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Representation of limit values for nonexpansive stochastic differential games

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A classical problem in ergodic control theory consists in the study of the limit behaviour of $\lambda V\lambda(\cdot)$ as $\lambda \searrow 0$, when $V\lambda$ is the value function of a deterministic or stochastic control problem with discounted cost functional with infinite time horizon and discount factor λ. We study this problem for the lower value function $V\lambda$ of a stochastic differential game with recursive cost, i.e., the cost functional is defined through a backward stochastic differential equation with infinite time horizon. But unlike the ergodic control approach, we are interested in the case where the limit can be a function depending on the initial condition. For this we extend the so-called non-expansivity assumption from the case of control problems to that of stochastic differential games.
Based on a joint work with Rainer Buckdahn (Brest, France), Nana Zhao (Weihai, China).

Summary

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