

Decomposition of K_n Into Connected Unicyclic Tripartite Graphs With 9 Edges

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An *H-decomposition* of a graph G is a collection of subgraphs H_1, H_2, \dots, H_s of G , all isomorphic to H , such that every edge of G belongs to exactly one copy H_i . A *unicyclic graph* is a graph containing exactly one cycle.

We have found all decompositions of K_n , where $n \equiv 0$ or $1 \pmod{18}$, into connected unicyclic graphs with 9 edges. Research was split into several cases; this task will focus on decompositions of K_n , with $n \equiv 1 \pmod{18}$, into 9-edge unicyclic graphs where the cycle is of odd length. Decompositions were obtained using ρ -*tripartite* labeling.

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