Linear images of self-similar sets with no separation condition

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Abstract

We investigate how the Hausdorff dimension and measure of a self-similar set $K \subseteq \mathbb{R}^d$ behave under linear images. It turns out that this depends on the nature of the group generated by the orthogonal parts of defining maps of K. We prove our results without assuming any separation condition. We introduce a new method that leads to a similarity dimension-like formula for Hausdorff dimension.