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THE Q-MATRIX COMPLETION PROBLEM*

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Abstract. A real $n \times n$ matrix is a Q-matrix if for every $k = 1, 2, \ldots, n$ the sum of all $k \times k$ principal minors is positive. A digraph D is said to have Q-completion if every partial Q-matrix specifying D can be completed to a Q-matrix. For the Q-completion problem, sufficient conditions for a digraph to have Q-completion are given, necessary conditions for a digraph to have Q-completion are provided, and those digraphs of order at most four that have Q-completion are characterized.

Key words. Partial matrix, Matrix completion, Q-matrix, Q-completion, Digraph.

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