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Joint Geometric Analysis Seminar

(Part of MIST program)

Quasi-spherical metrics and the static Minkowski inequality

Dr. Brian Harvie
National Center for Theoretical Sciences, Mathematics Division

Abstract

The classical Minkowski inequality is a lower bound on the total mean curvature of a convex hypersurface in Euclidean space by its area. In this talk, I will discuss a generalization of this inequality to hypersurfaces in static spaces, which are Riemannian manifolds that correspond to static vacuum spacetimes in general relativity, with a focus on characterizing the case of equality. As we will see, this rigidity problem may be reduced to a uniqueness question for quasi-spherical metrics, which are metrics that arise naturally elsewhere in mathematical relativity. Time-permitting, I will also discuss applications of the main rigidity theorem. This is joint work with Ye-Kai Wang of NYCU.

Date: 11 March 2024 (Monday)
Time: 10:30 am-11:30 am
Venue: AB1 501a

All are Welcome