

# Arbitrary decompositions into open and closed trails

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## Abstract

The problem of arbitrary decomposition of a graph  $G$  into closed trails i.e. a decomposition into closed trails of prescribed lengths summing up to the size of the graph  $G$  was first considered in the case of the complete graph  $G = K_n$  (for odd  $n$ ) in connection with vertex-distinguishing coloring of the union of cycles.

Next, the same problem was investigated for other families of graphs.

In this paper we consider a more general problem: arbitrary decomposition of a graph into open and closed trails. Our results generalize all known results on decomposition of a graph into closed trails as well as some results concerning decomposition of a graph into open trails.

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