A CHARACTERIZATION OF HYPERGRAPHS WITH LARGE DOMINATION NUMBER

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Let $H = (V, E)$ be a hypergraph with vertex set V and edge set E. A dominating set in H is a subset of vertices $D \subseteq V$ such that for every vertex $v \in V \setminus D$ there exists an edge $e \in E$ for which $v \in e$ and $e \cap D \neq \emptyset$. The domination number $\gamma(H)$ is the minimum cardinality of a dominating set in H. It is known ([1]) that for $k \geq 5$, if H is a hypergraph of order n and size m with all edges of size at least k and with no isolated vertex, then $\gamma(H) \leq (n + \lfloor (k-3)/2 \rfloor m)/(\lfloor 3(k-1)/2 \rfloor)$. In this talk, we characterize the hypergraphs achieving equality in this bound.

Keywords: domination, hypergraph, transversal.
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References

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