

Complexity Theory
23-26 July 2018
University of Oxford, L2

Monday, 23 July

- 8:30 Registration
9:00 Welcome and introduction
9:30-10:30 Jan Krajicek, *The Nature of Proof Complexity*
10:30-11:00 Tea/coffee
11:00-12:00 Sasha Razborov, *Grand Challenges in Complexity Theory through the Lens of Proof Theory*
12:00-12:30 Pavel Pudlak, *An Approach to Proving Better Lower Bounds on Bounded Depth Frege Proofs*
12:30-14:00 Lunch
14:00-15:00 Josh Grochow, *Complexity in Ideals of Polynomials*
15:00-15:30 Tea/coffee
15:30-16:00 Michal Koucký, *Lower Bounds for Combinatorial Algorithms for Boolean Matrix Multiplication*
16:00-16:30 Valentine Kabanets, *The Power of Natural Properties as Oracles*
16:30-17:00 Antonina Kolokolova, *Does Looking Inside a Circuit Help?*

Tuesday, 24 July

- 9:30-10:30 Daniel Kane, *Fooling Fourier Shapes*
10:30-11:00 Tea/coffee
11:00-12:00 Ryan O'Donnell, *Fooling Polytopes*
12:00-12:30 Yuval Ishai, *Cryptography and Complexity Theory: Recent Interactions*
12:30-14:00 Lunch
14:00-15:00 Arkadev Chattopadhyay, *A Short List of Equalities Induces Large Sign Rank*
15:00-15:30 Tea/coffee
15:30-16:30 Avishay Tal, *Oracle Separation of BQP and the Polynomial Hierarchy*
16:30-17:00 Lance Fortnow, *Some Observations on the Raz-Tal Oracle Separating BQP from PH*
17:00-18:00 Open problems session

Wednesday, 25 July

- 9:30-10:30 Toniann Pitassi, *td*
10:30-11:00 Tea/coffee
11:00-11:30 Srikanth Srinivasan, *A Near-Optimal Depth-Hierarchy Theorem for Small-Depth Multilinear Circuits*
11:30-12:30 Neeraj Kayal, *Proper Learning Algorithms from Lower Bounds for Arithmetic Circuits*
12:30-14:00 Lunch

Thursday, 26 July

- 9:30-10:30 Ryan Williams, *Lower Bounds by Algorithm Design: A Progress Report*
10:30-11:00 Tea/coffee
11:00-11:30 Virginia Vassilevska Williams, *Towards Tight Approximation Bounds for Graph Diameter and Eccentricities*
11:30-12:30 Josh Alman, *Limits on All Known (and Some Unknown) Approaches to Matrix Multiplication*
12:30-14:00 Lunch
14:00-14:30 Ben Rossman, *Sharper Bounds and Faster #SAT for Regular AC⁰ Formulas*
14:30-15:00 Igor Oliveira, *Hardness Magnification for Natural Problems*
15:00-15:30 Tea/coffee
15:30-16:00 Andrea Lincoln, *Tight Hardness for Shortest Cycles and Paths in Sparse Graphs*
16:00-16:30 Marco Carmosino, *Hardness Amplification for Non-Commutative Arithmetic Circuits*
16:30 Closing remarks