Chen, Yonggao; Fang, Jinhui
On a problem of Cilleruelo and Nathanson. (English) Zbl 1263.11014
Combinatorica 31, No. 6, 691-696 (2011).

For a set $A$ of integers, $d_A(n)$ denotes the number of representations of $n$ by a difference, and $s_A(n)$ the number of representations by a sum, order ignored. Given two functions $f_1 : \mathbb{N} \to \mathbb{N}$ and $f_2 : \mathbb{Z} \to \mathbb{N}$, the existence of a set $A$ is proved such that $d_A = f_1$ and $s_A = f_2$, provided the set

$$\{n : f_1(|n|) \geq 2, f_2(n) \geq 2\}$$

contains arbitrarily long blocks. This answers a question of J. Cilleruelo and M. B. Nathanson [Combinatorica 28, 401–414 (2008; Zbl 1199.11045)].

Reviewer: Imre Z. Ruzsa (Budapest)

MSC:
11B13 Additive bases, including sumsets
11B34 Representation functions

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References:

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