

Povzetek vsebine

V nalogi so najprej prikazani osnovni pojmi iz teorije grafov, ki so vezani na dani problem, nekaj uporabnih izrekov, kot je Mengerjev, ki je pomemben za reševanje našega problema.

Sledi novejši pristop za karakterizacijo povezanosti grafa na geometričen in algebraičen način.

Na koncu je opisan algoritem in nekaj njegovih različic ter navedeni nekateri primeri za proučevanje njegove časovne zahtevnosti.

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- [1] N. Linial, L.Lovasz, A.Wigderson, *Rubber bands, convex embeddings and graph connectivity*, *Combinatorica* 8 (1) (1988), 91-102.
- [2] S. Berkowitz, *On computing the determinant in small parallel time using a small number of processors*, *Inform. Proc. Let.*, 18 (1984), 147-150.
- [3] G. Birkhoff, S. MacLane, *A survey of Modern Algebra*, MacMillan, 1970.
- [4] D. Coppersmith, S. Winograd, *On the asymptotic complexity of matrix multiplication*, *SIAM J.Computing*, (1982), 472-492.
- [5] R. Connelly, *Rigidity and Energy*, *Invent. Math.*, 66 (1982), 11-33.
- [6] S. Even, *Graph Algorithms*, Computer Science Press, 1979.
- [7] S.Even, R. E. Tarjan, *Computing an st-numbering*, *Theoret. Comp. Sci.*, 2 (1976) 339-334.
- [8] Z. Galil, *Finding the vertex connectivity of graphs*, *SIAM J.Computing*, 9 (1980) 197-199.
- [9] A.W. Ingleton, M. J. Piff, *Gammoids and transversal matroids*, *J. Comb. Theory*, B15 (1973), 51-68.
- [10] L. Lovasz, *Combinatorial Problems and Exercises*, North-Holland, 1979.
- [11] A. Lempel, S. Even, I. Cederbaum, *An algorithm for planarity testing of graphs*, *Theory of Graphs*, (1979), Internat.Symposium, Rome, P.Rosenfield, 215-232.
- [12] H. Perfect, *Symmetrized form of P.Hall's theorem on distinct representatives*, *Quart. J. Math. Oxford*. 17 (1966), 303-306.
- [13] J. T. Schwartz, *Fast probabilistic algorithms for verification of polynomial identities*, *J. ACM* 27, 4 (1980), 701-717.
- [14] V. Vishkin, *Synchronous parallel computation, a survey*, TR #71, Department of Computer Science, Courant Institut, NYU, 1983.
- [15] W. Tutte, *How to draw a graph*, *Proc. London Math. Soc.*, 13 (1963), 743-768