

# Shifted-antimagic Labelings for Graphs

潘志實

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The concept of antimagic labelings of a graph is to produce distinct vertex sums by labeling edges through consecutive numbers starting from one. A long-standing conjecture is that every connected graph, except a single edge, is antimagic. Some graphs are known to be antimagic, but little has been known about sparse graphs, not even trees.

This paper studies a weak version called  $k$ -shifted-antimagic labelings which allow the consecutive numbers starting from  $k + 1$ , instead of starting from 1, where  $k$  can be any integer. This paper establishes connections among various concepts proposed in the literature of antimagic labelings and extends previous results in three aspects:

- Some classes of graphs, including trees and graphs whose vertices are of odd degrees, which have not been verified to be antimagic are shown to be  $k$ -shifted-antimagic for sufficiently large  $k$ .
- Some graphs are proved  $k$ -shifted-antimagic for all  $k$ , while some are proved not for some particular  $k$ .
- Disconnected graphs are also considered.