OPTIMAL BACKBONE COLORING OF SPLIT GRAPHS WITH MATCHING BACKBONES

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For a split graph $G = (V, E)$ with subgraph H, the backbone coloring is defined as the mapping $c : V \to \mathbb{N}_+$ such that $|c(u) - c(v)| \geq 2$ for each edge $uv \in E(H)$ and $|c(u) - c(v)| > 0$ for each edge $uv \in E(G)$. The backbone chromatic number $BBC(G, H)$ is the smallest integer k such that exists a coloring with $\max_{v \in V} c(v) = k$.

In this paper, first we show the algorithm for the related problem, radio labeling of sparse graphs, and extend it to the optimal backbone coloring algorithm for split graphs with matching backbone.

Keywords: backbone coloring, split graph, matching.

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