LARGE DEGREE VERTICES IN LONGEST CYCLES OF GRAPHS, I

BINLONG LI^{1,2}, LIMING XIONG^{3,4} AND JUN YIN^{3,5}

¹*Department of Applied Mathematics
Northwestern Polytechnical University
Xi'an, Shaanxi 710072, P.R. China*

²*Department of Mathematics
University of West Bohemia
306 14 Plzeň, Czech Republic*

³*School of Mathematics and Statistics
Beijing Institute of Technology
Beijing, 100081, P.R. China*

⁴*Beijing Key Laboratory on MCAACI
Beijing Institute of Technology
Beijing, 100081, P.R. China*

⁵*School of Computer Science
Qinghai Normal University
Xining, Qinghai, 810008, P.R. China*

e-mail: libinlong@mail.nwpu.edu.cn
lmxiong@bit.edu.cn
yinlijun0908@163.com

Abstract

In this paper, we consider the least integer d such that every longest cycle of a k -connected graph of order n (and of independent number α) contains all vertices of degree at least d .

Keywords: longest cycle, large degree vertices, order, connectivity, independent number.

2010 Mathematics Subject Classification: 05C38.

REFERENCES

- [1] B. Bollobás and G. Brightwell, *Cycles through specified vertices*, *Combinatorica* **13** (1993) 147–155.
doi:10.1007/BF01303200

- [2] J.A. Bondy and U.S.R. Murty, *Graph Theory* (Springer-Verlag, London, 2008).
- [3] V. Chvátal and P. Erdős, *A note on Hamiltonian circuits*, Discrete Math. **2** (1972) 111–113.
doi:10.1016/0012-365X(72)90079-9
- [4] G.A. Dirac, *Some theorems on abstract graphs*, Proc. Lond. Math. Soc. **(3)2** (1952) 69–81.
doi:10.1112/plms/s3-2.1.69
- [5] M. Kouider, *Cycles in graphs with prescribed stability number and connectivity*, J. Combin. Theory Ser. B **60** (1994) 315–318.
doi:10.1006/jctb.1994.1023
- [6] B. Li and S. Zhang, *Forbidden subgraphs for longest cycles to contain vertices with large degree*, Discrete Math. **338** (2015) 1681–1689.
doi:10.1016/j.disc.2014.07.003
- [7] D. Paulusma and K. Yoshimoto, *Cycles through specified vertices in triangle-free graphs*, Discuss. Math. Graph Theory **27** (2007) 179–191.
doi:10.7151/dmgt.1354
- [8] A. Saito, *Long cycles through specified vertices in a graph*, J. Combin. Theory Ser. B **47** (1989) 220–230.
doi:10.1016/0095-8956(89)90021-X
- [9] R. Shi, *2-neighborhoods and Hamiltonian conditions*, J. Graph Theory **16** (1992) 267–271.
doi:10.1002/jgt.3190160310
- [10] S. O, D.B. West and H. Wu, *Longest cycles in k -connected graphs with given independence number*, J. Combin. Theory Ser. B **101** (2011) 480–485.
doi:10.1016/j.jctb.2011.02.005

Received 8 December 2014

Revised 13 May 2015

Accepted 12 July 2015