

Dave Constantine

Title: Rank-rigidity and frame flow in non-positive curvature

Abstract: I will discuss how a condition on curvature, higher hyperbolic rank, and study of the dynamics of the frame flow for a nonpositively curved, rank one manifold can be combined to prove that a manifold has constant negative curvature. The result holds when the manifold is of odd dimension, or is of even dimension and has sufficiently pinched curvature. I will mention a few other questions related to the hyperbolic rank condition and what sort of information it and frame-flow dynamics can give us about the curvature.

Frederic Paulin

Title: Equidistribution, counting and arithmetic applications in hyperbolic manifolds

Abstract: Let M be a finite volume hyperbolic manifold. We show the equidistribution in M of the equidistant hypersurfaces to a finite volume totally geodesic submanifold C . We prove a precise asymptotic on the number of geodesic arcs of lengths at most t , that are perpendicular to C and to the boundary of a cuspidal neighbourhood of M . We deduce from it counting results for quadratic irrationals over \mathbb{Q} or over imaginary quadratic extensions of \mathbb{Q} , in given orbits of congruence subgroups of the modular groups, as well as counting results for the number of representations of integers by integral indefinite binary Hermitian forms. This is joint work with Jouni Parkkonen.