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SCHUR COMPLEMENTS OF GENERALLY DIAGONALLY DOMINANT MATRICES AND A CRITERION FOR IRREDUCIBILITY OF MATRICES*

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Abstract. As is well known, the Schur complements of strictly or irreducibly diagonally dominant matrices are $H-$matrices; however, the same is not true of generally diagonally dominant matrices. This paper proposes some conditions on the generally diagonally dominant matrix A and the subset $\alpha \subset \{1, 2, \ldots, n\}$ so that the Schur complement matrix A/α is an $H-$matrix. These conditions are then applied to decide whether a matrix is irreducible or not.

Key words. Schur complement, Diagonally dominant matrices, $H-$matrices; Irreducible, Reducible.

AMS subject classifications. 15A15, 15F10.

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