

**THE CHINESE UNIVERSITY OF HONG KONG**

*Department of Statistics*

will present a seminar entitled

**Parameter Estimation and Bias Correction for Diffusion Processes**

by

**Mr. Chengyong TANG**  
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on

**Wednesday, 20 February 2008**  
**4:30pm – 5:30pm**

in

**Lady Shaw Building LT4**  
**The Chinese University of Hong Kong**

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**Abstract:**

This paper considers parameter estimation for continuous-time diffusion processes which are commonly used to model dynamics of financial securities including interest rates. To understand why the drift parameters are more difficult to estimate than the diffusion parameter as observed in many empirical studies, we develop expansions for the bias and variance of parameter estimators for two mostly employed interest rate processes. A parametric bootstrap procedure is proposed to correct bias in parameter estimation of general diffusion processes with a theoretical justification. Simulation studies confirm the theoretical findings and show that the bootstrap proposal can effectively reduce both the bias and the mean square error of parameter estimates for both univariate and multivariate processes. The advantages of using more accurate parameter estimators when calculating various option prices in finance are demonstrated by an empirical study on a Fed fund rate data.

**All are Welcome**