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ON (p,k)–QUASIHYPONORMAL OPERATORS

IN HYOUN KIM

Abstract. An operator T is called (p,k)-quasihyponormal if $T^{*k}(|T|^{2p} - |T^*|^{2p})T^k \geqslant 0$, $(0 < p \leqslant 1;\ k \in \mathbb{Z}^+)$, which is a common generalization of p-quasihyponormality and k-quasihyponormality. In this paper we consider the Putnam's inequality, the Berger-Shaw's inequality, the Weyl's theorem and the tensor product for (p,k)-quasihyponormal operators.

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REFERENCES

[1] C. A. BERGER AND B. I. SHAW, *Selfcommutators of multicyclic hyponormal operators are always trace class*, Bull. Amer. Math. Soc. **79** (1973), 1193–1199.
[2] S. L. CAMPBELL AND B. C. GUPTA, *On k-quasihyponormal operators*, Math. Japonica. **23** (1978), 185–189.
[3] M. CHO AND M. ITOH, *Putnam inequality for p-hyponormal operators*, Proc. Amer. Math. Soc. **123** (1995), 2435–2440.
[4] M. CHO, M. ITOH AND S. OSHIRO, *Weyl's theorem holds for p-hyponormal operators*, Glasgow Math. J. **39** (1997), 217–220.
[5] L. A. COBURN, *Weyl's theorem for non–normal operators*, Michigan Math. J. **13** (1966), 285–288.
[6] B. P. DUGGAL, *Tensor products of operators–strong stability and p-hyponormality*, Glasgow Math. J. **42** (2000), 371–381.
[7] B. P. DUGGAL, *On the spectrum of p-hyponormal operators*, Acta. Sci. Math. J. (szeged). **63** (1997), 623–637.
[8] D. R. FARENICK AND I. H. KIM, *Tensor products of quasihyponormal operators, (preprint)*.
[9] B. C GUPTA AND P. B RAMANUJAN, *On k-quasihyponormal operators II*, Tohoku Math. J. **20** (1968), 417–424.
[10] J. K. HAN, H. Y. LEE AND W. Y. LEE, *Invertible completions of 2×2 upper triangular operator matrices*, Proc. Amer. Math. Soc. **128** (1999), 119–123.
[11] F. HANSEN, *An operator Inequality*, Math. Ann. **246** (1980), 249–250.
[12] J. HOU, *On tensor products of operators*, Acta Math. Sinica (N.S.). **9** (1993), 195–202.
[13] W. Y. LEE, *Weyl spectra of operator matrices*, Proc. Amer. Math. Soc. **129** (2000), 131–138.
[14] W. Y. LEE, *Weyl's theorem for operator matrices*, Integral Equations Operator Theory. **32** (1998), 319–331.
[15] C. M. PEARCY, *Some Recent Developments in Operator Theory*, CBMS 36, AMS, Providence, (1978).
[16] C. R. PUTNAM, *An Inequality for the area of hyponormal spectra*, Math. Z. **116** (1970), 323–330.
[17] J. STOCHEL, *Seminormality of operators from their tensor product*, Proc. Amer. Math. Soc. **124** (1996), 435–440.
[18] A. UCHIYAMA, *Berger-Shaw's theorem for p-hyponormal operators*, Integral Equations Operator Theory. **33** (1999), 221–230.
[19] A. UCHIYAMA, *Inequalities of Putnam and Berger-Shaw for p-quasihyponormal operators*, Integral Equations Operator Theory. **34** (1999), 91–106.
[20] A. UCHIYAMA AND S. V. DJORDJEVIC, *Weyl's theorem for p-quasihyponormal operators, (preprint)*.
[21] D. XIA, *Spectral theory for hyponormal operators*, Birkhauser Verlag, Basel, (1983).

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