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Title: On a theorem of Erdős and Sárközy

Author(s): Yong-Gao Chen and Min Tang

Let $A = \{a_1, a_2, \dots\}(a_1 \leqslant a_2 \leqslant \cdots)$ be an infinite sequence of nonnegative integers, $k \geq 2$ be a fixed integer and denote by $R_k(n)$ the number of solutions of $a_{i_1} + a_{i_2} + \cdots + a_{i_k} = n$. In this paper, we prove that if $g(n)$ is a monotonically increasing arithmetic function with $g(n) \to +\infty$ and $g(n) = o\big(n(\log n)^{-2}\big)$, then for any $0 < \varepsilon < 1$, $|R_k(n) - g(n)| > ([k/2]! - \varepsilon)\sqrt{g(n)}$ holds for infinitely many positive integers n. We also prove that for a positive integer d, if $R_k(n) \geq d$ for all sufficiently large integers n, then $R_k(n) \geq d + 2[k/2]!\sqrt{d} + ([k/2]!)^2$ for infinitely many positive integers n.

Address:
Yong-Gao Chen
School of Mathematical Sciences
and Institute of Mathematics
Nanjing Normal University
Nanjing 210023
P. R. China

Address:
Min Tang
School of Mathematics
and Computer Science
Anhui Normal University
Wuhu 241003
P. R. China