A general optimality conditions for stochastic control problems of jump diffusions

Applied Mathematics & Optimization, February 2012, Volume 65, Issue 1, pp 15-29.

Authors: Seid Bahlali, Adel Chala.

Abstract

We consider a stochastic control problem where the system is governed by a non linear stochastic differential equation with jumps. The control is allowed to enter into both diffusion and jump terms. By only using the first order expansion and the associated adjoint equation, we establish necessary as well as sufficient optimality conditions of controls for relaxed controls, who are a measure-valued processes.

Keywords : Jump diffusion, Stochastic maximum principle, Strict control, Relaxed control, Adjoint equation, Variational inequality

DOI: 10.1007/s00245-011-9143-z

Link http://link.springer.com/article/10.1007%2Fs00245-011-9143-z