COUNTING TOTALLY GEODESIC SUBMANIFOLDS IN INFINITE VOLUME RANK ONE SPACES

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Abstract

In this talk, we focus on totally geodesic submanifolds in geometrically finite rank one locally symmetric spaces of infinite volume. We first show that there are only finitely many totally geodesic submanifolds of finite volume; that is, those contained in the convex core of the manifold. We then provide explicit upper bounds for the number of totally geodesic submanifolds with volume less than T, in terms of the volume of the convex core. These bounds are polynomial in T, and more generally, they apply to the "tight volume" of totally geodesic submanifolds, which may themselves have infinite volume. Our results extend previous work of Mohammadi-Oh on real hyperbolic 3-manifolds to the general rank-one locally symmetric spaces.
This is ongoing joint work with Hee Oh.