

## Majestic Colorings in Graphs

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For a connected graph  $G$  of order at least 3, let  $c : E(G) \rightarrow \{1, 2, \dots, k\}$  be an edge coloring of  $G$  where adjacent edges may be colored the same. Then  $c$  induces a vertex coloring  $c'$  of  $G$  obtained by assigning to each vertex  $v$  of  $G$  the set of colors of the edges incident with  $v$ . The edge coloring  $c$  is a majestic  $k$ -edge coloring of  $G$  if the induced vertex coloring  $c'$  is a proper vertex coloring of  $G$ . The minimum positive integer  $k$  for which a graph  $G$  has a majestic  $k$ -edge coloring is the majestic chromatic index of  $G$ . For a graph  $G$  with majestic chromatic index  $k$ , the minimum number of distinct vertex colors induced by a majestic  $k$ -edge coloring is the majestic chromatic number of  $G$ . We present recent results and open questions in this area of research as well as a more recent generalization of this concept.

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