The conference is part of a series of conferences dedicated to bringing top scientists and technologists to Egypt thereby helping to raise Egyptian science and technology to the highest international standard, raise awareness of governments and industry in Egypt of

the importance and excitement of new research and development in technologies, and engender collaborations and research exchanges.  
**Grants:** Some grants for young and early stage researchers are available.

**Information:** <http://conf.naturalspublishing.com/>.

### January 2014

5–7 **ACM-SIAM Symposium on Discrete Algorithms (SODA14), being held with Analytic Algorithmics and Combinatorics (ANALCO14) and Algorithm Engineering and Experiments (ALENEX14)**, Hilton Portland & Executive Tower, Portland, Oregon. (Dec. 2012, p. 1597)

**Information:** Further information on SODA14, ALENEX14 and ANALCO14 will be posted at <http://www.siam.org/meetings/da14/> in April, 2013.

\* 6–10 **Mathematics of Social Learning**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** The goal of this workshop is to bring together mathematicians, physicists, and social, information, and computer scientists to explore the dynamics of social learning and cultural evolution. Of particular interest will be ways of using data from social media and online experiments to address questions of interest.

**Deadline:** An application and registration form is available online. Application deadline: November 11, 2013.

**Information:** <http://www.ipam.ucla.edu/programs/sl2014/>.

6–July 4 **Free Boundary Problems and Related Topics**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom. (Dec. 2012, p. 1597)

**Description:** Free boundary problems are today considered as one of the most important directions in the mainstream of the analysis of partial differential equations (PDEs), with an abundance of applications in various sciences and real world problems. In the last two decades, various new ideas, techniques, and methods have been developed, and new important, challenging problems in physics, engineering, industry, finance, biology, and other areas have arisen. The topics of this programme are directed towards theory, numerics and applications. The study of free boundary problems is an extremely broad topic due to the abundance of applications. This breadth presents challenges and opportunities! Many problems treated by applied scientists and numerical analysts are not well known amongst theoretical people, and vice versa. The aim of this programme is to enhance links and unifying techniques by bringing together the relevant specialists.

**Information:** <http://www.newton.ac.uk/programmes/FRB/>.

\* 15–18 **Joint Mathematics Meetings**, Baltimore, Maryland.

**Information:** <http://www.ams.org/meetings/national/national>.

\* 16–18 **Mathematical Challenges in Ophthalmology**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** Ophthalmology has become increasingly subspecialized and technologically advanced, making it impossible to be an expert in every area and highlighting the need for multi-disciplinary collaborations with engineers and mathematicians. The goal of this workshop is to encourage communication between engineers, mathematicians, scientists, and clinicians to improve patient care and scientific advancement. The integration of new imaging technology allows visualization down to the cellular level, but objectivity of evaluation and automated analysis still need more refinement. The incorporation of intraoperative imaging technology would be the beginning of a new surgical era in ophthalmology. Robotics in ophthalmic surgery is also on the horizon. It would reduce human error, improve precision, and increase surgical capabilities. An application and registration form are available online.

**Information:** <http://www.ipam.ucla.edu/programs/mco2014/>.

\* 20–23 **International Conference on Recent Advances in Mathematics (ICRAM 2014)**, Department of Mathematics, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur Maharashtra State, India.

**Description:** The conference schedule includes plenary talks, invited talks on current areas of research followed by a large number of paper and poster presentations.

**Aim:** The main aim of the conference is to promote, encourage, discuss the latest developments and research in the field of Mathematics and its applications and bring together researchers in the different fields. The conference is broad-based on (i) pure mathematics, algebra, algebraic geometry, mathematical analysis, number theory, numerical analysis & scientific computing, topology and differential equation, operations research and statistics (iii) mathematical physics, general relativity and cosmology, high energy physics, quantum mechanics.

**Information:** <http://www.icram2014.com>.

\* 20–24 **An international symposium on orthogonality and quadrature (ORTHOQUAD 2014)**, Puerto de la Cruz, Tenerife, Canary Islands, Spain.

**Description:** This is an international conference in memory of Prof. Dr. Pablo González Vera, Professor of Applied Mathematics at the University of La Laguna (Canary Islands), who passed away on July 11, 2012. Professor González Vera was a recognized specialist in approximation theory, orthogonal polynomials and quadrature formulae, and was author of more than one hundred fifty papers published in prestigious international journals in the area of applied mathematics. He also wrote several books, among which specially stands “Orthogonal Rational Functions”, published by Cambridge University Press, and written in collaboration with Adhemar Bultheel (KU Leuven, Belgium), Erik Hendriksen (Netherlands) and Olav Njåstad (Univ. of Trondheim). In this sense, the main topics of the conference will be orthogonality and quadrature, but other topics in approximation theory, special functions and related issues are also within the scope of the conference.

**Information:** <http://gama.uc3m.es/pablo/>.

\* 20–24 **ICERM Topical Workshop: From the Clinic to Partial Differential Equations and Back: Emerging challenges for Cardiovascular Mathematics**, ICERM, Providence, Rhode Island.

