

QUASI-NORMAL AND QUASI-ISOMETRY WCT OPERATORS AND THEIR ALGEBRAS

ZHIDONG HUANG, YOUSEF ESTAREMI AND SAEDEH SHAMSIGAMCHI

Abstract. In this paper, we investigate Deddens algebra of weighted conditional type operators (WCT) on the Hilbert space $L^2(\mu)$. Then we characterize n -quasi-normal, n -quasi-isometry WCT operators. Moreover, we investigate the Deddens algebras and spectral radius algebras of quasi-normal WCT and quasi-isometry WCT operators. Additionally, we discuss the Deddens and spectral radius algebras related to rank one operators, operators that are similar to rank one operators, operators that are majorized by rank one operators, and quasi-isometry operators.

Mathematics subject classification (2020): 47A15, 47A65, 47L30.

Keywords and phrases: Quasi-normal operators, quasi-isometry operators, Deddens algebras, spectral radius algebras, weighted conditional type operators.

REFERENCES

- [1] A. BISWAS, A. LAMBERT AND S. PETROVIC, *On spectral radius algebras and normal operators*, Indiana University Mathematics Journal. **56** (2007) 1661–1674.
- [2] G. CASSIER AND L. SUCIA, *Mapping theorems and similarity to contractions for classes of A -contractions. Hot topics in Operator theory*, Theta Series in Advanced Mathematics, (2008), 39–58.
- [3] R. DOUGLAS, *On majorization factorization and range inclusion of operators on Hilbert space*, Proc. Amer. Math. Soc. **17** (1966), 413–415.
- [4] Y. ESTAREMI, M. R. JABBARZADEH, *Weighted Lambert type operators on L_p -spaces*, Oper. Matrices **1** (2013) 101–116.
- [5] Y. ESTAREMI AND M. R. JABBARZADEH, *Spectral radius algebras of WCE operators*, Oper. Matrices. **11** (2017) 337–346.
- [6] Y. ESTAREMI AND S. SHAMSIGAMCHI, *Unbounded WCT operators and applications to linear equations*, Comp. Appl. Math. **238** (2022).
- [7] M. R. JABBARZADEH AND H. EMAMALIPOUR, *On the dilation of a conditional operator*, Linear and Multilinear Algebra **69** (2021), 2204–2219.
- [8] M. R. JABBARZADEH, M. H. SHARIFI, *Lambert conditional type operators on $L^2(\Sigma)$* , Linear and Multilinear Algebra **67** (2019), 2030–2047.
- [9] M. R. JABBARZADEH AND B. MINAYI, *On spectral radius algebras and conditional type operators*, Kragujevac Journal of Mathematics. **49** (2025), 967–977.
- [10] S. KO. E. JUNG AND J. E. LEE, *Remarks on Complex Symmetric Operators*, Mediterr. J. Math. **13** (2016), 719–728.
- [11] M. LACRUZ, *Invariant subspaces and Deddens algebras*, Expositiones Mathematicae, **33** (2015), 116–120.
- [12] A. LAMBERTA AND S. PETROVIC, *Beyond hyperinvariance for compact operators*, J. Functional Analysis, **219** (2005) 93–108.
- [13] S. PETROVIC, D. SIEVEWRIGHT, *Compact Composition Operators and Deddens Algebras*, Complex Anal. Oper. Theory **12** (2018), 1889–1901.
- [14] M. M. RAO, *Conditional measure and applications*, Marcel Dekker, New York, 1993.
- [15] D. SIEVEWRIGHT, *Spectral radius algebras and weighted shifts of finite multiplicity*, J. Math. Anal. Appl. **429** (2015) 658–679.