Zbl 061.07302
Erdős, Pál
On a problem of Sidon in additive number theory and on some related problems. Addendum. (In English)
J. London Math. Soc. 19, 208 (1944).

For a given positive integer n the authors consider sets of distinct positive integers $a_1, a_2, ..., a_r$ not exceeding n such that the sums $a_i + a_j (1 \leq i \leq j \leq r)$ are all different. Let $\Phi(n)$ denote the maximum value which r can have for any such set. Then $\Phi(n)$ denote the maximum value which r can have for any such set. Then $\Phi(n) < n^{1/2} + 2n^{1/4}$ for any n. On the other hand, if $n = p^{2k} + p^k + 1$, where k is a positive integer and p is a prime, then $\Phi(n) > n^{1/2}$ (cf. *J.Singer*, Zbl 019.00502).

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Classification:
11B34 Representation functions