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Neighbor sum distinguishing total colorings of planar graphs. (English) Zbl 1325.05083
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Summary: A total $[k]$ -coloring of a graph G is a mapping $\phi : V(G) \cup E(G) \rightarrow [k] = \{1, 2, \dots, k\}$ such that any two adjacent or incident elements in $V(G) \cup E(G)$ receive different colors. Let $f(v)$ denote the sum of the color of a vertex v and the colors of all incident edges of v . A total $[k]$ -neighbor sum distinguishing-coloring of G is a total $[k]$ -coloring of G such that for each edge $uv \in E(G)$, $f(u) \neq f(v)$. By $\chi''_{nsd}(G)$, we denote the smallest value k in such a coloring of G . *M. Piłśniak* and *M. Woźniak*: ["On the adjacent-vertex-distinguishing index by sums in total proper colorings", Preprint] conjectured $\chi''_{nsd}(G) \leq \Delta(G) + 3$ for any simple graph with maximum degree $\Delta(G)$. In this paper, we prove that this conjecture holds for any planar graph with maximum degree at least 13.

MSC:

05C15 Coloring of graphs and hypergraphs
05C10 Planar graphs; geometric and topological aspects of graph theory
05C35 Extremal problems in graph theory
05C07 Vertex degrees

Cited in **46** Documents

Keywords:

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