

ON THE CORE-NILPOTENT DECOMPOSITION OF UNICYCLIC GRAPHS

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In this work, we use the null decomposition of unicyclic graphs in order to show that the core-nilpotent decomposition of $A(U)$, the adjacency matrix of a unicyclic graph U , can be obtained directly from the unicyclic graph itself. In other words, we give two invertible matrices Q and K , expressed in terms of some adjacency relations of U , such that $Q^{-1}A(U)Q$ is a 2×2 blocks diagonal matrix, whose first block is K , a $r \times r$ matrix such that $rk(K) = rk(A(U)) = r$, and whose second block is a zero matrix.

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