

## Note on a Schurer-Stancu-type operator

ADRIAN D. INDREA, ANAMARIA INDREA and PETRU I. BRAICA

### ABSTRACT.

The aim of this paper is to introduce a class of operators of Schurer-Stancu-type with the property that the test functions  $e_0$  and  $e_1$  are reproduced. Also, in our approach, a theorem of error approximation and a Voronovskaja-type theorem for this operators are obtained. Finally, we study the convergence of the iterates for our new class of operators.

### REFERENCES

- [1] Agratini, O., *An asymptotic formula for a class of approximation processes of King's type*, Studia Sci. Math Hungar, **47** (2010), No 4, 435–444
- [2] Agratini, O. and Rus, I. A., *Iterates of a class of discrete linear operators via contraction principle*, Comment. Math. Univ. Carolin., **44** (2003), 555–563
- [3] Bărbosu, D., *Polynomial Approximation by Means of Schurer- Stancu type operators*, Ed. Univ. de Nord Baia Mare, 2006
- [4] Braica, P. I., Pop, O. T. and Indrea, A. D., *About a King-type operator*, Appl. Math. Inf. Sci., **6** (2012), No. 1, 191–197
- [5] Braica, P.I., Pop, O.,T., Bărbosu, D., *Schurer operators of King type*, Creative Math. Inf., **22** (2013), No. 2, 161–171
- [6] Indrea, A. D., *A particular class of linear and positive Stancu-type operators*, Acta Univ. Apulensis, No. 31 (2012), 249–256
- [7] King, J. P., *Positive linear operators which preserve  $x^2$* , Acta Math. Hungar., **99** (2003), No. 3, 203–208
- [8] Oancea, Ingrid A., *Berstein - Stancu type operator wich preserves  $e_2$* , An. Șt. Univ. Ovidius Constanța, Vol. **17** (2009), No. 1, 137–144
- [9] Pop, O. T., *The generalization of Voronovskaja's theorem for a class of liniar and positive operators*, Rev. Anal. Numer. Théor. Approx., **34** (2005), No. 1, 79–91
- [10] Pop, O. T., Bărbosu, D. and Braica, P. I., *Berstein type operators preserving exactly two test functions*, Studia Scient. Math. Hu., Vol. **50** (2013), No. 4, 393–405
- [11] Schurer, F., *Linear positive operators in approximation theory*, Math. Inst. Techn. Univ. Delft Report, 1962
- [12] Stancu, D. D., *On a generalization of the Bernstein polynomials*, Studia Univ. "Babeș - Bolyai", Scr. Math - Phis **14** (1969), 31–45 (in Romanian)

BABEȘ BOLYAI UNIVERSITY  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE  
KOGĂLNICEANU 1, 400084 CLUJ-NAPOCA, ROMANIA  
E-mail address: adrian.indrea@yahoo.com

BABEȘ BOLYAI UNIVERSITY  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE  
KOGĂLNICEANU 1, 400084 CLUJ-NAPOCA, ROMANIA  
E-mail address: anamaria.indrea@yahoo.com

SCHOOL "GRIGORE MOISIL"  
MILENIULUI 1, 440037 SATU MARE, ROMANIA  
E-mail address: petrubr@yahoo.com