



MATHEMATICS COLLOQUIUM

Department of Mathematics
Faculty of Science
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Antimagic type problems in graphs

Abstract

A graph G is a pair of sets $(V(G), E(G))$, where $V(G)$ and $E(G)$ are the set of vertices and the set of edges in G , connecting the pair of vertices, respectively. The antimagic labeling for G is a bijection $f : E(G) \rightarrow \{1, 2, 3, \dots, |E(G)|\}$ such that the vertex sum $\phi_f(v) := \sum_{e \sim v} f(e)$ are all distinct for all $v \in V(G)$. A graph G is said to be an antimagic graph if it admits an antimagic labeling. Hartsfield and Ringel introduced the antimagic labeling problem for connected graphs, and they conjectured that every connected graph except K_2 admits an antimagic labeling. Many generalizations have been made in the recent past about antimagic labeling problem. The shifted antimagic labeling is one of a generalization of antimagic labeling which was studied by Chang, Chen, Li, Pan. For a given integer k , the k -shifted antimagic labeling for G is a bijection $f : E(G) \rightarrow \{k+1, k+2, k+3, \dots, k+|E(G)|\}$ such that all vertices have different vertex sums. The ordinary antimagic labeling problem can be described when $k = 0$. A graph G is said to be a k -shifted antimagic graph if it has a k -shifted antimagic labeling for some k . Moreover, a graph G is absolutely antimagic if there is a k -shifted antimagic labeling for G for any $k \in \mathbb{Z}$. In this talk, we will present some results on shifted antimagic labeling problem.



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Mr. Dhananjaya graduated from the University of Peradeniya with a Bachelor of Science in Mathematics in 2015. After that, he worked as a temporary tutor, and temporary lecturer, and then got promoted to a lecturer(probationary) at the department of Mathematics. He then completed his master degree (by research) in Mathematics at the National Chung Hsing University, Taiwan under the supervision of Prof. Wei-Tian Li in 2021. Currently, he is pursuing a Ph.D. in Mathematics at the same university. His research area spans discrete mathematics, particularly in Graph theory.

Date: Tuesday, 31st of January 2023
Time: 12.00 noon - 1.00 p.m.
Venue: Mathematics Lecture Theatre



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