

1. Record Nr.	UNISA996466494403316
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Titolo	Controllability of Partial Differential Equations Governed by Multiplicative Controls [[electronic resource] /] / by Alexander Y. Khapalov
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2010
ISBN	1-280-39173-1 9786613569653 3-642-12413-5
Edizione	[1st ed. 2010.]
Descrizione fisica	1 online resource (XV, 284 p. 26 illus.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1995
Disciplina	515.353
Soggetti	Partial differential equations System theory Calculus of variations Biomathematics Fluid mechanics Partial Differential Equations Systems Theory, Control Calculus of Variations and Optimal Control; Optimization Mathematical and Computational Biology Engineering Fluid Dynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references (p. 275-281) and index.
Nota di contenuto	Multiplicative Controllability of Parabolic Equations -- Global Nonnegative Controllability of the 1-D Semilinear Parabolic Equation -- Multiplicative Controllability of the Semilinear Parabolic Equation: A Qualitative Approach -- The Case of the Reaction-Diffusion Term Satisfying Newton's Law -- Classical Controllability for the Semilinear Parabolic Equations with Superlinear Terms -- Multiplicative Controllability of Hyperbolic Equations -- Controllability Properties of a Vibrating String with Variable Axial Load and Damping Gain -- Controllability Properties of a Vibrating String with Variable Axial Load

Only -- Reachability of Nonnegative Equilibrium States for the Semilinear Vibrating String -- The 1-D Wave and Rod Equations Governed by Controls That Are Time-Dependent Only -- Controllability for Swimming Phenomenon -- A "Basic" 2-D Swimming Model -- The Well-Posedness of a 2-D Swimming Model -- Geometric Aspects of Controllability for a Swimming Phenomenon -- Local Controllability for a Swimming Model -- Global Controllability for a "Rowing" Swimming Model -- Multiplicative Controllability Properties of the Schrodinger Equation -- Multiplicative Controllability for the Schrödinger Equation.

Sommario/riassunto

The goal of this monograph is to address the issue of the global controllability of partial differential equations in the context of multiplicative (or bilinear) controls, which enter the model equations as coefficients. The mathematical models we examine include the linear and nonlinear parabolic and hyperbolic PDE's, the Schrödinger equation, and coupled hybrid nonlinear distributed parameter systems modeling the swimming phenomenon. The book offers a new, high-quality and intrinsically nonlinear methodology to approach the aforementioned highly nonlinear controllability problems.
