

On the Total Domination Number of Graphs¹

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Abstract

Let G be a graph of order n with minimum degree at least two and S_2 be a vertex set consisting of all vertices of degree two in G . We call a vertex set T a total dominating set if for any vertex $u \in V(G)$ there exists some vertex $v \in T$ such that $u \in N(v)$. The total domination number denoted by $\gamma_t(G)$ is the minimum cardinality of the total dominating sets. In this talk, we will show that $\gamma_t(G) \leq \frac{n}{2}$ if the length of the longest paths in the subgraph induced by S_2 is at most one. As a consequence, we have that $\gamma_t(G) \leq \frac{n}{2}$ if the minimum degree of G is at least three, which is conjectured by Favaron et al. This is a joint work with P. Lam.

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