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**Erdős, Paul; Loxton, J.H.**

*Some problems in partitio numerorum.* (In English)

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The paper investigates asymptotic results for certain partition problems in which the parts are restricted by divisibility conditions. For example, let  $p(n)$  be the number of partitions  $n = a_1 + \cdots + a_k$  into positive integers with  $a_1 | a_2 | \cdots | a_k$  and let  $q(n)$  be the number of these partitions with distinct parts. We find that  $p(n)$  behaves like the binary partition function which counts partitions into powers of 2 and can be estimated precisely. The behaviour of  $q(n)$  is less amenable to analysis and leads to questions on the distribution of primes in sequences of the shape  $2^a m + 1$ .

Classification:

11P81 Elementary theory of partitions

11N05 Distribution of primes

00A07 Problem books

Keywords:

partition; divisibility conditions; distribution of primes