

KRASNOSEL'SKII TYPE FIXED POINT THEOREM FOR NONLINEAR EXPANSION

FULI WANG AND FENG WANG

School of Mathematics and Physics
Changzhou University Changzhou 213164, China
E-mail: fuliwang2011@163.com

Abstract. A new fixed point theorem on nonlinear expansive operators as defined in this article is firstly pointed out. Subsequently, we establish several fixed point theorems on the sum of $A + B$, where A is a compact operator, B is a nonlinear expansive operator. The results obtained generalize and improve the corresponding results of Avramescu and Xiang in papers [C. Avramescu, C. Vladimirescu, Some remarks on Krasnoselskii's fixed point theorem, *Fixed Point Theory*, 4 (2003) 3–13, T. Xiang, R. Yuan, A class of expansive-type Krasnosel'skii fixed point theorems, *Nonlinear Anal.* 71 (2009) 3229–3239]. As applications, the existence theorem of nonnegative solutions for a class of nonlinear integral equation is discussed.

Key Words and Phrases: Fixed point theorem, nonlinear expansive mapping, nonlinear integral equation.

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