Abstract

For a non-empty ground set $X$, finite or infinite, the set-valuation or set-labeling of a given graph $G$ is an injective function $f : V(G) \to P(X)$ such that the induced edge-function $f : E(G) \to P(X)$ if $f;g$ is defined by $f(uv) = f(u) \cap f(v)$ for every $uv \in E(G)$, where $P(X)$ is the power set of the set $X$ and $\cap$ is a binary operation on sets. A set-indexer of a graph $G$ is an set-labeling $f : V(G)$ such that the edge-function $f$ is also injective. An integer additive set-labeling (IASL) of a graph $G$ is defined as an injective function $f : V(G) \to P(N_0)$ such that the induced edge-function $gf : E(G) \to P(N_0)$ is defined by $gf(uv) = f(u) + f(v)$, where $N_0$ is the set of all non-negative integers, $P(N_0)$ is its power set and $f(u)+f(v)$ is the sumset of the set-labels of two adjacent vertices $u$ and $v$ in $G$. An IASL $f$ is said to be a strong IASL if $|f+(uv)| = |f(u)| + |f(v)|$ for every pair of adjacent vertices $u; v$ in $G$. In this paper, the characteristics and properties of strong integer additive set-labeled graphs are critically and creatively reviewed.
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**Index Terms**

Computer Science  
Applied Mathematics

**Keywords**

Integer additive set-labelings   integer additive set-indexers   strong integer additive set-labeling
strongly uniform integer additive setlabeling.