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MEROMORPHIC FUNCTIONAL CALCULUS AND LOCAL SPECTRAL THEORY

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ABSTRACT. We study the behavior of the local spectrum of a bounded linear operator on the vectors of the range of the meromorphic functional calculus. In particular we analyze some relations of the restriction and coinduced operators of the meromorphic functional calculus. We also obtain the local spectral mapping theorem and conditions for the stability of the single valued extension property (SVEP).

1. Introduction. Let X be a complex Banach space, let $T, S \in L(X)$ be commuting continuous linear operators and let $x \in X$. Denoting by $\sigma(x,T)$ the local spectrum of T at x, we have [**5**, Proposition 1.5] that

$$\sigma(Sx,T) \subset \sigma(x,T). \tag{1}$$

Bartle [**1**] derived the following relations for $n \in \mathbf{N}$ and $S = (\alpha - T)^n$

$$\sigma(Sx,T) \subset \sigma(x,T) \subset \sigma(Sx,T) \cup \{\alpha\}, \tag{2}$$

where α is a complex number. Similar results have been derived in [**3**] for S, an operator given by the local functional calculus (see [**4**] for further details).

In this paper we study this problem when S is given by the meromorphic functional calculus. We observe that this operator is closed and unbounded, in general.

As an application we derive some properties of the meromorphic functional calculus such as: relations of the restriction and coinduced operators of the meromorphic functional calculus, the local spectral mapping theorem (with a different proof from the usual one for the

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