

The Hermite Functions Related to Infinite Series of Generalized Convolutions and Applications

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Abstract: In this paper, we show that arbitrary Hermite function or appropriate linear combination of those functions is a weight-function of four explicit generalized convolutions for the Fourier cosine and sine transforms. With respect to applications, normed rings on {Mathematical expression} are constructed, and sufficient and necessary conditions for the solvability and explicit solutions in {Mathematical expression} of the integral equations of convolution type are provided by using the constructed convolutions. © 2010 Birkhäuser / Springer Basel AG.

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