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Joint Geometric Analysis Seminar

(Part of MIST program)

On a dichotomy of the curvature decay of steady Ricci soliton

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Abstract

Ricci soliton arises naturally in the singularity analysis of the Ricci flow. Steady Ricci soliton is closely related to the Type II limit solution to the Ricci flow. There are two generic curvature decays for complete noncompact steady gradient Ricci soliton, namely linear and exponential decays. It is unclear if these are the only two possible decays. We show that this dichotomy holds for four dimensional complete noncompact non Ricci flat steady gradient Ricci soliton with at least linear curvature decay and proper potential function. A similar dichotomy is also shown in higher dimensions under the additional assumption that the Ricci curvature is nonnegative near infinity. As an application, we prove some classification results on steady soliton with fast curvature decay and obtain a dichotomy on the asymptotic geometry at spatial infinity. This talk is based on a joint work with Bo Zhu.

Date: 26 November 2021 (Friday)
Time: 9:00am – 10:00am (Hong Kong time)
ZOOM link: https://cuhk.zoom.us/j/91805734715

All are Welcome