HAUSDORFF DIMENSION OF UNIFORMLY NON FLAT SETS WITH TOPOLOGY

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Abstract

Let \( d \) be an integer, and let \( E \) be a nonempty closed subset of \( \mathbb{R}^n \). Assume that \( E \) is locally uniformly non flat, in the sense that for \( x \in E \) and \( r > 0 \) small, \( E \cap B(x, r) \) never stays \( \epsilon_0 r \)-close to an affine \( d \)-plane. Also suppose that \( E \) satisfies locally uniformly some appropriate \( d \)-dimensional topological nondegeneracy condition, like Semmes’ Condition B. Then the Hausdorff dimension of \( E \) is strictly larger than \( d \). We see this as an application of uniform rectifiability results on Almgren quasiminimal (restricted) sets.

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