Fall 2025

Geometry and Topology Seminar

Title

Minimal Surfaces in Hyperbolizable Manifolds

Speaker:	Ben Lowe, University of Chicago
Date:	January 13, 2026
Time:	10:00AM (China Standard Time)
Zoom Meeting:	533 316 1908, Password: 202601

Abstract: The geodesic flow of a compact negatively curved Riemannian manifold is one of the hallmark examples of a chaotic dynamical system, and there is a rich theory devoted to the interplay between the geometry of a negatively curved Riemannian manifold and the asymptotic behavior of its closed geodesics.

Minimal surfaces can be thought of as higher-dimensional versions of geodesics, that locally minimize area in the same way that geodesics locally minimize length. In this talk, I will describe recent work on the asymptotic behavior of minimal surfaces in negatively curved Riemannian manifolds that is motivated by what is true for geodesics, with a focus on rigidity phenomena involving scalar curvature. Ideas from dynamical systems remain important, but a key difference is that the proofs often depend crucially on tools from geometric analysis, such as the Ricci flow, in order to prove the same kinds of results for minimal surfaces as for geodesics. Partially based on joint work with Andre Neves.