



Wintersemester 2020/21

Dresdner Mathematisches Seminar

Prof. Dr. Thomas Schick

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Flexibility and rigidity in Lipschitz Riemannian geometry

Abstract:

Every smooth isometric embedding of the 2-sphere into \mathbb{R}^3 the standard one (upto rotations, translations, and reflections). In contrast to this classical rigidity result we have flexibility: There are Lipschitz isometric embeddings of the 2-sphere in \mathbb{R}^3 whose image has arbitrarily small diameter. The talk will present more of these surprising flexibility results for Lipschitz maps between Riemannian manifolds. Eventually, our focus will be on the following rigidity result of Llarull: Let $f: M \rightarrow S^n$ be a smooth map between a compact Riemannian manifold M and S^n with the standard metric. If M is sufficiently curved (scalar curvature is everywhere \geq the scalar curvature of S^n), if the map is non-expanding (Lipschitz constant ≤ 1) and if it is far enough from a constant map (has non-zero degree) then f must be an isometry.

We will discuss the ideas of the proof, which involve the geometry of vector bundles, and Gromov's question whether rigidity prevails or flexibility occurs if just have Lipschitz continuity in the setup of the above theorem.

Mittwoch, 25.11.2020, 17:00 Uhr

Der Vortrag findet über das Videokonferenzsystem „Zoom“ statt.

Ansprechpartner: Prof. Dr. Andreas Thom, Prof. Dr. Ralph Chill

Der virtuelle Raum ist über folgenden Link erreichbar:

<https://tu-dresden.zoom.us/j/85777722193?pwd=THhvV2dQTUY2T1BETmk0bGNhdnlWdz09>

Meeting ID: 857 7772 2193, Passcode: hP5^Lx

Bereich Mathematik und Naturwissenschaften

Fakultät Mathematik