Stochastic controls of backward systems

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Abstract

We consider a stochastic control problem where the set of controls is not necessarily convex and the system is governed by a nonlinear backward stochastic differential equation. By introducing an alternative approach, we establish necessary as well as sufficient conditions of optimality of controls, in the form of Pontryagin's stochastic maximum principle.

Keywords : Backward stochastic differential equation; optimal control; maximum principle; adjoint equation; variational inequality; variational principle.

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