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SPECTRAL PROPERTIES OF n–PERINORMAL OPERATORS

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Abstract. In this paper we study spectral properties of class (M,n) or n-perinormal operators. It is shown that if T belongs to class (M,n), then its point spectrum and joint point spectrum are identical. As an application we show that the spectral mapping theorem holds for the essential approximate point spectrum and for Weyl spectrum. It is also shown that a-Browder's theorem holds for n-perinormal operators. A general version of the famous Fuglede-Putnam's theorem for n-perinormal operator is also presented.

Mathematics subject classification (2010): Primary 47B47, 47A30, 47B20; Secondary 47B10.
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REFERENCES

[1] S. K. BERBERIAN, *An extension of a theorem of Fuglede-Putnam*, Proc. Amer. Math. Soc. **10** (1959), 175–182.
[2] N. L. BRAHA, M. LOHAJ, F. MAREVCI, SH. LOHAJ, *Some properties of paranormal and hyponormal operators*, Bull. Math. Anal. Appl. **1**, 2 (2009), 23–35.
[3] M. CHO AND T. HURUYA, *p-hyponormal operators for* $0 < p < \frac{1}{2}$., Coment. Nath. **33** (1993), 23–29.
[4] H. K. CHA, *An extension of Fuglede-Putnam theorem to quasihyponormal operators using a Hilbert-Schmidt operator*, Youngman Math. J. **1** (1994), 73–76.
[5] N. CHENNAPPAN, S. KARTHIKEYAN, * *Paranormal composition operators*, Indian J. Pure Appl. Math. **31**, 6 (2000), 591–601.
[6] A. DEFANT, K. FLORET, *Tensor Norms and Operator Ideals*, North-Holland-Amsterdam, Elsevier Science Publishers, 1993.
[7] B. FUGLEDE, *A commutativity theorem for normal operators*, Proc. Nat. Acad. Sci. **36** (1950), 35–40.
[8] YOUNG MIN HAN AND AN-HYUN KIM, *A note on $*-$ paranormal operators*, Integr. equ. oper. theory **49** (2004), 435–444.
[9] K. B. LAURSEN, *Operators with finite ascent*, Pacific J. Math. **152** (1992), 323–336.
[10] K. B. LAURSEN AND M. M. NEUMANN, *An introduction to Local Spectral Theory*, London Mathematical society Monographs, Oxford, 2000.
[11] S. MECHERI AND S. MAKHLOUF, *Weyl Type theorems for posinormal operators*, Math. Proc. Royal Irish. Acad. **108** A (2008), 68–79.
[12] S. MECHERI, *An extension of Fuglede Putnam theorem to (p,k)-quasihyponormal operator*, Scientiae Math. Jap **62** (2005), 259–264.
[13] S. PANAYAPPAN AND A. RADHARAMANI, *A Note on $p-*$ Paranormal Operators and Absolute $k-*$ Paranormal Operators*, Int. J. Math. Anal. (Ruse) **2**, 25–28 (2008), 1257–1261.
[14] C. R. PUTNAM, *On normal operator in Hilbert space.*, Amer. J. Math. **73** (1951), 357–362.
[15] V. RAKOČEVIĆ, *On the essential approximate point spectrum II*, Math Vesnik **36** (1984), 89–97.
[16] H. RADJAVI AND P. ROSENTHAL, *Invariant subspaces*, New York, Springer-Verlag, 1973.
[17] K. TANAHASHI, *Putnam's Inequality for* log*-hyponormal operators*, Integr. equ. oper. theory **43** (2004), 364–372.
[18] H. WEYL, *Über beschränkte quadratische Formen, deren Differenz vollsteig ist*, Rend. Circ. Mat. Palermo **27** (1909), 373–392.
[19] D. XIA, *Spectral Theory of Hyponormal Operators*, Birkhauser Verlag, Basel, 1983.

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