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Falconer type point configuration problems.

The classical Falconer distance problem asks for the minimum Hausdorff dimension, \( s \), such that any subset \( E \subset \mathbb{R}^d \) of Hausdorff dimension greater than \( s \) will have a distance set (the set of distances determined by pairs of points in \( E \)) of positive Lebesgue measure. We consider variants of this problem involving more points. (Received August 21, 2018)