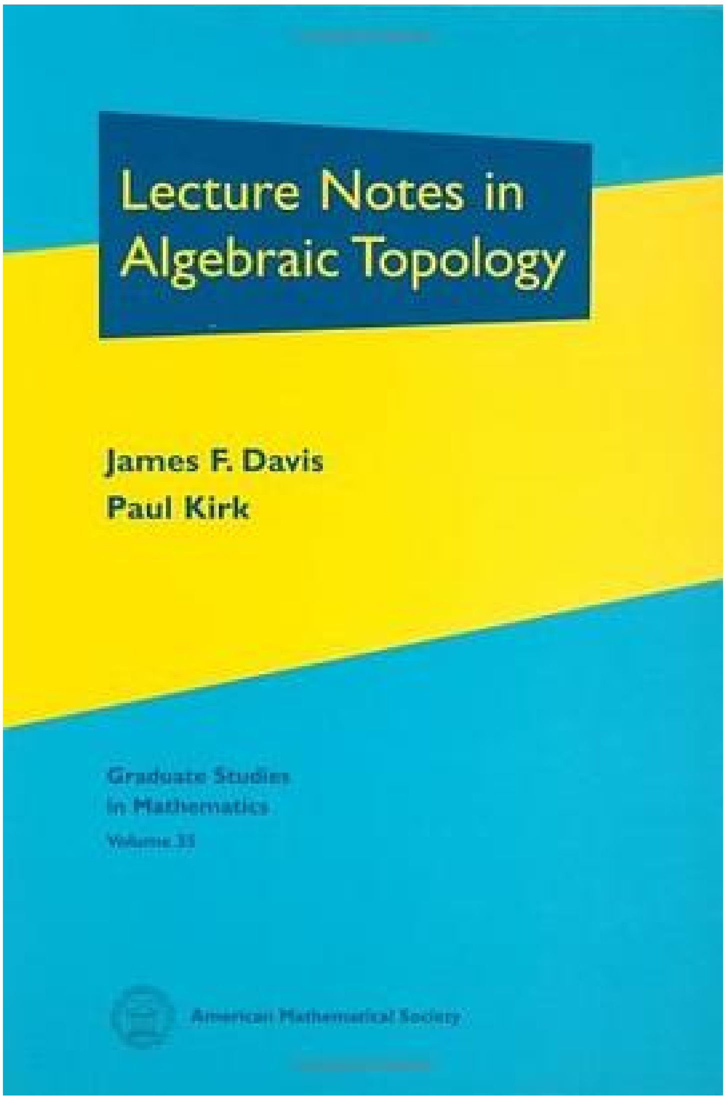
Lecture Notes in Algebraic Topology



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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:

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标签

数学

代数拓扑

拓扑

topology

Math

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) =functions({singular simplexes},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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书评

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