BERNSTEIN–TYPE OPERATORS THAT REPRODUCE EXPONENTIAL FUNCTIONS

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Abstract. In this paper we recover a generalization of the classical Bernstein operators introduced by Morigi and Neamtu in 2000. Specifically, we focus on a sequence of operators that reproduce the exponential functions $\exp(\mu t)$ and $\exp(2\mu t)$, $\mu > 0$. We study its convergence, this including qualitative and quantitative theorems, an asymptotic formula and saturation results. We also show their shape preserving properties by considering generalized convexity. Finally, a comparison is stated, that shows that in a certain sense and for certain family of illustrative functions the new sequence approximates better than the classical Bernstein polynomials.


Keywords and phrases: Modified Bernstein-type operators, exponential functions, shape preserving properties, generalized convexity.

REFERENCES