Borodin, Oleg V.; **Ivanova, Anna O.**

List strong linear 2-arboricity of sparse graphs. (English) Zbl 1218.05038

J. Graph Theory 67, No. 2, 83-90 (2011).

Summary: A graph G is called (k, j)-colorable if the vertex set of G can be partitioned into subsets V_1 and V_2 such that the graph $G[V_i]$ induced by the vertices of V_i has maximum degree at most k for $i = 1$ and at most j for $i = 2$. In particular, *F. Havet* and *J.-S. Sereni* [J. Graph Theory 52, No. 3, 181–199 (2006; Zbl 1104.05026)] proved that each planar graph G is list $(1, 1)$-colorable if its girth, $g(G)$, is at least 8 and list $(2, 2)$-colorable if $g(G) \geq 6$. *O. V. Borodin* and *A. O. Ivanova* [Diskretn. Anal. Issled. Oper., Ser. 1 16, No 2, 16–20(2009)] proved that every planar graph is $(2, 1)$-colorable if $g(G) \geq 7$ and $(5, 1)$-colorable if $g(G) \geq 6$. In fact, all these results were proved for each not necessarily planar sparse graph G, i.e., having a low maximum average degree, mad(G), over all subgraphs.

MSC:

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

Keywords:

planar graph; vertex partitions; vertex arboricity; star forest; list coloring

Full Text: DOI

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paper as accurately as possible without claiming the completeness or perfect precision of the matching.