

Paired-domination in subdivided star-free graphs.

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Abstract

A set S of vertices in a graph G is a paired-dominating set of G if every vertex of G is adjacent to some vertex in S and if the subgraph induced by S contains a perfect matching. The paired-domination number of G , denoted by $\gamma_{\text{pr}}(G)$, is the minimum cardinality of a paired-dominating set of G . In [1], the authors gave tight bounds for paired-dominating sets of generalized claw-free graphs. Yet, the critical cases are not claws but subdivided stars. We here give a bound for graphs containing no induced subdivided stars, depending on the size of the star.

Keywords: bounds, paired-domination, subdivided star

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1 Introduction

Paired-domination in graphs was introduced by Haynes and Slater in [6] as a model for assigning backups to guards for security purposes. Three years later, they proved in [7] that determining the paired-domination number of a graph is a NP-complete problem and started giving some bounds. In this paper, we continue the study they initiated, and give sharp bounds on the paired-domination number of graphs depending on the size of the largest subdivided star they contain.

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