

Deterministic Mean Field Games with jumps

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The Mean Field Game we consider is motivated by the modelization of the housing dynamics where each inhabitant can move from one place to another. In particular, the trajectories of the agents are piecewise constant and they minimize a cost consisting in the number of jumps (or relocations) and two terms depending on the density: the first one is variational and the other one is non-variational.

A Nash equilibrium for this mean field game is a measure over the curves minimizing a problem in a Lagrangian form which depends on the measure itself. To prove the existence of a Nash equilibrium, we reformulate the problem, thanks to an optimal transport result, in a Eulerian form for which we prove regularity results. The Eulerian formulation also allows us to perform numerical simulations thanks to a proximal dual gradient method.

Author: DUMAS, Annette (Université de Limoges)

Orateur: DUMAS, Annette (Université de Limoges)