The main result is a positive answer to a conjecture of S. Friedland [Linear Multilinear Algebra 12, 81-98 (1982; Zbl 0491.15002)]. Let $A, B$ be complex $n$-by-$n$ matrices with eigenvalues $\lambda_i, \mu_i$ ($i = 1, \ldots, n$) and $\nu(A, B) = \min_{\pi} \max_i |\lambda_i - \mu_{\pi(i)}|$ where min runs over all permutations $\pi$ of $\{1, \ldots, n\}$, then $\nu(A, B) \leq c_n \|A - B\|^{|1/n|} (\|A\| + \|B\|)^{1 - 1/n}$. Friedland conjectured that there is a global bound for $c_n$. Here it is shown that $c_n \leq 8$ for all $n$. It should be added that in the meantime Bhatia et al and Krause have shown by using similar tools that $c_n \leq 3.08$.

Reviewer: L. Elsner

MSC:
15A42 Inequalities involving eigenvalues and eigenvectors
15A18 Eigenvalues, singular values, and eigenvectors
65F15 Numerical computation of eigenvalues and eigenvectors of matrices

Keywords:
spectral variation; Chebyshev polynomials; resolvent

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References:

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