On vertex antimagicness of disjoint union of graphs

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Let $G = (V,E)$ be a graph of order $n$ and size $e$. An $(a,d)$-vertex-antimagic total labeling is a bijection $\alpha$ from $V(G) \cup E(G)$ onto the set of consecutive integers $\{1, 2, \ldots, n + e\}$, such that the vertex-weights form an arithmetic progression with the initial term $a$ and the common difference $d$. The vertex-weight of a vertex $x$ is the sum of values $\alpha(xy)$ assigned to all edges $xy$ incident to the vertex together with the value assigned to $x$ itself. A graph which admits a (super) $(a,d)$-VAT labeling is said to be (super) $(a,d)$-VAT.

Baca et al. in [2] introduced this labeling as a natural extension of the vertex-magic total labeling (VAT labeling for $d = 0$) defined by MacDougall et al. [3] (see also [6]). Basic properties of $(a,d)$-VAT labelings are investigated in [2]. In [4], it is shown how to construct super $(a,d)$-VAT labelings for certain families of graphs, including complete graphs, complete bipartite graphs, cycles, paths and generalized Petersen graphs.

Ali et al. [1] studied properties of super $(a,d)$-VAT labelings and examined their existence for disjoint union of $t$ copies of a regular graph. The idea of copies of graphs can be generalized to disjoint union of graphs. In this talk we discuss the vertex-antimagicness of disjoint union (does not have to be isomorphic) of regular graphs, especially for the case $d = 1$. The talk is based on several results that have been published, see [5] and new results in progress.

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References


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