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On a class of aperiodic sum-free sets. (In English)

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A set S of positive integers is said to be sum-free if $(S+S)\cap S=\emptyset$, where $S+S=\{x+y \mid x,y\in S\}$. A sum-free set S is complete iff it is constructed greedily from a finite set, i.e. there is an n' such that for all $n>n'$, $n\in S\cup(S+S)$. Let us call S ultimately periodic (with respect to m) if there is an n^* such that for $n>n^*$, $n\in S\Leftrightarrow n+m\in S$. Let

$$S(\alpha)=\{n:\{n\alpha\}\in(1/3,2/3)\}.$$

The authors note that for α irrational $S(\alpha)$ is aperiodic. The main result of the paper states: For every irrational α, the set $S(\alpha)$ is incomplete. The authors raise some open questions on this topic as well.

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