

Yang, Wen-yuan

Limit sets of relatively hyperbolic groups. (English) Zbl 1252.20042

Geom. Dedicata 156, 1–12 (2012).

Summary: We prove a limit set intersection theorem in relatively hyperbolic groups. Our approach is based on a study of dynamical quasiconvexity of relatively quasiconvex subgroups. Using dynamical quasiconvexity, many well-known results on limit sets of geometrically finite Kleinian groups are derived in general convergence groups. We also establish dynamical quasiconvexity of undistorted subgroups in finitely generated groups with nontrivial Floyd boundaries.

MSC:

20F67 Hyperbolic groups and nonpositively curved groups

20E07 Subgroup theorems; subgroup growth

30F40 Kleinian groups (aspects of compact Riemann surfaces and uniformization)

Cited in **5** Documents

Keywords:

dynamical quasiconvexity; relatively hyperbolic groups; relatively quasiconvex subgroups; limit sets; Floyd boundaries; geometrically finite Kleinian groups; convergence groups; undistorted subgroups; finitely generated groups

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

References:

- [1] Anderson J.: On the finitely generated intersection property for Kleinian groups. *Complex Var. Theor. Appl.* 17, 111–112 (1991) · [Zbl 0724.30036](#) · [doi:10.1080/17476939108814501](#)
- [2] Anderson J.: Intersections of topologically tame subgroups of Kleinian groups. *J. Anal. Math.* 65, 77–94 (1995) · [Zbl 0832.30027](#) · [doi:10.1007/BF02788766](#)
- [3] Anderson J.: The limit set intersection theorem for finitely generated Kleinian groups. *Math. Res. Lett.* 3, 675–692 (1996) · [Zbl 0864.30032](#) · [doi:10.4310/MRL.1996.v3.n5.a9](#)
- [4] Bowditch, B.: Relatively hyperbolic groups. Preprint, University of Southampton, UK (1999) · [Zbl 0952.20032](#)
- [5] Bowditch B.: Convergence groups and configuration spaces. In: Cossey, J., Miller, C.F., Neumann, W.D., Shapiro, M. (eds) *Group Theory Down Under*, pp. 23–54. De Gruyter, Berlin (1999) · [Zbl 0952.20032](#)
- [6] Drutu C., Sapir M.: Tree-graded spaces and asymptotic cones of groups. With an appendix by D. Osin and M. Sapir. *Topology* 44(5), 959–1058 (2005) · [Zbl 1101.20025](#)
- [7] Dahmani F.: Combination of convergence groups. *Geom. Topol.* 7, 933–963 (2003) · [Zbl 1037.20042](#) · [doi:10.2140/gt.2003.7.933](#)
- [8] Dunwoody M.: An inaccessible group. In *Geometric group theory, Vol. 1 (Sussex, 1991)*, volume 181 of *London Math. Soc. Lecture Note Ser.*, pp. 75–78. Cambridge University Press, Cambridge, (1993) · [Zbl 0833.20035](#)
- [9] Farb B.: Relatively hyperbolic groups. *Geom. Funct. Anal.* 8(5), 810–840 (1998) · [Zbl 0985.20027](#) · [doi:10.1007/s000390050075](#)
- [10] Floyd W.: Group completions and limit sets of Kleinian groups. *Invent. Math.* 57, 205–218 (1980) · [Zbl 0428.20022](#) · [doi:10.1007/BF01418926](#)
- [11] Gerasimov V.: Expansive convergence groups are relatively hyperbolic. *Geom. Funct. Anal.* 19, 137–169 (2009) · [Zbl 1226.20037](#) · [doi:10.1007/s00039-009-0718-7](#)
- [12] Gerasimov, V.: Floyd maps to the boundaries of relatively hyperbolic groups. preprint (2010)
- [13] Gerasimov, V., Potyagailo, L.: Dynamical quasiconvexity in relatively hyperbolic groups. preprint (2009) · [Zbl 1364.20032](#)
- [14] Gitik R., Mitra M., Rips E., Sageev M.: Widths of subgroups. *Trans. Am. Math. Soc.* 350, 321–329 (1998) · [Zbl 0897.20030](#) · [doi:10.1090/S0002-9947-98-01792-9](#)
- [15] Gromov, M.: *Hyperbolic groups from: essays in group theory* Gersten, S. (eds.), pp 75–263. Springer, New York (1987)
- [16] Gromov, M.: Asymptotic invariants of infinite groups. In: *Geometric group theory, vol. 2 (Sussex, 1991)*, volume 182 of *London Math. Soc. Lecture Note Ser.*, pages 1C295. Cambridge University Press, Cambridge (1993) · [Zbl 0841.20039](#)
- [17] Hruska G.: Relative hyperbolicity and relative quasiconvexity for countable groups. *Algebr. Geom. Topol.* 10, 1807–1856 (2010) · [Zbl 1202.20046](#) · [doi:10.2140/agt.2010.10.1807](#)
- [18] Hruska G., Wise D.: Packing subgroups in relatively hyperbolic groups. *Geom. Topol.* 13(4), 1945–1988 (2009) · [Zbl 1188.20042](#) · [doi:10.2140/gt.2009.13.1945](#)

- [19] Karlsson A.: Free subgroups of groups with non-trivial Floyd boundary. *Comm. Algebr.* 31, 5361–5376 (2003) · [Zbl 1036.20032](#) · [doi:10.1081/AGB-120023961](#)
- [20] Mihalik M., Towle W.: Quasiconvex subgroups of negatively curved groups. *Pure Appl. Algebr.* 95, 297–301 (1994) · [Zbl 0822.20038](#) · [doi:10.1016/0022-4049\(94\)90063-9](#)
- [21] Martinez-Pedroza E.: Combination of quasiconvex subgroups of relatively hyperbolic groups. *Groups Geome Dyn* 3, 317–342 (2009) · [Zbl 1186.20029](#) · [doi:10.4171/GGD/59](#)
- [22] Olshanskii A., Osin D., Sapir M.: Lacunary hyperbolic groups. With an appendix by Michael Kapovich and Bruce Kleiner. *Geom. Topol.* 13(4), 2051–2140 (2009) · [Zbl 1243.20056](#) · [doi:10.2140/gt.2009.13.2051](#)
- [23] Osin D.: Relatively hyperbolic groups: intrinsic geometry, algebraic properties and algorithmic problems. *Mem. Am. Math. Soc.* 179(843), 1–100 (2006) · [Zbl 1093.20025](#)
- [24] Susskind P., Swarup G.: Limit sets of geometrically finite hyperbolic groups. *Am. J. Math.* 114, 233–250 (1992) · [Zbl 0791.30039](#) · [doi:10.2307/2374703](#)
- [25] Tukia P.: Conical limit points and uniform convergence groups. *J. Reine. Angew. Math.* 501, 71–98 (1998) · [Zbl 0909.30034](#)
- [26] Wang S., Zhou Q.: On the proper conjugation of kleinian groups. *Geom. Dedicata.* 56, 145–154 (1995) · [Zbl 0836.30028](#) · [doi:10.1007/BF01267639](#)
- [27] Yang, W.: Peripheral structures of relatively hyperbolic groups. Preprint 2010.

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.