

Geometry, Topology and Dynamics Seminar

Trees, dendrites, and the Cannon-Thurston map

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Abstract: When $1 \rightarrow H \rightarrow G \rightarrow Q \rightarrow 1$ is a short exact sequence of three word-hyperbolic groups, Mahan Mitra (Mj) has shown that the inclusion map from H to G extends continuously to a map between the Gromov boundaries of H and G . This boundary map is known as the Cannon-Thurston map. In this context, Mitra associates to every point z in the Gromov boundary of Q an "ending lamination" on H which consists of pairs of distinct points in the boundary of H . We prove that for each such z , the quotient of the Gromov boundary of H by the equivalence relation generated by this ending lamination is a dendrite, that is, a tree-like topological space. This result generalizes the work of Kapovich-Lustig and Dowdall-Kapovich-Taylor, who prove that in the case where H is a free group and Q is a convex cocompact purely atoroidal subgroup of $\text{Out}(F_n)$, one can identify the resultant quotient space with a certain R -tree in the boundary of Culler-Vogtmann's Outer space.

Monday, September 30 at 3:00 PM in 636 SEO