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DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

<u>Public Seminar of PhD Candidate</u>

Mr. WEI Boyu

Department of Statistics and Actuarial Science
The University of Hong Kong

will give a talk

entitled

RANDOM FIELD HJM MODEL: A UNIFIED FRAMEWORK FOR FIXED INCOME, EQUITY AND CREDIT MARKETS

<u>Abstract</u>

The HJM framework was originally introduced for the modelling of the dynamics of the instantaneous forward rates in the fixed income market. This approach was later extended with uncertainties described by a Gaussian random field, which is termed as the random field HJM model. This approach can be further extended and applied to both equity and credit markets. For the equity market, we propose a unified framework for the joint modelling of an index and its local volatility surface. This model enables index and volatility derivatives to be priced consistently and reproduces empirical features of the equity market. We start from an initial collection of index options and their associated local volatility surface, and show how to construct the arbitrage-free evolution of this local volatility surface. For the credit market, we focus on the modelling of contagion and counterparty risks. We show how to construct the dynamics of the conditional joint density of the default times given the risk-free market information via the change-of-measure technique. It is a top-down approach in the analysis of the contagion credit risk with multiple default events.

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on

Monday, September 26, 2016

3:30 p.m. – 4:30 p.m.

at

Room 301, Run Run Shaw Building

All interested are welcome