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<<无限维最优化和控制论>>

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内容概要

This book studies existence and necessary conditions, such as Pontryagin's maximum principle for optimal control problems described by ordinary and partial differential equations. These necessary conditions are obtained from Kuhn-Tucker theorems for nonlinear programming problems in infinite dimensional spaces. The optimal control problems include control constraints, state constraints, and target conditions. Evolution partial differential equations are studied using semigroup theory, abstract differential equations in linear spaces, integral equations, and interpolation theory. Existence of optimal controls is established for arbitrary control sets by means of a general theory of relaxed controls. Applications include nonlinear systems described by partial differential equations of hyperbolic and parabolic type; the latter case deals with pointwise constraints on the solution and the gradient. The book also includes results on convergence of suboptimal controls. H. O. Fattorini is Professor of Mathematics at the University of California, Los Angeles.

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书籍目录

Foreword Part I Finite Dimensional Control Problems 1 Calculus of Variations and Control Theory 1.1 Calculus of Variations: Surface of Revolution of Minimum Area 1.2 Interpretation of the Results 1.3 Mechanics and Calculus of Variations 1.4 Optimal Control: Fuel Optimal Landing of a Space Vehicle 1.5 Optimal Control Problems Described by Ordinary Differential Equations 1.6 Calculus of Variations and Optimal Control. Spike Perturbations 1.7 Optimal Control: Minimum Drag Nose Shape in Hypersonic Flow 1.8 Control of Functional Differential Equations: Optimal Forest Growth 1.9 Control of Partial Differential Equations 1.10 Finite Dimensional and Infinite Dimensional Control Problems 2 Optimal Control Problems Without Target Conditions 2.0 Elements of Measure and Integration Theory 2.1 Control Systems Described by Ordinary Differential Equations 2.2 Existence Theory for Optimal Control Problems 2.3 Trajectories and Spike Perturbations 2.4 Cost Functionals and Spike Perturbations 2.5 Optimal Control Problems without Target Condition: The Hamiltonian Formalism …… 3 Abstrat Minimiaxtion Problems:The Minimum Priciple for the Time Optimal Problem 4 The Minimum Principle for General Optimal Control ProblemsPart II Infimite Dmensioal Control Probles 5 Differetial Equations in Banach Spacesand Semigroup Theory 6 Abstract Minimization Problesms in Hibert Spaces 7 Abstract Minimization Problems in Banach Spaces 8 Interpolation and Domains of Fractional Powers 9 Linear Control Systems 10 Optimal Control Problems with State Constraints 11 Oqtimal Control Problems with State ConstraintsPartIII Relaxed Controls 12 Spaces of Relaxed Controls.Topology and Measure Theeory 13 Relaxed Controls in Finite Dimeninal Systems 14 Relaxed Controls in Infinite Dimensional SystemsReferencesIndex

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