

Phase Transitions And Algorithmic Complexity

Monday June 3, 2002

- 8:45–9:00 *Welcome and Opening Remarks*
- 9:00–10:30 **Dimitris Achlioptas** (Microsoft Research)
Everything You Always Wanted to Know About Theoretical Computer Science (But Were Afraid to Ask) (Tutorial)
- 10:30–11:30 *Coffee Break*
- 11:30–12:30 **Cristopher Moore** (University of New Mexico / Santa Fe Institute)
Mick gets what he needs
- 12:30–2:00 *Lunch (Hosted by IPAM)*
- 2:00–4:00 **Christian Borgs** (Microsoft Research)
Statistical Physics in ordered systems (Tutorial)
- 4:00–4:30 *Coffee Break*
- 4:30–5:30 **Bela Bollobas** (Cambridge University / University of Memphis)
Finite bootstrap percolation

Tuesday June 4, 2002

- 9:00–10:30 **Rémi Monasson** (École Normale Supérieure, Paris)
Statistical physics of random combinatorial problems (Tutorial)
- 10:30–11:00 *Coffee Break*
- 11:00–11:30 **Stephan Mertens** (University of Magdeburg, Germany)
The easiest hard problem: phase transitions in integer partitioning
- 11:30–12:00 **Weixiong Zhang** (Washington University)
Phase Transitions, Backbones, Measurement Precision, and Phase-Inspired Approximation
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:30 **Anton Bovier** (Weierstrass Institute, Berlin)
Rigorous results on disordered system: some efforts to understand the replica method (Tutorial)
- 3:30–4:00 *Coffee Break*
- 4:00–5:00 **Michel Talagrand** (Ohio State University / University of Paris, Jussieu)
Self organization in the low temperature phase of spin glass model
- 5:00–5:15 *Break*

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- 5:15–6:15 **Paul Beame** (University of Washington)
A phase transition in proof complexity and its implications for satisfiability search
- 6:15–12:00 *Dinner (Hosted by IPAM)*

Wednesday June 5, 2002

- 9:00–9:30 **Lefteris Kirousis** (University of Patras, Greece)
The principle of deferred decisions
- 9:30–10:30 **Jeong Han Kim** (Microsoft Research)
The Poisson cloning model for random graphs with applications to k -core problems, random 2-SAT, and random digraphs
- 10:30–11:00 *Coffee Break*
- 11:00–12:00 **David Wilson** (Microsoft Research)
 $nu \geq 2$ for random k -SAT
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Michael Molloy** (University of Toronto)
Satisfiability thresholds for random models of constraint satisfaction problems
- 3:00–3:30 **Bart Selman** (Cornell University)
Randomization of complete SAT procedures and heavy-tailed distributions
- 3:30–4:00 *Coffee Break*
- 4:00–5:00 **John Doyle** (California Institute of Technology)
Robustness and algorithmic complexity

