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Abstract

UNIFORM CONTINUITY OF QUASICONFORMAL MAPPINGS ONTO GENERALIZED JOHN DOMAINS

A well-known result of Gehring and Martio [gm85] implies that if $\Omega' \subset \mathbb{R}^n$ is a uniform domain and $\Omega \subset \mathbb{R}^n$ is a John domain, then each quasiconformal mapping $f : \Omega' \to \Omega$ is (globally) Hölder continuous. Later, Koskela, Onninen and Tyson [kot01] enhanced the result by removing the uniformity condition on the sauce domain Ω', i.e. if $\Omega' \subset \mathbb{R}^n$ $\Omega \subset \mathbb{R}^n$ is a John domain, then each quasiconformal mapping $f : \Omega' \to \Omega$ is (globally) Hölder continuous. These results are further generalized by Hencl and Koskela [hk05] to more general domains with quasihyperbolic boundary conditions, while several open problems left.

In [g13], we have studied similar problems with the quasihyperbolic boundary assumption replaced by (a more geometric) generalized John condition, which was motivated by recent progress from mappings of finite distortion. In [gk13], we give an essentially complete picture of the uniform continuity problem by constructing several counter-examples. In particular, our examples give a negative answer to a conjecture/prediction made by Hencl and Koskela [hk05].

References

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