

## EXISTENCE IN THE α-NORM FOR NONLINEAR VOLTERRA INTEGRODIFFERENTIAL EQUATIONS WITH NONLOCAL CONDITIONS

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## Abstract

In this paper, we study the existence of the following abstract Cauchy problem with nonlocal conditions on a Banach space X.

$$\begin{cases} u'(t) = -Au(t) + \int_0^t K(t, s, u(s)) ds + f(t), & t \in [0, T], \\ u(0) + g(u) = u_0. \end{cases}$$

By using Schauder fixed point theorem and Sadovskii fixed point theorem, we find the existence of solutions. An example is presented in the end to show the application of obtained results.

**Keywords and phrases:** Volterra integrodifferential equation, nonlocal condition,  $C_0$ -semigroup.

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