**Description:** Mathematical models have been giving remarkable contributions in advancing knowledge and supporting decisions in several branches of medicine. The goal of this workshop is to foster collaboration between mathematicians and medical doctors on modeling cardiovascular system. It will organized into two lines: “Core topics” are up-to-date research areas in mathematics and scientific computing that still present several open exciting challenges, which can require developing new numerical models, computational approaches and validation techniques; “New challenges” are a set of cardiovascular (in broad sense) problems and diseases that have not been attacked extensively with numerical tools. The workshop will be based on round-table discussions in smaller groups and lectures.

**Information:** <http://icerm.brown.edu/tw14-1-pdec>.

20–May 23 **Algebraic Topology Program**, Mathematical Sciences Research Institute, Berkeley, California. (Nov. 2012, p. 1482)

**Description:** Algebraic topology touches almost every branch of modern mathematics. Algebra, geometry, topology, analysis, algebraic geometry, and number theory all influence and in turn are influenced by the methods of algebraic topology. The goals of this 2014 program at MSRI are: Bring together algebraic topology researchers from all subdisciplines, reconnecting the pieces of the field, identify the fundamental problems and goals in the field, uncovering the broader themes and connections, connect young researchers with

the field, broadening their perspective and introducing them to the myriad approaches and techniques.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm8964>.

20–May 23 **Model Theory and Number Theory**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1177)

**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>.

23–24 **Connections for Women: Algebraic Topology**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1177)

**Description:** This two-day workshop will consist of short courses given by prominent female mathematicians in the field. These introductory courses will be appropriate for graduate students, post-docs, and researchers in related areas. The workshop will also include a panel discussion featuring successful women at various stages in their mathematical careers.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm9545>

\* 27–30 **Symmetries, Differential Equations and Applications (SDEA-II)**, Center for Advanced Mathematics & Physics (CAMP), National University of Sciences & Technology (NUST), Campus H - 12, Islamabad, 44000, Pakistan.

**Description:** Differential equation is one of the important branches of Mathematics that helps in understanding the dynamics of real-life problems that appear in miscellaneous fields of science, e.g., Physics, Chemistry, Biology, etc. Over the last two decades there has been an enormous increase in the use of Lie and Noether symmetries to solve differential equations. The conference is aimed to provide a unique platform for young researchers, faculty and especially students to interact/collaborate with distinguished researchers from all over the world working in the area of symmetries, conservation laws, bi-Hamiltonians, moving frames to study underlying geometrical structures and integrable properties of differential equations.

**Information:** <http://sdea2.nust.edu.pk/>.

27–31 **Introductory Workshop: Algebraic Topology**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1177)

**Description:** Algebraic topology is a rich, vibrant field with close connections to many branches of mathematics. This workshop will describe the state of the field, focusing on major programs, open problems, exciting new tools, and cutting edge techniques.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm9546>.

\* 27–31 **Rough Paths: Theory and Applications**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** The theory of rough paths has established itself as a powerful tool to analyze a variety of stochastic systems that are too “rough” for their solutions to exist in the class of functions that can be handled by classical analytical methods. The power of the theory resides in its ability to cleanly separate the probabilistic components from their purely analytic aspects. Recently, the theory has seen an explosion of new results that caused its scope to expand considerably. This workshop will bring together experts in the theory of rough paths with researchers working in related areas of mathematics (probability, PDEs/SDEs, analysis, etc) and sciences in general. An application and registration form are available online.

**Information:** <http://www.ipam.ucla.edu/programs/rp2014/>.

## February 2014

3–7 **Introductory Workshop: Model Theory, Arithmetic Geometry and Number Theory**, Mathematical Sciences Research Institute, Berkeley, California. (Nov. 2012, p. 1482)

**Description:** Model theory is a branch of mathematical logic whose structural techniques have proven to be remarkably useful in arithmetic geometry and number theory. We will introduce in this workshop some of the main themes of the programme covering such topics as Additive Combinatorics, Algebraic Dynamics, Berkovich Spaces, and the Pink-Zilber Conjectures. Tutorials will be given by both model theorists and experts in the relevant field of application. The workshop will also include “state of the art” lectures on the programme topics, indicating recent results as well as directions for future work.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/all-workshops/show/-/event/Wm9549>.

3–May 9 **ICERM Semester Program on “Network Science and Graph Algorithms”**, ICERM, Providence, Rhode Island. (Jan. 2013, p. 117)

**Description:** The study of computational problems on graphs has long been a central area of research in computer science. However, recent years have seen qualitative changes in both the problems to be solved and the tools available to do so. Application areas such as computational biology, the Web, social networks, and machine learning give rise to large graphs and complex statistical questions that demand new algorithmic ideas and computational models. At the same time, techniques such as semidefinite programming and combinatorial preconditioners have been emerging for addressing these challenges. There will be four international conferences associated with this program, including an applications-oriented opening event.

