CENTRE
DE RECHERCHES
MATHÉMATIQUES

Jeux à champ moyen
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Mean-field game
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PDE approaches to mean field games with a common noise

In these joint works with P. Souganidis (U. Chicago) we study mean field games with a common noise but without idiosyncratic noise. In this setting the value function of the small players is not smooth and the stochastic Hamilton-Jacobi equation it solves has to be understood in a weak sense. Under suitable monotonicity condition we give a meaning to the mean field game system and to the associated master equation and show the existence and the uniqueness of a solution to these equations. We also show how these solutions can be used in games with a finite number of players.