Characterization of w-almost convergent sequences in $L^p(T^2)$

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Abstract

In this paper, we introduce the concept of w-almost convergent sequences. Such a definition is a weak form of almost convergent sequences given by G. G. Lorentz in [*Acta Math.*, Vol. 80 (1948), pp. 167–190]. We give Cauchy criterions for w-almost convergence and characterize w-almost convergent double sequences in $L^p(T^2)$ in terms of Fourier coefficients.

1. Introduction

Let $\{f_{m,n}\}_{m,n=0}^{\infty}$ be a double sequence in a Banach space $(X, \|\cdot\|)$