

## GRAPHS WITH LARGE SEMIPAIED DOMINATION NUMBER

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### Abstract

Let  $G$  be a graph with vertex set  $V$  and no isolated vertices. A subset  $S \subseteq V$  is a semipaied dominating set of  $G$  if every vertex in  $V \setminus S$  is adjacent to a vertex in  $S$  and  $S$  can be partitioned into two element subsets such that the vertices in each subset are at most distance two apart. The semipaied domination number  $\gamma_{\text{pr}2}(G)$  is the minimum cardinality of a semipaied dominating set of  $G$ . We show that if  $G$  is a connected graph  $G$  of order  $n \geq 3$ , then  $\gamma_{\text{pr}2}(G) \leq \frac{2}{3}n$ , and we characterize the extremal graphs achieving equality in the bound.

**Keywords:** paired-domination, semipaied domination.

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