THE LEAST EIGENVALUE OF GRAPHS WHOSE COMPLEMENTS ARE UNICYCLIC

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\textbf{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 \textit{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 \( \mathcal{U}_n \) of graphs whose complements are unicyclic), and characterize the unique minimizing graph in \( \mathcal{U}_n \) when \( n \geq 20 \).

\textbf{Keywords:} unicyclic graph, complement, adjacency matrix, least eigenvalue.

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\textbf{References}

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