<<基础拓扑和几何讲义>>

图书基本信息

书名：<<基础拓扑和几何讲义>>

13位ISBN编号：9787506292818

10位ISBN编号：7506292815

出版时间：2009-3

出版时间：世界图书出版公司

作者：辛格

页数：232

<<基础拓扑和几何讲义>>

前言

At the present time， the average undergraduate mathematics major findsmathematics heavily compartmentalized. After the calculus， he takes a coursein analysis and a course in algebra. Depending upon his interests （or those ofhis department）， he takes courses in special topics. If he is exposed to topology， it is usually straightforward point set topology; if he is exposed to geometry， it is usually classical differential geometry. The exciting revelations thatthere is some unity in mathematics， that fields overlap， that techniques of onefield have applications in another， are denied the undergraduate. He mustwait until he is well into graduate work to see interconnections， presumablybecause earlier he doesnt know enough.These notes are an attempt to break up this compartmentalization， at leastin topologygeometry. What the student has learned in algebra and advancedcalculus are used to prove some fairly deep results relating geometry， topology， and group theory. （De Rhams theorem， the GaussBonnet theorem forsurfaces， the functorial relation of fundamental group to covering space， andsurfaces of constant curvature as homogeneous spaces are the most noteworthy examples. ）In the first two chapters the bare essentials of elementary point set topologyare set forth with some hint of the subjects application to functional analysis.Chapters 3 and 4 treat fundamental groups， covering spaces， and simplicialcomplexes. For this approach the authors are indebted to E. Spanier. Aftersome preliminaries in Chapter 5 concerning the theory of manifolds， the DeRham theorem （Chapter 6） is proven as in H. Whitneys Geometric IntegrationTheory. In the two final chapters on Riemannian geometry， the authorsfollow E. Cartan and S. S. Chem. （In order to avoid Lie group theory in thelast two chapters， only oriented 2dimensional manifolds are treated.）

<<基础拓扑和几何讲义>>

内容概要

At the present time， the average undergraduate mathematics major findsmathematics heavily compartmentalized. After the calculus， he takes a coursein analysis and a course in algebra. Depending upon his interests （or those ofhis department）， he takes courses in special topics. If he is exposed to topology， it is usually straightforward point set topology; if he is exposed to geometry， it is usually classical differential geometry.

<<基础拓扑和几何讲义>>

书籍目录

Chapter Some point set topology 1.1 Naive set theory 1.2 Topological spaces 1.3 Connected and compact spaces 1.4 Continuous functions 1.5 Product spaces 1.6 The Tychonoff theoremChapter 2 More point set topology 2.1 Separation axioms 2.2 Separation by continuous functions 2.3 More separability 2.4 Complete metric spaces 2.5 ApplicationsChapter 3 Fundamental group and covering spaces 3.1 Homotopy 3.2 Fundamental group 3.3 Covering spacesChapter 4 Simplicial complexes 4.1 Geometry of simplicial complexes 4.2 Barycentric subdivisions 4.3 Simplicial approximation theorem 4.4 Fundamental group of a simplicial complexChapter 5 Manifolds 5.1 Differentiable manifolds 5.2 Differential forms 5.3 Miscellaneous factsChapter 6 Homology theory and the De Rham theory 6.1 Simplicial homology 6.2 De Rham's theoremChapter 7 Intrinsic Riemannian geometry of surfaces 7.1 Parallel translation and connections 7.2 Structural equations and curvature 7.3 Interpretation of curvature 7.4 Geodesic coordinate systems 7.5 Isometrics and spaces of constant curvatureChapter 8 Imbedded manifolds in RaBibliographyIndex

<<基础拓扑和几何讲义>>

编辑推荐

The exciting revelations thatthere is some unity in mathematics, that fields overlap, that techniques of onefield have applications in another, are denied the undergraduate. He mustwait until he is well into graduate work to see interconnections, presumablybecause earlier he doesnt know enough.These notes are an attempt to break up this compartmentalization, at leastin topologygeometry. What the student has learned in algebra and advancedcalculus are used to prove some fairly deep results relating geometry, topology, and group theory.

<<基础拓扑和几何讲义>>

版权说明