V Workshop in Stochastic Analysis and Applications

IMECC - Unicamp

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A MFG approach for competing firms in the Emission Trading System

Abstract

In this talk I will consider the problem of reducing the carbon emissions for a set of firms over a finite time horizon. Firms can trade allowances in a way that minimizes the total expected costs from abatement and trading plus a terminal quadratic penalty, and they can also choose which type of energy to use (fossil or green) to produce their goods and thus maximize profits from production. Using mean-field game theory and mean-field control theory, we aim to understand how different types of market competition can affect the energy transition. Following a probabilistic approach for MFG, we will show some existence and uniqueness results for FBSDE and a market clearing condition result. This is a joint work with Giulia Livieri (LSE) and Gianmarco Del Sarto (SNS).