**Information:** <http://icerm.brown.edu/sp-s14>.

10–11 **Connections for Women: Model Theory and its interactions with number theory and arithmetic geometry**, Mathematical Sciences Research Institute, Berkeley, California. (Sept. 2012, p. 1177)

**Description:** The development of model theory has always been influenced by its potential applications. Recent years have seen a remarkable flowering of that development, with many exciting applications of model theory in number theory and algebraic geometry. The introductory workshop will aim to increase these interactions by exposing the techniques of model theory to the number theorists and algebraic geometers, and the problems of number theory and algebraic geometry to the model theorists. The Connections for Women workshop will focus on presenting current research on the borders of these subjects, with particular emphasis on the contributions of women. In addition, there will be some social occasions to allow young women and men to make connections with established researchers, and a panel discussion addressing the challenges faced by all young researchers, but especially by women, in establishing a career in mathematics.

**Information:** email: [chris@msri.org](mailto:chris@msri.org); <http://www.msri.org/web/msri/scientific/workshops/all-workshops/show/-/event/Wm9548>.

\* 10–14 **ICERM Workshop: Semidefinite Programming and Graph Algorithms**, ICERM, Providence, Rhode Island.

**Description:** Semidefinite programming is playing an ever increasing role in many areas of computer science and mathematics, including complexity theory, approximation algorithms for hard graph problems, discrete geometry, machine learning, and extremal combinatorics. This workshop will bring together researchers from these different fields. The goal is to explore connections, learn and share techniques, and build bridges.

**Information:** <http://icerm.brown.edu/sp-s14-w1>.

\* 10–14 **Translating Cancer Data and Models to Clinical Practice**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** This workshop will emphasize an integrated approach to understanding cancer initiation, progression, metastasis, and treatment. Proposed participants will include a number of clinicians and experimentalists whose approach and research may complement and motivate new mathematical and physical modeling, as well as empirical or clinical investigations. Our ultimate goals will be to critically examine and discuss approaches for improving clinical standards of care, and to foster new investigative directions in applied cancer research that involve the right level of detail in emerging mathematical and physical approaches. An application and registration form are available online.

**Information:** <http://www.ipam.ucla.edu/programs/cdm2014/>.

\* 24–28 **Stochastic Gradient Methods**, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, California.

**Description:** This workshop will address various topics in the theory, implementation, and practice of SG methods, possibly including the following: applications to nonconvex problems and regularized objectives; parallel implementations; hybridization of SG methods with other optimization techniques; and use of SG methods in deep learning, latent variable models, and other settings. An application and registration form are available online.

**Information:** <http://www.ipam.ucla.edu/programs/sgm2014/>.

### March 2014

\* 3–7 **AIM Workshop: Postcritically finite maps in complex and arithmetic dynamics**, American Institute of Mathematics, Palo Alto, California.

**Description:** This workshop, sponsored by AIM and the NSF, will be devoted to questions relating to postcritically finite (PCF) rational maps.

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

\* 4–7 **11th German Probability and Statistics Days 2014 - Ulmer Stochastik-Tage**, University Ulm, Ulm, Germany.

**Description:** The venue is at the University of Ulm. In the tradition of the previous conferences, this meeting provides an international forum for presentation and discussion of new results in the area of probability and statistics.

**Speakers:** The plenary speakers of the conference will be: Jianqing Fan (Princeton), Geoffrey Grimmett (Cambridge), Jean-Franis Le Gall (Paris), Alexandre Tsybakov (Paris). Contributed talks will be given in 17 sections devoted to specific topics; the highlight of each section will be one invited main talk. Over the last years, the “Stochastik-Tage” organized biannually have been attracting an increasing number of participants from abroad.

**Language:** English.

**Information:** <http://www.gpsd-ulm2014.de>.

10–26 **School and Workshop on Classification and Regression Trees**, Institute for Mathematical Sciences, National University of Singapore, Singapore. (May. 2013, p. 655)

**Description:** Classification and regression trees are an integral part of the toolbox of data mining, machine learning, and statistics. The year 2013 marks the fiftieth anniversary of the publication of the first journal article on the subject. New techniques have added capabilities that far surpass the early methods. Modern classification trees can partition the data with linear splits on subsets of variables and fit nearest-neighbor, kernel-density, and other models in the partitions. Regression trees can fit almost every kind of traditional statistical model, including least-squares, quantile, logistic, Poisson and proportional hazards models, as well as models for censored,

longitudinal and multi-response data. The purpose of the workshop is to bring together current experts in the field to discuss recent developments and generate ideas for future research. The purpose of the school is to introduce the subject to other researchers and practitioners who are interested to learn the techniques.

**Information:** <http://www2.ims.nus.edu.sg/Programs/014swclass/index.php>.

\* 17–21 **ICERM Workshop: Stochastic Graph Models**, ICERM, Providence, Rhode Island.

**Description:** Random graphs, stochastic processes on graphs and algorithms for computations on these structures continue to play a dominant role in algorithmic research and discrete mathematics, with recent applications ranging from web search and recommendation engines to social networks and system biology. This workshop will be an opportunity for researchers from diverse fields to get together and share problems and techniques for handling and analyzing graphs structures. The connections—mathematical, computational, and practical—that arise between these seemingly diverse problems and approaches will be emphasized.

