

Distinguished Lectures

Time **2022.12.26** Monday 14:00-16:30

Venue Room 515, Cosmology Building, NTU

14:00-15:00



Speaker

Sun-Yung Alice Chang

Princeton University

Compactness of conformally compact Einstein manifolds

Abstract

Given a manifold $(M^n; [h])$, when is it the boundary of a conformally compact Einstein manifold $(X^{n+1}; g_+)$ with $r^2g_+|_M = h$ for some defining function r on X^{n+1} ? This problem of finding "conformal filling in" is motivated by problems in the AdS/CFT correspondence in quantum gravity (proposed by Maldacena in 1998) and from the geometric considerations to study the structure of non-compact asymptotically hyperbolic Einstein manifolds.

In this talk, instead of addressing the existence problem of a conformal filling in, we will discuss the compactness problem. That is, given a sequence of conformally compact Einstein manifolds with boundary, we will study the compactness of the sequence under assumption of the compactness of their restrictions on the boundary. I will first briefly survey some known results then report recent joint works in progress with Yuxin Ge. As applications, we will address the issue of "uniqueness" of the conformal filling in for some classes of manifolds.

15:30-16:30



Speaker

Paul C. Yang

Princeton University

About the total Q-prime curvature in 3D

Abstract

The total Q-prime curvature is a global CR invariant for certain CR structures on a CR manifold. In this talk I will recall its definition, basic properties. It is expected to play an important role in our understanding of CR manifolds.

Agenda

14:00-15:00	Compactness of conformally compact Einstein manifolds (Prof. Sun-Yung Alice Chang)
15:00-15:30	Tea Break
15:30-16:30	About the total Q-prime curvature in 3D (Prof. Paul C. Yang)

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