REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF)
ISSN: 2249-894X
VOLUME - 1 | ISSUE - 3 | MARCH - 2019

ANALYTICITY AND UNIQUENESS FOR C-L TRANSFORM

S. B. Chavhan
Assistant Professor and Head Department of Mathematics ,
Digambarrao Bindu College Bhokar-431801.
Email: sbcmath2015@gmail.com

ABSTRACT

The Integral transform is a useful tool for optical analysis and signal processing. In this paper we have defined C-L transform and have also proved Analyticity and Uniqueness Theorem for this transform.

KEYWORDS: *Integral transform, Fractional Hartley Transform, C-L transform, canonical transform, canonical cosine and sine transforms, Fourier transform, fractional Fourier transform, Laplace transform, testing function space. Discrete Fractional Fourier Transform .*

1. **INTRODUCTION:** The Fourier analysis is undoubtedly the one of the most valuable and powerful tools in signal processing, image processing and many other branches of engineering sciences [4],[5],[11]the fractional Fourier transform, a special case of linear canonical transform is studied through different analysis .Almeida[1],[2].had introduced it and proved many of its properties . The fractional Fourier transform is a generalization of classical Fourier transform, which is introduce from the mathematical aspect by Namias at first and has many applications in optics quickly[10]. The definition of Laplace transform with parameter p of $f(x)$ denoted by

$$L[f(x)]=F(p)$$

2. $$L[f(x)]=\int_0^{\infty} e^{-px} f(x)$$

And definition of canonical transform with parameter s of $f(t)$ denoted by

$$\{CT\, f(t)\}(s)=\frac{1}{\sqrt{2\pi ib}} e^{\frac{i}{2}\left(\frac{d}{b}\right)s^2} \int_{-\infty}^{\infty} e^{-i\left(\frac{s}{b}\right)t} e^{\frac{i}{2}\left(\frac{a}{b}\right)t^2} f(t)$$

The definition of C-L transform is given in section 2. Analyticity theorem proved in section 3. In Section 4 Uniqueness Theorem is also proved and lastly conclusion are given. The notation and terminology as per Zemanian [12],[13]. Gelfand-Shilov [3].S.B.Chavhan [6],[7],[8],[9].

2. DEFINITION C-L TRANSFORMS:

The definition of Laplace transform with parameter p of $f(x)$ denoted by $L[f(x)]=F(p)$