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Minimal decompositions of two graphs into pairwise isomorphic subgraphs. (In English)

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[For the entire collection see Zbl 418.00002.]

The basic concept of this paper is that of a U-decomposition. Suppose the edge sets of two graphs G and G' can be partitioned into sets $E_1 + \cdots + E_r$ and $E'_1 + \cdots + E'_r$ in such a way that the subgraphs defined by E_i and E'_i are isomorphic for i=1,2, ... ,r. Then this pair of partitions is a U- decomposition of the pair of graphs. U(G,G') is defined to be the minimum value of r for which a U-decomposition exists. The paper considers many properties of U(G,G') and of U(n') defined as $\max U(G, G')$ where "max" ranges over all pairs (G,G') of graphs with n vertices. The main result of the paper is that $U(n) = 2n/3+0(n)$.

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Classification:
05C35 Extremal problems (graph theory)

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isomorphism; edge-chromatic number; edge-dominating number; decomposition