

## OPTIMAL BACKBONE COLORING OF SPLIT GRAPHS WITH MATCHING BACKBONES

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### Abstract

For a graph  $G$  with a given subgraph  $H$ , the backbone coloring is defined as the mapping  $c : V(G) \rightarrow \mathbb{N}_+$  such that  $|c(u) - c(v)| \geq 2$  for each edge  $\{u, v\} \in E(H)$  and  $|c(u) - c(v)| \geq 1$  for each edge  $\{u, v\} \in E(G)$ . The backbone chromatic number  $BBC(G, H)$  is the smallest integer  $k$  such that there exists a backbone coloring with  $\max_{v \in V(G)} c(v) = k$ .

In this paper, we present the algorithm for the backbone coloring of split graphs with matching backbone.

**Keywords:** backbone coloring, split graphs, matching.

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