

**MACQUARIE UNIVERSITY
STATISTICS DEPARTMENT SEMINAR**

Speaker: Dr Libo Li, School of Mathematics and Statistics, University of New South Wales

Date: Tuesday 29 May 2018, Time 1-2pm

Venue: Room 264, 14 Sir Christopher Ondaatje Ave

Title: On a positivity preserving numerical scheme for jump-extended CIR process: the alpha-stable case

Abstract:

We propose a positivity preserving implicit Euler-Maruyama scheme for a jump-extended Cox-Ingersoll-Ross (CIR) process where the jumps are governed by compensated spectrally positive alpha-stable process for alpha belonging to $(1,2)$. Different to the existing positivity preserving numerical schemes for jump-extended CIR or CEV models, the model considered here has infinite activity jumps. We calculate, in this specific model, the strong rate of convergence and give some numerical illustrations. Jump extended models of this type were initially studied in the context of branching processes and was recently introduced to the financial mathematics literature to model sovereign interest rates, power and energy markets.

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