

On eigenvalue bounds for Schur complement of some diagonally dominant matrices

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Abstract

The theory of Schur complement plays an important role in many fields, as well as the theory of H-matrices. In [1], a 'vertical' eigenvalue localization for Schur complement of an SDD matrix is presented. Starting from that point, in this paper we obtain new bounds for the eigenvalues of Schur complement by the entries of the original matrix instead of those of the Schur complement, for some special H-matrices. Also, we show how this result for a wider class can be applied for estimating bounds for the eigenvalues of Schur complement of an SDD matrix.

Keywords

H-matrices, Schur complement, Diagonal scaling, Eigenvalue localization.

References

- [1] Jianzhou, L. and F. Zhang (2005). Disc separation of the Schur complement of diagonally dominant matrices and determinantal bounds. *SIAM J. Matrix Anal. Appl.* 27(3), 665–674.