

the
Department of Statistics at Texas A&M University
presents the
Raymond J. Carroll Young Investigator Award Recipient

SAMUEL KOU

Department of Statistics
Harvard University

**MULTI-RESOLUTION INFERENCE OF STOCHASTIC
MODELS FROM PARTIALLY OBSERVED DATA**

ABSTRACT:

Stochastic models, diffusion models in particular, are widely used in science, engineering and economics. Inferring the parameter values from data is often complicated by the fact that the underlying stochastic processes are only partially observed. Examples include inference of discretely observed diffusion processes, stochastic volatility models, and state space models. Likelihood based inference faces the difficulty that the likelihood is usually not available even numerically.

Conventional approach discretizes the stochastic model to approximate the likelihood. In order to have desirable accuracy, one has to use highly dense discretization. However, dense discretization usually imposes unbearable computation burden. In this talk we will introduce the framework of Bayesian multi-resolution inference to address this difficulty. By working on different resolution (discretization) levels simultaneously and by letting the resolutions talk to each other, we substantially improve not only the computational efficiency, but also the estimation accuracy. We will illustrate the strength of the multi-resolution approach by examples.

DATE: Tuesday, December 1, 2009

TIME: 4:00 p.m. – 5:00 p.m.

PLACE: Room 111, Koldus Student Services Building

Light refreshments will be provided for those who attend the seminar.