

# 《变分分析》

## 图书基本信息

书名 : 《变分分析》

13位ISBN编号 : 9787510061363

10位ISBN编号 : 7510061369

出版时间 : 2013-10

出版社 : 世界图书出版公司北京公司

作者 : R. Tyrrell Rockafellar, Roger J-B Wets

页数 : 734

版权说明 : 本站所提供下载的PDF图书仅提供预览和简介以及在线试读 , 请支持正版图书。

更多资源请访问 : [www.tushu111.com](http://www.tushu111.com)

# 《变分分析》

## 内容概要

本书从该理论的最初起源—积分函数的最小化开始，对该理论做了较深的讨论。变分观点的发展很大程度上和优化、平衡、控制这些理论是紧密相关的。书中在一个统一的框架之中，全面讲述了经典分析和凸分析之外的变分几何和次微积分知识。也讲述了集收敛、集值映射和epi收敛、对偶和正则被积函数。

目次：最大和最小；凸性；柱体；集合凸性；集值映射；变分几何；上境图极限；次梯度和次导数；Lipschitzian性质；次微积分；对偶化；单调映射；二阶理论；可测性。

读者对象：数学专业的研究生、老师和相关的科研人员。

# 《变分分析》

## 书籍目录

- Chapter 1.Max and Min
- A.Penalties and Constraints
- B.Epigraphs and Semicontinuity
- C.Attainment of a Minimum
- D.Continuity , Closure and Growth
- E.Extended Arithmetic
- F.Parametric Dependence
- G.Moreau Envelopes
- H.Epi—Addition and Epi—Multiplication
- I.Auxiliary Facts and Principles
- Commentary
- Chapter 2.Convexity
- A.Convex Sets and Functions
- B.Level Sets and Intersections
- C.Derivative Tests
- D.Convexity in Operations
- E.Convex Hulls
- F.Closures and Continuity
- G.Separation
- H.Relative Interiors
- I.Piecewise Linear Functions
- J.Other Examples
- Commentary
- Chapter 3.Cones and Cosmic Closure
- A.Direction Points
- B.Horizon Cones
- C.Horizon Functions
- D.Coercivity Properties
- E.Cones and Orderings
- F.Cosmic Convexity
- G.Positive Hulls
- Commentary
- Chapter 4.Set Convergence
- A.Inner and Outer Limits
- B.Painleve—Kuratowski Convergence
- C.Pompeiu—Hausdorff Distance
- D.Cones and Convex Sets
- E.Compactness Properties
- F.Horizon Limits
- G.Continruty of Operations
- H.Quantification of Convergence
- I.Hyperspace Metrics
- Commentary
- Chapter 5.Set—Valued Mappings
- A.Domains , Ranges and Inverses
- B.Continuity and Semicontimuty
- C.Local Boundedness

# 《变分分析》

D.Total Continuity

E.Pointwise and Graphical Convergence

F.Equicontinuity of Sequences

G.Continuous and Uniform Convergence

H.Metric Descriptions of Convergence

I.Operations on Mappings

J.Generic Continuity and Selections

Commentary

Chapter 6.Variational Geometry

A.Tangent Cones

B.Normal Cones and Clarke Regularity

C.Smooth Manifolds and Convex Sets

D.Optimality and Lagrange Multipliers

E.Proximal Normals and Polarity

F.Tangent—Normal Relations

G.R ; ecession Properties

H.Irregularity and Convexification

I.Other Formulas

Commentary

Chapter 7.Epigraphical Limits

A.Pointwise Convergence

B.Epi—Convergence

C.Continuous and Uniform Convergence

D.Generalized Differentiability

E.Convergence in Minimization

F.Epi—Continuity of Function—Valued Mappings

G.Continuity of Operations

H.Total Epi—Convergence

I.Epi—Distances

J.Solution Estimates

Commentary

Chapter 8.Subderivatives and Subgradients

A.Subderivatives of Functions

B.Subgradients of Functions

C.Convexity and Optimality

D.Regular Subderivatives

E.Support Functions and Subdifferential Duality

F.Calmness

G.Graphical Differentiation of Mappings

H.Proto—Differentiability and Graphical Regularity

I.Proximal Subgradients

J.Other Results

Commentary

Chapter 9.Lipschitzian Properties

A.Single—Valued Mappings

B.Estimates of the Lipschitz Modulus

C.Subdifferential Characterizations

D.Derivative Mappings and Their Norms

E.Lipschitzian Concepts for Set—Valued Mappings

# 《变分分析》

- F.Aubin Property and Mordukhovich Criterion
- G.Metric Regularity and Openness
- H.Semiderivatives and Strict Graphical Derivatives
- I.Other Properties
- J.Rademacher's Theorem and Consequences
- K.Mollifiers and Extremals
- Commentary
- Chapter 10.Subdifferential Calculus
- A.Optimality and Normals to Level Sets
- B.Basic Chain Rule
- C.Parametric Optimality
- D.Rotational Scaling
- E.Piecewise Linear—Quadratic Functions
- F.Amenable Sets and Functions
- G.Semiderivatives and Subsmoothness
- H.Coderivative Calculus
- I.Extensions
- Commentary
- Chapter 11.Dualization
- A.Legendre—Fenchel Transform
- B.Special Cases of Conjugacy
- C.The Role of Differentiability
- D.Piecewise Linear—Quadratic Functions
- E.Polar Sets and Gauges
- F.Dual Operations
- G.Duality in Convergence
- H.Dual Problems of Optimization
- I.Lagrangian Functions
- J.Minimax Problems
- K.Augmented Lagrangians and Nonconvex Duality
- L.Generalized Conjugacy
- Commentary
- Chapter 12.Monotone Mappings
- A.Monotonicity Tests and Maximality
- B.Minty Parameterization
- C.Connections with Convex Functions
- D.Graphical Convergence
- E.Domains and Ranges
- F.Preservation of Maximality
- G.Monotone Variational Inequalities
- H.Strong Monotonicity and Strong Convexity
- I.Continuity and Differentiability
- Commentary
- Chapter 13.Second—Order Theory
- A.Second—Order Differentiability
- B.Second Subderivatives
- C.Calculus Rules
- D.Convex Functions and Duality
- E.Second—Order Optimality

# 《变分分析》

F.Prox—Regularity

G.Subgradient Proto—Differentiability

H.Subgradient Coderivatives and Perturbation

I.Further Derivative Properties

J.Parabolic Subderivatives

Commentary

Chapter 14.Measurability

A.Measurable Mappings and Selections

B.Preservation of Measurability

C.Limit Operations

D.Normal Integrands

E.Operations on Integrands

F.Integral Functionals

Commentary

References

Index of Statements

Index of Notation

Index of Topics

# 《变分分析》

## 版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:[www.tushu111.com](http://www.tushu111.com)