THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON APPLIED MATHEMATICS

A supervised learning scheme for Hamilton-Jacobi Equation via density coupling

By

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Abstract

In this talk, I will present a supervised learning scheme for the first order Hamilton-Jacobi PDEs in high dimensions. The scheme is designed by using the geometric structure of Wasserstein Hamiltonian flows via a density coupling strategy. It is equivalently posed as a regression problem using the Bregman divergence, which provides the loss function in learning while the data is generated through the particle formulation of Wasserstein Hamiltonian flow. We prove a posterior estimate on L^1 residual of the proposed scheme based on the support of coupling density. Several numerical examples with different Hamiltonians are provided to support our findings. This presentation is based on a joint work with Jianbo Cui (HK PolyU) and Shu Liu (UCLA).

Date   : **21 June 2024 (Friday)**
Time   : **2:00p.m.-3:00p.m.**
Venue : **Room 4502 (near Lift 25/26)**

All are Welcome!