Hong Kong Probability Seminar

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

Date: **April 27, 2018 (Friday)**
Time: **2:00 – 5:30pm**
Venue: **LT3, Lady Shaw Building, CUHK**

Program

- **2:00–3:30pm: Ke Wang (HKUST)**

  Random perturbation of low-rank matrices and applications

  Abstract: Computing the singular values and singular vectors of a large matrix is a basic task in high dimensional data analysis with many applications in computer science and statistics. In practice, however, data is often perturbed by noise. It is naturable to understand the essential spectral parameters of this perturbed matrix, such as its spectral norm, the leading singular values, and vectors, or the subspace formed by the first few singular vectors. Classical (deterministic) theorems, such as those by Davis-Kahan, Wedin, and Weyl, give tight estimates for the worst-case scenario. In this talk, I will consider the case when the perturbation is random. In this setting, better estimates can be achieved when the data matrix has low rank. I will also discuss some applications of our results. This talk is based on joint works with Sean O'Rourke and Van Vu.

- **3:30–4:00pm: *Coffee break***

- **4:00–5:30pm: Lihu Xu (University of Macau)**

  Approximation of stable law in Wasserstein distance by Stein's method

  Abstract: We will first give a fast review of some preliminaries of stable law, stable processes, ergodicity of SDEs driven by stable noises, and then talk how to obtain the convergence rate of stable law in Wasserstein distance by Stein's method. If the time is permitted, we will give a sketch on using a method recently developed by Fang, Shao and Xu to sample high dimensional stable distribution by discretizing Ornstein-Uhlenbeck stable processes. This talk is based on the paper arXiv:1709.00805 and a joint work in progress with Peng Chen (PhD student at UM) and Ivan Nourdin (Luxembourg).

All are welcome