



Combinatorics: Methods and Applications in Mathematics and Computer Science

September 8 – December 11, 2009

ORGANIZING COMMITTEE: BENJAMIN SUDAKOV (UCLA), GIL KALAI (YALE AND HEBREW UNIVERSITY), NOGA ALON (TEL AVIV), JÁNOS PACH (COURANT INSTITUTE), VERA SÓS (HUNGARIAN ACADEMY OF SCIENCES), ANGELIKA STEGER (ETH ZURICH), TERENCE TAO (UCLA)

Scientific Overview

Combinatorics is a fundamental mathematical discipline as well as an essential component of many mathematical areas. It studies discrete objects and their properties. Although it is probably as old as the human ability to count, the field experienced tremendous growth during the last fifty years. This program will focus specifically on several major research topics in modern Discrete Mathematics. These topics include Probabilistic Methods, Extremal Problems for Graphs and Set Systems, Ramsey Theory, Additive Number Theory, Combinatorial Geometry, Discrete Harmonic Analysis and its applications to Combinatorics and Computer Science. We aim to foster interaction between researchers in these rather diverse fields, to discuss recent progress and to communicate new results. We would like also to put an emphasis on the exchange of ideas, approaches and techniques between various areas of Discrete Mathematics and Computer Science and on the identification of new tools from other areas of mathematics which can be used to solve combinatorial problems.

Workshop Schedule

- Tutorials, September 9 – 16, 2009
- Workshop 1: Probabilistic Techniques and Applications, October 5 – 9, 2009
- Workshop 2: Combinatorial Geometry, October 19 – 23, 2009
- Workshop 3: Topics in Graphs and Hypergraphs, November 2 – 6, 2009
- Workshop 4: Analytical Methods in Combinatorics, Additive Number Theory and Computer Science, December 1 – 4, 2009
- Culminating Workshop at Lake Arrowhead Conference Center, December 6 – 11, 2009

Participation

This long program will involve a community of senior and junior researchers. The intent is for participants to learn about a variety of powerful methods in modern Combinatorics and their applications to other areas of mathematics, to meet a diverse group of people, and to have an opportunity to form new collaborations.

Full and partial support for long-term participants is available. We are especially interested in applicants who intend to participate in the entire program (September 8 – December 11, 2009), but will consider applications for shorter periods. Funding is available for participants at all academic levels, though recent PhDs, graduate students, and researchers in the early stages of their careers are especially encouraged to apply. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission and we welcome their applications. More information and an application is available online.

www.ipam.ucla.edu/programs/cma2009



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