Approximate equilibria for a class of stochastic differential games

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It is widely known that, in the context of dynamic games, it is necessary to look for Nash equilibria in the set of randomized (mixed) strategies. However, sometimes, this approach lacks a practical economic interpretation because we would like to be able to apply a pure strategy. This fact entails the need of making strong assumptions on the structure of the dynamics and the cost/reward functions (see [1, 2 and 3]). When there are, for instance, transferences between the pay-offs of the players, a plausible alternative for this problem is the use of the notion of ϵ-equilibria (see, for instance, Chapter 5.4 in [5]). In this talk, we use standard dynamic programming techniques to present an extension of the algorithms studied in [4] to find approximate equilibria in a class of non-zero sum stochastic differential games for the cases of the rates of extraction of non-renewable resources (see [3]), and the price-setting oligopoly model of Bertrand-Edgeworth (see [6]).

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