Decompositions of Complete Multigraphs into Small Tripartite Multigraphs

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Let ${}^{\lambda}K_n$ denote the λ-fold complete graph of order n and let G denote any of the four multigraphs obtained from replacing two edges of $K_4 - e$ each with a ${}^2K_2$. We investigate necessary and sufficient conditions for the existence of a G-decomposition of ${}^{\lambda}K_n$.

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