

1135-VP-1590 **Alexis Byers*** (alexis.d.byers@wmich.edu). *Graceful Colorings of Graphs*.

A graceful labeling of a graph G of order n and size m is a one-to-one function $f : V(G) \rightarrow \{0, 1, \dots, m\}$ that induces a one-to-one function $f' : E(G) \rightarrow \{1, 2, \dots, m\}$ defined by $f'(uv) = |f(u) - f(v)|$. A graph that admits a graceful labeling is a graceful graph. A proper coloring $c : V(G) \rightarrow \{1, 2, \dots, k\}$ is called a graceful k -coloring if the induced edge coloring c' defined by $c'(uv) = |c(u) - c(v)|$ is proper. The minimum positive integer k for which G has a graceful k -coloring is its graceful chromatic number. The graceful chromatic numbers of cycles, wheels and caterpillars are determined. An upper bound for the graceful chromatic number of trees is determined in terms of its maximum degree. We also present recent results and open questions in this area of research. (Received September 23, 2017)