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On the connected components of IFS fractals. (English) Zbl 07610098

Summary: Let \( K \) be the attractor of a self-conformal IFS, \( \mu \) be the corresponding invariant measure for some probability weights and \( \Lambda(K) \) be the union of all trivial connected components of \( K \). Assume that the IFS satisfies the bounded distortion property and the strong open set condition with an open set \( V \) whose closure \( V \) is a union of finitely many connected components. It is proven that the four statements

\[
\dim_{H}(K/V) < \dim_{H}(K), \quad \mathcal{H}^s(V \cap \Lambda(K)) > 0 \quad \text{(where } s = \dim_{H}(K)\text{)}, \quad V \cap \Lambda(K) \neq \emptyset \quad \text{and} \quad \mu(\Lambda(K)) = 1
\]

are equivalent. Some weaker conclusions are also given for attractors generated by bi-Lipschitz IFSs.

MSC:
28Axx Classical measure theory
52Cxx Discrete geometry
37Cxx Smooth dynamical systems: general theory

Keywords:
connected component; bi-Lipschitz; self-conformal; SOSC; BDP

Full Text: DOI

References:


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