Hong Kong Probability Seminar

https://sites.google.com/site/hkprobability/

Date: March 15, 2019 (Friday), HKUST
Venue: Room 4475 (via Lifts 25/26), Academic Building

- **2:00 – 3:30pm : Michael Choi (CUHK Shenzhen)**

  Accelerated simulated annealing under fast cooling

  Abstract: Originated from statistical physics, simulated annealing is a popular stochastic optimization algorithm that has found extensive empirical success in disciplines ranging from image processing to statistics and combinatorial optimization. At the heart of the algorithm lies in constructing a non-homogeneous Markov process that converges to the set of global minima as the temperature cools down. In this talk, we will first review the classical theory for simulated annealing and discuss some of its theoretical limitations. We will then introduce a promising accelerated variant of simulated annealing that provably converges faster and does not suffer from the drawbacks of its classical counterpart. This talk is based on http://arxiv.org/abs/1901.10269

- **3:30 – 4:00pm: Coffee break**

- **4:00 – 5:30pm: Leonardo T. Rolla (U. Buenos Aires and NYU Shanghai)**

  Absorbing-state phase transitions

  Abstract: Modern statistical mechanics offers a large class of driven-dissipative stochastic systems that naturally evolve to a critical state, of which Activated Random Walks is one of the best examples. The main pursuit in this field is to describe the critical behaviour, scaling relations and critical exponents of such systems, and the connection between driven-dissipative dynamics and conservative dynamics in infinite space. The study of this model has challenged mathematicians for a long time. We will present the partial progress made during the last ten years. These covered most of the questions regarding existence of an absorbing and an active phase for different ranges of parameters, and current efforts are drifting towards the description of critical states, scaling limits, etc. We will summarize the current state of art and discuss some of the many open problems.

All are welcome

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Hong Kong University of Science and Technology