Bonfert-Taylor, Petra; Bridgeman, Martin; Taylor, Edward C.
Distortion of the exponent of convergence in space. (English) Zbl 1069.30031
Ann. Acad. Sci. Fenn., Math. 29, No. 2, 383-406 (2004).

For a discrete quasiconformal (qc) group G acting on $\overline{\mathbb{R}}^n$ having regular set $\Omega(G)$ and set of discontinuity $\Lambda(G)$ the authors define the chordal exponent of convergence as

$$\delta_{\text{chord}}(G) = \inf \left\{ s > 0 : \sum_{g \in G} \text{dist}_{\text{chord}}\left(g(z_0), \Lambda(G)\right)^s < \infty \right\}$$

for a fixed $z_0 \in \Omega(G)$. If $\Omega(G) \neq \Phi$ and $|\Lambda(G)| \geq 2$, the authors prove that $\delta_{\text{chord}}(G) = \delta_{\text{hyp}}(G)$ where $\delta_{\text{hyp}}(G)$ is the exponent defined in terms of the Poincaré series.

In their main theorem the authors study the conjugation by a K-qc mapping $\varphi : \overline{\mathbb{R}}^n \to \overline{\mathbb{R}}^n$ and prove, with $H = \varphi G \varphi^{-1}$,

$$\delta_{\text{chord}}(H) \leq (n + c)\delta_{\text{chord}}(G)/(c + \delta_{\text{chord}}(G)).$$

The constant c comes from the integrability of the K-qc mapping and only depends on n and K.

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MSC:

30C62 Quasiconformal mappings in the complex plane
30F40 Kleinian groups (aspects of compact Riemann surfaces and uniformization)

Full Text: EuDML