

# Draft Programme

## Seminar 10481, Computational Counting

28.11.10 – 03.12.10

Monday

Session 1 (Chair: Leslie Goldberg)

- 9:00-10:30 Jin-Yi Cai *Holographic Algorithms and Complexity of Counting Problems*
- 10:30-11:00 coffee
- 11:00-11:30 Pin-Yan Lu *Complexity Dichotomies of Holant Problems*
- 11:30-12:00 Radu Curticapean *Holographic Algorithms and Graph Polynomials*

12:15-15:30 lunch, then free time for informal discussions

15:30-16:00 coffee

Session 2 (Chair: Magnus Bordewich)

- 16:00-16:30 Prasad Tetali *A combinatorial interpolation technique and scaling limits in sparse random graphs*
- 16:30-17:00 Juan Vera *Phase Transition for Glauber Dynamics on Regular Trees and Reconstruction: Independent Sets and Colorings*

Session 3 (Chair: Peter Bürgisser)

- 17:00-18:00 5-minute introduction talks  
(please use the blackboard, rather than the data projector, to save time between these very short talks)
  - Uwe Schoening
  - Sylvain Perifel or Guillaume Malod
  - Russ Martin
  - Daniel Marx
  - Marek Karpinski
  - Martin Lotz
  - Marc Thurley

Tuesday

Session 4 (Chair: Peter Bürgisser)

- 9:00-10:30 Pascal Koiran *Arithmetic circuits and complexity*
- 10:30-11:00 coffee
- 11:00-11:30 Sylvain Perifel or Guillaume Malod *Eliminating big integer constants in arithmetic circuits*
- 11:30-12:00 Meena Mahajan *Counting problems in the low-complexity world around  $NC^1$  and logspace*

12:15-15:30 lunch, then free time for informal discussions

15:30-16:00 coffee

Session 5 (Chair: Russ Martin)

- 16:00-16:30 Bruno Grenet *Symmetric Determinantal Representation of Polynomials*
- 16:30-17:00 Markus Blaeser *Induced subgraph polynomials*
- 17:00-17:30 Tomer Kotek *A representation theorem for holonomic sequences*
- 17:30-18:00 Johann Makowsky *Intriguing graph polynomials*

Wednesday

Session 6 (Chair: Mark Jerrum)

- 9:00-10:30 Martin Dyer *The complexity of  $\#CSP$*
- 10:30-11:00 coffee
- 11:00-11:30 David Richerby *Decidability of the  $\#CSP$  dichotomy*
- 11:30-12:00 Thore Husfeldt *The exponential time complexity of computing the Tutte polynomial*

12:15 lunch, then excursion

Thursday

Session 7 (Chair: Pascal Koiran)

- 9:00-9:30 Christian Ikenmeyer *A max-flow algorithm for positivity of Littlewood-Richardson coefficients*
- 9:30-10:00 Eric Allender *Uniform Derandomization from Pathetic Lower Bounds*
- 10:00-10:30 Peter Scheiblechner *On the Computation of the Betti Numbers of Complex Algebraic Varieties*

10:30-11:00 coffee

Session 8 (Chair: Marek Karpinski)

- 11:00-11:30 Holger Dell *#ETH: Ruling Out Subexponential Time Algorithms for Counting Problems*
- 11:30-12:00 Colin McQuillan *The Kowalczyk-Cai dichotomy and bounded-degree #CSP*

12:15-15:30 lunch, then free time for informal discussions

15:30-16:00 coffee

Session 9 (Chair: Eric Allender)

- 16:00-16:30 Prasad Chebolu *Complexity of approximately counting stable roommate assignments*
- 16:30-17:00 Qi Ge *A graph polynomial for independent sets of bipartite graphs*
- 17:00-17:30 John Faben *The Complexity of Modular Counting in CSPs*
- 17:30-18:00 Stefan Mengel *Characterizing arithmetic circuit classes by constraint satisfaction problems*

Friday

Session 10 (Chair: Martin Dyer)

- 9:00-9:30 Andrei Bulatov *Approximation of #CSP and universal algebra*
- 9:30-10:00 Magnus Bordewich *On the approximation complexity hierarchy*
- 10:00-10:30 Leslie Goldberg *Approximating the partition function of the ferromagnetic Potts model*

10:30-10:50 coffee

Session 11 (Chair: Markus Blaeser)

- 10:50-11:20 Peter Buergisser *The state of the art in geometric complexity theory*
- 11:20-11:50 Mark Jerrum *A polynomial-time algorithm for estimating the partition function of the ferromagnetic Ising model on a regular matroid*

12:15 lunch, then depart