

## FRACTIONAL SHEHU TRANSFORM AND ITS APPLICATIONS

T. G. Thange and A. R. Gade\*

Department of Mathematics,  
Yogeshwari Mahavidyalaya Ambajogai, Beed, MH, INDIA

E-mail : tgthange@gmail.com

\*Department of Mathematics,  
Arts Commerce and Science College Kille-Dharur, Beed, MH, INDIA

E-mail : ananthagade45@gmail.com

(Received: Aug. 06, 2020 Accepted: Jul. 21, 2021 Published: Aug. 30, 2021)

**Abstract:** In these study, we proposed new generalized Shehu transform of fractional order called “fractional Shehu transform” of order  $0 < \alpha < 1$ . This transform is applicable for functions which are differentiable but by fractional order. By using the definition of fractional order Shehu transform we prove fundamental properties of these integral transform. Finally, we have obtained convolution and inversion.

**Keywords and Phrases:** Shehu Transform, Laplace Transform, Mittag-Leffler function, Generalized function (Dirac’s Distribution), Fractional Derivative, Fractional Integration.

**2020 Mathematics Subject Classification:** 26A33.

### 1. Introduction

We all are familiar about the applications of integral transform for finding the solution of different differential and integral equations [4, 16]. It is best tool to find the solutions of many of these problems. Shehu transform is the Laplace type integral transform moreover it is generalization of Laplace and Sumudu transform [2, 10] which is widely used for solving differential equations with efficient and more convenient way. If  $p(z)$  is continuous and continuously differentiable then by using regular definitions of different integral transform, we solve differential equations