

Decompositions of pseudographs into closed trails of even sizes

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Abstract

We consider a graph L_n , with n even, which is a complete graph with an additional loop at each vertex and minus 1-factor and we prove that it is edge-disjointly decomposable into closed trails of even lengths greater than four, whenever these lengths sum up to the size of the graph L_n . We also show that this statement remains true if we remove from L_n two loops attached to nonadjacent vertices. Consequently, we improve P. Wittmann's result on the upper bound of the irregular coloring number $c(G)$ of a 2-regular graph G of size n , by determining that this number is, with the inadequacy of one, equal to $\lceil \sqrt{2n} \rceil$ if all components of G have even orders.