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Joint Geometric Analysis Seminar

(Part of MIST program)

Holonomy of limits of Einstein 4-manifolds

Prof. Tristan Ozuch
Massachusetts Institute of Technology

Abstract

Recent developments have led to a complete reconstruction of the moduli space of Einstein 4-metrics in a Gromov-Hausdorff (GH) neighborhood of any noncollapsed singular metric. This arbitrarily precise reconstruction has provided indications that being Kähler may be a necessary condition for an Einstein singular space to be a limit of smooth Einstein 4-manifolds.

However, with Claude Lebrun, we show that this condition is not sufficient when the scalar curvature is positive. Specifically, our work demonstrates that if a real Einstein 4-metric is close to a Kähler Einstein orbifold with positive scalar curvature, it must be conformally Kähler, which rules out many desingularizations. To prove this, we combine the above reconstruction and a flexible criterion developed by Wu and improved by Lebrun to detect Kähler-Einstein metrics among Einstein metrics.

Date: September 22, 2023 (Friday)
Time: 11:00am-noon (Hong Kong time)
ZOOM link: <https://cuhk.zoom.us/j/91805734715>

All are Welcome