Rainbow Colorings and Rainbow Dependent Sets

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Let $G = (V, E)$ be a finite undirected graph with a given edge coloring $\phi: E \to \{1, ..., k\}$. A rainbow path between two vertices of G is a path for which no two edges are colored alike. The graph G is rainbow connected if any two vertices of G are connected by a rainbow path. In this case, the edge coloring is called a rainbow coloring of G. An edge subset $F \subseteq E$ is called rainbow dependent or short r-dependent if there does not exist a rainbow coloring of G that colors all edges of F with the same color. An edge set $F \subseteq E$ that is not r-dependent is called r-independent. In this talk we present some results for the r-dependent and r-independent sets.

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