Lecture proposal

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March 1, 2021

Term: TT2021 / MT2021

Topic: 'Optimal Transport and lower curvature bounds'

Aimed at: students with some background on Optimal Transport and Riemannian Geometry.

Outline: The aim of this lecture is to give an introduction to the interplay between Optimal Transport and lower bounds on the Ricci curvature on Riemannian manifolds. I will mainly focus on the Lagrangian side of the theory. Starting from the Euclidean picture I will discuss the equivalence between geodesic convexity of the entropy over the Wasserstein space and non negativity of the Ricci curvature. Then I will briefly mention the dual Eulerian perspective on the topic, based on the study of the heat equation and on Bochner’s inequality.

Some hints to the developments of the theory of metric measure spaces with lower curvature bounds of the last twenty years will be given in the end of the lecture.

Relevant references:


Further readings: