Dunkl generalization of Phillips operators and approximation in weighted spaces

ABSTRACT

The purpose of this article is to introduce a modification of Phillips operators on the interval $[\frac{1}{2}, \infty)$ via a Dunkl generalization. We further define the Stancu type generalization of these operators as $S*_{n,\upsilon}(f; x) = n2^{e\upsilon}(n\chi n(x)) \sum_{=0}^{\infty} \frac{(n\chi n(x))}{\gamma \upsilon (\ )} \int_{0}^{\infty} e^{-ntn} \frac{+2\upsilon\theta}{} \ ^{-1}t \ ^{+2\upsilon\theta} \gamma \upsilon (\ ) f(\frac{nt+\alpha}{n+\beta}) \, dt$, $f \in C\zeta (R+)$, and calculate their moments and central moments. We discuss the convergence results via Korovkin type and weighted Korovkin type theorems. Furthermore, we calculate the rate of convergence by means of the modulus of continuity, Lipschitz type maximal functions, Peetre's K-functional and the second order modulus of continuity.