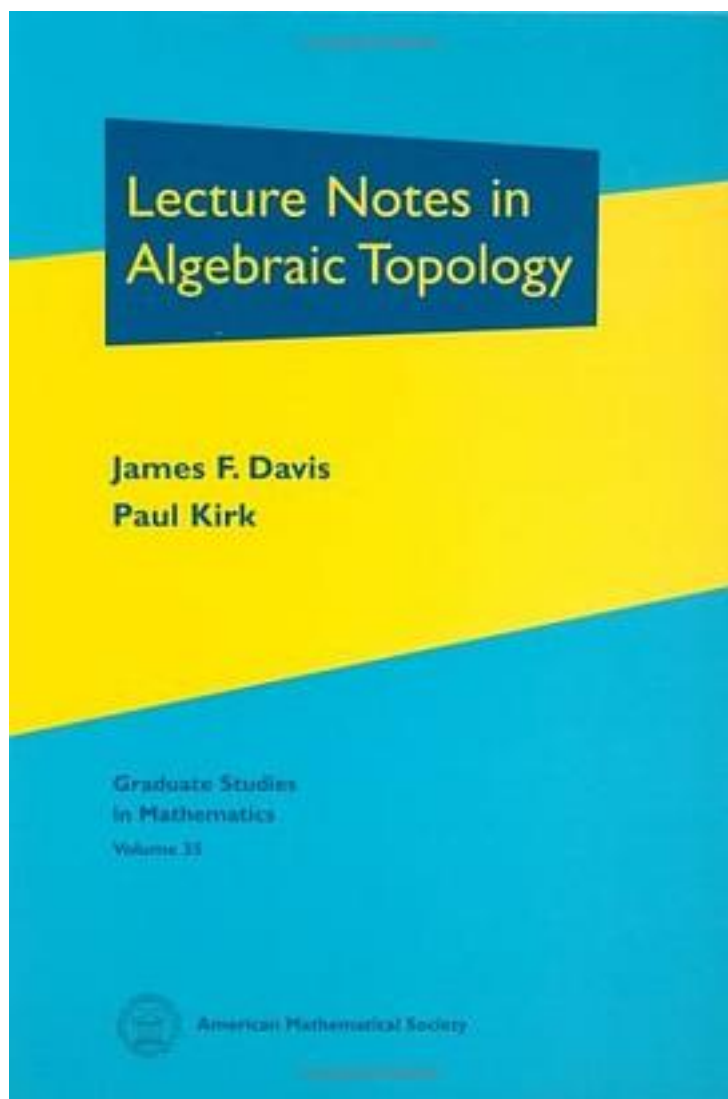


Lecture Notes in Algebraic Topology



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著者:Paul Kirk James F. Davis

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The amount of algebraic topology a graduate student specializing in topology must learn can be intimidating. Moreover, by their second year of graduate studies, students must make the transition from understanding simple proofs line-by-line to understanding the overall structure of proofs of difficult theorems.

To help students make this transition, the material in this book is presented in an increasingly sophisticated manner. It is intended to bridge the gap between algebraic and geometric topology, both by providing the algebraic tools that a geometric topologist needs and by concentrating on those areas of algebraic topology that are geometrically motivated.

Prerequisites for using this book include basic set-theoretic topology, the definition of CW-complexes, some knowledge of the fundamental group/covering space theory, and the construction of singular homology. Most of this material is briefly reviewed at the beginning of the book.

The topics discussed by the authors include typical material for first- and second-year graduate courses. The core of the exposition consists of chapters on homotopy groups and on spectral sequences. There is also material that would interest students of geometric topology (homology with local coefficients and obstruction theory) and algebraic topology (spectra and generalized homology), as well as preparation for more advanced topics such as algebraic K-theory and the s-cobordism theorem.

A unique feature of the book is the inclusion, at the end of each chapter, of several projects that require students to present proofs of substantial theorems and to write notes accompanying their explanations. Working on these projects allows students to grapple with the “big picture”, teaches them how to give mathematical lectures, and prepares them for participating in research seminars.

The book is designed as a textbook for graduate students studying algebraic and geometric topology and homotopy theory. It will also be useful for students from other fields such as differential geometry, algebraic geometry, and homological algebra. The exposition in the text is clear; special cases are presented over complex general statements.

作者介绍:

目录:	Chapter 1. Chain Complexes, Homology, and Cohomology	18
§ 1.1.	Chain complexes associated to a space	18
§ 1.2.	Tensor products, adjoint functors, and Hom	25
§ 1.3.	Tensor and Hom functors on chain complexes	29
§ 1.4.	Singular cohomology	31
§ 1.5.	The Eilenberg-Steenrod axioms	36
§ 1.6.	Projects for Chapter 1	39
	Chapter 2. Homological Algebra	40
§ 2.1.	Axioms for Tor and Ext; projective resolutions	40
§ 2.2.	Projective and injective modules	46
§ 2.3.	Resolutions	50
§ 2.4.	Definition of Tor and Ext - existence	52
§ 2.5.	The fundamental lemma of homological algebra	53
§ 2.6.	Universal coefficient theorems	60
§ 2.7.	Projects for Chapter 2	66

