

2-Rainbow Domination of Hexagonal Mesh Networks

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Abstract

A 2-rainbow domination function of a graph G is a function f that assigns to each vertex a set of colors chosen from the set $\{1, 2\}$ i.e. $f: V(G) \rightarrow P(\{1,2\})$, such that for any $v \in V(G)$, $f(v) = \emptyset$; implies $\bigcup_{u \in N(v)} f(u) = \{1,2\}$. The 2-rainbow domination number $\gamma_{r2}(G)$ of a graph G is the minimum $w(f) = \sum_{v \in V(G)} |f(v)|$, over all such functions f . The Hexagonal networks are popular mesh-derived parallel architectures. In this paper we present an upper bound for the 2-rainbow domination number of hexagonal networks.
