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**Numerical solution of the nonlinear conformable space-time fractional partial differential equations.** (English) [Zbl 07423837](#)

*Indian J. Pure Appl. Math.* 52, No. 2, 407-419 (2021)

**Summary:** In this paper, a numerical approach for solving the nonlinear space-time fractional partial differential equations with variable coefficients is proposed. The fractional derivatives are described in the conformable sense. The numerical approach is based on shifted Chebyshev polynomials of the second kind and finite difference method. The proposed scheme reduces the main problem to a system of nonlinear algebraic equations. The validity and the applicability of the proposed technique are shown by numerical examples.

**MSC:**

**65-XX** Numerical analysis

**35G31** Initial-boundary value problems for nonlinear higher-order PDEs

**35R11** Fractional partial differential equations

**65M70** Spectral, collocation and related methods for initial value and initial-boundary value problems involving PDEs

**Keywords:**

nonlinear spacetime fractional partial differential equation; conformable fractional derivative; finite difference method; Newton method; shifted Chebyshev polynomials of second kind

**Full Text:** [DOI](#)

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