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RECOGNITION OF HIDDEN POSITIVE ROW DIAGONALLY DOMINANT MATRICES*

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Abstract. A hidden positive row diagonally dominant (hprdd) matrix is a square matrix A for which there exist square matrices C and B so that $AC = B$ and each diagonal entry of B and C is greater than the sum of the absolute values of the off-diagonal entries in its row. A linear program with $5n^2 - 4n$ variables and $2n^2$ constraints is defined that takes as input an $n \times n$ matrix A and produces C and B satisfying the above conditions if and only if they exist. A 4×4 symmetric positive definite matrix that is not an hprdd matrix is presented.

Key words. Factorization of matrices, Linear inequalities, P-matrices.

AMS subject classifications. 15A23, 15A39, 15A48.

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