

The $K_{\alpha, \beta}$ Transformation on McBride's Spaces of Generalized Function

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Abstract

In this paper we define the $K_{\alpha, \beta}$ transformation on certain space of generalized function introduced by A.C. McBride by employing the kernel method. Our results are more general than the result stated by J. J. Betancor and L. Rodriguez [5]. We also establish relations between the generalized $K_{\alpha, \beta}$ transformation and certain fractional integral operators.

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1. Introduction

In recent year quite a verity of integral transformation has been extended to various class of generalized functions, Zemanian has incorporated some of these extensions in his monograph [17]. The major [K - transformation] transformation of ordinary functions has been studied by many authors [12], [13] and [14], but it has been much explored as compared to Hankel transformation

Some generalization of the classical Meijer transformation

$$K_{\mu}[f(x)](y) = \int_0^{\infty} \sqrt{xy} K_{\mu}(xy) f(x) dx \quad (1.1)$$

were given by many authors from time to time. Recently a generalization of the transformation (1.1), which may call as the generalized transformation, is defined by [8]