

Quasiconformal distortion of Hausdorff measures

A. Clop

The main goal of the course is to find precise answers to the following questions:

- (1) if E is a compact subset of the plane, with Hausdorff dimension d , and f is a planar K -quasiconformal map, what is the largest possible value d' of the Hausdorff dimensions of $f(E)$?
- (2) if E is a compact set with vanishing d -dimensional Hausdorff measure, what can we say about the d' -dimensional Hausdorff measure of $f(E)$?

We will start with $d = 2$. Then we will follow with $d' = 1$. Finally we will prove the general case $0 < d < 2$. The course will be self-contained.

REFERENCES

- [A] K. Astala (1994). Area distortion of quasiconformal maps. *Acta Math.*, 173, 37-60.
- [AIM] K. Astala, T. Iwaniec, G. Martin (2009). Elliptic partial differential equations and quasiconformal mappings in the plane. Princeton Math. Series, 48.
- [LSU] M. Lacey, E. Sawyer, I. Uriarte-Tuero (2010). Astala's conjecture on distortion of Hausdorff measures under quasiconformal maps in the plane. *Acta Math.* 204, 273-292