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EXISTENCE AND UNIQUENESS RESULTS FOR IMPLICIT FRACTIONAL DIFFERENTIAL EQUATIONS INVOLVING GENERALIZED KATUGAMPOLA DERIVATIVE

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Abstract: In this paper, we investigate the existence and uniqueness results for the solutions to implicit fractional differential equations involving generalized Katugampola derivative with nonlocal initial condition. By means of some classical fixed point theorem techniques such as Krasnosel'skii fixed point theorem and Banach contraction principle we established our main results. A suitable example is given to illustrate the applicability of our main results.

Keywords and Phrases: Generalized Katugampola derivative, implicit differential equation, existence, Uniqueness, fixed point.

2020 Mathematics Subject Classification: 26A33, 34A08, 34A12.

1. Introduction

In recent years, fractional calculus have been extensively used in many fields of applied sciences and engineering. This is the reason, that the fractional calculus and their applications have remains in spotlight in many research works. Certainly,