



复旦大学数学科学学院 数学综合报告会

报告题目: Solving high-dimensional stochastic optimal control problems driven by fully-coupled FBSDEs via deep learning

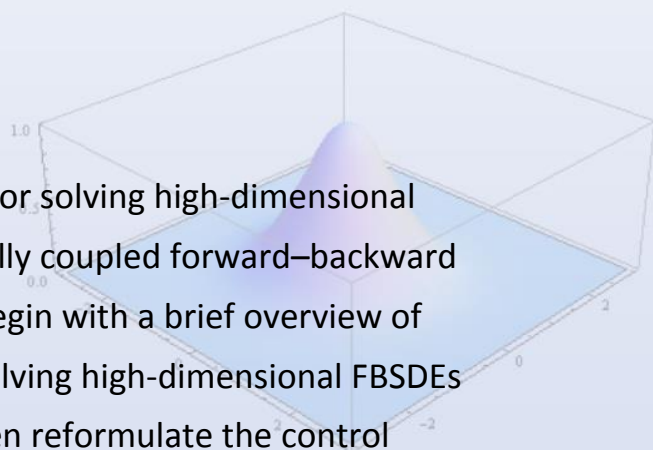
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时间: 2026-10-30 星期五 10:30-11:30

地点: 光华东主楼1601

报告摘要:

In this talk, we present a deep learning method for solving high-dimensional stochastic optimal control problems driven by fully coupled forward-backward stochastic differential equations (FBSDEs). We begin with a brief overview of recent advances in deep learning methods for solving high-dimensional FBSDEs and stochastic optimal control problems. We then reformulate the control problem driven by fully coupled FBSDEs as a stochastic Stackelberg differential game problem (a leader-follower problem). In the following, we develop a bi-level optimization algorithm in which the leader's and follower's cost functionals are optimized alternately using deep neural networks. Finally, we apply the proposed algorithm to two investment-consumption examples under stochastic recursive utility, and the numerical results demonstrate the effectiveness of the proposed method.



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