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PAIRS OF EDGES AS CHORDS AND AS CUT-EDGES

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Abstract

Several authors have studied the graphs for which every edge is a chord of a cycle; among 2-connected graphs, one characterization is that the deletion of one vertex never creates a cut-edge. Two new results: among 3-connected graphs with minimum degree at least 4, every two adjacent edges are chords of a common cycle if and only if deleting two vertices never creates two adjacent cut-edges; among 4-connected graphs, every two edges are always chords of a common cycle.

Keywords: cycle, chord, cut-edge.

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References

[1] T. Denley and H. Wu, *A generalization of a theorem of Dirac*, J. Combin. Theory (B) **82** (2001) 322–326.
doi:10.1006/jctb.2001.2041

[2] G.A. Dirac, *In abstrakten Graphen vorhandene vollständige* 4-*Graphen und ihre Unterteilungen*, Math. Nachr. **22** (1960) 61–85.
doi:10.1002/mana.19600220107

[3] R.J. Faudree, *Survey of results on k-ordered graphs*, Discrete Math. **229** (2001) 73–87.
doi:10.1016/S0012-365X(00)00202-8

[4] W. Gu, X. Jia and H. Wu, *Chords in graphs*, Australas. J. Combin. **32** (2005) 117–124.

[5] L. Lovász, Combinatorial Problems and Exercises, Corrected reprint of the 1993 Second Edition (AMS Chelsea Publishing, Providence, 2007).

[6] K. Menger, *Zur allgemeinen Kurventheorie*, Fund. Math. **10** (1927) 96–115.

[7] T.A. McKee, *Chords and connectivity*, Bull. Inst. Combin. Appl. **47** (2006) 48–52.

[8] M.D. Plummer, *On path properties versus connectivity I*, in: Proceedings of the Second Louisiana Conference on Combinatorics, Graph Theory and Computing, R.C. Mullin, *et al.* (Ed(s)), (Louisiana State Univ., Baton Rouge, 1971) 457–472.