Optimality conditions for partial information stochastic control problems driven by Lévy processes

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Abstract

In this paper, we consider a partial information stochastic control problem where the system is governed by a nonlinear stochastic differential equation driven by Teugels martingales associated with some Lévy process and an independent Brownian motion. We prove optimality necessary conditions in the form of a maximum principle. These conditions turn out to be sufficient under some convexity assumptions. To illustrate the general results, an example is solved.

Keywords Stochastic differential equation; Optimal control; Maximum principle; Partial information; Lévy processes; Teugels martingale.

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