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Tyszka, Apoloniusz

On combinatorial problem concerning partitions of a box into boxes. (English)

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From the author's abstract: "We consider partitions of n -dimensional boxes in $\mathbb{R}^n$, $n \geq 2$ into a finite number of boxes with pairwise disjoint interiors. We study sets $X \subset (0, \infty)$ with the property (W_n) : for every n dimensional box P and every partition of P , if each constituent box has one side with the length belonging to X , then the length of one side of P belongs to X . We prove that the set $X \subset (0, \infty)$ has property (W_n) if and only if X is closed with respect to the operations: $x + y$ and $x + y + z - 2 \min(x, y, z)$ ".

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Keywords : partitions of n -dimensional boxes

Classification :

***51M05** Euclidean geometries (general) and generalizations

51M20 Regular figures in space

05B45 Tessellation and tiling problems

52A37 Other problems of combinatorial convexity

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