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Erdős, Paul; Hajnal, András; Tuza, Zsolt

Local constraints ensuring small representing sets. (In English)

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A set T is said to cover a set system \mathcal{F} if T meets all members of \mathcal{F} . We raise the following general problem. Find relations among the natural numbers p, r, s, t , that imply the truth of the following statement: If \mathcal{F} is an r -uniform set system such that each of its subsystems on at most p elements can be covered with an s -element set, then \mathcal{F} can be covered with a t -element set. Here we investigate the case $s = 1$.

Classification:

05D15 Transversal (matching) theory

05A05 Combinatorial choice problems

05B40 Packing and covering (combinatorics)