THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Seminar in Geometry and Topology

Room 290C ,Ziskind Building
on Monday, Dec 26, 2016
at 16:15

Boris Khesin
University of Toronto

Optimal transport and geodesics on diffeomorphism groups

Abstract:

We revisit how the Euler and Burgers equations arise as geodesics on the groups of diffeomorphisms. It turns out that the Euler hydrodynamics is in a sense dual to problems of optimal mass transport. We also describe $L^2$ and $H^1$ versions of the the Wasserstein space of volume forms. It turns out that for the homogeneous $H^1$ metric the Wasserstein space is isometric to (a piece of) an infinite-dimensional sphere and it leads to an integrable generalization of the Hunter-Saxton equation.