Rashid, M. H. M.

Extended Weyl theorems and perturbations. (English) Zbl 1289.47027

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A bounded linear operator T on a Banach space X is called a Weyl operator if it is a Fredholm operator of index 0. The Weyl spectrum $\sigma_W(T)$ is the set of those $\lambda \in \mathbb{C}$ for which $T - \lambda I$ is not a Weyl operator. Let $\sigma(T)$ be the spectrum of T, $\Delta(T) = \sigma(T) \setminus \sigma_W(T)$. Denote by $E_0(T)$ the set of isolated points $\lambda \in \sigma(T)$ such that $0 < \dim \ker(T - \lambda I) < \infty$. It is said that Weyl's theorem holds for T if $\Delta(T) = E_0(T)$. In the literature, there are numerous generalizations of this notion; see, in particular, *M. Berkani* and *H. Zariouh* [Mat. Vesn. 62, No. 2, 145–154 (2010; Zbl 1258.47020)]. The author finds conditions on an operator T for such properties to hold and be stable under perturbations by finite rank operators, by nilpotent operators and, more generally, by algebraic operators commuting with T.

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MSC:

47A53	(Semi-) Fredholm operators; index theories
47A55	Perturbation theory of linear operators
47A10	Spectrum, resolvent

Keywords:

Weyl operator; Weyl spectrum