Cohomology Rings Of Finite Groups With An Appendix Calculations Of Cohomology Rings Of Groups Of Order Dividing 64 Algebra And Applications

The Theory of Finite Groups *Finite Groups Representation Theory of Finite Groups* **Character Theory of Finite Groups** *Atlas of Finite Groups* **Finite Groups A Course on Finite Groups The Finite Simple Groups** Character Theory of Finite Groups **Products of Finite Groups** K-Theory of Finite Groups and Orders **Finite Groups of Mapping Classes of Surfaces** Classes of Finite Groups **A Course on Finite Groups** Finite Groups Topics in Finite Groups Proceedings of the Conference on Finite Groups On Characters of Finite Groups Representations of Finite Groups *K-Theory of Finite Groups and Orders* **Finite Groups III** *Finite Group Theory* **Character Theory of Finite Groups** *Projective Representations of Finite Groups* **Representation Theory of Finite Groups Representation Theory of Finite Groups: a Guidebook** *Cohomology of Finite Groups* **Characters and Blocks of Finite Groups The Classification of the Finite Simple Groups, Number 2 Cohomology Rings of Finite Groups** *Finite Groups II* **Introduction to the Theory of Finite Groups Seminar on Algebraic Groups and Related Finite Groups** *Finite and Locally Finite Groups* Applications of Finite Groups **Theory of Groups of Finite Order Representing Finite Groups Linear Representations of Finite Groups Whitehead Groups of Finite Groups The Theory of Finite Groups**

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Whitehead Groups of Finite Groups Jul 28 2019 This book's aim is to make accessible techniques for studying Whitehead groups of finite groups, as well as a variety of related topics such as induction theory and p-adic logarithms. The author has included a lengthy introduction to set the scene for non-specialists who want an overview of the field, its history and its applications. The rest of the book consists of three parts: general theory, group rings of p-groups and general finite groups. The book will be welcomed by specialists in K- and L-theory and by algebraists in general as a state-of-the art survey of the area.
The Theory of Finite Groups Jun 26 2019 From reviews of the German edition: "This is an exciting text and a refreshing contribution to an area in which challenges continue to flourish and to captivate the viewer. Even though representation theory and constructions of simple groups have been omitted, the text serves as a springboard for deeper study in many directions." Mathematical Reviews
Cohomology of Finite Groups Aug 09 2020 The cohomology of groups has, since its beginnings in the 1920s and 1930s, been the stage for significant interaction between algebra and topology and has led to the creation of important new fields in mathematics, like homological algebra and algebraic K-theory. This is the first book to deal comprehensively with the cohomology of finite groups: it introduces the most important and useful algebraic and topological techniques, and describes the interplay of the subject with those of homotopy theory, representation theory and group actions. The combination of theory and examples, together with the techniques for computing the cohomology of important classes of groups including symmetric groups, alternating groups, finite groups of Lie type, and some of the sporadic simple groups, enable readers to acquire an in-depth understanding of group cohomology and its extensive applications.
Classes of Finite Groups Oct 23 2021 This book covers the latest achievements of the Theory of Classes of Finite Groups. It introduces some unpublished and fundamental advances in this Theory and provides a new insight into some classic facts in this area. By gathering the research of many authors scattered in hundreds of papers the book contributes to the understanding of the structure of finite groups by adapting and extending the successful techniques of the Theory of Finite Soluble Groups.
Representation Theory of Finite Groups Oct 11 2020 This book is intended to present group representation theory at a level accessible to mature undergraduate students and beginning graduate students. This is achieved by mainly keeping the required background to the level of undergraduate linear algebra, group theory and very basic ring theory. Module theory and Wedderburn theory, as well as tensor products, are deliberately avoided. Instead, we take an approach based on discrete Fourier Analysis. Applications to the spectral theory of graphs are given to help the student appreciate the usefulness of the subject. A number of exercises are included. This book is intended for a 3rd/4th undergraduate course or an introductory graduate course on group representation theory. However, it can also be used as a reference for workers in all areas of mathematics and statistics.
K-Theory of Finite Groups and Orders Dec 25 2021 These notes are from a course given at the University of Chicago. No pretense of completeness is made. A great deal of additional material may be found in Bass' book [BK] which gives a remarkably complete account of algebraic K-theory. The present notes, however, contain a number of recent results of Jacobinski [J] and Roiter [R]. An excellent survey of the theory of orders with detailed references may be found in Reiner's article [RS].
Representation Theory of Finite Groups: a Guidebook Sep 09 2020 This book provides an accessible introduction to the state of the art of representation theory of finite groups. Starting from a basic level that is summarized at the start, the book proceeds to cover topics of current research interest, including open problems and conjectures. The central themes of the book are block theory and module theory of group representations, which are comprehensively surveyed with a full bibliography. The individual chapters cover a range of topics within the subject, from blocks with cyclic defect groups to representations of symmetric groups. Assuming only modest background knowledge at the level of a first graduate course in algebra, this guidebook, intended for students taking first steps in the field, will also provide a reference for more experienced researchers. Although no proofs are included, end-of-chapter exercises make it suitable for student seminars.

