The number of maximal sum-free subsets of integers

József Balogh   Hong Liu   Maryam Sharifzadeh   Andrew Treglown

July 11, 2015

Abstract

Cameron and Erdős raised the question of how many *maximal* sum-free sets there are in $\{1, \ldots, n\}$, giving a lower bound of $2^{\lfloor n/4 \rfloor}$. In this paper we prove that there are in fact at most $2^{(1/4+o(1))n}$ maximal sum-free sets in $\{1, \ldots, n\}$. Our proof makes use of container and removal lemmas of Green as well as a result of Deshouillers, Freiman, Sós and Temkin on the structure of sum-free sets.

1