Deep Computation in Statistical Physics Workshop

August 8 – 10, 2013

Agenda

Organized by Cris Moore (SFI), Jon Machta (University of Massachusetts, Amherst & SFI), and Stephan Mertens (Magdeburg & SFI)

Thursday, August 8, 2013

8:15          Shuttle departs Hotel Santa Fe to Santa Fe Institute
9:00 – 9:10   Introduction and Opening Remarks
              Machta/Mertens/Moore
9:10 – 9:45   Bob Ziff (University of Michigan)
              “Algorithms for Percolation”
9:45 – 10:20  Stephan Mertens (Magdeburg & Santa Fe Institute)
              “A Sublinear Algorithm for Percolation”
10:20 – 10:40 Coffee Break
10:40 – 11:15 Marija Vucelja (New York University)
              “Sampling with Non-Reversible Markov Chains”
11:15 – 11:50 Koji Hukushima (University of Tokyo)
              “An Irreversible Monte Carlo Method for Some Spin Systems”
11:50 –12:25  Werner Krauth (Ecole Normale Superieure)
              “Rejection-free, Irreversible, and Infinitesimal (!) Monte Carlo Algorithms”
12:25 – 1:25  Lunch
1:25 – 2:00   Amanda and Noah Streib (NIST)
              “A Stratified Sampling Approach to the Ising Model”
2:00 – 2:35  **Stefan Boettcher (Emory University)**  
“Renormalization Group for Quantum Walks with and Without Coins”

2:35 – 3:10  **Tom Hayes (University of New Mexico)**  
“Better Coupling via Alternative Distance Metrics, in the Hard Disk Model”

3:10 – 3:30  Coffee Break

3:30 – 4:30  **Brian Hayes (American Scientist), Colloquium**  
“First Links in the Markov Chain”

5:00  Shuttle departs Santa Fe Institute back to Hotel Santa Fe

6:30  Dinner at Ristra Restaurant, 548 Agua Fria Street  
(505) 982-8608

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**Friday, August 9, 2013**

8:15  Shuttle departs Hotel Santa Fe to Santa Fe Institute

9:00 – 10:00  **Ben Schumacher (Kenyon College)**  
“Landauer’s Principle, Fluctuations and the Second Law”

10:00 – 10:30  Coffee Break

10:30 – 11:05  **Helmut Katzgraber (Texas A&M University)**  
“Static and Dynamic Properties of Spin Glasses as seen through the Parallel Tempering Telescope”

11:05 – 11:40  **Jon Machta (University of Massachusetts, Amherst & SFI)**  

11:40 – 12:15  **Alan Middleton (Syracuse University)**  

12:15 – 1:15  Lunch
1:15 – 1:50  Eli BenNaim (Los Alamos National Laboratory)  
“Nontrivial Exponents in Record Statistics”

1:50 – 2:25  Varsha Dani (University of New Mexico)  
“Power of Choice”

5:00  Shuttle departs Santa Fe Institute back to Hotel Santa Fe

**Saturday, August 10, 2013**

8:15  Shuttle departs Hotel Santa Fe to Santa Fe Institute

9:00 – 9:35  Misha Chertkov (Los Alamos National Laboratory)  
“Getting a Grip on the Grid: Physics and Computation in Electrical Power Systems”

9:35 – 10:10  Cris Moore (Santa Fe Institute)  
“What’s the Cavity Method, and What Can It Tell Us About Social Networks?”

10:10 – 10:40  Coffee Break

10:40 – 11:15  Francis Sullivan (IDA/Center for Computing Sciences)  
“The Hard, Easy, Hard Phase Transition: The Case of A Particular Instance”

11:15 – 11:50  Mark Newman (University of Michigan)  
“Dynamics on Networks and Message Passing Algorithms”

11:50 – 12:25  Pan Zhang (Santa Fe Institute)  
“Message Passing and Pooling Strategies for Non-Adaptive Linear Group Testing”

12:25 – 12:30  Machta/Mertens/Moore  
Wrapping up

12:30  Lunch

2:00  Shuttle departs Santa Fe Institute back to Hotel Santa Fe