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SUPERMAGIC GENERALIZED DOUBLE GRAPHS [1]

Jaroslav Ivančo

Institute of Mathematics, P.J. Šafárik University
Jesenná 5, 040 01 Košice, Slovakia

e-mail: jaroslav.ivanco@upjs.sk

Abstract

A graph G is called supermagic if it admits a labelling of the edges by pairwise different consecutive integers such that the sum of the labels of the edges incident with a vertex is independent of the particular vertex. In this paper we will introduce some constructions of supermagic labellings of some graphs generalizing double graphs. Inter alia we show that the double graphs of regular Hamiltonian graphs and some circulant graphs are supermagic.

Keywords: double graphs, supermagic graphs, degree-magic graphs.

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References

[1] Ľ. Bezegová and J. Ivančo, *An extension of regular supermagic graphs*, Discrete Math. **310** (2010) 3571–3578.
doi:10.1016/j.disc.2010.09.005

[2] Ľ. Bezegová and J. Ivančo, *On conservative and supermagic graphs*, Discrete Math. **311** (2011) 2428–2436.
doi:10.1016/j.disc.2011.07.014

[3] R. Bodendiek and G. Walther, *Arithmetisch antimagische graphen*, in: Graphentheorie III, K. Wagner, R. Bodendiek (Ed(s)), (BI-Wiss. Verl., Mannheim, 1993).

[4] R. Bodendiek and G. Walther, *On arithmetic antimagic edge labelings of graphs*, Mitt. Math. Ges. Hamburg **17** (1998) 85–99.

[5] F. Boesch and R. Tindell, *Circulants and their connectivities*, J. Graph Theory **8** (1984) 487–499.
doi:10.1002/jgt.3190080406

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[6] J.A. Gallian, *A dynamic survey of graph labeling*, Electron. J. Combin. **16** (2013) #DS6.

[7] J. Ivančo, *On supermagic regular graphs*, Math. Bohem. **125** (2000) 99–114.

[8] J. Ivančo, *A construction of supermagic graphs*, AKCE Int. J. Graphs Comb. **6** (2009) 91–102.

[9] J. Ivančo and A. Semaničová, *Some constructions of supermagic graphs using antimagic graphs*, SUT J. Math. **42** (2006) 177–186.

[10] E. Munarini, C.P. Cippo, A. Scagliola and N.Z. Salvi, *Double graphs*, Discrete Math. **308** (2008) 242–254.
doi:10.1016/j.disc.2006.11.038

[11] J. Sedláček, *Problem* 27, in: Theory of Graphs and Its Applications, Proc. Symp. Smolenice (Praha, 1963) 163–164.

[12] A. Semaničová, *On magic and supermagic circulant graphs*, Discrete Math. **306** (2006) 2263–2269.
doi:10.1016/j.disc.2006.04.011

[13] B.M. Stewart, *Magic graphs*, Canad. J. Math. **18** (1966) 1031–1059.
doi:10.4153/CJM-1966-104-7

[14] B.M. Stewart, *Supermagic complete graphs*, Canad. J. Math. **19** (1967) 427–438.
doi:10.4153/CJM-1967-035-9

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