THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar Series

Optimal Ergodic Control of Linear Stochastic Differential Equations with Quadratic Cost Functionals Having Indefinite Weights

By

Prof. Qingmeng Wei
Northeast Normal University

Abstract

An optimal ergodic control (EC) problem is investigated for a linear stochastic differential equation with quadratic cost functional. Constant nonhomogeneous terms, not all zero, appear in the state equation, which lead to the asymptotic limit of the state nonzero. Under the stabilizability condition, for any (admissible) closed-loop strategy, an invariant measure is proved to exist, which makes the ergodic cost functional well-defined and the EC problem well-formulated. Sufficient conditions, including those allowing the weighting matrices of cost functional to be indefinite, are introduced for finiteness and solvability for the EC problem. Some comparisons are made between the solvability of EC problem and the closed-loop solvability of stochastic linear-quadratic optimal control problem in the infinite horizon. The regularized EC problem is introduced to be used to obtain the optimal value of the EC problem.

Click to join (Zoom)

Date: 11 June 2022 (Saturday)
Time: 20:00-20:45 (Hong Kong Standard Time GMT +8)
Venue: Online Talk via Zoom (Meeting ID: 955 7327 5389)
Speaker: Prof. Qingmeng Wei, Northeast Normal University
Host: Dr. James Huang, The Hong Kong Polytechnic University
Click to join:
https://polyu.zoom.us/j/95573275389?pwd=ZVpBd0p3cnhYNmY2eW5PcFIxWTlxdz09

*** * * ALL ARE WELCOME * * ***

For enrolment, please send your name and email to wai-yan.moon@polyu.edu.hk on or before 10 June 2022