



Math for the people, by the people.

Weyl's inequality

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Let A and E be two $n \times n$ Hermitian matrices, with E positive semidefinite.

Let $\lambda_i(A)$, $\lambda_i(A + E)$, $1 \leq i \leq n$ be the eigenvalues of A and $A + E$ respectively, ordered in such a way that

$$|\lambda_1| \leq |\lambda_2| \leq \cdots \leq |\lambda_n|.$$

Then

$$\lambda_i(A) \leq \lambda_i(A + E).$$