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SANDIP TRANSFORM: PROPERTIES AND APPLICATIONS

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Abstract: In the present article, new integral transform named Sandip transform is introduced by authors. It yields Laplace, Sumudu, Natural, Stieltjes and Generalized Stieltjes transform as its special cases. The existence theorem, inversion formula, Parseval-type identity and other results of Sandip transform are proved in this paper. H-function and H-transform are used with Mellin transform as useful tool for finding Sandip transform of functions. The relationship between Sandip transform with Mellin, Generalized Stieltjes, H-transform are proved and applications of Sandip transform to partial differential equations are given in this paper.

Keywords and Phrases: Laplace transform, Sumudu Transform, Natural Transform, H-function, Stieltjes transform, Generalized Stieltjes transform, Sandip transform.

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1. Introduction

In the field of Engineering, for the solution of linear ordinary and partial differential equations the method of integral transforms are very efficient. The simplification of given differential equations into initial-boundary value problems can be done with some weight function of two arguments and integration of an equation.