

NOTE

ON THE ERDŐS-GYÁRFÁS CONJECTURE IN CLAW-FREE GRAPHS

POURIA SALEHI NOWBANDEGANI¹, HOSSEIN ESFANDIARI²

MOHAMMAD HASSAN SHIRDAREH HAGHIGHI¹ AND KHODAKHAST BIBAK³

¹ *Department of Mathematics*
Shiraz University
Shiraz 71454, Iran

² *Department of Computer Science*
University of Maryland College Park
College Park, MD 20742, USA

³ *Department of Combinatorics and Optimization*
University of Waterloo
Waterloo, Ontario, Canada N2L 3G1

e-mail: pouria.salehi@gmail.com
hossein@cs.umd.edu
shirdareh@susc.ac.ir
kbibak@uwaterloo.ca

Abstract

The Erdős-Gyárfás conjecture states that every graph with minimum degree at least three has a cycle whose length is a power of 2. Since this conjecture has proven to be far from reach, Hobbs asked if the Erdős-Gyárfás conjecture holds in claw-free graphs. In this paper, we obtain some results on this question, in particular for cubic claw-free graphs.

Keywords: Erdős-Gyárfás conjecture, claw-free graphs, cycles.

2010 Mathematics Subject Classification: C5038, C5038.

REFERENCES

- [1] J.A. Bondy, *Extremal problems of Paul Erdős on circuits in graphs*, in: Paul Erdős and his Mathematics, II, Bolyai Soc. Math. Stud., 11, Janos Bolyai Math. Soc., Budapest (2002), 135–156.
- [2] J.A. Bondy and U.S.R. Murty, *Graph Theory* (Springer-Verlag, New York, 2008).

- [3] D. Daniel and S.E. Shauger, *A result on the Erdős-Gyárfás conjecture in planar graphs*, Congr. Numer. **153** (2001) 129–140.
- [4] P. Erdős, *Some old and new problems in various branches of combinatorics*, Discrete Math. **165/166** (1997) 227–231.
doi:10.1016/S0012-365X(96)00173-2
- [5] K. Markström, *Extremal graphs for some problems on cycles in graphs*, Congr. Numer. **171** (2004) 179–192.
- [6] P. Salehi Nowbandegani and H. Esfandiari, *An experimental result on the Erdős-Gyárfás conjecture in bipartite graphs*, 14th Workshop on Graph Theory CID, September 18–23, 2011, Szklarska Poręba, Poland.
- [7] S.E. Shauger, *Results on the Erdős-Gyárfás conjecture in $K_{1,m}$ -free graphs*, Congr. Numer. **134** (1998) 61–65.
- [8] J. Verstraëte, *Unavoidable cycle lengths in graphs*, J. Graph Theory **49** (2005) 151–167.
doi:10.1002/jgt.20072

Received 29 August 2012
Revised 6 February 2013
Accepted 6 February 2013