学术报告

报 告 人： 张奇教授 (复旦大学)

报告题目： The Fully Nonlinear Feynman-Kac Formula for Stochastic Hamilton-Jacobi-Bellman Equation

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报告摘要： ： The Feynman-Kac formula is a bridge connecting the stochastic ordinary differential equation with the partial differential equation. In this talk, I will introduce a new Feynman-Kac formula for the stochastic Hamilton-Jacobi-Bellman equation which is a fully nonlinear backward stochastic partial differential equation and plays an important role in control theory. The stochastic Hamiltonian system and the stochastic Hamilton-Jacobi-Bellman equation in a stochastic recursive control system are taken as the stochastic ordinary differential equation and the partial differential equation, respectively, and the relationship between them is established under proper regular conditions. This relationship appears in a very different form since the solution of stochastic Hamilton-Jacobi-Bellman equation is a pair of random fields rather than a single solution of deterministic partial differential equation. Finally, the stochastic Hamilton-Jacobi-Bellman equation in a linear quadratic control system is given as an example to verify the obtained Feynman-Kac formula.

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