



复旦大学数学科学学院 数学综合报告会

报告题目: Stochastic linear quadratic optimal control problems with regime-switching jumps in infinite horizon

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地点: 光华楼东主楼1801

报告摘要:

This talk investigates a stochastic linear-quadratic (SLQ, for short) control problem regulated by a continuous time Markov chain in infinite horizon. Under the L^2 -stability framework, we study a class of linear backward stochastic differential equations (BSDE, for short) in infinite horizon and discuss the open-loop and closed-loop solvabilities of the SLQ problem. The open-loop solvability is characterized by the solvability of a system of coupled forward-backward stochastic differential equations (FBSDEs, for short) in infinite horizon and the convexity of the cost functional, and the closed-loop solvability is shown to be equivalent to the open-loop solvability, which in turn is equivalent to the existence of a static stabilizing solution to the associated constrained coupled algebra Riccati equations (CAREs, for short). Under the uniform convexity assumption, we obtain the unique solvability of associated CAREs and construct the corresponding closed-loop optimal strategy. Finally, we also solve a class of discounted SLQ problems and give two concrete examples to illustrate the results developed in the earlier sections.

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