

# Dagstuhl Seminar 13031 “Computational Counting” Programme

## Monday

09:00–09:30. Les Valiant, *What are the chances that  $P = NP$ ?*

09:35–10:05. Xi Chen, *The complexity of Counting CSP with complex weights.*

10:10–10:40. Mingji Xia, *A dichotomy for Holant\* problems with domain size 3.*

10:40–11:10. Coffee break.

11:10–11:40. Heng Guo, *A complete dichotomy rises from the capture of vanishing signatures.*

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

15:30–16:00. Coffee break.

16:00–16:30. Johann Makowsky, *A computational framework for the study of partition functions and graph polynomials.*

16:35–17:05. Joanna Ellis-Monaghan, *The Tutte-Potts connection with an external field.*

17:10–17:40. Daniel Štefankovič, *Inapproximability of the partition function for the spin models.*

## Tuesday

- 09:00–09:30. Tomoyuki Yamakami, *An approximation classification of complex-weighted Counting CSPs*.
- 09:35–10:05. David Richerby, *Approximate conservative Counting CSPs*.
- 10:10–10:40. Colin McQuillan, *Approximate Holant*.
- 10:40–11:10. Coffee break.
- 11:10–11:40. Arnaud Durand, *The complexity of enumerating CSP database queries*.
- 11:45–12:15. Pascal Vontobel, *Analysis of message-passing iterative decoders via zeta functions*.
- 12:15–15:30. Lunch, then free time for informal discussions.
- 15:30–16:00. Coffee break.
- 16:00–16:30. Marek Karpinski, *Approximate counting of matchings in hypergraphs*.
- 16:35–17:05. Martin Dyer, *Generating graphs and digraphs*.
- 17:10–17:40. Tyson Williams, *The complexity of planar Boolean #CSP with complex weights*.

## Wednesday

- 09:00–09:30. Markus Bläser, *The complexity of the noncommutative determinant*.
- 09:35–10:05. Hervé Fournier, *On fixed polynomial size circuit lower bounds for uniform explicit polynomials in the sense of Valiant*.
- 10:10–10:40. Guillaume Malod, *Lower bounds for restricted arithmetic computations*.
- 10:40–11:10. Coffee break
- 11:10–11:40. Irénée Briquel, *On the average number of roots of a real sparse polynomial*.
- 11:45–12:15. Bruno Grenet, *Factoring bivariate lacunary polynomials without heights*.
- 12:15–18:00. Lunch, followed by excursion.

## Thursday

09:00–9:30. Thore Husfeldt, *The Parity of Directed Hamiltonian Cycles*.

09:35–10:05. Miki Hermann, *How hard it is to count easily*.

10:10–10:40. Andreas Goebel, *On the connection between interval size functions and path counting*.

10:40–11:10. Coffee break.

11:10–11:40. Meena Mahajan, *Enumerating monomials*.

11:45–12:15. Peter Bürgisser, *Geometric complexity theory and counting*.

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

15:30–16:00. Coffee break.

16:00–16:30. Magnus Bordewich, *Fast and slow mixing in the ferromagnetic Potts model*.

16:35–17:05. Chihao Zhang, *Approximate counting on planar graphs*.

17:10–17:40. Leslie Ann Goldberg, *Approximating the partition function of planar two-state spin systems*.

17:45–18:00. Marcel Ackermann, talk about DBLP.

## Friday

09:00–09:30. Radu Curticapean, *Weighted counting of  $k$ -Matchings is  $\#W[1]$ -hard*.

09:35–10:05. Stefan Mengel, *Structural tractability of counting solutions to conjunctive queries*.

10:10–10:40. Peter Scheiblechner, *Complexity of de Rham cohomology*.

10:40–11:10. Coffee break.

11:10–11:40. He Sun, *Counting arbitrary subgraphs in data streams*.

12:15. Lunch, then depart.