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MULTIPLIERS ON L^p-SPACES FOR HYPERGROUPS

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ABSTRACT. Let K be a commutative hypergroup. At first, we characterize the space of multipliers on $L^p(K,m)$. Then, we investigate the multipliers on $L^1(\mathcal{S},\pi)$ and $L^2(\mathcal{S},\pi)$, where $\mathcal{S}$ is the dual space of K, i.e., $\mathcal{S} = \operatorname{supp}\pi$, π is the Plancherel measure of K.

1. Introduction. There are a lot of results on multipliers defined on translation-invariant Banach spaces on a locally compact group G. The standard reference for that is the book by Larsen [**6**]. In this paper we investigate multipliers in the hypergroup setting. Hypergroups generalize locally compact groups. For the theory of hypergroups, we refer to [**1, 5**]. A hypergroup K is a locally compact Hausdorff space with a convolution, i.e., a map $K \times K \to M^1(K)$, $(x,y) \mapsto \delta_x * \delta_y$, ($M^1(K)$ is the space of probability measures on K) and an involution, i.e., $K \to K$, $x \mapsto \widetilde{x}$, satisfying certain axioms, see [**1**].

Many results of harmonic analysis can be shown for hypergroups, in particular, for commutative hypergroups. In the following, we assume throughout that K is a commutative hypergroup. For a locally compact Hausdorff space X let $C(X)$, $C^b(X)$, $C_0(X)$ and $C_{00}(X)$ be the spaces of all continuous functions on X, those that are bounded, those that vanish at infinity and those that have compact support. $M(X)$ denotes the space of all regular complex Borel measures on X which can be identified with $C_0(X)^*$, the dual space of $C_0(X)$.

The convolution allows us to define a translation operator on $C(K)$ by setting

$$T_x f(y) = \int_K f(z)\, d(\delta_x * \delta_y)(z)$$

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