

MULTIVALUED EXTENDED BEST Φ -POLYNOMIAL APPROXIMATION OPERATOR

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We set \mathfrak{S} for the class of all continuous and non decreasing functions φ defined for all real number $t \geq 0$, such that φ is positive for every $t > 0$ and φ satisfies a Δ_2 condition.

Let $B \subset \mathbb{R}^n$ be a bounded measurable set.

If $\varphi \in \mathfrak{S}$, we define $L^\varphi(B) = \{f : B \rightarrow \mathbb{R} \text{ measurable functions such that } \int_B \varphi(|f|) dx < \infty\}$. We also consider $\Phi(x) = \int_0^x \varphi(t) dt$ which is not necessarily an N -function.

We deal with the best multivalued polynomial approximation operator defined in the Orlicz Space $L^\Phi(B)$ and we extend the definition of the operator to the bigger space $L^\varphi(B)$.

The extension of the best polynomial approximation operator from $L^p(B)$ to $L^{p-1}(B)$, studied in [1] by Cuenya, arises as a particular case of our work taking $\Phi(x) = x^p$ for $1 \leq p < \infty$.

[1] H.Cuenya. Extension of the operator of best polynomial approximation in $L^p(\Omega)$. J. Math. Anal. Appl., 376(2): 565-575, 2011.

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