

Error Analysis and Numerical Simulation of Fractional KdV Burger's Differential Equations via 3-scale Haar wavelets

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Abstract

This article proposes a modified numerical algorithm based on a finite-difference scheme and the 3-Scale Haar approach for numerical simulation of the fractional KdV-Burgers differential equation. The multi-resolution utilize to develop the wavelet basis functions. The convergence of the proposed algorithm convinces its error analysis. The Haar solution shows decent concurrence with the analytical solutions and other existing techniques present in the literature. The Haar solutions reveal that the proposed procedure is profoundly viable and helpful for the fractional partial differential equation.

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