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SPACES OF λ-MULTIPLIER CONVERGENT SERIES

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ABSTRACT. In this paper, we introduce the quasi 0-gliding hump property of sequence spaces and study a series of elementary properties of spaces of λ-multiplier convergent series.

1. Introduction. Let (X, T) be a Hausdorff locally convex space, X^* the topological dual space of (X, T) and λ a scalar-valued sequence space. A series $\sum_j x_j$ in X is said to be λ-multiplier T-convergent if, for each $(t_j) \in \lambda$, there exists an $x \in X$ such that the series $\sum_{j=1}^{\infty} t_j x_j$ is T-convergent to x.

Let c_{00} be the scalar valued sequence space which are 0 eventually, the β-dual space of λ to be defined by: $\lambda^\beta = \{(u_j) : \sum_j u_j t_j$ is convergence for each $(t_j) \in \lambda\}$. It is obvious that if $c_{00} \subseteq \lambda$, then $[\lambda, \lambda^\beta]$ is a dual pair with respect to the bilinear pairing $[\bar{t}, \bar{u}] = \sum_j u_j t_j$, where $\bar{t} = (t_j) \in \lambda$, $\bar{u} = (u_j) \in \lambda^\beta$. Let $\tau(\lambda, \lambda^\beta)$ denote the Mackey topology of λ with respect to the dual pair $[\lambda, \lambda^\beta]$, i.e., the topology of uniform convergent on all absolutely convex $\sigma(\lambda^\beta, \lambda)$-compact subsets of λ^β, and $k(\lambda, \lambda^\beta)$ the topology of uniform convergent on all $\sigma(\lambda^\beta, \lambda)$-compact subsets of λ^β. It is clear that $k(\lambda, \lambda^\beta)$ is stronger than $\tau(\lambda, \lambda^\beta)$.

Lemma 1 [**14**]. *Let $c_{00} \subseteq \lambda$ and τ_1 be a vector topology on λ^β such that τ_1 is stronger than the coordinate convergence topology. Then the following states are equivalent*:

(1) $B \subseteq \lambda^\beta$ *is τ_1-compact*;

(2) $B \subseteq \lambda^\beta$ *is τ_1-sequentially compact.*

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