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More trees of even orders which are super edge-graceful. (English)

Summary: A \((p, q)\)-graph \(G\) is said to be edge-graceful if the edges can be labeled by 1, 2, \ldots, \(q\) so that the vertex sums are distinct, mod \(p\). Several classes of trees of odd orders have been proved to be edge-graceful. It is shown that all trees of odd order of diameter at most four are edge-graceful. A graph \(G = (V, E)\) of order \(p\) and size \(q\) is said to be super edge-graceful if there exists a bijection

\[
f : E \to \{0, +1, -1, \ldots, (p-1)/2, -(p-1)/2\}
\]

such that the induced vertex labeling \(f^*\) defined by \(f^*(u) = \Sigma\{f(u, v) : (u, v) \in E\}\) has the property:

\[
f^* : V \to \{0, +1, -1, \ldots, p/2, -p/2\}
\]

is a bijection. In CGTC37, we presented some super edge-graceful trees of even orders. Some conjectures are still unsettled. In this paper we exhibit more trees of even orders which are super edge-graceful.

MSC:

05C78 Graph labelling (graceful graphs, bandwidth, etc.)
05C05 Trees

Keywords:

edge-graceful; super edge-graceful; trees of even orders; tree reduction; irreducible