Harmonious Labelings of Certain Disjoint Unions of Odd Cycles and Trees

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Harmonious graphs are graphs of the form $G$ with vertex set $V$ and edge set $E$ for which there is a one-to-one labeling $f : V \rightarrow \mathbb{Z}_m$, where $m = |E|$, such that the edge labels determined by the formula $f(u) + f(v) \mod m$ are all distinct. We show that the disjoint union of odd cycles with special trees are harmonious.

Keywords: Cycles, Trees, Harmonious labeling