

## 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  $\pi$  of the vertex set of  $G$ , the *prism of  $G$  with respect to  $\pi$*  is the graph  $\pi G$  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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$\pi$  of  $V(G)$ , then  $G$  is called a universal  $\gamma_2$ -fixer. In this work we characterize the cycles and paths that are universal  $\gamma_2$ -fixers.

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

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