ON THE RESTRICTED SUMMABILITY OF THE MULTI–DIMENSIONAL VILENKIN–CESÁRO MEANS

ISTVÁN BLAHOTA AND KÁROLY NAGY

Abstract. The properties of the maximal operator of the $(C, \alpha)$-means ($\alpha = (\alpha_1, \ldots, \alpha_d)$) of the multi-dimensional Vilenkin-Fourier series are discussed, where the set of indices is inside a cone-like set. Weiss proved that the maximal operator is bounded from martingale Hardy space $H_{p_0}$ to the space $L_p$ for $p_0 < p$ ($p_0 = \max\{1/(1 + \alpha_k); k = 1, \ldots, d\}$) [21]. The next question arise. Is the boundary point $p_0$ essential or not? In the present paper we show that the maximal operator $\sigma_{L_1}^{\alpha_1, \ldots, \alpha_d}$ is not bounded from the Hardy space $H_{p_0}$ to the space $L_{p_0}$.


Keywords and phrases: Vilenkin system, maximal operator, multi-dimensional system, restricted summability, a.e. convergence, Cesàro means.

REFERENCES