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Families of finite sets in which no set is covered by the union of two others.

(In English)

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From the summary: "Let $f^*(n)$ denote the maximum of k -subsets of an n -set satisfying the condition in the title. It is proved that $f^{2t-1}(n) \leq f^{2t}(n+1) \leq \binom{n}{t} / \binom{2t-1}{t}$ with equalities holding iff there exists a Steiner system $\mathcal{S}(t, 2t-1, n)$. The bounds are approximately best possible for $k \leq 6$ and of correct order of magnitude for $k \geq 7$, as well, even if the corresponding Steiner systems do not exist."

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Classification:

05A05 Combinatorial choice problems

05B07 Triple systems

05C65 Hypergraphs

Keywords:

subsets