
Zbl 209.35402

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On some applications of probability methods to additive number theoretic problems (In English)

Contrib. Ergodic Theory Probab., Lecture Notes Math. 160, 37-44 (1970).

[For the entire collection see Zbl 202.05002.]

The authors prove that to every α, $0 < \alpha < 1$ there is a sequence A of density α so that for very sequence of integers $b_1 < \ldots < b_k$ the density of $\bigcup_{i=1}^{k}\{A + b_i\}$ is $1 - (1 - \alpha)^k$. The theorem no longer holds if $1 - (1 - \alpha)^k$ is replaced by $1 - (1 - \alpha)^k + \epsilon$. But the authors believe that there is a sequence of density α so that the density of $\bigcup_{i=1}^{k}\{A + b_i\}$ is always greater than $1 - (1 - \alpha)^k$. The authors also answer a question of A. Stöhr by showing that there is a sequence A of density 0, so that for every basis B $A + B$ has density 1. The methods of the proof are probabilistic.

Classification:
11B05 Topology etc. of sets of numbers
11K99 Probabilistic theory