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MULTIPLIERS FOR THE L_p-SPACES OF A HYPERGROUP

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ABSTRACT. Let K be a hypergroup with Haar measure. We investigate the properties of the closed convex invariant subsets of $L_p(K)$, $1 \leq p \leq \infty$, and apply the results to the study of the multipliers for $L_p(K)$.

1. Introduction. There are a lot of results in abstract harmonic analysis on locally compact groups regarding multipliers for various spaces of functions. A good deal of attention was paid to the study of multipliers for $L_1(G)$, the classical characterization of Wendel [**20**] describing their structure. The compact multipliers for $L_1(G)$ were first studied by Sakai [**17**] who proved that if G is not compact, then zero is the only weakly compact multiplier of $L_1(G)$. Conversely, Akemann [**1**] showed that if G is compact then every multiplier for $L_1(G)$ is compact. All these results were extended to the hypergroups case by Ghahramani and Medgalchi [**6, 7**]. Multipliers from $L_1(G)$ to $L_p(G)$, $1 \leq p \leq \infty$, were investigated by Brainerd and Edwards [**2**]. In [**13**] Lau studied closed convex sets of $L_p(G)$, $1 \leq p \leq \infty$, applying his approach in order to rediscover the classical above-mentioned results and also to extend them to affine multipliers. Bearing in mind the Lau idea, the purpose of this paper is to obtain some insight into the multipliers problem for the L_p-spaces, $1 \leq p \leq \infty$, of a hypergroup, starting from the study of the invariant subsets of the L_p-spaces of the hypergroup.

Hypergroups generalize locally compact groups. Roughly speaking, they are locally compact spaces, whose regular, complex-valued Borel measures form an algebra, which has properties similar to the convolution algebra $(M(G), *)$ of a locally compact group G. The theory of hypergroups was initiated by Dunkl [**3**], Jewett [**9**] and Spector [**19**]. Throughout our paper, we will consider hypergroups in the sense of

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