
ON CIRCULANT MATRICES WITH FIBONACCI QUATERNIONS

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ABSTRACT

At this paper, we consider $\tau_n := circ(Q_1, Q_2, \dots, Q_n)$ circulant matrices whose entries are the well-known Fibonacci quaternions Q_1, Q_2, \dots, Q_n . Then, we compute determinants of τ_n by exploiting the set of orthogonal polynomial, Chebyshev polynomials of the second kind. Moreover, we obtain some kind of norms of these matrices.

Keywords Circulant matrices · Fibonacci quaternions · Chebyshev polynomials · Euclid norms · Spectral norms

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