Nonlinear Dynamics and Systems Theory, 6(3) (2006) 281-293



On a Class of Strongly Nonlinear Impulsive Differential Equation with Time Delay

W. Wei $^{1\ast},$ S.H. Hou 2 and K.L. Teo 3

 ¹ Department of Mathematics, University of Guizhou, Guiyang, Guizhou 550025, P.R. China
² Department of Applied Mathematics, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong
³ Department of Mathematics and Statistics, Curtin University of Technology, GPO Box U1987, Perth, WA 6845, Australia

Received: August 3, 2005; Revised: February 10, 2006

Abstract: In this paper, we prove the existence of solutions for a class of strongly nonlinear impulsive differential equations with time delay in infinite dimensional Banach spaces by means of a fixed point theorem due to Leray-Schauder.

Keywords: Monotone operator; impulsive differential equation; delay; existence of solutions.

Mathematics Subject Classification (2000): 47H05, 34A37, 34K30.