Weighted Approximation by Bivariate Generalized Sampling Series

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The present talk deals with weighted approximation of bivariate generalized sampling series. We present pointwise convergence of the series at continuity points of target functions and uniform convergence for weighted uniformly continuous functions. A rate of convergence for the series is also presented via bivariate weighted modulus of continuity and a Voronovskaja theorem for differentiable functions is obtained as well.

References

[1] T. Acar, A. Aral, I. Rasa, *The new forms of Voronovskaya's theorem in weighted spaces*, Positivity, 20 (1) (2016), pp. 25-40.

[2] T. Acar, O. Alagoz, A. Aral, D. Costarelli, M. Turgay, G. Vinti, *Convergence of Generalized Sampling Series in Weighted Spaces*, Demonstr. Math., 2022 (in process).

[3] T. Acar, O. Alagoz, A. Aral, D. Costarelli, M. Turgay, G. Vinti, *Approximation by Sampling Kantorovich series in Weighted Spaces of Functions*, Demonstr. Math., 2022 (in process).

[4] C. Bardaro, P. L. Butzer, R. L. Stens, G. Vinti, *Kantorovich-type generalized sampling series in the setting of Orlicz spaces,* Sampl. Theory Signal Image Process, 6 (1) (2007), pp. 29–52.

[5] P. L. Butzer, R. L. Stens, *Linear prediction by samples from the past.* In: Advanced Topics in Shannon Sampling and Interpolation Theory, pp. 157–183 (1993).

[6] A. D. Gadziev, *The convergence problem for a sequence of positive linear operators on unbounded sets, and Theorems analogous to that of P. P. Korovkin*, Dokl. Akad. Nauk SSSR 18, no. 5; English Translated Soviet Math. Dokl., 218 (5), (1974), pp. 1001-1004.

[7] N. Ispir, C. Atakur, *Approximation by modified Szász-Mirakjan operators on weighted spaces*, Proc. Indian Acad. Sci. Math. Sci., 112 (4), (2002), pp. 571–578.

[8] S. Ries and R. L. Stens, *Approximation by generalized sampling series, in Constructive Theory of Functions*, pp. 746-756 (Sofia, 1984).