

Y. Chen, A. Nokrane and T. J. Ransford, **Estimates for the spectrum near algebraic elements**, *Linear Algebra Appl.*, 308 (2000), 153–161.

Abstract

We extend a result of Friedland on the variation of eigenvalues of matrices to show that, if a, b are elements of a Banach algebra, both algebraic of degree at most n , then the Hausdorff distance between their spectra satisfies

$$\Delta(\sigma(a), \sigma(b))^n \leq c_n (2M)^{n-1} \|a - b\|,$$

where $M = \max(\|a\|, \|b\|)$ and $c_n \leq \frac{2}{3}n + \frac{1}{3}$. The same technique also re-proves a local form of this result, obtained earlier by Aupetit and Zemánek, but with improved bounds on the constants. We further investigate the sharpness of these bounds.