

A New Approach to Middle Level Problem

Oluwakayode Aweda, Georgia Southern University

The Middle level Conjecture is about the presence of a Hamiltonian cycle in the middle level graph of a discrete cube. Let $S = \{1, 2, 3, \dots, 2n+1\}$. A discrete cube can be considered as a graph with vertices made up of all subsets of S such that two vertices are joined by an edge if they differ in exactly one entry. The middle layer graph consists of vertices of subsets of length exactly n or $n + 1$ entries, with an edge between any two vertices that differ in exactly one entry. Mütze in his 2016 work gave the proof of the original middle level conjecture. Later, Gregor, Micka, and Mütze considered the more generalized ‘‘Central Level Problem’’ in their recent work published in May 2023. In this talk we will give a new approach to the Middle Level Problem. This approach can also be extended to the Central Level Problem.