

RICCI CURVATURE VIA OPTIMAL TRASPORT AND EXTENSIONS TO NON-SMOOTH SPACES

ANDREA MONDINO

ABSTRACT. 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 structure of the spaces arising as Gromov-Hausdorff limits of smooth Riemannian manifolds satisfying Ricci curvature lower bounds. A completely new approach via optimal transportation was proposed by Lott-Villani and Sturm almost ten years ago; with this approach one can give a precise meaning of what means for a non smooth space to have Ricci curvature bounded from below by a constant. This approach has been refined in the last years by a number of authors and a number of fundamental tools have now been established (for instance the Bochner inequality, the splitting theorem, Levy-Gromov isoperimetric inequality, etc.), permitting to give further insights in the theory. The goal of the talk is to give an introduction to the subject focusing on analytic and geometric properties of such spaces.

LECTURER, ZURICH UNIVERSITY, ZURICH, SWITZERLAND

E-mail address: andrea.mondino@math.ethz.ch