ON ARITHMETICALLY THICK SETS IN R^D

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Abstract： A compact set E in the d-dimensional Euclidean space is said to be arithmetically thick if there exists a positive integer n so that the n-fold arithmetic sum of E has non-empty interior. We give a sufficient condition to guarantee the arithmetic thickness. Moreover, we verify this property for several classes of fractal sets, including all the self-similar sets and self-conformal sets that are not lying in a proper affine subspace. We also prove it for self-affine sets under mild assumptions. This is joint work with Yu-Feng Wu.