

Estimates for functions of self-adjoints operators in non euclidean norms

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Given a closed, densely defined linear operator $A : D(A) \subset X \rightarrow X$ on a Banach space X , there are natural ways to define $f(A)$ as a bounded and linear operator on X , f being a suitable holomorphic mapping on some neighbourhood of the spectrum of A . On the other hand, in case A is a normal operator on a Hilbert space, it makes sense to consider $f(A)$ even for measurable mappings on the spectrum of A .

In the talk, hybrid situations of Banach spaces X and linear operators A which admits coherent versions as non-negative, self-adjoints operators in some linked Hilbert spaces are considered. Then, the possibility of defining $f(A)$ as a bounded operator on X , for real differentiable mappings $f : [0, +\infty) \rightarrow \mathbb{C}$, is explored. Finally, some resolvent estimates in maximum-norm for the space discretizations of elliptic operators are presented.

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