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Joint Geometric Analysis Seminar

(Part of MIST program)

Geometric Regularity of Singularity Models of the Kähler-Ricci Flow

*Prof. Max Hallgren
Rutgers University*

Abstract

The Ricci flow is a geometric PDE that smooths a Riemannian metric by evolving the curvature tensor through a reaction-diffusion process. However, curvature concentration can cause the geometry to develop singularities. To study these singularities, we zoom in and apply geometric compactness theorems to obtain a (possibly nonsmooth) limiting space called a singularity model. In this talk, we will discuss new results on the structure of singularity models in the setting of complex projective manifolds, building on recent estimates developed by W. Jian, J. Song, and G. Tian. We will see a new differential Harnack inequality for the heat equation coupled to the Kähler-Ricci Flow and how such an estimate may be applied to prove distance distortion estimates. We will also discuss the consequences of these estimates on singularity models for the projective Kähler-Ricci Flow, including their continuity in time and a more precise description of their infinitesimal structure.

Date: Nov 17, 2023 (Friday)

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

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

All are Welcome