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Quantitative recurrence properties for self-conformal sets. (English) Zbl 1458.28002

For a conformal iterated function system with the open set condition (and hence with a good coding theory) metric properties of sets associated to the map \( T: X \to X \) induced by the shift map in the symbolic cover of a self-conformal set \( X \) in the sense of J. E. Hutchinson [Indiana Univ. Math. J. 30, 713–747 (1981; Zbl 0598.28011)], work of Y. Chang et al. [Proc. Am. Math. Soc. 147, No. 4, 1453–1465 (2019; Zbl 1431.28008)] is continued and extended. Specifically, a dichotomy is established for the set of points \( x \) for which \( |T^n x - x| < \phi(n) \) infinitely often, showing that this set is either null or of full measure (for the natural measure on \( X \)) depending on the convergence or not of an associated volume sum involving \( \phi \).

Reviewer: Thomas B. Ward (Leeds)

MSC:
28A80 Fractals
11K55 Metric theory of other algorithms and expansions; measure and Hausdorff dimension
28D05 Measure-preserving transformations

Keywords:
quantitative recurrence; self-conformal sets; Hausdorff measure

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References:

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