

Title and abstract

Title: On Gromov's conjecture of fill-ins with nonnegative scalar curvature (II)

Let $(\Sigma^{n-1}, \gamma, H)$ be an orientable $n - 1$ -dimensional Riemannian manifold, H be a positive function on Σ . One of basic problems in Riemannian geometry is to ask: under what conditions is it that γ is induced by a Riemannian metric g with nonnegative scalar curvature, for example, defined on Ω^n , and H is the mean curvature of Σ in Ω with respect to the outward unit normal vector? Recently, M.Gromov proposed several conjectures relate to this problem. In this talk, I will discuss the relation of this problem with the positive mass theorem, and present my recent work on this which joints with Dr.Wang Wenlong, Dr.Wei Guodong, and Zhu Jintian. The talk with the same title was delivered in "Virtual Workshop on Ricci and Scalar Curvature in honor of Gromov " in this July, I will give proofs of some results which were not given in the previous talk.

This talk is based on my recent joint paper named "Total mean curvature of the boundary and nonnegative scalar curvature fill-ins " which can be found at <https://arxiv.org/pdf/2007.06756.pdf>