

## ON THE SIGNED (TOTAL) $k$ -INDEPENDENCE NUMBER IN GRAPHS

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### Abstract

Let  $G$  be a graph. A function  $f : V(G) \rightarrow \{-1, 1\}$  is a signed  $k$ -independence function if the sum of its function values over any closed neighborhood is at most  $k - 1$ , where  $k \geq 2$ . The signed  $k$ -independence number of  $G$  is the maximum weight of a signed  $k$ -independence function of  $G$ . Similarly, the signed total  $k$ -independence number of  $G$  is the maximum weight of a signed total  $k$ -independence function of  $G$ . In this paper, we present new bounds on these two parameters which improve some existing bounds.

**Keywords:** domination in graphs, signed  $k$ -independence, limited packing, tuple domination.

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