Seminar on Stochastic Optimal Control

Department of Mathematics
The Chinese University of Hong Kong

Title: Optimal control under uncertainty: Application to the issue of CAT bonds.

Invited Speaker: Dr. Nicolas Baradel
Research Engineer
Ecole Polytechnique
Palaiseau, France

Time: Wednesday, 01 November 2023, 16:00 – 17:00 (HK Time)

Venue: Room 222, Lady Shaw Building
The Chinese University of Hong Kong
Shatin, N.T., Hong Kong

Abstract: We propose a general framework for studying optimal issue of CAT bonds in the presence of uncertainty of the parameters. In particular, the intensity of arrival of natural disasters is inhomogeneous and may depend on unknown parameters. Given a prior on the distribution of the unknown parameters, we explain how it should evolve according to the classical Bayes rule. Taking these progressive prior-adjustments into account, we characterize the optimal policy through a quasi-variational parabolic equation, which can be solved numerically. We provide examples of application in the context of hurricanes in Florida.