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DISTANCE 2-DOMINATION IN PRISMS OF GRAPHS

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Dedication

Ferran Hurtado passed away a few months after Eduardo Rivera-Campo and Rita Zuazua visited him and Mercè Mora in Barcelona, where most of this research was made. We all dedicate this final version to Ferran's memory.

Abstract

A set of vertices D of a graph G is a *distance* 2-*dominating* set of G if the distance between each vertex $u \in (V(G) - D)$ and D is at most two. Let $\gamma_2(G)$ denote the size of a smallest distance 2-dominating set of G. For any permutation π of the vertex set of G, the *prism of* G *with respect to* π is the graph πG obtained from G and a copy G' of G by joining $u \in V(G)$ with $v' \in V(G')$ if and only if $v' = \pi(u)$. If $\gamma_2(\pi G) = \gamma_2(G)$ for any permutation

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π of $V(G)$, then G is called a universal γ_2-fixer. In this work we characterize the cycles and paths that are universal γ_2-fixers.

Keywords: distance 2-dominating set, prisms of graphs, universal fixer.

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