MANIFOLDS WITH POINTWISE 1/4-PINCHED CURVATURE

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Abstract

In this lecture we will describe our recent joint work with Simon Brendle ([1], [2]) in which we give the differentiable classification of compact Riemannian manifolds with pointwise 1/4-pinched curvature. Our theorems are:

Theorem 1. *Let M be a compact Riemannian manifold with pointwise 1/4-pinched curvature. Then M admits a metric of constant curvature, and therefore is diffeomorphic to a spherical space form.*

Theorem 2. *Let M be a compact Riemannian manifold with weakly pointwise 1/4-pinched sectional curvatures. It then follows that either: i) M is isometric to a rank 1 locally symmetric space, or ii) M is diffeomorphic to a spherical space form.*

References

[1] S. Brendle and R. Schoen, *Manifolds with 1/4-pinched curvature are space forms,* preprint (2007)

[2] S. Brendle and R. Schoen, *Classification of manifolds with weakly 1/4-pinched curvatures,* preprint (2007)

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