



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

**A brief introduction of recent development of
optimal transport and mean-field game**

By

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Abstract

Mean field game (MFG) is a problem of finding the Nash equilibrium of infinite non-cooperative and interactive agents optimizing their own goals, which can be regarded as a generalization of optimal transport (OT) problem. Mathematically, it can be modeled as an optimization problem with the constraint of the agents' dynamics, or formulated as a coupled PDE system of the Hamilton-Jacobi-Bellman equation and the Fokker Planck Equation. There are many applications of OT and MFG in different fields, such as economics, finance, robotics, traffic flow, generative AI, etc. Recently, there are lots of studies about taking the advantage of neural network on reducing the curse of dimensionality in the high-dimensional MFG. In this seminar, I will give an introduction on some recent developments of MFG and the related topics.

Date : 10 May 2025 (Saturday)

Time : 9:00am

Zoom Link : <https://hkust.zoom.us/j/93614526640?pwd=mlbnsQojp0sThQa4YlcpfUQvdHPIY.1>

All are Welcome!