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Nota di contenuto	CONTENTS ; Preface ; Mathematical models including a hysteresis operator ; 1 Introduction ; 2 Mathematical treatment for hysteresis operator ; 2.1 Play operator ; 2.2 Stop operator ; 2.3 The Duhem model ; 3 Shape memory alloys ; 4 Examples of hysteresis operator 4.1 Solid-liquid phase transition 4.2 Biological model ; 4.3 Magnetostrictive thin film multi-layers ; References ; Modelling phase transitions via an entropy equation: long-time behaviour of the solutions ; 1 Introduction ; 2 The model and the resulting PDE's system ; 3 Main results 4 The existence and uniqueness result 4.1 Proof of Theorem 5 ; 5 Uniform estimates on (0. +oo) ; 6 The w-limit ; References ; Global solution to

a one dimensional phase transition model with strong dissipation ; 1 Introduction and derivation of the model ; 2 Notation and main results 3 Proof of Theorem 1 4 Proof of Theorem 2 ; References ; A global in time result for an integro-differential parabolic inverse problem in the space of bounded functions ; 1 Introduction ; 2 Definitions and main results ; 2.1 The main abstract result ; 2.2 An application 3 The weighted spaces 4 An equivalent fixed point system ; 5 Proof of Theorem 6 ; References ; Weak solutions for Stefan problems with convections ; 1 Introduction ; 2 Stefan problem in non-cylindrical domain with convection governed by Navier-Stokes equations 2.1 Classical formulation

Sommario/riassunto

Phase transition phenomena arise in a variety of relevant real world situations, such as melting and freezing in a solid-liquid system, evaporation, solid-solid phase transitions in shape memory alloys, combustion, crystal growth, damage in elastic materials, glass formation, phase transitions in polymers, and plasticity. The practical interest of such phenomenology is evident and has deeply influenced the technological development of our society, stimulating intense mathematical research in this area. This book analyzes and approximates some models and related partial differential equation