

Ruzsa, Imre Z.

Probabilistic constructions in additive number theory. (English) Zbl 0625.10046
Journées arithmétiques, Besançon/France 1985, Astérisque 147/148, 173-182 (1986).

[For the entire collection see [Zbl 0605.00004](#).]

The author uses a new, probabilistic approach for constructing a class of sets $H \subseteq \mathbb{Z}$ with the property that, for any set $A \subseteq \mathbb{Z}$ whose counting function $A(x)$ is not bounded by any function $g(x)$ with $g(x)/\log x \nearrow$ and $g(x)/x \searrow 0$, both $H + A$ and $H - A$ have (asymptotically) many elements in a sense specified for either of the two cases.

The result yields solutions of several older problems in additive number theory including the existence of a sequence A of density 0 such that the Schnirelman density σ satisfies $\sigma(A + B) > 0$ for every base B .

Reviewer: [B.Volkman](#)

MSC:

- [11B13](#) Additive bases, including sumsets
- [11A25](#) Arithmetic functions; related numbers; inversion formulas
- [11K99](#) Probabilistic theory: distribution modulo 1; metric theory of algorithms
- [11B83](#) Special sequences and polynomials

Cited in 1 Review

Keywords:

sum-sets; additive bases; asymptotic density; counting function; Schnirelman density