

DIFFERENTIAL GEOMETRY/PDE SEMINAR

WEDNESDAY, OCTOBER 21, 2009

PADELFORD C-36

4PM–5PM

Ideas from Optimal Transport I

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(UW)

We introduce formal and rigorous ideas from the field of optimal transport. This is the first of three talks, leading up to a simple application of mass transport in the context of an inverse problem.

In this first talk we'll give an advertisement for the tools of optimal transportation, highlighting their contribution to diffusion equations, simple proofs of Sobolev and isoperimetric inequalities, generalizing the Ricci-bounded-below condition beyond smooth manifolds, and geometrically reinterpreting the Schrödinger equation. We'll then learn about two ideas at the center of these applications: 1) that probability measures can be formally seen as a Riemannian manifold (F. Otto '01) and 2) certain entropy functionals are convex in this geometry (R. McCann '94). We'll fill out the hour by reviewing the formal Riemannian structure (local geometry) and rigorous aspects of (global) Wasserstein distance.

For more information about this seminar, visit the DG/PDE Seminar Web page (from the Math Department home page, www.math.washington.edu, follow the link **Seminars, Colloquia, and Conferences**).

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