Bestvina, Mladen; **Feighn, Mark**
A hyperbolic 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 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 $f_1, \ldots, f_k$ of fully irreducible elements of Out(F_n) there is a connected δ-hyperbolic graph $\mathcal{X}$ equipped with an (isometric) action of Out(F_n) such that:

- the stabilizer in Out(F_n) of a simplicial tree in $\overline{\mathcal{PT}}$ has bounded orbits,
- the stabilizer in Out(F_n) of a proper free factor $F \subset F_n$ has bounded orbits, and
- $f_1, \ldots, f_k$ 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

Keywords:

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

References:

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