Chapter 3. Products 68

§ 3.1. Tensor products of chain complexes and the algebraic Künneth theorem 68

§ 3.2. The Eilenberg-Zilber maps 71

§ 3.3. Cross and cup products 73

§ 3.4. The Alexander-Whitney diagonal approximation 81

§ 3.5. Relative cup and cap products 84

§ 3.6. Projects for Chapter 3 87

Chapter 4. Fiber Bundles 94

§ 4.1. Group actions 94

§ 4.2. Fiber bundles 95

§ 4.3. Examples of fiber bundles 98

§ 4.4. Principal bundles and associated bundles 101

§ 4.5. Reducing the structure group 106

§ 4.6. Maps of bundles and pullbacks 107

§ 4.7. Projects for Chapter 4 109

Chapter 5. Homology with Local Coefficients 112

§ 5.1. Definition of homology with twisted coefficients 113

§ 5.2. Examples and basic properties 115

§ 5.3. Definition of homology with a local coefficient system 120

§ 5.4. Functoriality 122

§ 5.5. Projects for Chapter 5 125

Chapter 6. Fibrations, Cofibrations and Homotopy Groups 128

§ 6.1. Compactly generated spaces 128

§ 6.2. Fibrations 131

§ 6.3. The fiber of a fibration 133

§ 6.4. Path space fibrations 137

§ 6.5. Fiber homotopy 140

§ 6.6. Replacing a map by a fibration 140

§ 6.7. Cofibrations 144

§ 6.8. Replacing a map by a cofibration 148

§ 6.9. Sets of homotopy classes of maps 151

§ 6.10. Adjoint of loops and suspension; smash products 153

§ 6.11. Fibration and cofibration sequences 155

§ 6.12. Puppe sequences 158

§ 6.13. Homotopy groups 160

§ 6.14. Examples of fibrations 162

§ 6.15. Relative homotopy groups 169

§ 6.16. The action of the fundamental group on homotopy sets 172

§ 6.17. The Hurewicz and Whitehead theorems 177

§ 6.18. Projects for Chapter 6 180

Chapter 7. Obstruction Theory and Eilenberg-MacLane Spaces 182

§ 7.1. Basic problems of obstruction theory 182

§ 7.2. The obstruction cocycle 185

§ 7.3. Construction of the obstruction cocycle 186

§ 7.4. Proof of the extension theorem 189

§ 7.5. Obstructions to finding a homotopy 192

§ 7.6. Primary obstructions 193

§ 7.7. Eilenberg-MacLane spaces 194

§ 7.8. Aspherical spaces 200

§ 7.9. CW-approximations and Whitehead's theorem 202

§ 7.10. Obstruction theory in fibrations 206

§ 7.11. Characteristic classes 208

§ 7.12. Projects for Chapter 7 209

Chapter 8. Bordism, Spectra, and Generalized Homology 212

§ 8.1. Framed bordism and homotopy groups of spheres	213
§ 8.2. Suspension and the Freudenthal theorem	219
§ 8.3. Stable tangential framings	221
§ 8.4. Spectra	227
§ 8.5. More general bordism theories	230
§ 8.6. Classifying spaces	234
§ 8.7. Construction of the Thorn spectra	236
§ 8.8. Generalized homology theories	244
§ 8.9. Projects for Chapter 8	251
Chapter 9. Spectral Sequences	254
§ 9.1. Definition of a spectral sequence	254
§ 9.2. The Leray-Serre-Atiyah-Hirzebruch spectral sequence	258
§ 9.3. The edge homomorphisms and the transgression	262
§ 9.4. Applications of the homology spectral sequence	266
§ 9.5. The cohomology spectral sequence	271
§ 9.6. Homology of groups	278
§ 9.7. Homology of covering spaces	281
§ 9.8. Relative spectral sequences	283
§ 9.9. Projects for Chapter 9	283
Chapter 10. Further Applications of Spectral Sequences	284
§ 10.1. Serre classes of abelian groups	284
§ 10.2. Homotopy groups of spheres	293
§ 10.3. Suspension, looping, and the transgression	296
§ 10.4. Cohomology operations	300
§ 10.5. The mod 2 Steenrod algebra	305
§ 10.6. The Thorn isomorphism theorem	312
§ 10.7. Intersection theory	316
§ 10.8. Stiefel-Whitney classes	323
§ 10.9. Localization	329
§ 10.10. Construction of bordism invariants	334
§ 10.11. Projects for Chapter 10	336
Chapter 11. Simple-Homotopy Theory	340
§ 11.1. Introduction	340
§ 11.2. Invertible matrices and $K[\text{sub}(1)](R)$	343
§ 11.3. Torsion for chain complexes	351
§ 11.4. Whitehead torsion for CW-complexes	360
§ 11.5. Reidemeister torsion	363
§ 11.6. Torsion and lens spaces	365
§ 11.7. The s-cobordism theorem	374
§ 11.8. Projects for Chapter 11	374
Bibliography	376
Index	380
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评论

本书解决了我对于同调论中符号表示意义的解答 $Sq(X;R) = \text{functions}(\{\text{singular simplex}\}, R)$. 接近现代代数拓扑的研究生课程：范畴函子导出函子作为基本语言；三角剖分拓扑空间同胚与几何表示单复形，相对奇异链复形是自由模；奇异上同调是反变函子 空间连续映射 到分次模 同态，Kronecker pairing 类比域形式微分

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