Title: Dominator Colorings and Safe Clique Partitions

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Given a graph $G$, the dominator coloring problem seeks a proper coloring of $G$ with the additional property that every vertex in the graph dominates an entire color class. The safe clique partition problem seeks a partition of the vertices of a graph into cliques with the additional property that for each vertex $v$, there is a clique that has no element in the open neighborhood of $v$. We typically seek to minimize the number of color classes or cliques used, respectively. In this paper, we study these problems and consider the relationship between them.

Key Words: domination, coloring, independence.

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