

# On arbitrarily vertex decomposable unicyclic graphs with dominating cycle

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## Abstract

A graph  $G$  of order  $n$  is called arbitrarily vertex decomposable if for each sequence  $(n_1, \dots, n_k)$  of positive integers such that  $\sum_{i=1}^k n_i = n$ , there exists a partition  $(V_1, \dots, V_k)$  of vertex set of  $G$  such that for every  $i \in \{1, \dots, k\}$  the set  $V_i$  induces a connected subgraph of  $G$  on  $n_i$  vertices. We consider arbitrarily vertex decomposable unicyclic graphs with dominating cycle. We also characterize all such graphs with at most four hanging vertices such that exactly two of them have a common neighbour.

*Keywords:* arbitrarily vertex decomposable graph, dominating cycle.