

Dagstuhl Seminar 17341 “Computational Counting” Programme

Monday

09:00–09:15. Introductions

09:15–09:45. Daniel Štefankovič, TBA

09:50–10:20. Will Perkins, Extremal bounds on partition functions via observables

10:20–10:50 Coffee break.

10:50–11:20 Yitong Yin, What can be sampled locally?

11:25 –11:55. Alexander Barvinok, Weighted counting of 0-1 vectors in a subspace

12:15–15:30. Lunch, then free time for informal discussions.

15:30–16:00. Coffee break.

16:00–16:30. Miriam Backens, Holant problems and Quantum Information Theory

16:35–17:05. Andrei A. Bulatov, Finite Duality, Connectivity of Homomorphisms, Spatial Mixing and Gibbs Measures

17:10–17:40. Martin Dyer, Matchings and the Switch Chain

Tuesday

09:00–09:30. Alexandre Stauffer, TBA

09:35–10:05. Dana Randall, TBA

10:10–10:40. David Gamarnik, TBA

10:40–11:05. Coffee break.

11:05–11:35. Radu Curticapean, The complexity of graph motif parameters

11:40–12:10. Marc Roth, Counting Restricted Homomorphisms via Möbius Inversion over Matroid Lattices

12:15–15:30. Lunch, then free time for informal discussions.

15:30–16:00. Coffee break.

16:00–16:30. Guus Regts, On a conjecture of Sokal regarding the location of roots of the independence polynomial

16:35–17:05. Viresh Patel, Zero-free regions and approximation algorithms for graph polynomials

17:10–17:40. Jingcheng Liu, The Ising Partition Function: Zeros and Deterministic Approximation

Wednesday

09:00–09:30. Piyush Srivastava, Correlation decay in the Shearer region and the Lovász local lemma

09:35–10:05. Andreas Galanis, TBA

10:10–10:40. Kuan Yang, Approximating partition functions of bounded-degree Boolean counting Constraint Satisfaction Problems

10:40–11:10. Coffee break

11:10–11:40. Amin Coja-Oghlan, Information-theoretic thresholds

11:45–12:00. Eleni Bakali, TotP-completeness and a connection to the approximability of #SAT

12:00–12:15. Photo

12:15–18:00. Lunch, followed by excursion.

Thursday

- 09:00–9:30. Charis Efthymiou, Improved bounds for sampling colorings of sparse random graphs
- 09:35–10:05. Catherine Greenhill, A threshold result for loose Hamiltonicity in random regular uniform hypergraphs
- 10:10–10:40. Heng Guo, Uniform Sampling through the Lovász Local Lemma
- 10:40–11:05. Coffee break.
- 11:05–11:35. David Richerby, Functional clones and expressibility of partition functions
- 11:40–12:10. Cornelius Brand, A FPRAS for Kostka numbers of two-row diagrams
- 12:15–15:30. Lunch, then free time for informal discussions.
- 15:30–16:00. Coffee break.
- 16:00–16:30. Sarah Cannon, Phase transitions in dyadic and rectangular tilings
- 16:35–17:05. Antonio Blanca, Spatial Mixing and non-local Markov chains
- 17:10–17:40. Sarah Miracle, TBA

Friday

- 09:00–09:30. Kitty Meeks, TBA
- 09:35–10:05. Holger Dell, A fixed-parameter perspective on #BIS
- 10:10–10:40. John Lapinskas, Fine-grained reductions from approximate counting to decision
- 10:40–11:05. Coffee break.
- 11:05–11:35. Andreas Göbel, Graph Homomorphisms Mod 2
- 11:40–12:10. Jacob Focke, The Complexity of Counting Surjective Homomorphisms and Compactions
- 12:15. Lunch, then depart.