LOCALLY IRREGULAR TOTAL COLORINGS OF GRAPH

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A locally irregular graph is a graph in which all adjacent vertices have distinct degrees. In article [1], the authors described the minimum number of locally irregular subgraphs into which a graph can be decomposed. This can be viewed as a graph coloring, where each color corresponds to a locally irregular subgraph. In [1], a total version of this problem is also defined.

In the problem of locally irregular total coloring of graphs, we aim to find the minimum number of colors in a total coloring of the graph such that, within each color class, all adjacent vertices have distinct total degrees.

References

[1] O. Baudon, J. Bensmail, J. Przybyło, M. Woźniak, On decomposing regular graphs into locally irregular subgraphs, *European Journal of Combinatorics*, 2015, 49, pp. 90–104.