

For favour of posting



Hong Kong Probability Seminar

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

Program

- **2:00–3:30pm: Pierre Nolin (CityU)**

Frozen percolation and self-organized criticality

Abstract: We first give a short introduction to Bernoulli percolation, which is obtained by deleting at random, independently, the edges (or the vertices) of a given lattice. It is arguably one of the simplest models from statistical mechanics displaying a phase transition, i.e. a drastic change of macroscopic behavior, at a certain critical threshold. We present the main tools and techniques used to study percolation, as well as the most important results. We then discuss the frozen percolation model, where connected components stop growing ("freeze") as soon as they become large (i.e. reach a "size" at least N , for some finite parameter N). In particular, we explain why the "near-critical" regime of Bernoulli percolation arises. This talk is based on joint works with Rob van den Berg (CWI and VU, Amsterdam) and Demeter Kiss.

- **3:30–4:00pm: Coffee break**
- **4:00–5:30pm: Zhigang Bao (HKUST)**

Supersymmetry method and delocalization of random block band matrices

Abstract: For large dimensional random band matrices, a famous open question is Anderson's localization-delocalization transition for the eigenvectors, which states that the eigenvectors of the random band matrix are extended (delocalized) if the band width is larger than the square root of the matrix size, and are otherwise localized. So far, the most hopeful method to attack this question is the supersymmetry method, which is ubiquitous in physics literature. However, the rigorous justification of supersymmetry in mathematics is still notoriously difficult. In this talk, I will introduce a recent result on delocalization of random block band matrices via a rigorous supersymmetry approach. This is a joint work with László Erdős.

Date: October 20, 2017 (Friday)

Time: 2:00 - 5:30pm

Venue: Room 210, Run Run Shaw Bldg., HKU

All are welcome

*The event is supported by the Institute of Mathematical Research,
Department of Mathematics, The University of Hong Kong.*