

ON PURE κ -SPARSE GAPSETS

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ABSTRACT. A gapset is a finite set $G \subset \mathbb{N}$ that satisfies the following property: let $z \in G$ and write $z = x + y$, with x and $y \in \mathbb{N}$; then $x \in G$ or $y \in G$. Summarizing, a gapset is the complement (in $\mathbb{N}_0 := \{0, 1, 2, \dots\}$) of a numerical semigroup. This concept was formally introduced by Eliahou and Fromentin (2020), besides some ideas have been appeared in previous papers.

In this talk, we introduce an open problem on numerical semigroup theory and we present some results on pure κ -sparse gapsets. In particular, we prove that if $2g \leq 3\kappa$, then $\#\mathcal{G}_\kappa(g) = \#\mathcal{G}_{\kappa+n}(g+n)$, for all $n \in \mathbb{N}$, where $\mathcal{G}_\kappa(g)$ denotes the set of pure κ -sparse gapsets with genus g .

Keywords: gapset, genus, numerical semigroup.