

Numerical solution of an initial value problem for nonlinear fractional differential equations

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Abstract. The numerical solution of an initial value problem for nonlinear fractional differential equations is discussed. Using an integral equation reformulation of the initial value problem and graded grids, the attainable order of convergence of proposed algorithms is studied, theoretically and numerically.

Keywords: Nonlinear fractional differential equation, Caputo derivative, Piecewise polynomial approximation, Graded grid

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