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Poster Presentation P31

C_7 AND $\overline{C_7}$ COMPLEMENT MULTIDECOMPOSITION OF K_n

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If all edges of K_n can be partitioned into copies of a graph G , such design is called a G -decomposition of K_n , or G -design of order n . The extension of this design, called multi-decomposition, is decomposition of K_n by a graph pair. For any integer $v \geq 4$, a graph-pair of order v is a pair of non-isomorphic graphs G and H of order v such that there are no isolated vertices and $E(G) \cup E(H) = E(K_n)$. A $(G; H)$ –multi-decomposition of K_n is determined when all edges of K_n can be partitioned into copies of G and H with at least a copy of either G or H . In the past, the multi-designs for all graph-pairs of order 4 and 5 have been finished and published in 2003. The necessary and sufficient conditions for the existence of a $(C_6; \overline{C_6})$ – multi-decomposition of K_n has also been found out by Gao Yizhe. This paper is dedicated to continuing the project by determining the condition for n such that there exists $(C_7, \overline{C_7})$ –multi-decomposition of K_n .

Reference

Abueida, A. A., and Daven, M. Multidesigns for graph-pairs of order 4 and 5. *Graphs and Combinatorics*, 19(4), (2003) 433-447.