



GEOMETRIC PROPERTIES OF THE LUPAŞ q -TRANSFORM

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ABSTRACT. The *Lupaş q -transform* emerges in the study of the limit q -Lupaş operator. This transform is closely connected to the theory of positive linear operators of approximation theory, the q -boson operator calculus, the methods of summation of divergent series, and other areas.

Given $q \in (0, 1)$, $f \in C[0, 1]$, the *Lupaş q -transform* of f is defined by:

$$(\Lambda_q f)(z) := \frac{1}{(-z; q)_\infty} \cdot \sum_{k=0}^{\infty} \frac{f(1 - q^k) q^{k(k-1)/2}}{(q; q)_k} z^k,$$

where

$$(a; q)_k := \prod_{j=0}^{k-1} (1 - aq^j), \quad (a; q)_\infty := \prod_{j=0}^{\infty} (1 - aq^j), \quad k \in \mathbb{N}_0, \quad a \in \mathbb{C}.$$

The analytical and approximation properties of Λ_q have already been examined. In this paper, some properties of the Lupaş q -transform related to continuous linear operators in normed linear spaces are investigated.

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