Character Theory of Finite Groups Dec 13 2020 The aim of the series is to present new and important developments in pure and applied mathematics. Well established in the community over two decades, it offers a large library of mathematics including several important classics. The volumes supply thorough and detailed expositions of the methods and ideas essential to the topics in question. In addition, they convey their relationships to other parts of mathematics. The series is addressed to advanced readers wishing to thoroughly study the topic. Editorial Board Lev Birbrair, Universidade Federal do Ceará, Fortaleza, Brasil Victor P. Maslov, Russian Academy of Sciences, Moscow, Russia Walter D. Neumann, Columbia University, New York, USA Markus J. Pflaum, University of Colorado, Boulder, USA Dierk Schleicher, Jacobs University, Bremen, Germany

Finite Groups III Feb 12 2021 Und dann erst kommt der "Ab -ge - sa. ng\' da. /3 der nidlt kurz und nicht zu la. ng, From "Die Meistersinger von Nürnberg", Richard Wagner This final volume is concerned with some of the developments of the subject in the 1960's. In attempting to determine the simple groups, the first step was to settle the conjecture of Burnside that groups of odd order are soluble. The proof that this conjecture was correct is much too long and complicated for presentation in this text, but a number of ideas in the early stages of it led to a local theory of finite groups, so me aspects of which are discussed in Chapter X. Much of this discussion is a con tinuation of the theory of the transfer (see Chapter IV), but we also introduce the generalized Fitting subgroup, which played a basic role in characterization theorems, that is, in descriptions of specific groups in terms of group-theoretical properties alone. One of the earliest and most important such characterizations was given for Zassenhaus groups; this is presented in Chapter XI. Characterizations in terms of the centralizer of an involution are of particular importance in view of the theorem of Brauer and Fowler. In Chapter XII, one such theorem is given, in which the Mathieu group 9J'l1l and PSL(3, 3) are characterized.

Applications of Finite Groups Dec 01 2019 Applications of Finite Groups focuses on the applications of finite groups to problems of physics, including representation theory, crystals, wave equations, and nuclear and molecular structures. The book first elaborates on matrices, groups, and representations. Topics include abstract properties, applications, matrix groups, key theorem of representation theory, properties of character tables, simply reducible groups, tensors and invariants, and representations generated by functions. The text then examines applications and subgroups and representations, as well as subduced and induced representations, fermion annihilation and creation operators, crystallographic point groups, proportionality tensors in crystals, and nonrelativistic wave equations. The publication takes a look at space group representations and energy bands, symmetric groups, and applications. Topics include molecular and nuclear structures, multiplet splitting in crystalline electric fields, construction of irreducible representations of the symmetric groups, and reality of representations. The manuscript is a dependable source of data for physicists and researchers interested in the applications of finite groups.

The Classification of the Finite Simple Groups, Number 2 Jun 06 2020 The second volume of a series devoted to reorganizing and simplifying proof of the classification of the finite simple groups. In a single chapter, it lays the groundwork for the forthcoming analysis of finite simple groups, beginning with the theory of components, layers, and the generalized Fitting subgroup, which has been developed largely since Gorenstein's basic 1968 text and is now central to understanding the structure of finite groups. Suitable as an auxiliary text for a graduate course in group theory. Member prices are $35 for individual and $47 for institutions. Annotation copyright by Book News, Inc., Portland, OR

Finite Group Theory Jan 14 2021 The text begins with a review of group actions and Sylow theory. It includes semidirect products, the Schur-Zassenhaus theorem, the theory of commutators, coprime actions on groups, transfer theory, Frobenius groups, primitive and multiply transitive permutation groups, the simplicity of the PSL groups, the generalized Fitting subgroup and also Thompson's J-subgroup and his normal p-complement theorem. Topics that seldom (or never) appear in books are also covered. These include subnormality theory, a group-theoretic proof of Burnside's theorem about groups with order divisible by just two primes, the Wielandt automorphism tower theorem, Yoshida's transfer theorem, the ``principal ideal theorem'' of transfer theory and many smaller results that are not very well known. Proofs often contain original ideas, and they are given in complete detail. In many cases they are simpler than can be found elsewhere. The book is largely based on the author's lectures, and consequently, the style is friendly and somewhat informal. Finally, the book includes a large collection of problems at disparate levels of difficulty. These should enable students to practice group theory and not just read about it. Martin Isaacs is professor of mathematics at the University of Wisconsin, Madison. Over the years, he has received many teaching awards and is well known for his inspiring teaching and lecturing. He received the University of Wisconsin Distinguished Teaching Award in 1985, the Benjamin Smith Reynolds Teaching Award in 1989, and the Wisconsin Section MAA Teaching Award in 1993, to name only a few. He was also honored by being the selected MAA Polya Lecturer in 2003-2005.

