South East Asian J. of Mathematics and Mathematical Sciences
Vol. 18, No. 3 (2022), pp. 123-138

DOI: 10.56827/SEAJMMS.2022.1803.10 **ISSN (Online): 2582-0850**

ISSN (Print): 0972-7752

SOME PROPERTIES OF FRACTIONAL HARTLEY TRANSFORM

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(**Received:** *May 23, 2021* **Accepted:** *Dec. 15, 2022* **Published:** *Dec. 30, 2022)*

Abstract: This paper is motivated by the ideas of fractional Fourier transform and Hartley transform. Looking towards the practicality and demanding attention of fractional Hartley transform we take keen interest into it. In this paper, we deal with inverse theorem of FRHT and some important properties of fractional Hartley transform like exponential rule, multiplication rule, transform of derivative and derivative of transform, which play a very crucial role in the development of fractional Hartley transform.

Keywords and Phrases: Fourier transform, fractional Fourier transform (FRFT), Hartley transform, fractional Hartley transform (FRHT) and derivative.

2020 Mathematics Subject Classification: 44A05, 42A38, 42B10, 46F12.

1. Introduction and Preliminaries

The fractional Hartley transform is an extension of classical Hartley transform. Moreover, fractional Hartley transform is very closely related to fractional Fourier transform. In the year 1980, the fractional Fourier transform was introduced by V. Namias to solve some type of ordinary and partial differential equation arising