<<物理学家的几何学>>

图书基本信息

书名：<<物理学家的几何学>>

13位ISBN编号：9787302073512

10位ISBN编号：7302073511

出版时间：2005-4

出版时间：清华大学出版社

作者：（美）弗兰克尔（Frankel.T.）

<<物理学家的几何学>>

内容概要

This book is intended to provide a working knowledge of those parts of exterior differential forms, differential geometry, algebraic and differential topology, Lie groups, vector bundles, and Chern forms that are essential for a deeper understanding of both classical and modern physics and engineering。

Included are discussions of analytical and fluid dynamics, electromagnetism (in flat and curved space), thermodynamics, elasticity theory, the geometry and topology of Kirchhoff's electric circuit laws, soap films, special and general relativity, the Dirac operator and spinors, and gauge fields, including Yang-Mills, the Aharonov-Bohm effect, Berry phase, and instanton winding numbers, quarks, and the quark model for mesons。

Before a discussion of abstract notions of differential geometry, geometric intuition is developed through a rather extensive introduction to the study of surfaces in ordinary space; consequently, the book should be of interest also to mathematics students。

This book will be useful to graduate and advanced undergraduate students of physics, engineering, and mathematics。

It can be used as a course text of for self-study。

This second edition includes three new appendices, Appendix C, Symmetries, Quarks, and Meson Masses (which concludes with the famous Gell-Mann/Okubo mass formula); Appendix D, Representations and Hyperelastic Bodies; and Appendix E, Orbits and Morse-Bott Theory in Compact Lie Groups。

Both Appendix C and D involve results from the theory of representations of compact Lie groups, which are developed here。

Appendix E delves deeper into the geometry and topology of compact Lie groups。

<<物理学家的几何学>>

书籍目录

<<物理学家的几何学>>

版权说明