**Information:** <http://icerm.brown.edu/sp-s14-w2>.

\* 21–23 **Sectional Meeting**, University of Tennessee, Knoxville, Knoxville, Tennessee.

**Description:** 2014 Southeastern Spring Sectional Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

24–April 17 **Mathematical, Statistical and Computational Aspects of the New Science of Metagenomics**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom. (Mar. 2013, p. 363)

**Description:** Metagenomics is the study of the total genomic content of microbial communities. DNA material is sampled collectively from the microorganisms that populate the environment of interest. The extracted DNA sequences are then used to profile the environment and its biodiversity, its dominant microbial classes or biological functions, and whether and how this profile differs from those of other environments. This research programme will bring together leading expertise in the multiple disciplines involved, including mathematics, computer science, probability and statistics, biomedical research and biology. The brief of the programme will be to explore the major current analytical and computational open problems in metagenomics, and to identify opportunities for application and development of theory and methods, with an emphasis on synergy between disciplines. Several workshops will take place during the programme. For full details please see: <http://www.newton.ac.uk/events.html>.

**Information:** <http://www.newton.ac.uk/programmes/MTG/index.html>.

\* 29–30 **Sectional Meeting**, University of Maryland, Baltimore County, Baltimore, Maryland.

**Description:** 2014 Spring Eastern Sectional Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

31–April 3 **SIAM Conference on Uncertainty Quantification (UQ14)**, Hyatt Regency Savannah, Savannah, Georgia. (Dec. 2012, p. 1597)

**Description:** The call for submissions will be available at: <http://www.siam.org/meetings/uq14/> in early April, 2013.

**Information:** <http://www.siam.org/meetings/uq14/>.

### April 2014

\* 5–6 **Sectional Meeting**, University of New Mexico, Albuquerque, New Mexico.

**Description:** 2014 Western Spring Sectional Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

\* 7-11 **AIM Workshop: The many facets of the Maslov index**, American Institute of Mathematics, Palo Alto, California.

**Description:** This workshop, sponsored by AIM and the NSF, will be devoted to the Maslov index, a collective name for many related invariants counting the jumps of functions, starting in the 19th century with the principal value of the complex logarithm.

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

\* 7-11 **ICERM Workshop: Electrical Flows, Graph Laplacians, and Algorithms: Spectral Graph Theory and Beyond**, ICERM, Providence, Rhode Island.

**Description:** Spectral graph theory, which studies how the eigenvalues and eigenvectors of the graph Laplacian and other related matrices interact with the combinatorial structure of a graph, is a classical tool in both the theory and practice of algorithm design. The success of this approach has been rooted in the efficiency with which eigenvalues and eigenvectors can be computed and in the large number of ways that a graph's properties are connected to the Laplacian's spectrum, particularly to the value of its second smallest eigenvalue  $\lambda_2$ . While the eigenvalues and eigenvectors of the Laplacian capture a striking amount of the structure of the graph, they do not capture it all. Recent work suggests that we have only scratched the surface of what can be done if we are to broaden our investigation to include more general linear-algebraic properties of the matrices we associate to graphs. The workshop will bring researchers together to study and advance this emerging frontier in algorithmic graph theory.

**Information:** <http://icerm.brown.edu/sp-s14-w3>.

7-11 **Reimagining the Foundations of Algebraic Topology**, Mathematical Sciences Research Institute, Berkeley, California. (May 2013, p. 719)

**Description:** Recent innovations in higher category theory have unlocked the potential to reimagine the basic tools and constructions in algebraic topology. This workshop will explore the interplay between these higher and  $\infty$ -categorical techniques with classical algebraic topology, playing each off of the other and returning the field to conceptual, geometrical intuition.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm9550>.

\* 11-13, 2014 **Sectional Meeting**, Texas Tech University, Lubbock, Texas.

**Description:** 2014 Spring Central Sectional Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

22-May 16 **Advanced Monte Carlo Methods for Complex Inference Problems**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom. (Mar. 2013, p. 364)

**Description:** In recent years there has been an explosion of complex data-sets in areas as diverse as Bioinformatics, Ecology, Epidemiology, Finance and Population genetics. In a wide variety of these applications, the stochastic models devised to realistically represent the data-generating processes are very high-dimensional and the only computationally feasible and accurate way to perform statistical inference is with Monte Carlo. The focus of this programme is on recent innovations in the field of Monte Carlo methods for inference in complex and intractable statistical problems. It will take up the following research threads: Approximate Bayesian Computation; SMC and Markov Chain Monte Carlo and their integration; and recent theoretical advancements underpinning these areas. Several workshops will take place during the programme. For full details please see <http://www.newton.ac.uk/events.html>.

