

HEREDITARY EQUALITY OF DOMINATION AND EXPONENTIAL DOMINATION IN SUBCUBIC GRAPHS

XUE-GANG CHEN, YU-FENG WANG

AND

XIAO-FEI WU

*Department of Mathematics
North China Electric Power University
Beijing 102206, China*

e-mail: gxcxdm@163.com

Abstract

Let $\gamma(G)$ and $\gamma_e(G)$ denote the domination number and exponential domination number of graph G , respectively. Henning *et al.*, in [*Hereditary equality of domination and exponential domination*, Discuss. Math. Graph Theory 38 (2018) 275–285] gave a conjecture: There is a finite set $\mathcal{F}$ of graphs such that a graph G satisfies $\gamma(H) = \gamma_e(H)$ for every induced subgraph H of G if and only if G is $\mathcal{F}$ -free. In this paper, we study the conjecture for subcubic graphs. We characterize the class $\mathcal{F}$ by minimal forbidden induced subgraphs and prove that the conjecture holds for subcubic graphs.

Keywords: dominating set, exponential dominating set, subcubic graphs.

2010 Mathematics Subject Classification: 05C69, 05C35.

REFERENCES

- [1] S. Bessy, P. Ochem and D. Rautenbach, *Exponential domination in subcubic graphs*, Electron. J. Combin. **23** (2016) #P4.42.
<https://doi.org/10.37236/5711>
- [2] P. Dankelmann, D. Day, D. Erwin, S. Mukwembi and H. Swart, *Domination with exponential decay*, Discrete Math. **309** (2009) 5877–5883.
<https://doi.org/10.1016/j.disc.2008.06.040>
- [3] T.W. Haynes, S.T. Hedetniemi and P.J. Slater, *Fundamentals of Domination in Graphs* (Marcel Dekker, Inc., New York, 1998).

- [4] T.W. Haynes, S.T. Hedetniemi and P.J. Slater, *Domination in Graphs: Advanced Topics* (Marcel Dekker, Inc., New York, 1998).
- [5] M.A. Henning, S. Jäger and D. Rautenbach, *Hereditary equality of domination and exponential domination*, *Discuss. Math. Graph Theory* **38** (2018) 275–285.
<https://doi.org/10.7151/dmgt.2006>

Received 11 October 2018

Revised 13 May 2019

Accepted 13 May 2019