

Seminario Optimización y Equilibrio

Speaker: Simon Bartolacci

Affiliation: IECL, Université de Lorraine

Title: *Mean field games with heterogeneity*

Abstract: Mean field games (MFGs) are an extension of interacting particle systems, where the particles are interpreted as rational agents, offering applications in economics, social sciences, or computer science. They can be seen as the limits of large-population stochastic differential games with symmetric agents. In this work, we propose a method to incorporate heterogeneity into MFGs, thus relaxing the symmetry assumptions. We will present the concept of heterogeneous Markovian equilibria and provide a proof of their existence under standard conditions. Our definition of Nash Mean Field equilibrium in this context and our proof techniques are based on multi-valued mapping theory, which will be briefly introduced during the talk. Furthermore, we will demonstrate that this heterogeneous Markovian equilibrium closely approximates a Nash equilibrium in finite-population games, and we will share some preliminary results on the convergence rate as the number of players approaches infinity. This is a joint work with Nabil Kazi-Tani.

Lunes 16 de Diciembre de 2024, a las 11:00 hrs.

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

