Half of grid graphs are non-singular

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Abstract

Let $G$ be a graph and let $A(G)$ be the adjacency matrix of $G$. The nullity of a graph is the multiplicity of the eigenvalue zero in the spectrum of $G$. In this paper, we find a recursive relation on the nullity of grid graphs. Then we determine the nullity of grid graphs and show that half of grid graphs are of nullity zero.

Keywords: spectrum, nullity, adjacent matrix, grid graph

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