Nonlinear Dynamics and Systems Theory, **6**(1) (2006) 31–47

On The Dependence of Fixed Point Sets of Pseudo-Contractive Multifunctions. Application to Differential Inclusions

D. Azé[1] and J.-P. Penot[2*]

[1] *UMR CNRS MIP, Université Paul Sabatier, 118 Route de Narbonne, 31062 Toulouse cedex, France*
[2] *C.N.R.S. FRE 2570, Faculté des Sciences, Av. de l'Université, 64000 Pau, France*

Received: April 01, 2005; Revised: July 23, 2005

Abstract: A weakened notion of multivalued contraction mapping is introduced. Some fixed point results relying on this notion are presented. The associated fixed points sets are shown to enjoy a Lipschitzian behaviour with respect to the graphs of the multifunctions. Applications are given to the dependence of solutions of differential inclusions of the form $\dot{x}(t) \in R(t, x(t))$ on initial values or on the right-hand sides or on parameters.

Keywords: *Differential inclusions; fixed points; iterative methods; sensitivity; stability.*

Mathematics Subject Classification (2000): 37C25, 34A12, 34A60.