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Sinopsis

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?Presents progress in the studies of nonconvex optimal control and variational problems
Employs the Baire category approach to consider problems that do not satisfy convexity assumptions
Establishes the well-posedness of a typical optimal control problem without convexity assumptions?
Nonconvex Optimal Control and Variational Problems is an important contribution to the existing literature in the field and is devoted to the presentation of progress made in the last 15 years of research in the area of optimal control and the calculus of variations. This volume contains a number of results concerning well-posedness of optimal control and variational problems, nonoccurrence of the Lavrentiev phenomenon for optimal control and variational problems, and turnpike properties of approximate solutions of variational problems.

Chapter 1 contains an introduction as well as examples of select topics. Chapters 2-5 consider the well-posedness condition using fine tools of general topology and porosity. Chapters 6-8 are devoted to the nonoccurrence of the Lavrentiev phenomenon and contain original results. Chapter 9 focuses on infinite-dimensional linear control problems, and Chapter 10 deals with "good" functions and explores new understandings on the questions of optimality and variational problems. Finally, Chapters 11-12 are centered around the turnpike property, a particular area of expertise for the author.

This volume is intended for mathematicians, engineers, and scientists interested in the calculus of variations, optimal control, optimization, and applied functional analysis, as well as both undergraduate and graduate students specializing in those areas. The text devoted to Turnpike properties may be of particular interest to the economics community.