

Centre de recherches mathématiques
Université de Montréal

Atelier sur le calcul polyédrique
Du 17 au 20 octobre 2006

Workshop on Polyhedral Computation
October 17-20, 2006

HORAIRE / *PROGRAM*

Conférences : salle 6214
Pauses-café : salle 6245

Lectures: Room 6214
Coffee Breaks: Room 6245

Le mardi 17 octobre 2006 / *Tuesday, October 17, 2006*

09:00 - 10:00 Inscription (5345) / *Registration (5345)*

09:00 - 10:00 Café croissants (6245) / *Coffee & Croissants (6245)*

10:00 - 10:10 Introduction (6214) / *Opening remarks (6214)*

Session 1a - Polyhedral Computation

10:10 - 10:50 **Komei Fukuda** (Swiss Federal Institute of Technology, Zurich and Lausanne)
"Introduction to Polyhedral Computation"

10:50 - 11:30 **Gerhard Reinelt** (University of Heidelberg)
"Polyhedral Computations and Practical Problem Solving"

11:30 - 12:10 **Jesús De Loera** (University of California, Davis)
"Recent Progress in the Test Set method for Lattice Point Problems"

12:10 - 14:00 Pause déjeuner / *Lunch Break*

Session 1b - Combinatorial Generation

14:00 - 14:40 **Brendan D. McKay** (Australian National University)
"Constructive Enumeration without Isomorphs"

14:40 - 15:20 **Alexander Hulpke** (Colorado State University)
"Computing with group actions (in GAP)"

15:20 - 16:00 **Khaled Elbassioni** (Max-Planck-Institut für Informatik)
"Some combinatorial generation techniques and their applications in vertex enumeration"

Session 1c - Open Problems (16h00 - 17h00) / *Open Problems (16:00 - 17:00)*

: **Günter Rote** (Freie Universität Berlin)
"On the number of cells in the source unfolding of convex 4-polytopes"

: **Antoine Deza** (McMaster University)
"Polytopes and arrangements : diameter and curvature"

16:00 - 17:00 D'autres présentations sont les bienvenues / *Additional open problems are welcome*

17:00 Cocktail de bienvenue (6245) / *Welcoming reception (6245)*

Le mercredi 18 octobre 2006 / *Wednesday, October 18, 2006*

09:30 - 10:00 Café croissants (6245) / *Coffee & Croissants (6245)*

Session 2a - Discrete Geometry

10:00 - 10:40 **Charles Audet** (École Polytechnique de Montréal)
"Extremal problems for convex polygons"

10:40 - 11:20 **Achill Schürmann** (University of Magdeburg)
"Polyhedra with symmetries in the geometry of numbers"

11:20 - 12:00 **Tamon Stephen** (Simon Fraser University)
"Colourful Simplicial Depth"

12:00 - 14:00 Pause déjeuner / *Lunch Break*

Session 2b - Computational Complexity

14:00 - 14:40 **Endre Boros** (Rutgers University)
"Vertex generation and related problems"

14:40 - 15:20 **Vladimir Gurvich** (Rutgers University)
"Generating all vertices of a polyhedron is hard"

15:20 - 16:00 Discussion / *Free discussion*

16:00 - 17:00 Café / *Coffee*
(Salle / *Room* 6245)

Le jeudi 19 octobre 2006 / *Thursday, October 19, 2006*

09:30 - 10:00 Café croissants (6245) / *Coffee & Croissants (6245)*

Session 3a - Semidefinite Programming

- 10:00 - 10:40 **Masakazu Kojima** (Tokyo Institute of Technology)
"Sparsity in Sum of Squares and Semidefinite Programming Relaxation of Polynomial Optimization Problems"
- 10:40 - 11:20 **Pablo A. Parrilo** (Massachusetts Institute of Technology)
"Exact semidefinite representations for genus zero curves"
- 11:20 - 12:00 **Frank Vallentin** (Centrum voor Wiskunde en Informatica)
"Approximating symmetric polyhedra using semidefinite programming"

12:00 - 14:00 Pause déjeuner / *Lunch Break*

Session 3b - Applications

- 14:00 - 14:40 **Hiroshi Imai** (University of Tokyo)
"Polyhedral Approaches to Quantum Information"
- 14:40 - 15:20 **Thorsten Theobald** (Technische Universität Berlin)
"Computation of Nash equilibria in restricted games"
- 15:20 - 16:00 **Matthias Franz** (Siemens AG)
"Using polyhedral computations to understand the geometry and topology of G-varieties"
- 16:00 - 17:00 Café / *Coffee*
(Salle / *Room* 6245)

Le vendredi 20 octobre 2006 / *Friday, October 20, 2006*

09:30 - 10:00 Café croissants (6245) / *Coffee & Croissants (6245)*

Session 4a - Structured Input

10:00 - 10:40 **Jean-François Maurras** (Université de la Méditerranée)
"On the connectivity of the k -clique polyhedra"

10:40 - 11:20 **Mathieu Dutour Sikiric** (Rudher Boskovic Institute)
"The recursive adjacency decomposition method"

11:20 - 11:30 Pause / *Break*

Session 4b - Applications II

11:30 - 12:10 **Roberto Bagnara** (Università di Parma)
"Applications of Polyhedral Computations to the Analysis and Verification of Hardware and Software Systems"

12:10 - 12:50 **René Brandenberg** (Technische Universität München)
"Approximating optimal containment problems"