

**Wellposedness and Quantitative Convergence for Distributed
Equilibria of Displacement Monotone N -Player Games with
Interaction Through Controls**

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Abstract

In this talk we will study the wellposedness of distributed equilibria of N -player games under displacement semi-monotonicity and convexity assumptions, in which the running cost of a player depends also on the controls used by other players. We consider running costs that are not necessarily separable, resulting in a set of consistency/fixed point relations on infinite dimensional spaces. We will also talk about quantitative convergence results (both for optimal trajectories/control and value functions) for the N -player games to the corresponding Mean Field Games of Controls (MFGC). Our approach works for both stochastic and deterministic cases but in this talk we will focus on the deterministic case (distributed equilibria coincides with open-loop equilibria in this case), where further quantitative convergence results can be proved for the gradients of value functions. This talk is based on joint work with Alpár Mészáros (Durham University).