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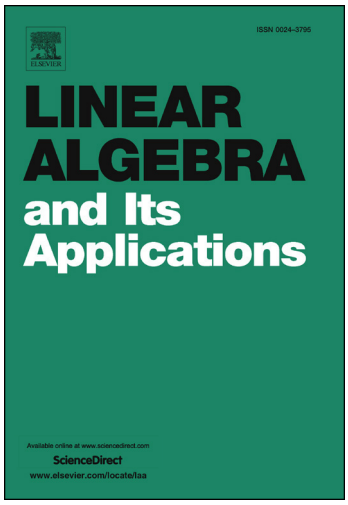

No threshold graphs are cospectral

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No threshold graphs are cospectral

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Abstract

A threshold graph G on n vertices is defined by binary sequence of length n. In this paper we present an explicit formula for computing the characteristic polynomial of a threshold graph from its binary sequence. Applications include obtaining a formula for the determinant of adjacency matrix of a threshold graph and showing that no two nonisomorphic threshold graphs are cospectral.

keywords: threshold graph, characteristic polynomial, cospectral graphs.
AMS subject classification: 15A18, 05C50, 05C85.

1 Introduction

Let $G = (V, E)$ be an undirected graph with vertex set V and edge set E, without loops or multiple edges. The *adjacency matrix* of G, denoted by $A = [a_{ij}]$, is a matrix whose rows and columns are indexed by the vertices of G, and is defined to have entries $a_{ij} = 1$ if and only if v_i is adjacent to v_j, and $a_{ij} = 0$ otherwise. The characteristic polynomial of G, denoted by

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