Existence and optimality conditions in stochastic control of linear BSDEs

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Abstract

We prove the existence of optimal relaxed controls as well as strict optimal controls for systems governed by non linear forward–backward stochastic differential equations (FBSDEs). Our approach is based on weak convergence techniques for the associated FBSDEs in the Jakubowski S-topology and a suitable Skorokhod representation theorem.

Keywords : Forward backward stochastic differential equation; Stochastic control; Weak convergence; Existence

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