**Information:** <http://www.newton.ac.uk/programmes/MCM/index.html>.

## May 2014

12-14 **SIAM Conference on Imaging Science (IS14)**, Hong Kong Baptist University, Hong Kong, China. (Aug. 2012, p. 1021)

**Description:** The interdisciplinary field of imaging science is experiencing tremendous growth. New devices capable of imaging objects and structures from nanoscale to the astronomical scale are continuously being developed and improved, and as result, the reach of science and medicine has been extended in exciting and unexpected ways. The impact of this technology has been to generate new challenges associated with the problems of formation, acquisition, compression, transmission, and analysis of images. By their very nature, these challenges cut across the disciplines of physics, engineering, mathematics, biology, medicine, and statistics. While the primary purpose of this conference is to focus on mathematical issues, the other facets of imaging, such as biomedical and engineering aspects, for example, will also play an important role.

**Information:** <http://www.siam.org/meetings/is14/>.

\* 12-16 **ICERM Topical Workshop: Robust Discretization and Fast Solvers for Computable Multi-Physics Models**, ICERM, Providence, Rhode Island.

**Description:** This workshop will gather together experts in the core related fields in applied and computational mathematics to exchange ideas regarding the development of robust and efficient numerical schemes that preserve the key physics of these models, and to study the development of fast and efficient linear and nonlinear solvers that are scalable and optimal. This workshop will also target young researchers and members of under-represented groups to help launch their research in this area.

**Information:** <http://icerm.brown.edu/tw14-2-cmpm>.

12-16 **Model Theory in Geometry and Arithmetic**, Mathematical Sciences Research Institute, Berkeley, California. (June/July 2012, p. 870)

**Description:** The workshop will feature talks in a range of topics where model theory interacts with other parts of mathematics, especially number theory and arithmetic geometry, including: motivic integration, algebraic dynamics, diophantine geometry, and valued fields.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/programmatic-workshops/show/-/event/Wm9547>.

\* 19-23 **Representations of reductive groups: A conference dedicated to David Vogan on his 60th birthday**, MIT, Cambridge, Massachusetts.

**Description:** The conference will address recent developments in the representation theory of reductive Lie groups and algebraic groups over finite and local fields, as well as connections of this theory with other subjects, such as number theory, automorphic forms, algebraic geometry and combinatorics. It will be an occasion to celebrate the 60th birthday of David Vogan, who has inspired and shaped the development of this field for almost 40 years.

**Information:** <http://math.mit.edu/conferences/Vogan/>.

\* 26-29 **VI Workshop on Dynamical Systems: On the occasion of Marco Antonio Teixeira's 70th birthday (MAT70)**, Campinas, SP, Brazil.

**Description:** In 2014 we wish to celebrate Marco Antonio Teixeira's 70th birthday and his significant mathematical contribution. With this in mind, we wish to honor him with a Scientific Conference.

**Information:** <http://www.mat70.com/>.

26-30 **Constructive Functions 2014**, Vanderbilt University, Nashville, Tennessee. (May 2013, p. 655)

**Description:** The focus of this conference is on all aspects of constructive function theory, from asymptotics to zero distribution, and on minimum energy problems on manifolds. The conference will honor the 70th birthday of Ed Saff.

**Information:** <http://www.math.vanderbilt.edu/~constructive2014/>.

\* 28–30 **IWCIA 2014 – 16th International Workshop on Combinatorial Image Analysis**, Brno University of Technology, Technická 2, Brno, Czech Republic.

**Description:** The 16th International Workshop on Combinatorial Image Analysis will be hosted by the Brno University of Technology, Faculty of Mechanical Engineering. The researchers from all areas of image analysis and its applications are cordially invited to participate.

**Information:** <http://iwcia2014.fme.vutbr.cz/>.

## June 2014

2–5 **VI Workshop on Dynamical Systems: On the occasion of Marco Antonio Teixeira's 70th birthday (MAT70)**, Águas de Lindóia, Sao Paulo, Brazil.

**Description:** In 2014 we wish to celebrate Marco Antonio Teixeira's 70th birthday and his significant mathematical contribution. With this in mind, we wish to honor him with a Scientific Conference to be held in a small tourist town in the interior of the state of São Paulo, Águas de Lindóia, from June 2–5, 2014.

**Main topics:** Non-Smooth Dynamical Systems and Conservative/Reversible Dynamical Systems.

**Information:** <http://www.mat70.com/>.

**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.**

\* 9–13 **AIM Workshop: The Cauchy-Riemann equations in several variables**, American Institute of Mathematics, Palo Alto, California.

**Description:** This workshop, sponsored by AIM and the NSF, will focus on the many interesting questions that remain about the interaction between estimates for solutions of the Cauchy-Riemann equations and the behavior of the Bergman kernel associated to the given norm.

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

\* 9–13 **String Math 2014**, University of Alberta, Edmonton, Alberta, Canada.

**Description:** University of Alberta is hosting the fourth annual meeting of the String Math series of conferences in June 2014. The main goal of the conference is to bring together mathematicians and physicists who work on ideas related to string theory. String theory, as well as quantum field theory, has contributed a series of profound ideas which gave rise to entirely new mathematical fields and revitalized older ones. By now there is a large and rapidly growing number of both mathematicians and physicists working at the string-theoretic interface between the two academic fields. The influence flows in both directions, with mathematical techniques and ideas contributing crucially to major advances in string theory.

