Ahangar, H. Abdollahzadeh; Amjadi, J.; Sheikholeslami, S. M.; Volkmann, L.; Zhao, Y.
Signed Roman edge domination numbers in graphs. (English) Zbl 1331.05165

Summary: The closed neighborhood $N_G[e]$ of an edge $e$ in a graph $G$ is the set consisting of $e$ and of all edges having a common end-vertex with $e$. Let $f$ be a function on $E(G)$, the edge set of $G$, into the set $\{-1,1,2\}$. If $\sum_{x \in N_G[e]} f(x) \geq 1$ for every edge $e$ of $G$ and every edge $e$ for which $f(e) = -1$ is adjacent to at least one edge $e'$ for which $f(e') = 2$, then $f$ is called a signed Roman edge dominating function of $G$. The minimum of the values $\sum_{e \in E(G)} f(e)$, taken over all signed Roman edge dominating functions $f$ of $G$, is called the signed Roman edge domination number of $G$ and is denoted by $\gamma'_{R}(G)$. In this note we initiate the study of the signed Roman edge domination in graphs and present some (sharp) bounds for this parameter.

MSC: 05C69 Vertex subsets with special properties (dominating sets, independent sets, cliques, etc.)

Keywords: signed Roman dominating function; signed Roman domination number; signed Roman edge dominating function; signed Roman edge domination number

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References:

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