

عنوان مقاله:

Fixed point theorem for non-self mappings and its applications in the modular space

محل انتشار:

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خلاصه مقاله:

In this paper, based on [A. Razani, V. Rako\check{c}evi\acute{a}c and Z. Goodarzi, Nonsself mappings in modular spaces and common fixed point theorems, Cent. Eur. J. Math. ۲ (۲۰۱۰) ۳۵۷-۳۶۶.] a fixed point theorem for non-self contraction mapping T in the modular space X_{ρ} is presented. Moreover, we study a new version of Krasnoseleskii's fixed point theorem for $S+T$, where T is a continuous non-self contraction mapping and S is continuous mapping such that $S(C)$ resides in a compact subset of X_{ρ} , where C is a nonempty and complete subset of X_{ρ} , also C is not bounded. Our result extends and improves the result announced by Hajji and Hanebally [A. Hajji and E. Hanebaly, Fixed point theorem and its application to perturbed integral equations in modular function spaces, Electron. J. Differ. Equ. ۲۰۰۵ (۲۰۰۵) ۱-۱۱]. As an application, the existence of a solution of a nonlinear integral equation on $C(I, L^{\varphi})$ is presented, where $C(I, L^{\varphi})$ denotes the space of all continuous function from I to L^{φ} , L^{φ} is the Musielak-Orlicz space and $I=[0, b] \subset \mathbb{R}$. In addition, the concept of quasi contraction non-self mapping in modular space is introduced. Then the existence of a fixed point of these kinds of mapping without Δ_2 -condition is proved. Finally, a three step iterative sequence for non-self mapping is introduced and the strong convergence of this iterative sequence is studied. Our theorem improves and generalized recent know results in the literature.

کلمات کلیدی:

Modular space, Non-self mappings, Quasi contraction, Krasnoseleskii's fixed point theorem, Integral equation.

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