

Optimization and Equilibrium Seminar

Speaker 1: Nabil Kazi-Tani, Université de Lorraine

Title : Large ranking games with diffusion control.

Abstract : We consider a symmetric stochastic differential game where each player can control the diffusion intensity of an individual dynamic state process. The players whose states at a deterministic finite time horizon are among the best $\alpha \in (0, 1)$ of all states receive a fixed prize. In order to find an equilibrium, we first focus on the version of this game where the number of players tend to infinity. Within the mean field limit version of the game we compute an explicit equilibrium, a threshold strategy that consists in choosing the maximal fluctuation intensity when the state is below a given threshold, and the minimal intensity else. We show that for large n the symmetric n -tuple of the threshold strategy provides an approximate Nash equilibrium of the n -player game. We also derive the rate at which the approximate equilibrium reward and the best response reward converge to each other, as the number of players n tends to infinity. Finally, we compare the approximate equilibrium for large games with the equilibrium of the two player case.

This is a joint work with Stefan Ankirchner (Jena), Julian Wendt (Jena) and Chao Zhou (Singapore).

Speaker 2: Cristopher Hermosilla, Universidad Técnica Federico Santa María

Title: Optimal control of the Sweeping Process with a non-smooth moving set.

Abstract: In this talk, we present a fully nonsmooth Pontryagin Maximum Principle for optimal control problems driven by a sweeping process with drift. The setting we study is an optimal control problem of the Mayer type in which the optimization procedure is carried out by choosing a control function from a class of admissible controls. The choice of the control modifies the drift and the related solution to the perturbed sweeping process. Here, for the first time, we are able to prove a Pontryagin Maximum Principle in the case in which the moving set is both nonsmooth and non-convex by using novel approximation techniques which is able to exploit the controllability properties of the dynamics.

Link:

<https://reuna.zoom.us/j/5185702306?pwd=cEtacGVqUk1ZY0lkQ2Z0WU4yNlFmUT09>

Miércoles 05 de Octubre de 2022, 11:00 Hrs.

Sala de Seminarios John Von Neumann del Centro de Modelamiento Matemático (Beauchef 851, Edificio Norte, Piso 7).

