ICMASE 2025

A Strong Converse Estimate for Exponential Sampling Series

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

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

Abstract

In this talk, we first derive a strong two-term inverse inequality characterising the rate of approximation for generalixed exponential sampling operators using logarithmic moduli of smoothness. We then combine direct and inverse estimates to construct the saturation property and define the class of these approximation operators. Finally, we present results for generalized exponential sampling series using specific kernels satisfying the necessary assumptions. It should be noted that in this work we follow a direct approach in the framework of Mellin analysis in the processes we obtain.

Keywords Generalized Exponential Sampling Operators · Strong Converse Inequality · Saturation Class

References

[1] Acar, T., and Draganov, B.R., A strong converse inequality for generalized sampling operators, Ann. Funct. Anal., 13, 2022.

[2] Angeloni L., and Vinti, G., A characterization of absolute continuity by means of Mellin integral operators, J. Anal. Appl., 32: 301-315, 2013.

[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.

[4] DeVore, R.A., and Lorentz, G.G., Constructive Approximation, Springer, Berlin, 1993.

[5] Ditzian, Z., and Ivanov, K.G., Strong converse inequalities, J. Anal. Math., 61:61-111, 1993.

*Corresponding Author's E-mail: tunceracar@ymail.com