Departmental Colloquia

Department of Mathematics
香港城市大學
City University of Hong Kong

DEPARTMENT OF MATHEMATICS

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Large ranking games with diffusion control

by

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Date: 30 Nov. 2022 (Wednesday)
Time: 3:00 – 4:00 pm

ABSTRACT

We consider a symmetric stochastic differential game where each player can control the diffusion intensity of an individual dynamic state process, and the players whose states at a deterministic finite time horizon are among the best of all states receive a fixed prize. 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 otherwise. 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 talk is based on the joint work with Stefan Ankirchner, Nabil Kazi-Tani and Julian Wendt.

Register in advance for this talk:
https://cityu.zoom.us/meeting/register/tJUvdu2vpj8rHNxxYe2bLXIQE70p4OSkO4HY
[Zoom link will be provided via email after registration.]

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