

Workshop I: Combinatorial Geometry Problems at the Algebraic Interface

Monday March 24, 2014

- 8:00–8:55 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00–9:50 **Saugata Basu** (Purdue University)
A survey of quantitative bounds on the complexity of definable sets
- 10:00–10:30 *Break*
- 10:30–11:20 **David Cox** (Amherst College)
Euclidean and Algebraic Geometry
- 11:30–1:30 *Lunch (on your own)*
- 1:30–2:20 **Micha Sharir** (Tel Aviv University)
Algebraic techniques for incidence problems: Consumer report
- 2:30–3:00 *Break*
- 3:00–3:50 **Larry Guth** (Massachusetts Institute of Technology)
From incidence geometry of lines towards incidence geometry of tubes
- 4:00–6:00 *Poster Session & Reception (Hosted by IPAM)*

Tuesday March 25, 2014

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:50 **Marie-Francoise Roy** (Université de Rennes I)
Two algorithmic methods in real algebraic geometry
- 10:00–10:30 *Break*
- 10:30–11:20 **Adam Sheffer** (Tel Aviv University)
Incidences between points and non-coplanar circles
- 11:30–1:30 *Lunch (on your own)*
- 1:30–2:20 **Jozsef Solymosi** (University of British Columbia)
Refinements of cell decompositions of point-line arrangements
- 2:30–2:45 *Break*

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- 2:45–3:35 **Andrew Suk** (Massachusetts Institute of Technology)
Density-type theorems for semi-algebraic hypergraphs
- 3:45–4:00 *Break*
- 4:00–4:50 **David Wood** (Monash University)
Some geometric problems in need of some additive combinatorics

Wednesday March 26, 2014

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:50 **Michel Coste** (Université de Rennes I)
Quantifier elimination, decision algorithm, effectiveness vs non-effectiveness in semialgebraic geometry
- 10:00–10:30 *Break*
- 10:30–11:20 **Orit Raz** (Tel Aviv University)
Title not available

Thursday March 27, 2014

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:50 **Nets Katz** (California Institute of Technology)
The Sums-differences approach to the Kakeya Problem
- 10:00–10:30 *Break*
- 10:30–11:20 **Frank de Zeeuw** (École Polytechnique Fédérale de Lausanne (EPFL))
Distinct distances on algebraic curves
- 11:30–1:30 *Lunch (on your own)*
- 1:30–2:20 **Martin Sombra** (ICREA (Catalan Institution for Research and Advanced Studies))
The number of solution of a system of polynomial equations
- 2:30–2:45 *Break*
- 2:45–3:35 **Sylvain Cappell** (New York University)
Reidemeister-Franz Torsion and a Generalization of Kirchoff's Theorem to Geometrical Complexes
- 3:45–4:00 *Break*
- 4:00–4:50 **Konrad Swanepoel** (London School of Economics and Political Science)
Some results and problems related to the Sylvester-Gallai theorem

Friday March 28, 2014

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:50 **Alex Iosevich** (University of Rochester)
The square root law, Salem sets and structure of rings
- 10:00–10:30 *Break*
- 10:30–11:20 **Noam Solomon** (Ben-Gurion University of the Negev)
Incidences between points and lines in \mathbb{R}^4 and related problems
- 11:30–1:30 *Lunch (on your own)*
- 1:30–2:20 **Joshua Zahl** (Massachusetts Institute of Technology)
On the structure of planar point sets that determine few distinct distances
- 2:30–3:00 *Break*
- 3:00–3:50 **Terence Tao** (University of California, Los Angeles (UCLA))
Expanding polynomials and an algebraic regularity lemma

