Large sets avoiding linear patterns

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Given a set $E \subseteq \mathbb{R}^d$ and countably many linear functions $f_k : \mathbb{R}^{dm} \to \mathbb{R}^{N_k}$, we say that the set E avoids the countable linear pattern $\{f_k\}_k$ if $f_k(x_1, \cdots, x_m) \neq 0$ for all $x_1, \cdots x_m \in E$ and for all k.

In this poster I will present my recent work about large sets avoiding given countably many linear patterns. I will state a general result, and deduce the following corollary: given a dimension function h and a countable set A, there exists a compact set $E \subseteq \mathbb{R}$ with positive h-Hausdorff measure, such that $\frac{z-x}{y-x} \notin A$ for all $x, y, z \in E$.