Francisco SILVA: Finite mean field games: fictitious play and convergence analysis.

In this talk, based on an ongoing work with S. Hadikhanloo (U. Paris-Dauphine), we consider a class of finite state and discrete time Mean Field Games (MFGs) introduced by Gomes, Mohr and Rigao Souza in 2009. In this framework we first study an adaptation of the fictitious play procedure for continuous MFGs, introduced recently by Cardaliaguet and Hadikhanloo, and we prove the convergence to the solution of the finite MFG. In the second part of the talk, we consider a first order continuous MFG and an associated family of finite MFGs, parameterized by a finite time and space grid. We prove that, as the time and space steps tend to 0, the solutions of the finite MFGs converge to a solution of the continuous one.