On Approximation Properties of some non-positive Bernstein-Durrmeyer Type Operators

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In this paper we shall introduce a new type of Bernstein Durrmeyer operators which are not positive on the entire interval $[0, 1]$. For these operators we will study the uniform convergence on all continuous functions on $[0, 1]$ as well as a result given in terms of modulus of continuity $\omega(f, \delta)$. A Voronovskaja type theorem will be proved as well.

References

[1] Acar T., Aral A., Rașa I., *Modified Bernstein-Durrmeyer operators*, General Mathermatics, Vol. 22, 2014.

[2] Adell J.A., J. de la Cal, *Bernstein-Durrmeyer operators*, Computers & Mathematics with Applications, Volume 30, Issues 3–6, 1995.

[3] Deo N., Noor M. A., Siddiqui M.A., *On approximation by a class of new Bernstein type operators*, Applied Mathematics and Computation, 2008.

[4] Durrmeyer J. L., *Une formule d'inversion de la transformée de Laplace-applications á la théorie des moments*, Thése de 3e cycle, Faculté des Science de l'Université de Paris, 1967.

[5] Meleşteu D. A., *Generalized Bernstein type operators*, Bulletin of the *Transilvania* University of Braşov, Vol 13(62), No. 2, 2020.

[6] Gonska H., *On the degree of approximation in Voronovskaja's theorem.* Stud Univ Babeș Bolyai Math 52(3):103-115, 2007

[7] Gonska H., Rașa I., *Asymptotic behaviour of differentiated Bernstein polynomials.* Mat Vesnik 61(1):53-60, 2009

[8] Păltănea R., *Approximation theory using positive linear operators.* Birkhaüser, Boston, 2004

[9] Siddiqui M. A., Agrawal R. R., Gupta N., *On a class of modified new Bernstein operators.*