

Decomposition of Complete Graphs Into Certain Unicyclic Bipartite Graphs With 7 Edges

Clayton Higgins* and Aidan Carlson, University of Minnesota Duluth

A graph decomposition into G is done by partitioning a complete graph, K_n , into a set S of subgraphs. Each of these subgraphs of K_n is isomorphic to G such that each edge of K_n belongs to exactly one member of S .

In this talk, we prove that unicyclic bipartite graphs on 7 edges, with 9 or more vertices, containing a single cycle having a length of 4 decompose the complete graphs K_{14k} and K_{14k+1} for all integers $k \geq 1$. We accomplish this using ordered ρ -labelings and 1-rotational ordered ρ -labelings.

Keywords: graph decompositions, unicyclic graphs, Rosa-type labelings