

Graceful Colorings of Graphs

Zhenming Bi, Alexis Byers*, Ping Zhang, Western Michigan University

A graceful labeling of a graph G of size m is a one-to-one function $f : V(G) \rightarrow \{0, 1, \dots, m\}$ that induces a one-to-one function $f' : E(G) \rightarrow \{1, 2, \dots, m\}$ where $f'(uv) = |f(u) - f(v)|$. A graph that admits a graceful labeling is a graceful graph. We introduce the concept of graceful colorings of graphs which combines the features of classic graceful labelings and proper colorings. We present recent results as well as open questions in this area of research.

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