

BOUNDS FOR EXTREME SINGULAR VALUES OF A COMPLEX MATRIX AND ITS APPLICATIONS

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Abstract. In this study, we have obtained bounds for extreme singular values of a complex matrix A of order $n \times n$.

In addition, we have found a bounds for the extreme singular values of Hilbert matrix, its Hadamard square root, Cauchy-Toeplitz matrix, Cauchy-Hankel matrix in the forms

$$\begin{aligned}
 H &= (1(i+j-1))_{i,j=1}^n, & H^{\sigma 1/2} &= (1(i+j-1)^{1/2})_{i,j=1}^n, \\
 T_n &= [1(g+(i-j)h)]_{i,j=1}^n & \text{and} & & H_n &= [1(g+(i+j)h)]_{i,j=1}^n,
 \end{aligned}$$

respectively.

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