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Expansive convergence groups are relatively hyperbolic. (English) [Zbl 1226.20037](#)
Geom. Funct. Anal. 19, No. 1, 137-169 (2009).

Summary: Let a discrete group G act by homeomorphisms of a compactum in a way that the action is properly discontinuous on triples and cocompact on pairs. We prove that such an action is geometrically finite. The converse statement was proved by *P. Tukia* [*J. Reine Angew. Math.* 501, 71-98 (1998; [Zbl 0909.30034](#))]. So, we have another topological characterisation of geometrically finite convergence groups and, by the result of *A. Yaman* [*J. Reine Angew. Math.* 566, 41-89 (2004; [Zbl 1043.20020](#))], of relatively hyperbolic groups. Further, if G is finitely generated then the parabolic subgroups are finitely generated and undistorted. This answers a question of B. Bowditch and eliminates restrictions in some known theorems about relatively hyperbolic groups.

MSC:

- [20F67](#) Hyperbolic groups and nonpositively curved groups
- [20F65](#) Geometric group theory
- [30F40](#) Kleinian groups (aspects of compact Riemann surfaces and uniformization)
- [57M07](#) Topological methods in group theory
- [57S05](#) Topological properties of groups of homeomorphisms or diffeomorphisms

Cited in **1** Review
Cited in **13** Documents

Keywords:

actions by homeomorphisms; properly discontinuous actions; geometrically finite actions; geometrically finite convergence groups; relatively hyperbolic groups; parabolic subgroups

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