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Measurable rigidity for Kleinian groups. (English) Zbl 1379.37090

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Deformation and rigidity are very important topics in the theory of Kleinian groups. *D. Sullivan* [Ann. Math. Stud. 97, 465–496 (1981; Zbl 0567.58015)] proved that there are no quasi-conformal deformations supported on limit sets, which is analogous to Mostow rigidity. Moreover, he proved a measurable rigidity theorem and *P. Tukia* [Invent. Math. 97, No. 2, 405–431 (1989; Zbl 0674.30038)] extended this rigidity in a more general setting.

Let G and H be Kleinian groups, and μ_G and μ_H conformal measures, where μ_G has no atom. Suppose that at least one of the dimensions μ_G and μ_H is positive. Suppose that there is an essential injective, measurable and essentially directly measurable (i.e., the image of any measurable set outside some fixed μ_G-null set is measurable) map $f : \Lambda_G \to \Lambda_H$ which conjugates G to H almost everywhere. Then either there is a set A in Λ_G of full measure with $\mu_H(f(A)) = 0$ or f coincides with the restriction of a conformal automorphism to Λ_G almost everywhere and the dimensions of μ_G and μ_H coincide.

However the existence of such map f is not evident. The authors prove that an equivariant map from the limit set of G to that of H is of divergence type.

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MSC:

37F30	Quasiconformal methods and Teichmüller theory, etc. (dynamical systems) (MSC2010)
30F40	Kleinian groups (aspects of compact Riemann surfaces and uniformization)
28C10	Set functions and measures on topological groups or semigroups, Haar measures, invariant measures
57M60	Group actions on manifolds and cell complexes in low dimensions

Keywords:

Kleinian group; Patterson-Sullivan measure; rigidity theorem; Cannon-Thurston map

Full Text: DOI arXiv

References:

[1] DOI: 10.1007/BF02392046 · Zbl 0336.30005 · doi:10.1007/BF02392046
[2] DOI: 10.1017/CBO9780511600678 · doi:10.1017/CBO9780511600678
[3] DOI: 10.1007/978-1-4684-9488-4 · doi:10.1007/978-1-4684-9488-4
[4] DOI: 10.1007/s002220050069 · Zbl 0853.58076 · doi:10.1007/s002220050069
[5] DOI: 10.1007/BF01389048 · Zbl 0674.30038 · doi:10.1007/BF01389048
[6] Thurston, The Geometry and Topology of 3-Manifolds (1980)
[7] DOI: 10.1007/BF02392379 · Zbl 0566.58022 · doi:10.1007/BF02392379
[8] DOI: 10.4007/annals.2014.179.1.1 · Zbl 1301.57013 · doi:10.4007/annals.2014.179.1.1
[9] DOI: 10.4007/annals.2010.171.1 · Zbl 1193.30063 · doi:10.4007/annals.2010.171.1
[10] Canary, J. Amer. Math. Soc. 6 pp 1– (1993)
[11] DOI: 10.1007/s00222-005-0470-z · Zbl 1097.57017 · doi:10.1007/s00222-005-0470-z
[12] DOI: 10.1090/S0894-0347-05-00513-8 · Zbl 1090.57010 · doi:10.1090/S0894-0347-05-00513-8
[13] DOI: 10.1090/S0894-0347-96-00196-8 · Zbl 0847.22004 · doi:10.1090/S0894-0347-96-00196-8
[14] DOI: 10.1007/s000140050022 · Zbl 0908.57009 · doi:10.1007/s000140050022
[15] DOI: 10.4007/annals.2012.176.1.1 · Zbl 1253.57009 · doi:10.4007/annals.2012.176.1.1

[16] DOI: 10.1007/s00039-012-0175-6 · Zbl 1276.20050 · doi:10.1007/s00039-012-0175-6
[17] DOI: 10.1016/S1874-575X(02)80011-X · doi:10.1016/S1874-575X(02)80011-X
[18] DOI: 10.2307/1971388 · Zbl 0671.57008 · doi:10.2307/1971388
[19] DOI: 10.2307/2374589 · Zbl 0642.57001 · doi:10.2307/2374589
[20] Bishop, Contemp. Math. 211 pp 17– (1997) · doi:10.1090/conm/211/02813
[21] Culler, J. Amer. Math. Soc. 5 pp 231– (1992)
[22] DOI: 10.1112/plms/s3-18.3.461 · Zbl 0162.38801 · doi:10.1112/plms/s3-18.3.461
[23] DOI: 10.1093/qmath/hal019 · Zbl 1167.30021 · doi:10.1093/qmath/hal019
[24] DOI: 10.1090/S0273-0979-1982-14966-7 · Zbl 0489.58027 · doi:10.1090/S0273-0979-1982-14966-7
[25] Sullivan, Riemann Surfaces and Related Topics: Proceeding of the 1978 Stony Brook Conference pp 465– (1981)
[26] DOI: 10.1007/BF02684773 · doi:10.1007/BF02684773
[27] DOI: 10.1007/978-3-642-85473-6 · doi:10.1007/978-3-642-85473-6
[28] DOI: 10.1016/0040-9383(91)90041-2 · Zbl 0744.57022 · doi:10.1016/0040-9383(91)90041-2
[29] Soma, Proc. Amer. Math. Soc. 123 pp 2915– (1995)
[30] DOI: 10.1112/jlms/s2-7.2.246 · Zbl 0266.57001 · doi:10.1112/jlms/s2-7.2.246