

Fixed point theorems and ergodic theorems for nonlinear mappings in Banach spaces

Pavel Kocourek¹, Wataru Takahashi², and Jen-Chih Yao^{1, 3}

¹ Department of Applied Mathematics, National Sun Yat-sen University, Kaohsiung 80424, Taiwan
(e-mail: pakocica@gmail.com; yaojc@math.nsysu.edu.tw)

² Department of Mathematical and Computing Sciences, Tokyo Institute of Technology, Tokyo 152-8552, Japan
(e-mail: wataru@is.titech.ac.jp)

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Abstract. In this paper, we first introduce a class of nonlinear mappings called generalized nonspreading which contains the class of nonspreading mappings in a Banach space and then prove a fixed point theorem, a nonlinear mean convergence theorem of Baillon's type and a weak convergence theorem of Mann's type for such nonlinear mappings in a Banach space. Using these theorems, we obtain some fixed point theorems, nonlinear mean convergence theorems and weak convergence theorems in a Banach space.

Key words: Banach space, fixed point, mean convergence, weak convergence, nonexpansive mapping, nonspreading mapping

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