Uniformly resolvable decompositions of $K_v$ into $K_2$ and $K_{1,3}$ graphs.

Summary: Let $K_v$ be the complete graph of order $v$. A $(K_2, K_{1,3})$-URD($v; r, s$) is a decomposition of $K_v$ into a set of subgraphs which can be partitioned into $r$ parallel classes containing only copies of $K_2$ and $s$ parallel classes containing only copies of $K_{1,3}$, such that every point of $K_v$ appears exactly once in some subgraphs of each parallel class. S. Küçükçifçi et al. have completely solved the existence of a $(K_2, K_{1,3})$-URD($v; r, s$) with minimum number of 1-factors and with 14 possible exceptions. In this paper, we shall give some new constructions for $(K_2, K_{1,3})$-URDs, and completely solve the existence of a $(K_2, K_{1,3})$-URD($v; r, s$) for any admissible parameters $v$, $r$ and $s$.

MSC: 05C70

Keywords: resolvable graph decomposition; uniform parallel class; frame; 3-star

Full Text: DOI

References:

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