Super Edge-Magic Labeling of Complete k-Uniform Hypergraphs

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A *hypergraph H* is a pair of vertex set V and hyperedge set E, where $E \subseteq P(V)$. Then, a hypergraph is the generalization of graphs since each hyperedge may be incident to no or many vertices. For convenient, we let $|V| = p$ and $|E| = q$. In this talk, we generalize the concept of the graph labeling, called super edge-magic to a hypergraph labeling. Let H be a hypergraph, the *super edge-magic labeling* for H is a bijection $f : V \cup E \to \{1, 2, 3, \ldots, p+q\}$ satisfying these following conditions, (i) there is a constant Λ such that for every $e \in E, \sum_{v \in e} f(v) + f(e) = \Lambda$ and (ii) $f(V) = \{1, 2, 3, \ldots, p\}$. Next, we show that the class of hypergraphs called *complete k-uniform hypergraph*, denoted by $K_n^{(k)}$, is super edge-magic if and only if $k \in \{0, 1, n-1, n\}$.

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