

S-Magic and Nearly Magic Labeled Graphs

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Joint work with A. Godinho ²

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Let G a graph of order n and let S be a set of positive integers with $|S| = n$. Then G is said to be S -magic if there exists a bijection $\phi : V(G) \rightarrow S$ satisfying $\sum_{x \in N(u)} \phi(x) = k$ (a constant) for every $u \in V(G)$. Let $\alpha(S) = \max \{s : s \in S\}$. Let $i(G) = \min \alpha(S)$ where the minimum is taken over all sets S for which the graph G admits a S -magic labeling. $i(G)$ is called the distance magic index of the graph. Furthermore a bijection $f : V \rightarrow \{1, 2, \dots, n\}$ is called a *nearly distance magic labeling* of G if there exist a positive integer k such that $\sum_{x \in N(v)} f(x) = k$ or $k + 1$ for every $v \in V$. The constant k is called magic constant of the graph and the graph which admits such a labeling is called a *nearly distance magic graph*. In this talk we present several basic results on S -magic as well as nearly distance magic graphs.

1. A. Godinho, T. Singh and S. Arumugam, On S -magic graphs, Electronic Notes in Discrete Mathematics Volume 48, July 2015, Pages 267-273.
2. A. Godinho, T. Singh and S. Arumugam, *The distance magic index of a graph*, Discussiones Mathematicae Graph Theory, **38** (2018), 135-142.