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Fractals Avoiding Fractal Configurations

What's the largest Hausdorff dimension a Euclidean set can have avoiding configurations? How large can a set of real numbers be avoiding arithmetic progressions, or subsets of the plane not containing vertices of equilateral triangles? Recent work gives general methods to find sets avoiding configurations specifiable by a smooth function, like the ones above. In this talk, we discuss extensions of these methods to 'fractally specified configurations'. Applying our method, for instance, gives high dimensional sets whose difference sets avoid rational translates of the Cantor set. We introduce the configuration discretization method standard in the field, and explain the idea behind our randomized configuration avoidance method.