VIABILITY FOR MULTI-VALUED SEMILINEAR REACTION-DIFFUSION SYSTEMS*

Monica Burlică†

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, $A : D(A) \subseteq X \to X$ and $B : D(B) \subseteq Y \to Y$ the infinitesimal generators of two C_0-semigroups, $\{S_A(t) : X \to X; t \geq 0\}$ and $\{S_B(t) : Y \to Y; t \geq 0\}$ respectively, $\mathcal{K}$ a nonempty and locally closed subset in $X \times Y$, $F : \mathcal{K} \to X$ a