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Neighbor sum distinguishing total choice number of planar graphs without 6-cycles. (English)

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Summary: *M. Pilśniak* and *M. Woźniak* [Graphs Comb. 31, No. 3, 771–782 (2015; Zbl 1312.05054)] put forward the concept of neighbor sum distinguishing (NSD) total coloring and conjectured that any graph with maximum degree Δ admits an NSD total $(\Delta + 3)$ -coloring. *C. Qu* et al. [J. Comb. Optim. 32, No. 3, 906–916 (2016; Zbl 1348.05082)] showed that the list version of the conjecture holds for any planar graph with $\Delta \geq 13$. In this paper, we prove that any planar graph with $\Delta \geq 7$ but without 6-cycles satisfies the list version of the conjecture.

MSC:

05C15 Coloring of graphs and hypergraphs

05C10 Planar graphs; geometric and topological aspects of graph theory

Keywords:

planar graphs; neighbor sum distinguishing total choice number; combinatorial nullstellensatz

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