

<<现代数学物理教程>>

图书基本信息

书名：<<现代数学物理教程>>

13位ISBN编号：9787510035098

10位ISBN编号：7510035090

出版时间：2011-6

出版公司：世界图书出版公司

作者：斯泽克雷斯 编

页数：600

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>

<<现代数学物理教程>>

内容概要

本书是一部学习数学物理入门书籍，也是一部教程，让读者在物理的背景下建立现代数学概念，重点强调微分几何。

写作风格上保持了作者一贯的特点，清晰，透彻，引人入胜。

大量的练习和例子是本书的一大亮点，扩展索引对初学者也是十分有用。

内容涵盖了张量代数，微分几何，拓扑，李群和李代数，分布理论，基础分析和希尔伯特空间。

目次：几何与结构；群；向量空间；线性算子和矩阵；内积空间；代数；张量；外代数；狭义相对论；拓扑学；测度论和积分；分布；希尔伯特空间；量子力学；微分几何；微分形式；流形上的积分；联络和曲率；李群和李代数。

读者对象：数学、物理专业的本科生，研究生和相关的科研人员。

<<现代数学物理教程>>

作者简介

编者：(澳大利亚)斯泽克雷斯 (Peter Szekeres)

<<现代数学物理教程>>

书籍目录

- acknowledgements
- 1 sets and structures
 - 1.1 sets and logic
 - 1.2 subsets, unions and intersections of sets
 - 1.3 cartesian products and relations
 - 1.4 mappings
 - 1.5 infinite sets
 - 1.6 structures
 - 1.7 category theory
- 2 groups
 - 2.1 elements of group theory
 - 2.2 transformation and permutation groups
 - 2.3 matrix groups
 - 2.4 homomorphisms and isomorphisms
 - 2.5 normal subgroups and factor groups
 - 2.6 group actions
 - 2.7 symmetry groups
- 3 vector spaces
 - 3.1 rings and fields
 - 3.2 vector spaces
 - 3.3 vector space homomorphisms
 - 3.4 vector subspaces and quotient spaces
 - 3.5 bases of a vector space
 - 3.6 summation convention and transformation of bases
 - 3.7 dual spaces
- 4 linear operators and matrices
 - 4.1 eigenspaces and characteristic equations
 - 4.2 jordan canonical form
 - 4.3 linear ordinary differential equations
 - 4.4 introduction to group representation theory
- 5 inner product spaces
 - 5.1 real inner product spaces
 - 5.2 complex inner product spaces
 - 5.3 representations of finite groups
- 6 algebras
 - 6.1 algebras and ideals
 - 6.2 complex numbers and complex structures
 - 6.3 quaternions and clifford algebras
 - 6.4 grassmann algebras
 - 6.5 lie algebras and lie groups
- 7 tensors
 - 7.1 free vector spaces and tensor spaces
 - 7.2 multilinear maps and tensors
 - 7.3 basis representation of tensors
 - 7.4 operations on tensors

<<现代数学物理教程>>

- 8 exterior algebra
 - 8.1 r-vectors and r-forms
 - 8.2 basis representation of r-vectors
 - 8.3 exterior product
 - 8.4 interior product
 - 8.5 oriented vector spaces
 - 8.6 the hodge dual
- 9 special relativity
 - 9.1 minkowski space-time
 - 9.2 relativistic kinematics
 - 9.3 particle dynamics
 - 9.4 electrodynamics
 - 9.5 conservation laws and energy-stress tensors
- 10 topology
 - 10.1 euclidean topology
 - 10.2 general topological spaces
 - 10.3 metric spaces
 - 10.4 induced topologies
 - 10.5 hausdorff spaces
 - 10.6 compact spaces
 - 10.7 connected spaces
 - 10.8 topological groups
 - 10.9 topological vector spaces
- 11 measure theory and integration
 - 11.1 measurable spaces and functions
 - 11.2 measure spaces
 - 11.3 lebesgue integration
- 12 distributions
 - 12.1 test functions and distributions
 - 12.2 operations on distributions
 - 12.3 fourier transforms
 - 12.4 green's functions
- 13 hilbert spaces
 - 13.1 definitions and examples
 - 13.2 expansion theorems
 - 13.3 linear functionals
 - 13.4 bounded linear operators
 - 13.5 spectral theory
 - 13.6 unbounded operators
- 14 quantum mechanics
 - 14.1 basic concepts
 - 14.2 quantum dynamics
 - 14.3 symmetry transformations
 - 14.4 quantum statistical mechanics
- 15 differential geometry
 - 15.1 differentiable manifolds
 - 15.2 differentiable maps and curves

<<现代数学物理教程>>

- 15.3 tangent, cotangent and tensor spaces
- 15.4 tangent map and submanifolds
- 15.5 commutators, flows and lie derivatives
- 15.6 distributions and frobenius theorem
- 16 differentiable forms
 - 16.1 differential forms and exterior derivative
 - 16.2 properties of exterior derivative
 - 16.3 frobenius theorem: dual form
 - 16.4 thermodynamics
 - 16.5 classical mechanics
- 17 integration on manifolds
 - 17.1 partitions of unity
 - 17.2 integration of n-forms
 - 17.3 stokes' theorem
 - 17.4 homology and cohomology
 - 17.5 the poincare lemma
- 18 connections and curvature
 - 18.1 linear connections and geodesics
 - 18.2 covariant derivative of tensor fields
 - 18.3 curvature and torsion
 - 18.4 pseudo-riemannian manifolds
 - 18.5 equation of geodesic deviation
 - 18.6 the riemann tensor and its symmetries
 - 18.7 caftan formalism
 - 18.8 general relativity
 - 18.9 cosmology
 - 18.10 variation principles in space-time
- 19 lie groups and lie algebras
 - 19.1 lie groups
 - 19.2 the exponential map
 - 19.3 lie subgroups
 - 19.4 lie groups of transformations
 - 19.5 groups of isometrics
- bibliography
- index

<<现代数学物理教程>>

章节摘录

版权页：插图：

<<现代数学物理教程>>

编辑推荐

《现代数学物理教程》由世界图书出版公司出版。

<<现代数学物理教程>>

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>