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LABELED EMBEDDING OF $(n, n\text{-}2)$-GRAPHS IN THEIR COMPLEMENTS

M.-A. Tahraoui, E. Duchêne, H. Kheddouci

Université de Lyon, CNRS, Université Lyon 1, LIRIS
UMR5205, F-69622, France

e-mail: eric.duchene@univ-lyon1.fr

AND

M. Woźniak

Department of Discrete Mathematics
Faculty of Applied Mathematics
AGH University of Science and Technology, Kraków, Poland

Abstract

Graph packing generally deals with unlabeled graphs. In [4], the authors have introduced a new variant of the graph packing problem, called the *labeled packing of a graph*. This problem has recently been studied on trees [M.A. Tahraoui, E. Duchêne and H. Kheddouci, *Labeled* 2*-packings of trees*, Discrete Math. **338** (2015) 816–824] and cycles [E. Duchêne, H. Kheddouci, R.J. Nowakowski and M.A. Tahraoui, *Labeled packing of graphs*, Australas. J. Combin. **57** (2013) 109–126]. In this note, we present a lower bound on the labeled packing number of any $(n, n-2)$-graph into K_n. This result improves the bound given by Woźniak in [*Embedding graphs of small size*, Discrete Appl. Math. **51** (1994) 233–241].

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References

[1] B. Bollobás and S.E. Eldridge, *Packing of graphs and applications to computational complexity*, J. Combin. Theory Ser. B **25** (1978) 105–124.
doi:10.1016/0095-8956(78)90030-8

[2] J.A. Bondy and U.S.R. Murty, Graph Theory with Applications (McMillan, London; Elsevier, New York, 1976).

[3] D. Burns and S. Schuster, *Every* $(p, p-2)$ *graph is contained in its complement*, J. Graph Theory **1** (1977) 277–279.
doi:10.1002/jgt.3190010308

[4] E. Duchêne, H. Kheddouci, R.J. Nowakowski and M.A. Tahraoui, *Labeled packing of graphs*, Australas. J. Combin. **57** (2013) 109–126.

[5] N. Sauer and J. Spencer, *Edge disjoint placement of graphs*, J. Combin. Theory Ser. B **25** (1978) 295–302.
doi:10.1016/0095-8956(78)90005-9

[6] M.A. Tahraoui, E. Duchêne and H. Kheddouci, *Labeled* 2*-packings of trees*, Discrete Math. **338** (2015) 816–824.
doi:10.1016/j.disc.2014.12.01

[7] M. Woźniak, *Embedding graphs of small size*, Discrete Appl. Math. **51** (1994) 233–241.
doi:10.1016/0166-218X(94)90112-0

[8] M. Woźniak, *Packing of graphs and permutations—a survey*, Discrete Math. **276** (2004) 379–391.
doi:10.1016/S0012-365X(03)00296-6

[9] H.P. Yap, *Packing of graphs—a survey*, Discrete Math. **72** (1988) 395–404.
doi:10.1016/0012-365X(88)90232-4

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