A version of Gomilko-Shi-Feng Theorem in L_p space

Loris Arnold[1, *]

[1] *LMB, Besançon, France*

In a Hilbert space H, the Gomilko-Shi-Feng Theorem states :
$-A$ generates a bounded C_0-semigroup on H if and only there exists $C \geq 0$ such that for all $x \in H$, $x^* \in H^*$ and $\alpha < 0$ the following estimates are satisfied

$$-\alpha \int_{\mathbb{R}} \|R(\alpha + it, A)x\|^2 \leq C \|x\|^2$$

$$-\alpha \int_{\mathbb{R}} \|R(\alpha + it, A^*)x^*\|^2 \leq C \|x^*\|^2 .$$

The aim of this talk is to give a similar characterization of generation of γ-bounded C_0-semigroup when the underlying space is a L_p space with $1 < p < \infty$.

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[1] Arnold, L, γ-boundedness of C_0-semigroups and their H^∞-functional calculi, (2019)

* loris.arnold@univ-fcomte.fr