

<<闵可夫斯基时空几何 The geomet>>

图书基本信息

书名：<<闵可夫斯基时空几何 The geometry of Minkowski spacetime>>

13位ISBN编号：9780486432359

10位ISBN编号：0486432351

出版时间：2003-12

出版时间：Oversea Publishing House

作者：Gregory L. Naber 著

页数：257

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：<http://www.tushu007.com>

<<闵可夫斯基时空几何 The geomet>>

内容概要

A mathematically rigorous presentation of the special theory of relativity, this text also offers extensive details of the physical significance of the mathematics. In addition to customary topics related to special relativity, this treatment encompasses a wide range of contemporary issues. Starting with the basics of Minkowski spacetime's geometrical and causal structure, the text examines Zeeman's characterization of the causal automorphisms of Minkowski spacetime and the Penrose theorem concerning the apparent shape of a relativistically moving sphere. Other topics include the construction of a geometric theory of the electromagnetic field, represented as a skew-symmetric linear transformation; an in-depth introduction to the theory of spinors, with several applications of spinor formalism; and a classification of electromagnetic fields in both tensor and spinor form. Appendixes introduce a topology for Minkowski spacetime and discuss Dirac's famous "Scissors Problem" and its relation to the notion of a two-valued representation of the Lorentz group. Appropriate for graduate-level courses, this text presumes only a knowledge of linear algebra and elementary point-set topology.

书籍目录

Preface Acknowledgments Introduction Chapter 1 Geometrical Structure of  $M$  1.1 Preliminaries 1.2 Minkowski Spacetime 1.3 The Lorentz Group 1.4 Timelike Vectors and Curves 1.5 Spacelike Vectors 1.6 Causality Relations 1.7 Spin Transformations and the Lorentz Group 1.8 Particles and Interactions Chapter 2 Skew-Symmetric Linear Transformations and Electromagnetic Fields 2.1 Motivation via the Lorentz Law 2.2 Elementary Properties 2.3 Invariant Subspaces 2.4 Canonical Forms 2.5 The Energy-Momentum Transformation 2.6 Motion in Constant Fields 2.7 Variable Electromagnetic Fields Chapter 3 The Theory of Spinors 3.1 Representations of the Lorentz Group 3.2 Spin Space 3.3 Spinor Algebra 3.4 Spinors and World Vectors 3.5 Bivectors and Null Flags 3.6 The Electromagnetic Field (Revisited) Appendix A Topologies For  $M$  A.1 The Euclidean Topology A.2 E-Continuous Timelike Curves A.3 The Path Topology Appendix B Spinorial Objects B.1 Introduction B.2 The Spinning Electron and Dirac's Demonstration B.3 Homotopy in the Rotation and Lorentz Groups References Symbols Index

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:<http://www.tushu007.com>