

LOCAL SPECTRAL PROPERTY OF RELATIVELY REGULAR OPERATORS

EUNGIL KO AND MEE-JUNG LEE

Abstract. In this paper, we study some relatively regular operators T such that $T = TST$ for some $S \in \mathcal{L}(\mathcal{H})$. We give some spectral and local spectral properties between T and S . We also show that some relatively regular operators T have a nontrivial invariant subspace. Finally, we introduce and study the local spectral property of relatively regular operators modulo a nilpotent operator.

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REFERENCES

- [1] P. AIENA, *Fredholm and local spectral theory with applications to multipliers*, Kluwer Acad. Pub., 2004.
- [2] F. V. ATKINSON, *On relatively regular operators*, Acta Sci. Math. (Szeged) **15** (1953), 38–56.
- [3] S. R. CARADUS, *Mapping properties of relatively regular operators*, Proc. Amer. Math. Soc. **47** (1975), 409–412.
- [4] I. COLOJOARA AND C. FOIAS, *Theory of generalized spectral operators*, Gordon and Breach, New York, 1968.
- [5] S. DJORDJEVIĆ AND Y. M. HAN, *A note on Weyl's theorem for operator matrices*, Proc. Amer. Math. Soc. **131** (2003), 2543–2547.
- [6] I. KAPLANSKY, *Regular Banach algebras*, J. Indian Math. Soc. **12** (1948), 57–62.
- [7] Y. KIM, E. KO, AND J. LEE, *Operators with the single-valued extension property*, Bull. Kor. Math. Soc. **43** (2006), no. 3, 509–517.
- [8] E. KO, *Algebraic and triangular n -hyponormal operators*, Proc. Amer. Math. Soc. **123** (1995), 3473–3481.
- [9] R. LANGE AND S. WANG, *New approaches in spectral decomposition*, Contemporary Math. **128**, Amer. Math. Soc., 1992.
- [10] K. B. LAURSEN AND M. M. NEUMANN, *An introduction to Local spectral theory*, London Math. Soc. Monographs New Series, **20**, Clarendon Press, Oxford, 2000.
- [11] C. SCHMOEGER, *Characterizations of some classes of relatively regular operators*, Linear Algebra Appl. **429** (2008), 302–310.