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Other - Mathematics Colloquium

Some numerical issues about quantifying the effects of uncertainty

Xiaoliang Wan, LSU

Assistant Professor, LSU Department of Mathematics and CCT

Lockett Hall 235
September 10, 2014 - 03:30 pm

Abstract:

The role of uncertainty in mathematical models has received more attention in the last two decades due to the quick development of algorithms and computation capability. In this talk I will discuss numerical computation for three cases to quantify the effects of uncertainty, including parametric uncertainty, stochastic modeling based on Wick product and minimum action method for large deviation principle, where I will focus on the last case. I will describe some recent progress of minimum action method and its application to model the nonlinear instability of
wall-bounded shear flows as a rare event.

Speaker's Bio:

Xiaoliang Wan is an assistant professor in the Department of Mathematics and CCT. He received his PhD from Brown University in 2007. Prior to joining the LSU faculty, he was a postdoctoral research associate at Princeton University. His research interests include stochastic modelling, numerical methods for (stochastic) PDEs, adaptivity in numerical simulations and minimum action methods.