

von Neumann's inequality for contractions

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Abstract

The von Neumann's inequality states that if T is a contraction on a complex Hilbert space \mathcal{H} then for any polynomial p ,

$$\|p(T)\| \leq \|p\|_\infty,$$

where $\|p\|_\infty = \sup_{|z| \leq 1} |p(z)|$. In this talk, we will present an elementary proof of this inequality.