On Graceful Spectra of Graphs

Zhen-Bin Gao, Sin-Min Lee and Hsin-Hao Su*, Stonehill College.

For integer $k \geq 1$, a (p, q)-graph $G = (V, E)$ is called a k-graceful graph if there exists an injective mapping $f : V(G) \to \{0, 1, \ldots, k + q - 1\}$ such that the induced map $f^* : E(G) \to \mathbb{N}$ defined by $f^*((u, v)) = |f(u) - f(v)|$ for all $(u, v) \in E(G)$ is an bijection to $\{k, k + 1, \ldots, k + q + 1\}$. The graceful spectra of G is the set $\{k \mid G \text{ is a } k\text{-graceful graph}\}$ and denoted by $\mathrm{GS}(G)$. In this paper, we investigate the set $\mathrm{GS}(G)$ of families of graphs which does not admit a α-labeling including cycles, cycle with a cord, one-point union with a cycle and wheels.

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