

ESTIMATING THE EXTREME SINGULAR VALUES OF MATRICES

CHI-KWONG LI[†] AND CARRIE A. POHANKA

Abstract. Algorithms are derived to obtain upper and lower bounds for the largest and smallest singular values of a square complex matrix in terms of its eigenvalues and Frobenius norm. These bounds are best possible in the sense that they are attainable by some matrices with the prescribed eigenvalues and Frobenius norm. Numerical examples are given to compare them with those in the literature.

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