

ON BIVARIATE BERNSTEIN–CHLODOWSKY OPERATORS

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Abstract. This work relates to bivariate Bernstein-Chlodowsky operator which is not a tensor product construction. We show that the operator preserves some properties of the original function, for example; function of modulus of continuity, Lipschitz constant, and a kind of monotony.

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REFERENCES

- [1] O. AGRATINI, *On a class of linear positive bivariate operators of King type*, Stud. Univ. Babeş-Bolyai Math. **51** (2006), no. 4, 13–22.
- [2] F. ALTOMARE AND M. CAMPITI, *Korovkin type Approximation Theory and its Application*, Walter de Gruyter Studies in Math 17, de Gruyter&Co., Berlin 1994.
- [3] G. A. ANASTASSIOU AND S. G. GAL, *Approximation theory. Moduli of continuity and global smoothness preservation*, Birkhäuser Boston, Inc., Boston, MA, 2000.
- [4] B. M. BROWN, D. ELLIOTT AND D. F. PAGET, *Lipschitz constants for the Bernstein polynomials of a Lipschitz continuous function*, J. Approx. Theory, **49** (1987), 196–199.
- [5] F. CAO, C. DING AND Z. XU, *On multivariate Baskakov operator*, J. Math. Anal. Appl., **307** (2005) no. 1, 274–291.
- [6] W. CHEN AND Z. DITZIAN, *Mixed and directional derivatives*, Proc. Amer. Math. Soc., **108** (1990) 178–185.
- [7] I. CHLODOWSKY, *Sur le développement des fonctions définies dans un intervalle infini en séries de polynomes de M. S. Bernstein*, Compositio Math., **4** (1937), 380–393.
- [8] A. D. GADŽIEV, *Theorems of the type of P. P. Korovkin's theorems*, (Russian), Presented at the International Conference on the Theory of Approximation of Functions (Kaluga, 1975), Mat. Zametki., **20** (1976) no. 5, 781–786.
- [9] E. İBIKLİ, *On approximation for functions of two variables on a triangular domain*, Rocky Mountain J. Math., **35** (2005), no. 5, 1523–1531.
- [10] H. KARSLI AND V. GUPTA, *Some approximation properties of q -Chlodowsky operators*, Appl. Math. Comput., **195** (2008), no. 1, 220–229.
- [11] M. K. KHAN AND M. A. PETERS, *Lipschitz constants for some approximation operators of a Lipschitz continuous function*, J. Approx. Theory., **59** (1989) no. 3, 307–315.
- [12] Z. LI, *Bernstein polynomials and modulus of continuity*, J. Approx. Theory., **102** (2000) no. 1, 171–174.
- [13] A. P. TIMAN, *The Theory of Approximation of the Functions of Real Variables*, Phizmatgiz, 1960.