Introduction to the Theory of Finite Groups Mar 04 2020

Projective Representations of Finite Groups Nov 11 2020 This book presents a systematic account of this topic, from the classical foundations established by Schur 80 years ago to current advances and developments in the field. This work focuses on general methods and builds theory solidly on the study of modules over twisted group algebras, and provides a wide range of skill-sharpening mathematical techniques applicable to this subject. Offers an understanding of projective representations of finite groups for algebraists, number theorists, mathematical researchers studying modern algebra, and theoretical physicists.

Seminar on Algebraic Groups and Related Finite Groups Feb 01 2020

K-Theory of Finite Groups and Orders Mar 16 2021

Finite Groups of Mapping Classes of Surfaces Nov 23 2021

Finite and Locally Finite Groups Jan 02 2020 This volume contains the proceedings of the NATO Advanced Study Institute on Finite and Locally Finite Groups held in Istanbul, Turkey, 14-27 August 1994, at which there were about 90 participants from some 16 different countries. The ASI received generous financial support from the Scientific Affairs Division of NATO. INTRODUCTION A locally finite group is a group in which every finite set of elements is contained in a finite subgroup. The study of locally finite groups began with Schur's result that a periodic linear group is, in fact, locally finite. The simple locally finite groups are of particular interest. In view of the classification of the finite simple groups and advances in representation theory, it is natural to pursue classification theorems for simple locally finite groups. This was one of the central themes of the Istanbul conference and significant progress is reported herein. The theory of simple locally finite groups intersects many areas of group theory and representation theory, so this served as a focus for several articles in the volume. Every simple locally finite group has what is known as a Kegel cover. This is a collection of pairs {(G , Ni) liE I}, where I is an index set, each group Gi is finite, i Ni

Theory of Groups of Finite Order Oct 30 2019

Finite Groups Aug 21 2021 Finite group theory is a topic remarkable for the simplicity of its statements and the difficulty of their proofs. It is used in an essential way in several branches of mathematics--for instance, in number theory. This book is a short introduction to the subject, written both for beginners and for mathematicians at large. There are ten chapters: Preliminaries, Sylow theory, Solvable groups and nilpotent groups, Group extensions, Hall subgroups, Frobenius groups, Transfer, Characters, Finite subgroups of GLn, and Small groups. Each chapter is followed by a series of exercises.

The Finite Simple Groups Mar 28 2022

Thisbookisintendedasanintroductiontoallthe?nitesimplegroups.During themonumentalstruggletoclassifythe?nitesimplegroups(andindeedsince), a huge amount of information about these groups has been accumulated.
Conveyingthisinformationtothenextgenerationofstudentsandresearchers, not to mention those who might wish to apply this knowledge, has become a major challenge. With the publication of the two volumes by Aschbacher and Smith [12, 13] in 2004 we can reasonably regard the proof of the Classi?cation Theorem for Finite Simple Groups (usually abbreviated CFSG) as complete. Thus it is timely to attempt an overview of all the (non-abelian) ?nite simple groups in one volume. For expository purposes it is convenient to divide them into four basic types, namely the alternating, classical, exceptional and sporadic groups. The study of alternating groups soon develops into the theory of per- tation groups, which is well served by the classic text of Wielandt [170]and more modern treatments such as the comprehensive introduction by Dixon and Mortimer [53] and more specialised texts such as that of Cameron [19].

Linear Representations of Finite Groups Aug 28 2019 This book consists of three parts, rather different

in level and purpose. The first part was originally written for quantum chemists. It describes the correspondence, due to Frobenius, between linear representations and characters. The second part is a course given in 1966 to second-year students of l'Ecole Normale. It completes in a certain sense the first part. The third part is an introduction to Brauer Theory.

Character Theory of Finite Groups Feb 24 2022 This volume contains a collection of papers from the Conference on Character Theory of Finite Groups, held at the Universitat de Valencia, Spain, on June 3-5, 2009, in honor of I. Martin Isaacs. The topics include permutation groups, character theory, p-groups, and group rings. The research articles feature new results on large normal abelian subgroups of p-groups, construction of certain wreath products, computing idempotents in group algebras of finite groups, and using dual pairs to study representations of cross characteristic in classical groups. The expository articles present results on vertex subgroups, measuring theorems in permutation groups, the development of super character theory, and open problems in character theory.

