

A NOTE ON NEIGHBOR EXPANDED SUM DISTINGUISHING INDEX¹

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Abstract

A total k -coloring of a graph G is a coloring of vertices and edges of G using colors of the set $[k] = \{1, \dots, k\}$. These colors can be used to distinguish the vertices of G . There are many possibilities of such a distinction. In this paper, we consider the sum of colors on incident edges and adjacent vertices.

Keywords: general edge coloring, total coloring, neighbor-distinguishing index, neighbor sum distinguishing coloring.

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REFERENCES

- [1] J.A. Bondy and U.S.R. Murty, *Graph Theory with Applications* (Macmillan, London, 1976).
- [2] M. Kalkowski, *A Note on the 1,2-Conjecture* (Ph. D. Thesis, Adam Mickiewicz University in Poznań, 2010).
- [3] M. Kalkowski, M. Karoński and F. Pfender, *Vertex-coloring edge-weightings: Towards the 1-2-3-Conjecture*, J. Combin. Theory Ser. B **100** (2010) 347–349.
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- [4] M. Karoński, T. Łuczak and A. Thomason, *Edge weights and vertex colours*, J. Combin. Theory Ser. B **91** (2004) 151–157.
doi:10.1016/j.jctb.2003.12.001
- [5] J. Przybyło and M. Woźniak, *On a 1, 2 Conjecture*, Discrete Math. Theor. Comput. Sci. **12** (2010) 101–108.

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