THE UNIVERSITY  OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

Numerical Analysis Seminar

Nonlocal Conservation Laws for Traffic Flow Modeling

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Abstract

The emerging connected and automated vehicle technologies allow vehicles to perceive and process information in a wide spatial range, which motivates the modeling of traffic flows with nonlocal inter-vehicle interactions. For example, the literature has considered conservation laws with nonlocal integral terms. By conducting stability analysis of one such model, we obtain asymptotic stability of the uniform equilibrium flow under suitable assumptions on how the nonlocal information is utilized. The findings may serve to inform the development of future driving algorithms for connected vehicles. In this talk, I will also discuss a nonlocal conservation law for modeling traffic flows over urban transportation networks, where the nonlocality arises from a coarse-scale description of fine-scale traffic flow dynamics, and an associated inverse problem of calibrating inflow rates.

Date:	November 6, 2024 (Wednesday)
Time:	3:00 – 4:00 pm
Venue:	Rm309, Run Run Shaw Building

All are welcome