

THE LEAST EIGENVALUE OF GRAPHS WHOSE COMPLEMENTS ARE UNICYCLIC

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Abstract

A graph in a certain graph class is called minimizing if the least eigenvalue of its adjacency matrix attains the minimum among all graphs in that class. Bell *et al.* have identified a subclass within the connected graphs of order n and size m in which minimizing graphs belong (the complements of such graphs are either disconnected or contain a clique of size $\frac{n}{2}$). In this paper we discuss the minimizing graphs of a special class of graphs of order n whose complements are connected and contains exactly one cycle (namely the class $\mathcal{U}_n^c$ of graphs whose complements are unicyclic), and characterize the unique minimizing graph in $\mathcal{U}_n^c$ when $n \geq 20$.

Keywords: unicyclic graph, complement, adjacency matrix, least eigenvalue.

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