Mathematics, Statistics, and Computer Science **@ UIC**

Analysis and Applied Mathematics Seminar

Dynamical approach to lattice Yang-Mills

Hao Shen (Madison)

Abstract: We will first review the lattice Yang-Mills model, also called the lattice gauge theories, originally introduced by Wilson as a discretization of quantum Yang-Mills. The model is specified by a well-defined probability measure on a Lie group, at least on finite lattice. We then derive a system of Lie group valued stochastic differential equations, such that the measure is invariant (i.e. Langevin dynamic). We then prove several properties about the model using or related with the dynamic, such as master loop equations, large N factorization, log-Sobolev inequality, and ergodicity. Based on joint work with Scott Smith, Rongchan Zhu, Xiangchan Zhu.

Monday, March 14 at 4:00 PM in 636 SEO