Werk

Label: Table of literature references

Jahr: 1980

PURL: https://resolver.sub.uni-goettingen.de/purl?31311157X_0105|log67

Kontakt/Contact

Digizeitschriften e.V.
SUB Göttingen
Platz der Göttinger Sieben 1
37073 Göttingen

info@digizeitschriften.de

be a component of $G - U_1$ with the minimum number of vertices. Since $|V(G)| \geqq 5$, we have that $|V(G) - U_1 - V(G')| \geqq 2$. Consider an arbitrary two-element subset U_2 of $V(G) - U_1 - V(G')$. Let $v \in V(G')$. It is obvious that in G the vertex v is separated from U_2 by U_1. This implies that there exists no (U_1, U_2)-path system on G, which is a contradiction. Hence the theorem follows.

Theorem 3. *Let G be a 2-traceable graph with at least five vertices. Then G is hamiltonian-connected.*

Proof. According to Theorem 2, G is 3-connected. Let u and v be distinct vertices of G. Since $G - u - v$ is connected, there exist distinct vertices a and b of $G - u - v$ such that $ab \in E(G)$. Since G is 2-traceable, there exists a $(\{u, v\}, \{a, b\})$-path system on G. Without loss of generality we assume that there exist a $u - a$ path P_1 and a $v - b$ path P_2 such that $V(P_1) \cap V(P_2) = \emptyset$ and $V(P_1) \cup V(P_2) = V(G)$. This means that $(P_1 \cup P_2) + ab$ is a hamiltonian $u - v$ path in G. Hence the theorem follows.

Remark 3. The cycle with exactly four vertices is 2-traceable but not hamiltonian-connected.

Acknowledgement. The author wishes to express her gratitude to M. SEKANINA and to L. NEBESKÝ for their helpful comments during the preparation of this paper.

References

[1] *F. Harary:* Graph Theory. Addison-Wesley, Reading (Mass.) 1969.

[2] *M. Behzad* and *G. Chartrand:* Introduction to the Theory of Graphs. Allyn and Bacon, Boston 1971.

[3] *Jean-Loup Jolivet:* Sur les puissances des graphes connexes. C.R. Acad. Sc. Paris, t. *272*, p. 107—109 (1971), Serie A.

[4] *G. Chartrand* and *S. F. Kapoor:* The cube of every connected graph is 1-hamiltonian. J. Res. Nat. Bur. Stand. *73* B (1969) 47—48.

[5] *M. Sekanina:* On an ordering of the of vertices of a connected graph. Publ. Fac. Sci. Univ. Brno *412* (1960), 137—142.

[6] *M. Sekanina:* Private communication.

[7] *L. Lesniak-Foster:* Some recent results in hamiltonian graphs. Journal of Graph Theory, vol. *1*, 27—36 (1977).

Author's address: 010 88 Žilina, Marxa-Engelsa 25 (Fakulta SET, Vysoká škola dopravná).