

Augmenting a $(k-1)$ -Vetrex-Connected Multigraph to an l -Edge-Connected and k -Vetrex-Connected Multigraph

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For two integers $k, l > 0$ and an undirected multigraph $G = (V, E)$, we consider the problem of augmenting G by the smallest number of new edges to obtain an l -edge-connected and k -vetrex-connected multigraph. In this paper we show that a $(k-1)$ -vetrex-connected multigraph G can be made l -edge-connected and k -vetrex-connected by adding at most $\max\{l+1, 2k-4\}$ surplus edges over the optimum in $O(\min(k, \sqrt{n})kn^3 + n^4)$ time, where $n = |V|$.