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LAPLACE-SUMUDU INTEGRAL TRANSFORM ON TIME SCALES

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Abstract: In this paper we have extended double Laplace-Sumudu transform for time scales which can be applied to solve partial-integro dynamic equations and partial dynamic equations on time scales.

Keywords and Phrases: Laplace transform, Sumudu transform, time scales, dynamic equations.

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1. Introduction

Integral transforms have variety of applications as they convert differential and integral equations to more simpler algebraic expressions that can be solved easily [2, 8, 9]. Generalization of various integral transform have done for time scales $\mathbb{T}$ [4, 6, 7]. Initially for a function $f : \mathbb{T} \to \mathbb{C}$ Bohner and Peterson [5] have defined Laplace transform on time scale as

$$\mathscr{L}\{f\}(z) = \int_0^\infty e^{\sigma}_{\ominus z}(t, 0) f(t)\ \Delta t.$$