

Mathematical Colloquia

Monday, 25 April 2022

17:15 h, lecture room B6 (ExWi)

Prof. Dr. Andrea Mondino, Oxford University

Smooth and non-smooth aspects of Ricci curvature lower bounds

Abstract: After recalling the basic notions coming from differential geometry, the colloquium will be focused on spaces satisfying Ricci curvature lower bounds.

The idea of compactifying the space of Riemannian manifolds satisfying Ricci curvature lower bounds goes back to Gromov in the '80s and was pushed by Cheeger and Colding in the '90s who investigated the fine structure of possibly non-smooth limit spaces.

A completely new approach via optimal transportation was proposed by Lott-Villani and Sturm around 15 years ago. Via such an approach one can give a precise notion of Ricci curvature lower bounds for a non-smooth space, without appealing to smooth approximations. Such an approach has been refined in the last years giving new insights to the theory and yielding applications which seem to be new even for smooth Riemannian manifolds.