
THE LINEAR CANONICAL TRANSFORMS ASSOCIATED WITH THE DUNKL-TYPE OPERATOR AND ITS APPLICATIONS

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ABSTRACT

In this paper, we introduce the canonical Fourier transform associated with the Dunkl-type operator and study some of its important properties. We study the generalized translation operator and convolution product associated with this transform and present some of its basic properties. Next, at the heart of our investigation, we introduce and study the canonical wavelet transform associated with the Dunkl-type operator. Nonetheless, special attention is paid to the applications of these new transforms.

Keywords Generalized canonical Fourier transform · generalized canonical wavelet transform · Dunkl-type operator · Jacobi–Dunkl transform · Chébli–Trimèche hypergroup · translation operator · convolution product

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