

1016-37-301

Uri Bader* (bader@math.uchicago.edu), Department of Mathematics, University of Chicago, 5734 S. University Avenue, Chicago, IL 60637. *Boundary representations for negatively curved groups - irreducibility and rigidity.*

In this talk I will report about a recent joint work with Roman Muchnik. In a later talk Roman will elaborate on our methods.

Let M be a compact negatively curved Riemannian manifold, G be its fundamental group and X its universal cover. Denote the boundary of X by B . B is endowed with the Patterson-Sullivan measure. The associated unitary representation $L^2(B)$ is called a boundary unitary representation. Fixing G , but changing the metric on M , we get a different boundary (given by a different measure on the same topological boundary), and a different boundary representation. We will explain the setting and indicate the proof of

Theorem 1: The boundary representations are irreducible.

Theorem 2: Two boundary representations are equivalent if and only if the associated marked length spectrums are proportional.

The marked length spectrum is the assignment associate to a free homotopy class of closed loops in M the length of a shortest geodesic in it. The proof of the theorem is based on the mixing property of the geodesic flow on M - a result due to Margulis. (Received February 14, 2006)