ABSTRACT HARMONIC ANALYSIS OF WEIGHTED ORLICZ SPACES

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Abstract

Let G be a locally compact abelian group, w be a weight and let Φ be a Young function. The weighted Orlicz space is denoted by $L_w^\Phi(G)$ and it is a natural generalization of the classical weighted Lebesgue space $L_w^p(G)$, $1 \leq p \leq \infty$. In this talk, firstly we investigate the inclusions between the weighted Orlicz spaces depending on Φ and w. Also, we obtain some fundamental properties of $L_w^\Phi(G)$.

The main purpose of the talk is to find a necessary and sufficient conditions for the Banach algebra structure of the weighted Orlicz space with respect to pointwise multiplication and convolution. Especially, we focused on the Banach algebra $L_w^\Phi(G)$ with respect to convolution and study some properties such as characterization of the maximal ideal space, semisimplicity and determining the closed ideals of the Banach algebra $L_w^\Phi(G)$ similar to $L_w^1(G)$.

The talk is based on my Ph.D. thesis (Istanbul University, Department of Mathematics, Advisor: Serap Öztop).