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"*Mean field coarse correlated equilibria for linear-quadratic games with an application to emissions' abatement*"

Abstract: Coarse correlated equilibria are generalizations of Nash equilibria which have first been introduced in Moulin et Vial (1978). They include a correlation device which can be interpreted as a mediator recommending strategies to the players, which makes it particularly relevant in a context of market failure. We develop a methodology to compute mean-field coarse correlated equilibria (CCEs) in a linear-quadratic framework. We discuss the specifications of the objective functional under which CCEs outperform Nash equilibria (NEs) in terms of both social utility and control levels. We show that the mean field limit CCEs we found allow to build approximate CCEs in N-player setting. Finally, we apply such a methodology to some relevant models, in particular to a CO2 abatement game between countries (a slightly modified version of Barrett (1994)). We show that in that model CCEs allow to reach higher abatement levels than the NE, with higher global utility. The talk is based on a joint project with F. Cannerozzi (Milan University) and F. Cartellier (ENSAE).