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Incidence-adjacent vertex distinguishing equitable I-total coloring of ladder graphs. (Chinese. English summary) [Zbl 1463.05198]

Summary: The concept of incidence-adjacent vertex distinguishing equitable total coloring of graph is that when we color vertices and edges of graph, any two adjacent vertices $u$ and $v$ and any two adjacent edges of graph will be colored with different colors, and for any two adjacent vertices $u$ and $v$, there exists $C(u) \neq C(v)$, where $C(u)$ refers to the color set of the vertex $u$ and the set of all colors which are assigned to $u$ and the edges incident to $u$. An incidence-adjacent vertex distinguishing equitable total coloring of graph is adjacent vertex-distinguishing I-total coloring of graph such that the difference of the elements colored by any two colors is not more than 1. The minimum number of colors required in an incidence-adjacent vertex-distinguishing equitable total coloring is called incidence-adjacent vertex distinguishing equitable total chromatic number. The problems of incidence-adjacent vertex distinguishing equitable total coloring of ladder graphs $L_n$ were discussed, and the incidence-adjacent vertex distinguishing equitable total chromatic numbers were confirmed efficiently by using cyclic coloring method combined with permutation method and color adjustment technique based on constructing sequential color group and the structural properties of the graphs.

MSC:
05C15 Coloring of graphs and hypergraphs

Keywords:
ladder graph; sequential color group; incidence-adjacent vertex distinguishing equitable I-total coloring; incidence-adjacent vertex distinguishing equitable I-total chromatic number

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