

Summer Graduate Schools 2012

Nomination Process and Information

- The enrollment period for MSRI's Summer Graduate Schools is **December 1, 2011 to March 16, 2012**. Early nominations will not be accepted
- Submit Nominations to: sgs2012@msri.org
- Nominations are accepted on a first-come, first-serve basis. There is a limit of 40 students per summer school
- Admission is based on nomination by the Chair of the Graduate Program of the institution
- For full-level academic sponsors, MSRI provides support for two students per summer. MSRI will provide support to a third student if one of the three is female or from a group that is underrepresented in the mathematical sciences
- For mid-level academic sponsors, MSRI provides support for one student per summer. Support will be provided for a second student if one of them is female or from a group that is underrepresented in the mathematical sciences
- For entry-level academic sponsors, MSRI provides support for one student per summer
- MSRI covers travel and local expenses of the attending students. The maximum allowance for travel reimbursement is up to \$550 for students from the United States and Canada (depending on the point of origin) and \$700 for students from other countries
- All institutions may nominate additional students to attend a summer school if they pay the attendance fee of \$1,500 per student per summer school. This fee does not include travel reimbursement, which must be paid by the nominating institution. Additional students will only be considered after the enrollment period has closed and if the workshop has not reached capacity by that time

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To submit a nomination, please email the following information to sgs2012@msri.org

1. Your Name (nominating Chair of Graduate Program)
2. Your Institution
3. For each student (in order of nomination priority)
 - a. Name
 - b. Email address
 - c. Gender
 - d. Ethnicity
 - e. The Summer Graduate School to be attended

Students admitted to the Summer Graduate Schools will be informed in early April.

For any additional information regarding the summer graduate schools please contact our Workshop Coordinator Jasmine Partida at jasmine@msri.org 510-643-6467.

Summer Graduate Schools 2012

Noncommutative Algebraic Geometry

Dates: June 18 to June 29, 20112

Location: MSRI, Berkeley, CA

Organizers: Dan Rogalski* (University of California, San Diego), Travis Schedler (Massachusetts Institute of Technology), Michael Wemyss (The University of Edinburgh, United Kingdom)

This workshop will introduce some of the major themes of the MSRI program "Interactions between Noncommutative Algebra, Representation Theory, and Algebraic Geometry" to be held in the spring of 2013. There will be four mini-courses on the topics of noncommutative projective geometry, deformation theory, noncommutative resolutions of singularities, and symplectic reflection algebras. As well as providing theoretical background, the workshop will aim to equip participants with some intuition for the many open problems in this area through worked examples and experimental computer calculations.

Séminaire de Mathématiques Supérieures 2012: Probabilistic Combinatorics

Dates: June 25 to July 6, 20112

Location: Montréal, Canada

Organizers: Louigi Addario-Berry* (McGill University), Luc Devroye (McGill University), Bruce Reed (McGill University)

One of the cornerstones of the probabilistic approach to solving combinatorial problems is the following guiding principle: information about global structure can be obtained through local analysis. This principle is ubiquitous in probabilistic combinatorics. It arises in problems ranging from graph colouring, to Markov chain mixing times, to Szemerédi's regularity lemma and its applications, to the theory of influences. The 2012 Séminaire de Mathématiques Supérieures brings together experts in probabilistic combinatorics from around the world, to explain cutting edge research which in one way or another exhibits this principle.

IAS/PCMI Summer 2012: Geometric Group Theory

Dates: July 1 to July 21, 2012

Location: Park City, Utah

Organizers: Mladen Bestvina (University of Utah), Michah Sageev (Technion – Israel Institute of Technology), and Karen Vogtmann (Cornell University)

COMPLETE INFORMATION WILL BE AVAILABLE NOVEMBER 1st, 2011

Mathematical General Relativity

Dates: July 9 to July 20, 2012

Location: MSRI, Berkeley, CA

Organizers: Justin Corvino* (Lafayette College) and Pengzi Miao (University of Miami)

Mathematical general relativity is the study of mathematical problems related to Einstein's theory of gravitation. There are interesting connections between the physical theory and problems in differential geometry and partial differential equations.

The purpose of the workshop is to introduce graduate students to some fundamental aspects of mathematical general relativity, with particular emphasis on the geometry of the Einstein constraint equations and the Positive Mass Theorem. These topics will comprise a component of the upcoming semester program at MSRI in Fall 2013.

There will be mini-courses, as well as several research lectures. Students are expected to have had courses in graduate real analysis and Riemannian geometry, while a course in graduate-level partial differential equations is recommended.

Model Theory

Dates: July 23 – August 3, 2012

Location: MSRI, Berkeley, CA

Organizers: David Marker* (University of Illinois, Chicago), Thomas Scanlon (University of California, Berkeley), Carol Wood (Wesleyan University).

The workshop will consist of two minicourses, together with a selection of topical lectures.

In the model theory course, o-minimality, and specifically the concrete example of the semi-algebraic sets of real numbers will provide the setting in which we introduce various fundamental results from model theory.

The algebraic dynamics course will allow the introduction of concepts and proof techniques from number theory and algebraic geometry in the context of applications involving model theory.

Toward the end of the workshop, the two minicourses will converge on the Pila-Wilkie theorem concerning points on analytic varieties, a result crucial in recent applications of o-minimality to diophantine geometry.

Please visit <https://www.msri.org/web/msri/scientific/workshops/summer-graduate-workshops> for more information.