

## ON THE RIESZ IDEMPOTENT OF CLASS A OPERATORS

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*Abstract.* In this paper, we show that if  $T$  is a class  $A$  operator and  $\lambda$  is a non-zero isolated eigenvalue of  $\sigma(T)$ , then  $E\mathcal{H} = \ker(T - \lambda) = \ker(T - \lambda)^*$ , where  $E$  is the Riesz idempotent with respect to  $\lambda$ . In this case,  $E$  is self-adjoint, i.e. it is an orthogonal projection.

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### REFERENCES

- [1] A. ALUTHGE AND D. WANG, *An operator inequality which implies paranormality*, Math. Inequal. Appl., 2 (1999), 113–119.
- [2] A. ALUTHGE AND D. WANG, *w-hyponormal operators*, Integr. Equat. Oper. Th., 36 (2000), 1–10.
- [3] T. ANDO, *Operators with a norm condition*, Acta. Sci. Math. (Szeged), 33 (1972), 169–178.
- [4] M. CHŌ AND T. HURUYA, *p-hyponormal operators* ( $0 < p < 1/2$ ), Comment. Math., 33 (1993), 23–29.
- [5] M. CHŌ, M. ITOH AND S. ŌSHIRO, *Weyl's theorem holds for p-hyponormal operators*, Glasgow Math. J., 39 (1997), 217–220.
- [6] M. CHŌ AND K. TANAHASHI, *Spectral properties of log-hyponormal operators*, Scientiae Mathematicae, 2 (1999), 1–8.
- [7] M. CHŌ AND K. TANAHASHI, *Isolated point of spectrum of p-hyponormal, log-hyponormal operators*, preprint.
- [8] M. FUJII, R. NAKAMOTO AND H. WATANABE, *The Heinz-Kato-Furuta inequality and hyponormal operators*, Math. Japon., 40 (1994), 469–472.
- [9] T. FURUTA, *On the class of paranormal operators*, Proc. Japan Acad. 43 (1967), 594–598.
- [10] T. FURUTA, M. ITO AND T. YAMAZAKI, *A subclass of paranormal operators including class of log-hyponormal and several related classes*, Scientiae Math. 1 (1998), 389–403.
- [11] T. FURUTA AND M. YANAGIDA, *On powers of p-hyponormal and log-hyponormal operators*, Sci. Math., 2 (1999), 279–284.
- [12] F. HANSEN, *An inequality*, Math. Ann., 246 (1980), 249–250.
- [13] E. HEINZ, *Beiträge zur Störungstheorie der Spektralzerlegung*, Math. Ann., 123 (1951), 415–438.
- [14] V. ISTRĂȚESCU, T. SAITŌ AND T. YOSHINO, *On a class of operators*, Tôhoku Math. J. (2), 18 (1966), 410–413.
- [15] MI. YOUNG. LEE AND SANG. HUN. LEE, *Some generalized theorems on p-quasihyponormal operators for  $0 < p < 1$* , Nihonkai Math. J., 8 (1997), 109–115.
- [16] K. LÖWNER, *Über monotone Matrixfunktionen*, Math. Z., 38 (1934), 177–216.
- [17] J. G. STAMPELLI, *Hyponormal operators*, Pacific J. Math., 12 (1962), 1453–1458.
- [18] K. TANAHASHI, *On log-hyponormal operators*, Integral Equations and Operator Theory, 34 (1999), 364–372.
- [19] K. TANAHASHI AND A. UCHIYAMA, *Isolated point of spectrum of p-quasihyponormal operators*, preprint.
- [20] A. UCHIYAMA, *Inequalities of Putnam and Berger-Shaw for p-quasihyponormal operators*, Integral Equations and Operator Theory, 34 (1999), 91–106.
- [21] A. UCHIYAMA AND T. YOSHINO, *Weyl's theorem for p-hyponormal or M-hyponormal operators*, Glasgow Math. J., (to appear).

- [22] A. UCHIYAMA, *Weyl's theorem for class A operators*, *Mathematical Inequalities & Applications*, 1 (2001), 143–150.
- [23] D. XIA, *On the non-normal operators–semihyponormal operators*, *Sci. Sinica.*, 23 (1980), 700–713.