Backward SDEs with partially nonpositive jumps and Hamilton-Jacobi-Bellman IPDEs

Huyên Pham

University Paris Diderot, France

We consider a class of BSDEs where the jumps component of the solution is subject to a partial nonpositive constraint. After proving existence and uniqueness of a minimal solution under mild assumptions, we give a dual representation of this solution as an essential supremum over a family of equivalent change of probability measures. We then show how minimal solutions to our BSDE class provide actually a new probabilistic representation for integro-partial differential equations (IPDEs) of Hamilton-Jacobi-Bellman (HJB) type, when dealing with a suitable Markovian framework. Joint work with I. Kharroubi.

Author's email: pham@math.univ-paris-diderot.fr