**Information:** <http://sites.google.com/a/uualberta.ca/stringmath2014/>.

\* 9–13 **Tenth edition of the Advanced Course in Operator Theory and Complex Analysis**, Sevilla, Spain.

**Invited speakers:** Filippo Bracci, Università di Roma "Tor Vergata", Italy; James Brennan, University of Kentucky, Kentucky; Yurii Lyubarskii, NTNU, Trondheim, Norway; Alexander Olevskii, Tel Aviv University, Israel; Tatiana Smirnova-Nagnibeda, Université de Genève, Switzerland.

**Information:** You can find further information about the courses at <http://congreso.us.es/ceacyto/2013>. Apart of attending the course, you may also have the opportunity to deliver a contributed talk.

9–July 4 **Interactions between Dynamics of Group Actions and Number Theory**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.

**Description:** In the last decade there have been several important breakthroughs in number theory and diophantine geometry, where progress on long-standing open problems has been achieved by utilising ideas originated in the theory of dynamical systems on homogeneous spaces. Dynamical systems techniques are applicable to a wide range of number-theoretic objects that have many symmetries.

**Aim:** Of this programme is to bring together researchers working in number theory and homogeneous dynamics to discuss the recent developments and open problems that lie at the crossroads of these fields and to encourage more interaction among people working in these diverse areas. Several workshops will take place during the programme. For full details please see: <http://www.newton.ac.uk/events.html>.

**Information:** <http://www.newton.ac.uk/programmes/GAN/index.html>.

\* 23–25 **17th Conference on Integer Programming and Combinatorial Optimization (IPCO 2014)**, University of Bonn, Bonn, Germany.

**Description:** The IPCO-conference is a forum for researchers and practitioners working on various aspects of integer programming and combinatorial optimization. The aim is to present recent developments in theory, computation, and applications in these areas.

**Information:** <http://www.or.uni-bonn.de/ipco/>.

\* 23–27 **What Next? The mathematical legacy of Bill Thurston**, Cornell University, Ithaca, New York.

**Description:** This conference will celebrate the profound influence of Bill Thurston's work on the entire mathematical community. Thurston made fundamental contributions to topology, geometry, and dynamical systems. But beyond these specific accomplishments he introduced new ways of thinking about and of seeing mathematics. He discovered connections between disciplines which led to the creation of entirely new fields. The goal of this meeting is to bring together mathematicians from a broad spectrum of areas to describe recent advances and explore future directions motivated by Thurston's transformative ideas.

**Organizers:** Dave Gabai, John Hubbard, Steve Kerckhoff, John Smillie, Dylan Thurston and Karen Vogtmann.

**Information:** <http://www.math.cornell.edu/~festival>.

23–28 **6th International Conference on Advanced Computational Methods in Engineering**, NH Gent Belfort, Gent, Belgium.

**Description:** ACOMEN 2014 is the 6th event in a successful series of interdisciplinary international conferences, which aims to bring together a diverse community of mathematicians, engineers, and physicists involved in applied sciences, mathematics and developing advanced computational methods. The main topics of ACOMEN include but are not limited to: applied mathematics, numerical analysis and computational mathematics, financial mathematics, optimization and optimal control, inverse problems, computational finance, computational electromagnetism, fluid dynamics, heat transfer and porous media flow, computational chemistry, computational biology and medicine, computational geosciences high-scale and parallel computing, software for scientific computations.

**Information:** <http://www.acomen.ugent.be>.

29–July 3 **26th International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC)**, DePaul University, Chicago, Illinois.

**Topics:** Include all aspects of combinatorics and their relations with other parts of mathematics, physics, computer science, and biology. The conference will include invited lectures, contributed presentations, poster sessions, and software demonstrations. There will be no parallel sessions.

**Information:** <http://sites.google.com/site/fpsac2014/>.

## July 2014

\* 7–11 **10th AIMS Conference on Dynamical Systems, Differential Equations and Applications**, Universidad Autónoma de Madrid, Madrid, Spain.

**Description:** Hosted by the Instituto de Ciencias Matemáticas (ICMAT) and the Universidad Autónoma de Madrid (UAM).

**Main Speakers:** Nalini Anantharaman (France), Diego Córdoba (Spain), Ingrid Daubechies (USA), Weinan E (USA), Charles L. Fefferman (USA), Bernd Fiedler (Germany), Zhiming Ma (China), Philip Maini (UK), Sylvia Serfaty (France), Carles Simó (Spain), Cedric Villani (France), Amie Wilkinson (USA).

**Organizers:** Manuel de León (chair), mdeleon@icmat.es and Shou-chuan Hu (chair), shu@missouristate.edu.

**Information:** <http://www.aimsconferences.org/conferences/2014/index.html>.

\* 14–18 **AIM Workshop: Mori program for Brauer log pairs in dimension three**, American Institute of Mathematics, Palo Alto, California.

**Description:** This workshop, sponsored by AIM and the NSF, will be devoted to the Mori program for Brauer log pairs in dimension three.

