MODIFIED DUNKL TYPE GENERALIZATION OF PHILLIPS OPERATORS AND SOME APPROXIMATION RESULTS

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Abstract. The present article deals with an extension of the Phillip operators defined via Dunkl generalization. We prove some Korovkin type approximation theorems. We study the order of approximation and rate of convergence in weighted spaces. Further we obtain direct theorems on convergence of these newly defined operators.

Keywords. Phillips operator; Dunkl analogue; Korovkin type theorem; weighted spaces; modulus of continuity; order of approximation; rate of convergence..

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1 Introduction and preliminaries

Szász [15] constructed a linear positive operators defined on $[0, \infty)$ and obtaineed the rate of convergence for functions of bounded variation. Recently a Dunkl type generalizations Szász operators was obtained by Sucu [14] as follows for $f \in C[0, \infty)$.

$$\mathcal{S}_n^*(f; x) := \frac{1}{e_v(nx)} \sum_{\mu=0}^{\infty} \frac{(nx)^\mu}{\gamma_v(\mu)} f\left(\frac{\mu + 2v\theta_\mu}{n}\right), \qquad (1.1)$$