Stochastic filtering and optimal control

Jie Xiong

Department of Mathematics, University of Tennessee, Knoxville, Tennessee

In this talk, we first introduce a few examples which calls for the combined study of stochastic filtering and optimal control. Then, we will present some results on stochastic maximum principle under partial information. After that, we will introduce the filtering models including the one based on the analysis of financial ultra-high frequency data. Finally, for the solution to these filtering problems, we will introduce their numerical approximations based on branching interacting particle systems.

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