COMPOSITION OF PATHWAY FRACTIONAL INTEGRAL OPERATOR ON PRODUCT OF SPECIAL FUNCTIONS

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Abstract: In this paper, we study the pathway fractional integral operator colluded with composition of K-Struve function and extended Mittag-Leffler function. The obtained result is expressed in terms of generalized Wright hypergeometric function.

Keywords and Phrases: Pathway fractional integral operator, generalized hypergeometric function, Struve function, K-Struve function, extended Mittag- Leffler function.

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1. Introduction and Definitions

In this paper, let R and C denotes the sets of real and complex numbers, respectively, and also let $R^+(0.\infty)$.

1.1. Pathway fractional integral operator

Nair developed the Pathway fractional integral operator by utilizing Mathai's pathway concept. In this paper, we aim to develop a new fractional integration formula using the generalized K-Wright function [8, 9]. Let $g(x) = L(p,q)$, $\mu \in C$, $Re(\mu) > 0$, $p > 0$ and γ is taken as pathway parameter such that $\gamma < 1$ and the pathway fractional integral operator is defined as

$$(P_{(o+)}^{(\mu,\gamma,p)})(x) = x^\mu \int_0^{\frac{x}{p(1-\gamma)}} \left[\frac{p(1-\gamma)t}{x} \right]^{\frac{\mu}{(1-\gamma)}} g(t)dt, \tag{1}$$