

Independent $[1,2]$ -number versus independent domination number

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A $[1, 2]$ -set S in a graph G is a vertex subset such that each vertex not in S has at least one and at most two neighbors in it. If the additional requirement that the set be independent is added, the existence of such sets is not guaranteed in every graph. We provide local conditions, depending on the degree of vertices, for the existence of independent $[1, 2]$ -sets in caterpillars. We also study the relationship between independent $[1, 2]$ -sets and independent dominating sets in this graph class, that allows us to obtain an upper bound for the associated parameter, the independent $[1, 2]$ -number, in terms of the independent domination number.

Keywords: graph, domination, independence, caterpillar.