

Numerical Solution for Integro-Differential Equations by Using Quartic B-Spline Wavelet and Operational Matrices

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Abstract : In this paper, semi-orthogonal B-spline scaling functions and wavelets and their dual functions are presented to approximate the solutions of integro-differential equations. The B-spline scaling functions and wavelets, their properties and the operational matrices of derivative for this function are presented to reduce the solution of integro-differential equations to the solution of algebraic equations. Here we compute B-spline scaling functions of degree 4 and their dual, then we will show that by using them we have better approximation results for the solution of integro-differential equations in comparison with less degrees of scaling functions.

Keywords : integro-differential equations, quartic B-spline wavelet, operational matrices, dual functions

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