

Contents

Notations	ix
General Introduction	x
1 Introduction	1
1.1 Function Spaces	4
1.2 Measures of noncompactness	6
1.3 Set-valued maps	7
1.4 Truncated Hausdorff Distance	8
1.5 Some classes of sets	11
1.5.1 Uniformly prox-regular sets	11
1.5.2 Nonregular sets	13
1.6 Standing assumptions	15
1.7 Preliminary lemmas	17
2 Moreau-Yosida Regularization of Degenerate State-Dependent Sweeping Processes	23
2.1 Existence Results for Degenerate State-Dependent Sweeping Processes . . .	25
2.1.1 The Case of the Degenerate Sweeping Process	30
3 Perturbed Degenerate State-Dependent Sweeping Processes	31
3.1 Main result	33
3.1.1 Perturbed Degenerate Sweeping Processes	37
3.2 Integro-differential sweeping processes	37
3.3 An application to online optimization	38
3.4 Perturbed second-order sweeping process	39
4 Open questions and future work	41
Bibliography	43
Annexed	48