

Banach Algebras 2009

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Distance between elements of sectorial semigroups.

ABSTRACT. We consider here semigroups $(T(t)) = (e^{-tA})$ of bounded linear operators on a Banach space X which are analytic on a sector $\mathcal{S}_\alpha := \{z \in \mathbb{C} \setminus \{0\} \mid |\arg(z)| < \alpha\}$ for some $\alpha \in (0, \pi/2]$, and look for lower estimates for the distance $\|T(t) - T(s)\|$ (or more generally for $\|f(A)\|$, where A is the generator of the semigroup and f a sum of suitable exponential-polynomial function) in the case where the generator of the semigroup is unbounded, or in the case where the closed subalgebra of $\mathcal{B}(X)$ generated by the semigroup does not possess an exhaustive sequence of idempotents. Sharp results concerning strongly continuous semigroups on the half-line were obtained by the author in 2005, but some questions are still open for sectorial semigroups (this is joint work with I. Chalendar and J. Partington).