Asymptotic geometry, finite generation of fundamental groups, and harmonic functions

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Abstract. Let X be a complete Riemannian manifold with nonnegative Ricci curvature, or more generally, a manifold (or simplicial complex) which satisfies certain "polynomial growth" type conditions. We study discrete isometric actions G x X → X, and the interplay between the structure of X, finite generation of the group G, and harmonic functions. One of the main motivations is Milnor's conjecture that manifolds with nonnegative Ricci curvature have finitely generated fundamental group.

This is joint work with Toby Colding and Burkhard Wilking.