ICMASE 2025

CONVERGENCE RESULTS OF EXPONENTIAL SAMPLING SERIES IN FUNCTION SPACES

Sadettin KURSUN[1,*], Tuncer ACAR[2], Özlem ACAR[2]

[1] *Department of Basic Sciences, Turkish Military Academy, National Defence University, 06420 Cankaya, Ankara, Türkiye*
[2] *Department of Mathematics, Faculty of Science, Selcuk University, 42003 Selcuklu, Konya, Türkiye*

ABSTRACT

In this talk, we study the approximation properties (pointwise/uniform convergence) of generalized exponential sampling series in logarithmically weighted spaces of continuous functions. We then give the rate of uniform convergence in logarithmically weighted spaces with an appropriate moduli of continuity. Furthermore, we construct a quantitative representation of the pointwise asymptotic behaviour of these series using the Mellin-Taylor expansion. Finally, we present some kernel examples and numerical evaluations.
Acknowledgements The authors have been supported within TUBITAK (The Scientific and Technological Research Council of Turkey) 1001-Project 123F123.

***K*eywords** Weighted Approximation · Logarithmic modulus of continuity · Quantitative Voronovskaja-type formula

References

[1] Acar, T., and Kursun, S., Pointwise convergence of generalized Kantorovich exponential sampling series, Dolomites Res. Notes Approx., 16: 1–10, 2023.

[2] Aral, A., Acar, T., and Kursun, S, Generalized Kantorovich forms of exponential sampling series, Anal. Math. Phys. 12(2), 2022.

[3] Bardaro, C., Faina, L., and Mantellini, I., A generalization of the exponential sampling series and its approximation properties, Math. Slovaca, 67(6):1481–1496, 2017.

[*] *Corresponding Author's E-mail: sadettinkursun@yahoo.com*