

ARENS REGULARITY OF THE ORLICZ FIGÀ-TALAMANCA HERZ ALGEBRA

ARVISH DABRA AND N. SHRAVAN KUMAR

Indian Institute of Technology Delhi

e-mail: arvishdabra3@gmail.com, shravankumar.nageswaran@gmail.com

Let G be a locally compact group. The p -version ($1 < p < \infty$) of the Fourier algebra is called as Figà-Talamanca Herz algebra and is denoted by $A_p(G)$. For $p = 2$, $A_p(G)$ coincides with the Fourier algebra $A(G)$. It is well known that Orlicz spaces are the natural generalization of the classical L^p -spaces. Let $A_\Phi(G)$ be the Orlicz-version of the Figà-Talamanca Herz algebra of G associated with a Young function Φ . As Arens regularity is an important tool to study groups with the help of certain Banach algebras related to it; we show that if $A_\Phi(G)$ is Arens regular, then G is discrete. This generalizes the result by Forrest about the Arens regularity of the $A_p(G)$ algebras. We also show that $A_\Phi(G)$ is finite-dimensional if and only if G is finite. Further, for amenable groups, we show that $A_\Phi(G)$ is reflexive if and only if G is finite, under the assumption that the associated Young function Φ satisfies the MA-condition.