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INTERVALS OF CERTAIN CLASSES OF Z-MATRICES

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Abstract

Let A and B be M-matrices satisfying $A \leq B$ and $J = [A, B]$ be the set of all matrices C such that $A \leq C \leq B$, where the order is component wise. It is rather well known that if A is an M-matrix and B is an invertible M-matrix and $A \leq B$, then $aA + bB$ is an invertible M-matrix for all $a, b > 0$. In this article, we present an elementary proof of a stronger version of this result and study corresponding results for certain other classes as well.

Keywords: interval matrix, M-matrix, N-matrix, N_0-matrix, nonnegativity.

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