

**THREE-DIMENSIONAL MANIFOLDS WITH  
ASYMPTOTICALLY NONNEGATIVE RICCI CURVATURE  
AND POSITIVE SCALAR CURVATURE**

**Speaker: Xiantao Huang**  
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**Time: Fri, Nov 29th, 14:00 - 15:00**

**Venue: Room 102, SCMS**

**Abstract:** Gromov conjectures that on an  $n$ -dimensional noncompact manifold with nonnegative Ricci curvature and uniformly positive scalar curvature, the volume of concentric geodesic ball with radius  $r$  is not larger than  $Cr^{(n-2)}$  for some constant  $C$  and every large  $r$ . The 3-dimensional case of this conjecture are proved by Munteanu-Wang and Chodosh-Li-Stryker by different methods. In this talk, we will discuss some recent further development of the 3-dimensional case and some generalizations to higher dimensions by many researchers. In particular, we will introduce my recent joint work with Shuai Liu which gives an optimal asymptotic estimate of the constant  $C$ , and in this work, the 3-dimensional manifold is only required to have asymptotically nonnegative Ricci curvature.

**Bio:** 黄显涛, 中山大学数学学院副教授。2014 年博士毕业于中山大学, 毕业后在清华大学丘成桐数学中心做博士后, 2016 年 8 月迄今在中山大学工作。目前主要研究几何分析中的几何流、具有 Ricci 曲率下界的流形与度量测度空间等课题。部分研究成果发表在《Crell's Journal》、《Adv. Math.》、《Math. Ann.》等国际著名数学期刊。目前主持国家自然科学基金面上项目。