

On Spectral Radii and pseudo- Q locally convex Algebras

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Joint work with Hugo Arizmendi

An element x in a topological algebra A is called *bounded* if and only if, for some non-zero complex number λ , the set $\{(\lambda x)^n; n = 1, 2, \dots\}$ is a bounded set of A . If A is a locally convex algebra and $x \in A$, Allan defined (1965) the *radius of boundedness*, $\beta(x)$, of x by

$$\beta(x) = \inf \left\{ \lambda > 0 : \left\{ \left(\frac{x}{\lambda} \right)^n \right\}_{n \geq 1} \text{ is bounded} \right\}$$

with the usual convention that $\inf \emptyset = \infty$. In this talk we give a relation between the usual spectral radius $\rho(x)$ and the boundedness radius $\beta(x)$ of an element x of a unital locally convex algebra A in terms of the convergence of the power series of $(\lambda e - x)$ with $|\lambda| > \rho(x)$ when $\rho(x)$ is finite. Following an idea of Allan, we define the concept of pseudo- Q -algebra and we show some relations between the mentioned radii in this class of algebras.

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