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Optimal (financial) position targeting via decoupling fields

Friday, 31 August 2018 15:00 (30 minutes)

In the talk we consider a variant of the basic problem of the calculus of variations, where the Lagrangian is convex and subject to randomness adapted to a Brownian filtration. We solve the problem by reducing it, via a limiting argument, to an unconstrained control problem that consists in finding an absolutely continuous process minimizing the expected sum of the Lagrangian and the deviation of the terminal state from a given target position. Using the Pontryagin maximum principle one can characterize a solution of the unconstrained control problem in terms of a fully coupled forward-backward stochastic differential equation (FBSDE). We use the method of decoupling fields for proving that the FBSDE has a unique solution.

The talk is based on joint work with Alexander Fromm, Thomas Kruse and Alexandre Popier.

Primary author: ANKIRCHNER, Stefan (University of Jena)

Presenter: ANKIRCHNER, Stefan (University of Jena)