

# VIABILITY FOR MULTI-VALUED SEMILINEAR REACTION-DIFFUSION SYSTEMS\*

Monica Burlică<sup>†</sup>

## Abstract

The aim of this paper is to prove some viability results for semilinear reaction-diffusion systems governed by multi-valued continuous perturbations of infinitesimal generators of  $C_0$ -semigroups.

**MSC:** Primary 47J35, 35K57, 35K45; Secondary 47D03, 47D60.

**keywords:**  $C_0$ -semigroup, reaction-diffusion system, viability, tangency set, tangency condition.

## 1 Introduction

The purpose of this paper is to prove some viability results referring to a class of semilinear reaction-diffusion systems, results announced without proofs in Burlică [1]. Let  $(X, \|\cdot\|_X)$  and  $(Y, \|\cdot\|_Y)$  be real Banach spaces,  $A : D(A) \subseteq X \rightarrow X$  and  $B : D(B) \subseteq Y \rightarrow Y$  the infinitesimal generators of two  $C_0$ -semigroups,  $\{S_A(t) : X \rightarrow X; t \geq 0\}$  and  $\{S_B(t) : Y \rightarrow Y; t \geq 0\}$  respectively,  $\mathcal{K}$  a nonempty and locally closed subset in  $X \times Y$ ,  $F : \mathcal{K} \rightarrow X$  a

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<sup>†</sup>[monicaburlica@yahoo.com](mailto:monicaburlica@yahoo.com) Department of Mathematics Graduate School, "Al.I.Cuza" University Iași, România; This work was supported by the PN-II-ID-PCE-2007-1, Grant ID-397.