PIMS / AMI Seminar

Wednesday, October 23, 2019
3:00 p.m.
CAB 457

"Dynamical optimal transport: discretization and convergence"

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Abstract

Among modern numerical methods to solve the optimal transport problem, dynamical optimal transport (a.k.a. fluid dynamic formulation or Benamou-Brenier formulation) is one of the oldest: it consists in rewriting the problem in terms of convex optimization under a PDE constraint, and can handle a priori a vast class of cost functions and geometries. The problem is then discretized to end up with a finite-dimensional convex optimization problem.

In this talk, we will present a particular discretization that was used to solve the quadratic optimal transport problem on Riemannian manifold. Building on ideas coming from Optimal Transport on discrete spaces, we also provide a general framework guaranteeing convergence under mesh refinement of the discretized problems to the original one, with no condition on the relative scale of the spatial and temporal mesh sizes, and even if the densities are very singular.