Department of Mathematics

The Institute of Mathematical Sciences

The Chinese University of Hong Kong

數學系

數學科學研究所

香港中文大學

Phone: (852) 3943 7988 ● Fax: (852) 2603 5154 ● Email: dept@math.cuhk.edu.hk (Math. Dept.)
Room 220, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Joint Geometric Analysis Seminar

(Part of MIST program)

A Generalization of the Geroch Conjecture with Arbitrary Ends

Ms. Shuli Chen
Stanford University

Abstract

The Geroch conjecture (proven by Schoen-Yau and Gromov-Lawson) states that the torus T^n does not admit a metric of positive scalar curvature. In this talk, I will explain how to generalize it to some non-compact settings using μ-bubbles. In particular, I will talk about why the connected sum of a Schoen-Yau-Schick n-manifold with an arbitrary n-manifold does not admit a complete metric of positive scalar curvature for $3 \leq n \leq 7$; this generalizes work of Chodosh and Li. I will also discuss about how to generalize Brendle-Hirsch-Johne's non-existence result for metrics of positive m-intermediate curvature on $N^n = M^{n-m} \times T^m$ to manifolds with arbitrary ends for $n \leq 7$ and certain m. Here, m-intermediate curvature is a new notion of curvature interpolating between Ricci and scalar curvature.

Date: February 10, 2023 (Friday)

Time: 11:00am-noon (Hong Kong time)

ZOOM link: https://cuhk.zoom.us/j/91805734715

All are Welcome