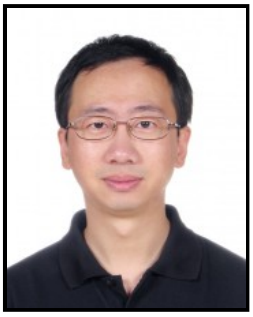

Computational Mathematics Seminar Series

The Study of Rare Events

Xiang Zhou, Brown University

Johnston Hall 338
March 20, 2012 - 03:30 pm

Abstract:

Many methods for stochastic systems take into account only average behavior (or perhaps variance) of the model response. But this is often not enough as the performance is related to rare events with a small probability of occurring. In my talk, I will review the large deviation theory for analyzing rare events, introduce a minimum action method for small noise diffusion processes, and the recent importance sampling Monte Carlo method based on the large deviation. Throughout the talk, I will also stress the special features of noise-induced transition in non-gradient systems and how to understand subcritical instability in physics and fluid dynamics from perspective of noise-induced transition.

Speaker's Bio:

Dr. Xiang Zhou graduated from Princeton University in 2009 with PhD in Applied and Computational Mathematics, after he graduated from Peking University, China. His research interest is the study of rare events in science and engineering: to understand how the noises drive the system to drastic consequences. After he finishes his two-year postdoc at Brown University, he will move to Hong Kong City University in 2012 for a tenure-track position.

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