SEMINAR
DEPARTMENT OF STATISTICS
THE CHINESE UNIVERSITY OF HONG KONG

Optimal Periodic Hybrid Barrier Strategies in Lévy Models

INVITED SPEAKER

Kazutoshi Yamazaki
Senior Lecturer
The School of Mathematics and Physics
The University of Queensland

TIME

July 16th, 2025 (Wed) · 2:30 pm - 3:30 pm

VENUE

ERB LT (8/F & 9/F)· William M W Mong Engineering Building (ERB) · CUHK

ABSTRACT

We study a stochastic control problem in which the underlying process follows a spectrally negative Lévy process. A controller can increase the process either continuously or at independent Poisson arrival times, each type of intervention incurring a different cost. We demonstrate the optimality of a hybrid barrier strategy, which increases the process continuously or at Poisson times whenever it falls below two respective lower barriers—one for continuous control and the other for Poisson control. The optimal strategy and the associated value function are expressed semi-explicitly using scale functions. Numerical results are also provided. This is a joint work with Jose Luis Perez (CIMAT) and Qingyuan Zhang (University of Queensland).