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

14–18 **The 30th International Colloquium on Group Theoretical Methods in Physics**, Ghent University, Ghent, Belgium.

**Description:** The ICGTPM series is traditionally dedicated to the application of symmetry and group theoretical methods in physics, chemistry and mathematics, and to the development of mathematical tools and theories for progress in group theory and symmetries. Over the years, it has further broadened and diversified due to the successful application of group theoretical, geometric and algebraic methods in life sciences and other areas. The conference has an interdisciplinary character. It aims at bringing together experts and young researchers from different fields encouraging cross disciplinary interactions.

**Information:** <http://www.group30.ugent.be>.

14–August 8 **Theory of Water Waves**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.

**Description:** Water waves impact every aspect of life on the planet. At smaller length scales the ripples driven by surface tension affect remote sensing. At intermediate length scales waves in the mid-ocean affect shipping and near the shoreline they control the coastal morphology and the ability to navigate along shore. At larger length scales waves such as tsunamis and hurricane-generated waves can cause devastation on a global scale. Across all length scales an exchange of momentum and thermal energy between ocean and atmosphere occurs affecting the global weather system and the climate. From a mathematical viewpoint water waves pose rich challenges. New methodologies are emerging and computational approaches are becoming much more sophisticated.

**Themes:** Covered in this conference include: The initial-value problem (IVP); Existence and classification of waves; Linear and nonlinear stability of waves; Dynamical systems and geometric techniques; Beyond irrotational flow.

**Information:** <http://www.newton.ac.uk/programmes/TWW/>.

21–August 15 **Quantum Control Engineering: Mathematical Principles and Applications**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.

**Description:** We are currently entering a new technological era in which we are able to build systems whose performance is limited by quantum physical effects and in which it may be possible to exploit non-classical phenomena in novel ways. To this end, there has been considerable recent interest in engineering quantum systems and at the heart of this is the development of a quantum control theory dedicated to extending classical control to the quantum domain. Examples already utilizing control of one sort or another include quantum electromechanical systems, quantum dots, cooper-pair boxes,

superconducting interference devices, ion traps, as well as a large selection of optical devices. It is clear that a mathematical framework is essential for the future development of quantum control as an engineering discipline. The aim of the programme is to bring together experimentalists and theoreticians working in quantum engineering to identify the core mathematical issues and challenges ahead.

**Information:** <http://www.newton.ac.uk/programmes/QCE/>.

## August 2014

\* 4–9 **10th International Conference on Clifford Algebras and their Applications in Mathematical Physics (ICCA10)**, University of Tartu, Tartu, Estonia.

**Description:** The aim of the ICCA10 is to bring together the leading scientists in the field of Clifford algebras, differential geometry and their various applications in mathematics, physics, engineering and other applied sciences. We invite you to participate in the exchange of the latest results in research and application.

**Information:** <http://icca10.ut.ee>.

\* 11–14 **SIAM Conference on Nonlinear Waves and Coherent Structures (NW14)**, Churchill College, University of Cambridge, Cambridge, United Kingdom.

**Description:** The call for submissions will be linked from <http://www.siam.org/meetings/nw14/> in October 2013.

**Information:** <http://www.siam.org/meetings/nw14/>.

11–December 12 **New geometric methods in number theory and automorphic forms**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** The branches of number theory most directly related to the arithmetic of automorphic forms have seen much recent progress, with the resolution of many longstanding conjectures. These breakthroughs have largely been achieved by the discovery of new geometric techniques and insights. The goal of this program is to highlight new geometric structures and new questions of a geometric nature which seem most crucial for further development. In particular, the program will emphasize geometric questions arising in the study of Shimura varieties, the p-adic Langlands program, and periods of automorphic forms.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show-/event/Pm8996>.

14–15 **Connections for Women: New Geometric Methods in Number Theory and Automorphic Forms**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** This 2-day workshop will showcase the contributions of female mathematicians to the three main themes of the associated MSRI program: Shimura varieties, p-adic automorphic forms, periods and L-functions. It will bring together women who are working in these areas in all stages of their careers, featuring lectures by both established leaders and emerging researchers. In addition, there will be a poster session open to all participants and an informal panel discussion on career issues.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/all-workshops/show-/event/Wm9806>.

18–December 19 **Geometric Representation Theory**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** The fundamental aims of geometric representation theory are to uncover the deeper geometric and categorical structures underlying the familiar objects of representation theory and harmonic analysis, and to apply the resulting insights to the resolution of classical problems. One of the main sources of inspiration for the field is the Langlands philosophy, a vast nonabelian generalization of the Fourier transform of classical harmonic analysis, which serves as a visionary roadmap for the subject and places it at the heart of number theory. A primary goal of the proposed MSRI program is to explore the potential impact of geometric methods and

ideas in the Langlands program by bringing together researchers working in the diverse areas impacted by the Langlands philosophy, with a particular emphasis on representation theory over local fields.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm8951>.

