

A unifying approach to convergence of Durrmeyer-Sampling Type Operators in Functional Spaces

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1 Abstract

Durrmeyer-Sampling type operators (DSO) [6, 2] represent a further generalization of the well-known Generalized [3] and Kantorovich-Sampling operators [1, 5], both introduced as a approximate version of the classical sampling theorem.

A modular convergence theorem in Orlicz spaces has been proved in one-dimensional case [4], by which the convergence in L^p -spaces can be deduced as particular case. This means that the DSO allow to approximate not-necessarily continuous signals: this is crucial mainly from the application point of view, especially in image processing.

In the continuous case, a pointwise and uniform convergence theorem has been established, including quantitative estimate for the order of approximation.

Moreover, all the above convergence results for DSO can also be extended in the multidimensional setting.

By the generality of both the assumptions on moments as the results, several examples for a large class of kernels will be discussed.

References

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