

## Joint Seminar - Risk Management Institute and Department of Finance

### Details of Seminar

Date: 4 March 2009, Wednesday

Time: 3:30pm – 5:00pm

Venue: BIZ Staff Lounge Meeting Room

### Speaker

Prof. Li Haitao

University of Michigan, USA

### Title

MCMC Estimation of Lévy Jump Models Using Stock and Option Prices

### Abstract

We examine the performances of several popular Lévy jump models and some of the most sophisticated affine jump-diffusion models in capturing the joint dynamics of stock and option prices. We develop efficient MCMC methods for estimating parameters and latent volatility/jump variables of the Lévy jump models using stock and option prices. We show that models with infinite-activity Lévy jumps in returns significantly outperform affine jump-diffusion models with compound Poisson jumps in returns and volatility in capturing both the physical and risk-neutral dynamics of the S&P 500 index. We also find that the variance gamma model of Madan, Carr, and Chang (1998) with stochastic volatility has the best performance among all the models we consider.