

Nyaluke _ Norms and numerical radii inequalities for (α, β) - normal transaloid operators

The studies on Hilbert spaces for the last decade has been of great interest to many mathematicians and researchers, especially on operator inequalities related to operator norms and numerical radii for a family of bounded linear operators acting on a Hilbert spaces. Results on some inequalities for normal operators in Hilbert spaces for instance numerical ranges $W(T)$, numerical radii $w(T)$ and norm $\| \cdot \|$ obtained by Dragomir and Moslehian among others due to some classical inequalities for vectors in Hilbert spaces. The techniques employed to prove the results are elementary with some special vector inequalities in inner product spaces due to Buzano, Goldstein, Ryff and Clarke as well as some reverse Schwarz inequalities. Recently, the new field of operator theory done by Dragomir and Moslehian on norms and numerical radii for (α, β) - normal operators developed basic concepts for our Statement of the problem on normal transaloid operators. M. Fujii and R. Nakamoto characterize transaloid operators in terms of spectral sets and dilations and other non-normal operators such as normaloid, convexoid and spectroid. Furuta did also characterization of normaloid operators. Since none has done on norms and numerical radii inequalities for (α, β) – normal transaloid operators, then our aim is to characterize (α, β) - normal transaloid operators, characterize norm inequalities for (α, β) - normal transaloid operators and to characterize numerical radii for (α, β) - normal transaloid operators. We use the approach of the Cauchy-Schwarz inequalities, parallelogram law, triangle inequality and tensor products. The results obtained are useful in applications in quantum mechanics.