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## LINEAR OPERATORS THAT PRESERVE THE EDGESUM OF A GRAPH

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### ABSTRACT

Let  $\mathfrak{G}_n$  be the set of all simple (undirected) graphs with a fixed vertex set  $V = \{v_1, v_2, \dots, v_n\}$ . A mapping  $T : \mathfrak{G}_n \rightarrow \mathfrak{G}_n$  is a linear operator if  $T$  is closed under the union of graphs and  $T$  sends the null graph to itself. The edgesum of a graph  $G \in \mathfrak{G}_n$  is the minimum of all the sums  $\sum_{uv \in E(G)} |f(u) - f(v)|$ , where the minimum is taken over all numberings  $f : V \rightarrow \{1, 2, \dots, n\}$ . In this paper, we characterize all linear operators of  $\mathfrak{G}_n$  that preserve the edgesum.

**KEYWORDS:** linear operators, edgesum of a graph