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## FUZZY CONFORMABLE FRACTIONAL INTEGRO-DIFFERENTIAL EQUATIONS WITH NON-LOCAL CONDITIONS

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**Abstract.** In this paper, we consider a conformable fractional Cauchy problem of integro-differential equations with non local conditions in a fuzzy metric space. We first establish the existence, uniqueness and continuous dependence on initial condition of the mild solution. We then examine a special case of non local conditions.

## 1. Introduction

In real-life many phenomena can be expressed by means of mathematical models based on differential, integral or integro-differential equations [8, 14, 18, 25, 26]. It is very remarkable that sometimes the triggering time of such phenomena is unknown. Thus in order to be able to study this type of phenomena, we have to suggest the so-called initial condition. For this raison, several types of initial conditions have been proposed in the literature, including nonlocal conditions [7,9,19], fuzzy initial conditions [11-13, 20] and fuzzy-nonlocal conditions [17,21], which can be applied in many areas of science with better effects. In the other hand, in [15] the authors introduced a new fractional derivative named conformable fractional derivative in order to deal better with memory of dynamical systems. This novel fractional derivative attracts the attention of many researchers in various fields of applications [1-6, 10, 24]. For example, in the work [2] the authors gave, for the first time, the version of the conformable fractional derivative in a fuzzy metric space.

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