

On orthogonal expansions with respect to the generalized Jacobi weight

Bujar Fejzullahu

Abstract

We will present some new results on orthogonal expansions with respect to the generalized Jacobi weight

$$(1-x)^\alpha(1+x)^\beta h(x) \prod_{i=1}^m |x_i - x|^{\nu_i},$$

where $-1 < x_1 < \dots < x_m < 1$, $\alpha, \beta, \nu_i > -1$ ($i = 1, \dots, m$), and h is real analytic and strictly positive on $[-1, 1]$. The Cohen-type inequality as well as the Lebesgue constants for the Fourier expansions with respect to the generalized Jacobi weight will be discussed. Finally, we show that, for certain indices δ , there are functions whose Cesàro means of order δ in the generalized Fourier-Jacobi expansions are divergent a. e. on $[-1, 1]$.