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A characterization of polynomially Riesz strongly continuous semigroups

Abstract: In this paper we characterize the class of polynomially Riesz strongly continuous semigroups on a Banach space X. Our main results assert, in particular, that the generators of such semigroups are either polynomially Riesz (then bounded) or there exist two closed infinite dimensional invariant subspaces X_0 and X_1 of X with $X = X_0 \oplus X_1$ such that the part of the generator in X_0 is unbounded with resolvent of Riesz type while its part in X_1 is a polynomially Riesz operator.