

Analytical Soliton Solutions of the Fractional Jaulent-Miodek System

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Abstract : This paper applies a modified Laplace Adomian decomposition method to solve the time-fractional Jaulent-Miodek system. The method produce convergent series solutions with easily compatible components. This paper considers the Caputo fractional derivative. The effectiveness and applicability of the method are demonstrated by comparing its results with those of prior studies. Results are presented in tables and figures. These solutions might be imperative and significant for the explanation of some practical physical phenomena. All computations and figures in the work are done using MATHEMATICA. The numerical results demonstrate that the current methods are effective, reliable, and simple to implement for nonlinear fractional partial differential equations.

Keywords : approximate solutions, Jaulent-Miodek system, Adomian decomposition method, solitons

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