

Oberseminar Topologie: 1. Juni 2022

Title: Lipschitz rigidity for scalar curvature

Abstract:

Lower scalar curvature bounds on spin Riemannian manifolds exhibit remarkable rigidity properties determined by the index theory of Dirac operators. A fundamental result of Llarull states that there is no smooth Riemannian metric on the n -sphere which dominates the round metric and whose scalar curvature is greater than or equal to the scalar curvature of the round metric, except the round metric itself. A similar result holds for smooth comparison maps from spin Riemannian manifolds to round spheres.

In a joint work with Simone Cecchini and Thomas Schick, we discuss these results for Riemannian metrics with regularity smaller than C^1 and Lipschitz comparison maps. This uses spectral properties of Dirac operators twisted with Lipschitz bundles and the theory of quasi-regular maps.