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Every planar graph without 4-cycles and 5-cycles is $(2,6)$-colorable. (English) Zbl 1437.05077

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Summary: A graph is $(d_1,\dots,d_r)$-colorable if the vertex set can be partitioned into r sets $V_1,\dots,V_r$ where the maximum degree of the subgraph induced by V_i is at most d_i for each $i\in\{1,\dots,r\}$. In this paper, we prove that every planar graph without 4-cycles and 5-cycles is $(2,6)$-colorable, which improves the result of *P. Sittitrai* and *K. Nakprasit* [Discrete Math. 341, No. 8, 2142–2150 (2018; Zbl 1388.05072)], who proved that every planar graph without 4-cycles and 5-cycles is $(2,9)$-colorable.

MSC:

05C15 Coloring of graphs and hypergraphs
05C10 Planar graphs; geometric and topological aspects of graph theory
05C38 Paths and cycles

Keywords:

improper coloring; planar graph; discharging method

Full Text: DOI

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