

Meeting: 999, Nashville, Tennessee, SS 1A, Special Session on Von Neumann Algebras and Noncommutative Ergodic Theory

999-20-122 **Igor Mineyev*** (mineyev@math.uiuc.edu), Department of Mathematics, University of Illinois at Urbana-Champaign, 250 Altgeld Hall, 1409 W. Green Street, Urbana, IL 61801. *Geodesic flows and symmetric joins of metric spaces.*

I will describe the functor that associates to every metric space X its **symmetric join**. This is a generalization of a geodesic flow space for negatively curved manifolds.

When X is a hyperbolic complex, for example a Cayley graph of a hyperbolic group, the symmetric join of the compactification \bar{X} and a metric d_* on it are canonically defined. M. Gromov and others presented constructions of geodesic flows for hyperbolic groups. In our construction, the geodesic flow of X arises as a part of the symmetric join. It has sharp properties, stronger than in the previously known constructions. In particular, \mathbb{R} acts on by bi-Lipschitz homeomorphisms, and isometrically on each \mathbb{R} -orbit; \mathbb{R} -orbits converge synchronously and uniformly exponentially.

A cross-ratio and horofunctions in \bar{X} are constructed. Both are $\text{Isom}(X)$ -invariant and continuous. The construction provides several model metric spaces associated with each hyperbolic group. (Received August 17, 2004)