

SPECTRAL THEORY OF QUATERNIONIC OPERATORS

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Abstract

In this talk we present the spectral theorem for right quaternionic linear operators, which are also called as quaternionic operators. In particular, we present the series representation of quaternionic compact normal operators by using the concept of spherical spectrum. Then we propose an approach to define quaternionic version of continuous functional calculus. Also we prove the existence of polar decomposition of quaternionic operators, we provide necessary and sufficient condition for an arbitrary decomposition to be the polar decomposition.

References

- [1] G. Ramesh and P. Santhosh Kumar, *Borel functional calculus for quaternionic normal operators*, **J. Math. Phys.** 58 (2017), no. 5, 053501, 16 pp.
- [2] G. Ramesh and P. Santhosh Kumar, *Spectral theorem for quaternionic compact normal operators*, **The Journal of Analysis** (2017), 1–17, doi: 10.1007/s41478-017-0027-8.
- [3] G. Ramesh and P. Santhosh Kumar, *On the polar decomposition of right linear operators in quaternionic Hilbert spaces*, **J. Math. Phys.** 57 (2016), no. 4, 043502, 16 pp.