

Heteroclinic connections and periodic equilibria in a first order variational Mean Field Game

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The talk will be devoted to the analysis of a variational problem describing the optimal evolution of a probability density, subject to an L^∞ constraint and nonlocal interaction of Riesz type. The problem arises in the study of some first order variational Mean Field Game with density constraints and aggregating interactions. Under suitable symmetry assumptions, I will discuss the existence of minimal heteroclinic connections, namely minimizers of the energy functional that connect two different ground states of the stationary problem, and then the existence of periodic minimizers. Moreover, periodic minimizers will be shown to converge, in a suitable sense, to heteroclinic connections, as the period goes to infinity. The results I will present are part of a work in progress with A. Cesaroni (Padova).