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EDGE COLORINGS AVOIDING PATTERNS

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We say that a pattern is a graph together with an edge coloring, and a pattern $P = (H, c)$ occurs in some edge coloring c' of G if c' , restricted to some subgraph of G isomorphic to H , is equal to c up to renaming the colors. Inspired by Matoušek's visibility blocking problem, we study edge colorings of cliques that avoid certain patterns.

We show that for every pattern P , such that the number of edges in P is at least the number of vertices in P plus the number of colors minus 2, there is an edge coloring of K_n that avoids P and uses linear number of colors; the same also holds for finite sets of such patterns.