### September 2014

2-5 **Introductory Workshop: Geometric Representation Theory**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** Geometric Representation Theory is a very active field, at the center of recent advances in Number Theory and Theoretical Physics. The principal goal of the Introductory Workshop will be to provide a gateway for graduate students and new post-docs to the rich and exciting, but potentially daunting, world of geometric representation theory. The aim is to explore some of the fundamental tools and ideas needed to work in the subject, helping build a cohort of young researchers versed in the geometric and physical sides of the Langlands philosophy.

**Information:** <http://www.msri.org/web/msri/scientific/workshops/all-workshops/show/-/event/Wm9804>.

\* 20-21 **Sectional Meeting**, University of Wisconsin-Eau Claire, Eau Claire, Wisconsin.

**Description:** 2014 Central Fall Section Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

### October 2014

\* 18-19 **Sectional Meeting**, Dalhousie University, Halifax, Canada.

**Description:** 2014 Fall Eastern Sectional Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

\* 25-26 **Sectional Meeting**, San Francisco State University, San Francisco, California.

**Description:** 2014 Fall Western Section Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

### November 2014

\* 8-9 **Sectional Meeting**, University of North Carolina, Greensboro, North Carolina.

**Description:** 2014 Fall Southeastern Section Meeting.

**Information:** <http://www.ams.org/meetings/sectional/sectional.html>.

11-January 25 **Inverse Moment Problems: The Crossroads of Analysis, Algebra, Discrete Geometry and Combinatorics**, Institute for Mathematical Sciences, National University of Singapore, Singapore.

**Description:** Applications of moments of measures in polynomial optimization led to a number of breakthroughs in optimization and real algebraic geometry, as well as to better understanding of ways to encode measures. Other similar threads are recently seen in the theory of integration on polytopes and counting of integer points in polytopes, as well as in quantum computing. The aim of the program is to further investigate relations between these topics and inverse moment problems, i.e., questions of reconstructing measures from a set of its moments, which are traditionally attacked by purely analytic tools. Activities will include two 4-5 day research conferences, one quantum computing workshop, and one graduate student winter school/workshops.

**Information:** <http://www2.ims.nus.edu.sg/Programs/014inverse/index.php>.

### January 2015

5-June 26 **Periodic and Ergodic Spectral Problems**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.

**Description:** The main objective of the programme is to bring together specialists in three major themes: periodic, almost-periodic, and random operators, to discuss recent developments and deep connections between the methods intrinsic for each of these research areas. Operators on manifolds or graphs and more general ergodic operators will also be considered, as well as problems that lie at the interface of the main topics (e.g. “sheared” periodic operators), and applications in other areas of mathematics (e.g. geometry). At the beginning of the programme, there will be a two-week long instructional conference with six mini-courses of about ten lectures each, which will be designed for students and non-specialists. Further there will be three workshops evenly spread over the period of the programme to cover more advanced results, each centred on one of the main themes. Several workshops will take place during the programme. For full details please see <http://www.newton.ac.uk/events.html>.

**Information:** <http://www.newton.ac.uk/programmes/PEP/>.

12-May 22 **Dynamics on Moduli Spaces of Geometric Structures Program**, Mathematical Sciences Research Institute, Berkeley, California.

**Description:** The program will focus on the deformation theory of geometric structures on manifolds, and the resulting geometry and dynamics. This subject is formally a subfield of differential geometry and topology, with a heavy infusion of Lie theory. Its richness stems from close relations to dynamical systems, algebraic geometry, representation theory, Lie theory, partial differential equations, number theory, and complex analysis.

**Information:** <http://www.msri.org/web/msri/scientific/programs/show/-/event/Pm9002>.

12-July 3 **Random Geometry**, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.

**Description:** A new frontier has emerged at the interface between probability, geometry, and analysis, with a central target to produce a coherent theory of the geometry of random structures. The principal question is the following: within a given structure, what is the interplay between randomness and geometry? More precisely, does the geometry appear to be random at every scale (i.e. fractal), or do fluctuations “average out” at sufficiently large scales? Can the global geometry be described by taking a suitable scaling limit that allows for concrete computations? The goal of the programme is to gather experts from probability, geometry, analysis and other connected areas, in order to study aspects of this question in some paradigmatic situations. Several workshops will take place during the programme. For full details please see <http://www.newton.ac.uk/events.html>.

**Information:** <http://www.newton.ac.uk/programmes/RGM/index.html>.

### September 2015

1-August 31 **Call for Research Programmes 2015-2016**, Centre de Recerca Matemàtica, Bellaterra, Barcelona, Spain.

**Description:** The CRM invites proposals for Research Programmes during the academic year 2015-2016 in any branch of mathematics and its applications. CRM Research Programmes consist of periods ranging between two to five months of intensive research in a given area of mathematics and its applications. Researchers from different institutions are brought together to work on open problems and to analyze the state and perspectives of their area.

**Deadlines for submission of proposals:** November 29, 2013, for preliminary proposals and October 25, 2013, for final proposals.

**Information:** <http://www.crm.cat/en/Pages/DetailCrida.aspx?ItemID=7>.