

Potential Mean Field Games

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In this work we analyze the Mean Field Games with the best response dynamic, focusing on one single player with finite state space. We revise the results of existence of Mean Field Equilibria and the relation between infinite and finite population. We also compare the Nash equilibrium with a centrally optimal strategy and show that in general the equilibrium does not coincide with the optimal solution. We discuss the particular case of Finite Markovian Potential Games and some hypothesis and scaling assumptions in order to guarantee asymptotic convergence when the number of players approaches infinity.