

Bestvina, Mladen; Feighn, Mark**A hyperbolic $\text{Out}(F_n)$ -complex.** (English) Zbl 1190.20017
Groups Geom. Dyn. 4, No. 1, 31-58 (2010).

The very short abstract of this very interesting paper is very comprehensive: “For any finite collection f_i of fully irreducible automorphisms of the free group F_n we construct a connected δ -hyperbolic $\text{Out}(F_n)$ -complex in which each f_i has positive translation length.”

However the statement of the main theorem gives the essence of the paper: For any finite collection f_1, \dots, f_k of fully irreducible elements of $\text{Out}(F_n)$ there is a connected δ -hyperbolic graph \mathcal{X} equipped with an (isometric) action of $\text{Out}(F_n)$ such that:

- the stabilizer in $\text{Out}(F_n)$ of a simplicial tree in $\overline{\mathcal{PT}}$ has bounded orbits,
- the stabilizer in $\text{Out}(F_n)$ of a proper free factor $F \subset F_n$ has bounded orbits, and
- f_1, \dots, f_k have nonzero translation lengths.

Here $\overline{\mathcal{PT}}$ denotes the compactified outer space.

Reviewer: [Stylianos Andreadakis \(Athens\)](#)

MSC:

20E05 Free nonabelian groups
20F28 Automorphism groups of groups
20E36 Automorphisms of infinite groups
20F65 Geometric group theory
57M07 Topological methods in group theory

Cited in **36** Documents**Keywords:**

fully irreducible automorphisms; free groups; connected hyperbolic complexes; translation lengths; hyperbolic graphs; isometric actions; outer space; measured geodesic currents

Full Text: [DOI](#) [Link](#) [arXiv](#)

References:

[1] Y. Algom-Kfir, Strongly contracting geodesics in Outer space. Preprint 2008. · [arxiv.org](#)

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