



Banff International Research Station

for Mathematical Innovation and Discovery

10w5119 Randomization, Relaxation, and Complexity

Arriving Sunday, February 28 and departing Friday, March 5, 2010

MEALS

*Breakfast (Buffet): 7:00 – 9:30 am, Sally Borden Building, Monday – Friday

*Lunch (Buffet): 11:30 am – 1:30 pm, Sally Borden Building, Monday – Friday

*Dinner (Buffet): 5:30 – 7:30 pm, Sally Borden Building, Sunday – Thursday

Coffee Breaks: As per daily schedule, 2nd floor lounge, Corbett Hall

***Please remember to scan your meal card at the host/hostess station in the dining room for each meal.**

MEETING ROOMS

All lectures will be held in Max Bell 159 (Max Bell Building accessible by walkway on 2nd floor of Corbett Hall). LCD projector, overhead projectors and blackboards are available for presentations. *Note that the meeting space designated for BIRS is the lower level of Max Bell, Rooms 155-159. Please respect that all other space has been contracted to other Banff Centre guests, including any Food and Beverages in those areas.*

SCHEDULE

Monday

08:45: Welcome

09:00-10:00: J. Maurice Rojas: Simple Homotopies for Just Real Roots

10:00-10:30: coffee

10:30-11:30: Tien-Yien Li: The mixed volume computation: MixedVol-2.0 vs. DEMiCs

lunch

13:00-14:00: tour

14:00: photo

14:20-15:10: coffee

15:10-16:10: Zhonggang Zeng: Solving Ill-posed Algebraic Problems: A Geometric Perspective

break

16:25-17:25: Pascal Koiran: Shallow circuits with high-powered inputs

dinner

Tuesday

09:00-10:00: Chris Hillar: Do rational certificates always exist for sum of squares problems?

10:00-10:30: coffee

10:30-11:30: Greg Blekherman: Volume of the Cone of Convex Forms and new Faces of the Cone of Sums of Squares

lunch

13:30-14:30: Levant Tuncel: Local Quadratic Convergence of Polynomial-Time Interior-Point Methods for Nonlinear Convex Optimization Problems

14:30-15:00: coffee

15:00-16:00: Mihai Putinar: Discretization of Shapes via Orthogonal Polynomials

break

16:15-16:40: Martin Harrison: Minimal Sums of Squares in a Free-* Algebra

break

16:45-17:10: Susan Margulies: Vizing's Conjecture and Techniques from Computer Algebra

break

17:15-17:40: Brendan Ames: Convex relaxation for the clique, biclique and clustering problems

dinner

19:30-20:20: Leonard Gurvits: TBA

Wednesday

08:30-9:30: Bernard Mourrain: Moment matrices and border basis

9:30-10:00: coffee

10:00-11:00: Laura Matusevich: Monomial ideals and hypergeometric equations

lunch

walk/hike/ski

dinner

19:30-20:30: Jim Renegar: Numerics of algorithms for optimizing over hyperbolicity cones

Thursday

08:30-9:30: Dan Bates: Khovanskii-Rolle continuation for finding real solutions of polynomial systems

09:30-09:45: coffee

09:45-10:45: Andrew Sommese: Recent work in Numerical Algebraic Geometry

break

11:00-12:00: Anton Leykin: Certified numerical homotopy continuation

lunch

13:30-14:30: Software Demos

14:30-15:00: coffee

15:00-16:00: Martin Avendano: Descartes' Rule of Signs is exact!

break

16:15-17:15: Victor Vinnikov: Constructing determinantal representations via noncommutative techniques

17:15-17:45: Korben Rusek: On Certain Structured Fewnomials

dinner

Friday

09:00-11:00: Impromptu talks (board only, no projectors!)

Checkout by 12 noon.

** 5-day workshop participants are welcome to use BIRS facilities (2nd Floor Lounge, Max Bell Meeting Rooms, Reading Room) until 3 pm on Friday, although participants are still required to checkout of the guest rooms by 12 noon. **