

Rainbow Partitions and Rainbow Polynomial

Sara Kischnick*, Peter Tittmann, University of Applied Sciences Mittweida

Let $G = (V, E)$ be a finite undirected graph with a given edge coloring $\phi: E \rightarrow \{1, \dots, k\}$. 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 . A rainbow partition is the partition of the edge set E defined by the color classes of ϕ . The rainbow polynomial $\rho(G, x)$ which is defined through the rainbow partitions counts the number of rainbow colorings of G with x colors. In this talk we present some results for the rainbow partitions and for the rainbow polynomial.

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