

Conditions ensuring $T^{-1}(Y) \subset Y$

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ABSTRACT

The following theorem is the main result of the paper: Let X be a complex Banach space and $T \in L(X)$. Suppose that 0 lies at the unbounded component of the set of those λ such that $\lambda I - T$ is a Fredholm operator. Let Y be a dense subspace of the dual space X' and S be a closed operator from Y to X such that $T'(Y) \subset Y$ and $TSy = ST'y$ for each $y \in Y$. Then for each vector $x \in X'$, $T'x \in Y$ if and only if $x \in Y$.

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