

Asymptotic cones and questions of Margulis and Gromov

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Abstract: (joint work with L. Kramer) Using ultrapowers of Lie groups and nonstandard techniques, we outline a short and algebraic proof of the Margulis conjecture, which states that any quasi-isometry between Riemannian symmetric spaces induces a proper isometry. We obtain an explicit description of the asymptotic cone of a symmetric space which allows us to answer a question of Gromov on asymptotic cones of finitely presented groups.