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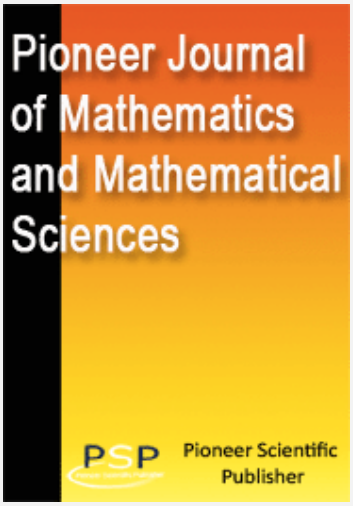

EXISTENCE AND UNIQUENESS OF SOLUTIONS FOR NONLINEAR FRACTIONAL VOLTERRA INTEGRO-DIFFERENTIAL EQUATIONS

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Abstract

This paper is concerned with the existence and uniqueness of solutions of nonlinear fractional Volterra integro-differential equation, which has the form

$$D^s u = f(t, u) - cu\int_0^t u(\tau)\,d\tau, \quad t \geq 0,$$

where $0 < s < 1$, and the differential operator $D^s u$ is taken in the Riemann-Liouville sense. Some local existence and uniqueness theorems are proved.

Keywords and phrases: Volterra integro-differential equation, Riemann-Liouville derivative, existence and uniqueness.