SUMS OF REAL PARTS OF EIGENVALUES OF PERTURBED MATRICES

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Abstract. Let $A$ be a $n \times n$ matrices, whose eigenvalues are $\lambda_k$ and $\tilde{\lambda}_k$, respectively. Assuming that $A$ is Hermitian, we prove the inequality

$$\left[ \sum_{k=1}^{n} |\text{Re } \tilde{\lambda}_k - \lambda_k|^{p} \right]^{1/p} \leq N_p(E_R) + \tilde{b}_p N_p(E_I) \quad (2 \leq p < \infty)$$

where $N_p(A)$ is the Schatten-von Neumann norm of $A$, $E = \tilde{A} - A$, $E_R = (E + E^*)/2$, $E_I = (E - E^*)/2i$, and $\tilde{b}_p \leq p e^{1/3}$. That inequality is generalized then to the Schatten-von Neumann operators.


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REFERENCES