

## عنوان مقاله:

Existence of solution for a fractional differential equation via a new type of  $(\psi, F)$ -contraction in b-metric spaces

## محل انتشار:

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## خلاصه مقاله:

In this paper, we further develop the notion of cyclic  $(\alpha, \beta)$ -admissible mappings introduced in (Tas, S. Chandok, K. Tas, A. H. Ansari, *Some fixed point results for TAC-type contractive mappings*, J. Function spaces, 2016, Article ID 1907676, 1--6) and  $(\psi, F)$ -contraction mappings introduced in (Wardowski, D. *Solving existence problems via F-contractions*, Proceedings of the American Mathematical Society, 146 (4), (2018), 1585--1598), in the framework of b-metric spaces. To achieve this, we introduce the notion of  $(\alpha, \beta)$ -S-admissible mappings and a new class of generalized  $(\psi, F)$ -contraction types and establish a common fixed point and fixed point results for these classes of mappings in the framework of complete b-metric spaces. As an application, we establish the existence and uniqueness of the solutions to differential equations in the framework of fractional derivatives involving Mittag-Leffler kernels via the fixed point technique. The results obtained in this work provide extension as well as substantial generalization and improvement of the fixed point results obtained in (Tas, Wardowski, Wardowski) and several well-known results on fixed point theory and its applications.

## کلمات کلیدی:

Fixed point,  $(\alpha, \beta)$ -S-admissible mappings, Generalized  $(\psi, F)$ -contraction, b-metric space, Differential equation

## لینک ثابت مقاله در پایگاه سیویلیکا:

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