

Powers of Class p-w A (s, t) Operators Associated with Generalized Aluthge Transformations

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Abstract : Let $T = U|T|$ be a polar decomposition of a bounded linear operator T on a complex Hilbert space with $\ker U = \ker |T|$. T is said to be class p-w A(s,t) if $(|T^*|^{2s}|T|^{2t}|T^*|^{2t})^{1/p/s+t} \geq |T^*|^{2tp}$ and $|T|^{2sp} \geq (|T|^s|T^*|^{2t}|T|^s)^{sp/s+t}$ with $0 < p \leq 1$ and $0 < s, t, s + t \leq 1$. This is a generalization of p-hyponormal or class A operators. In this paper, we shall show that if T belongs to class p-w A (s, t) operator for $0 < s, t \leq 1$ and $0 < p \leq 1$, then T^n belongs to class p_1 -w A (s/n, t/n) for $0 < p_1 \leq p$ and for all positive integer n . As an immediate corollary of this result, we shall also show that if T is a p-w-hyponormal operator, then T^n is also p_1 -w-hyponormal for $0 < p_1 \leq p$ and for all positive integer n .

Keywords : class p-w A (s, t), normaloid, isoloid, finite, orthogonality

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