The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

Mean Field Game Analysis of Tournaments

by

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Abstract

We consider a stochastic tournament game in which players work toward accomplishing a goal and are rewarded based on their rank in terms of the time to completion, modeled as the first passage time of their respective controlled diffusions. We prove existence, uniqueness and stability of the game with infinitely many players, and use the mean field game solution to construct an approximate equilibrium with finitely many players. When players are homogeneous, the equilibrium turns out to be fairly explicit. We discuss its properties and study the principal-agent problem of designing an optimal reward scheme. Numerical examples are also provided when players are inhomogeneous. Ongoing joint work with Erhan Bayraktar (University of Michigan) and Jaksa Cvitanic (Caltech).

Date :   27 December, 2017 (Wednesday)
Time :   11:00a.m. – 12:00noon
Venue : TU801, The Hong Kong Polytechnic University

* * *   ALL ARE WELCOME   * * *