

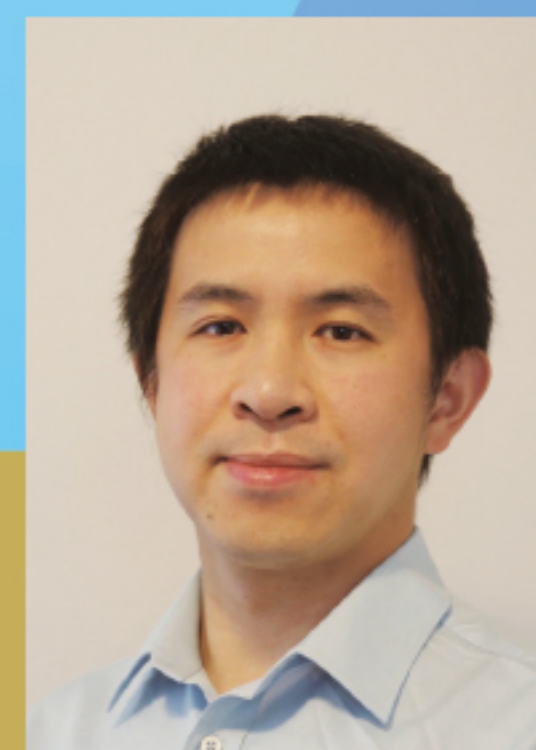


Frontiers of Mathematics Lecture

Geometry of gravitational instantons

Abstract

A gravitational instanton is a complete 4 dimensional Riemannian manifold with vanishing Ricci tensor and suitable curvature decay at infinity. This notion was first introduced by Hawking to study Euclidean quantum gravity and has been extensively studied in mathematics and physics for several decades. There are a variety of constructions of gravitational instantons, generating rich geometry and analysis on this topic. In the past decade substantial progress has been made to the classification problem, with interesting connections to special holonomy and complex geometry. In this talk I will explain some results and open questions in this area.



Professor Song Sun

IASM, Zhejiang University

Biography

Song Sun is currently a professor at the Institute for Advanced Study in Mathematics in Zhejiang University. He received a BS from the University of Science and Technology of China in 2006, and a PhD from University of Wisconsin-Madison in 2010, supervised by Xiuxiong Chen. He had held a postdoctoral position at Imperial College London and faculty position at Stony Brook University and at University of California, Berkeley. Sun received a Sloan Research Fellowship in 2014, was awarded the Oswald Veblen Prize in Geometry in 2019, and received the Breakthrough Prize in Mathematics – New Horizons in Mathematics in 2021. He was an invited speaker at the ICM 2018.

Date :
20 January, 2025 (Monday)

Time :
6:00 – 7:00 pm
(Tea Reception starts at 5:30 pm)

Venue :
Lecture Theatre A, G/F,
Chow Yei Ching Building
The University of Hong Kong