THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON PDE

A geometric approach to apriori estimates for optimal transport maps

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Abstract

A key inequality which underpins the regularity theory of optimal transport for costs satisfying the Ma-Trudinger-Wang condition is the Pogorelov second derivative bound. This translates to an apriori interior modulus of the differential estimate for smooth optimal maps. We describe a new derivation of this estimate with Brendle, Leger and Rankin which relies in part on Kim, McCann and Warren's observation that the graph of an optimal map becomes a volume maximizing spacelike submanifold when the product of the source and target domains is endowed with a suitable pseudo-Riemannian geometry that combines both the marginal densities and the cost.

Date: **27 March 2026 (Friday)**

Time: **9:30am**

Zoom Meeting: https://hkust.zoom.us/j/93284266467 **(Passcode: 417967)**

All are Welcome!