Proceedings of the Conference on Finite Groups Jun 18 2021 Proceedings of the Conference on Finite Groups provides information pertinent to the fundamental aspects of finite group theory. This book presents the problem of characterizing simple groups in terms of the local structure of a group. Organized into five parts encompassing 43 chapters, this book begins with an overview of the characterization of the Chevalley groups over fields of odd order and indicates the role of this characterization in the theory of component type groups. This text then examines the structure as well as the representations of specific simple groups. Other chapters consider the general theory of representations and characters of finite groups. This book discusses as well permutation groups and the connection between group theory and geometry. The final chapter deals with finite solvable groups as well as the theory of formations. This book is a valuable resource for mathematicians, graduate students, and research workers.

A Course on Finite Groups Sep 21 2021 Introduces the richness of group theory to advanced undergraduate and graduate students, concentrating on the finite aspects. Provides a wealth of exercises and problems to support self-study. Additional online resources on more challenging and more specialised topics can be used as extension material for courses, or for further independent study.

Representation Theory of Finite Groups Sep 02 2022 Representation Theory of Finite Groups is a five chapter text that covers the standard material of representation theory. This book starts with an overview of the basic concepts of the subject, including group characters, representation modules, and the rectangular representation. The succeeding chapters describe the features of representation theory of rings with identity and finite groups. These topics are followed by a discussion of some of the application of the theory of characters, along with some classical theorems. The last chapter deals with the construction of irreducible representations of groups. This book will be of great value to graduate students who wish to acquire some knowledge of representation theory.

Atlas of Finite Groups Jun 30 2022 This atlas covers groups from the families of the classification of finite simple groups. Recently updated incorporating corrections

Character Theory of Finite Groups Aug 01 2022 Character theory is a powerful tool for understanding finite groups. In particular, the theory has been a key ingredient in the classification of finite simple groups. Characters are also of interest in their own right, and their properties are closely related to properties of the structure of the underlying group. The book begins by developing the module theory of complex group algebras. After the module-theoretic foundations are laid in the first chapter, the focus is primarily on characters. This enhances the accessibility of the material for students, which was a major consideration in the writing. Also with students in mind, a large number of problems are included, many of them quite challenging. In addition to the development of the basic theory (using a cleaner notation than previously), a number of more specialized topics are covered with accessible presentations. These include projective representations, the basics of the Schur index, irreducible character degrees and group structure, complex linear groups, exceptional characters, and a fairly extensive introduction to blocks and Brauer characters. This is a corrected reprint of the original 1976 version, later reprinted by Dover. Since 1976 it has become the standard reference for character theory, appearing in the bibliography of almost every research paper in the subject. It is largely self-contained, requiring of the reader only the most basic facts of linear algebra, group theory, Galois theory and ring and module theory.

Cohomology Rings of Finite Groups May 06 2020 This text offers comprehensive coverage of group cohomology, from introductory material through the most recent developments in the field. The primary motivation for this book is the interaction of group cohomology with representation theory, especially the geometry of support varieties over cohomology rings. The appendices, comprising computer calculations of the mod-2 cohomology rings of the groups whose orders divide 64, provide information useful for further developments in the field. A unique feature of this text is that it includes the concepts that are the subject of the calculations and are the source of some of the motivating conjectures for the computations. The programs for computing the cohomology rings were executed in the MAGMA computer algebra language. The text is a valuable resource for researchers in group cohomology and related disciplines. In addition, the book could be used as the text for an advanced graduate class or a graduate seminar.

Characters and Blocks of Finite Groups Jul 08 2020 This is a clear, accessible and up-to-date exposition of modular representation theory of finite groups from a character-theoretic viewpoint. After a short review of the necessary background material, the early chapters introduce Brauer characters and blocks and develop their basic properties. The next three chapters study and prove Brauer's first, second and third main theorems in turn. These results are then applied to prove a major application of finite groups, the Glauberman Z*-theorem. Later chapters examine Brauer characters in more detail. The relationship between blocks and normal subgroups is also explored and the modular characters and blocks in p-solvable groups are discussed. Finally, the character theory of groups with a Sylow p-subgroup of order p is studied. Each chapter concludes with a set of problems. The book is aimed at graduate students, with some previous knowledge of ordinary character theory, and researchers studying the representation theory of finite groups.

Representations of Finite Groups Apr 16 2021

Finite Groups Oct 03 2022 "The Classification Theorem is one of the main achievements of 20th century mathematics, but its proof has not yet been completely extricated from the journal literature in which it first appeared. This is the second volume in a series devoted to the presentation of a reorganized and simplified proof of the classification of the finite simple groups. The authors present (with either proof or reference to a proof) those theorems of abstract finite group theory, which are fundamental to the analysis in later volumes in the series. This volume provides a relatively concise and readable access to the key ideas and theorems underlying the study of finite simple groups and their important subgroups. The sections on semisimple subgroups and subgroups of parabolic type give detailed treatments of these important subgroups, including some results not available until now or available only in journal literature. The signalizer section provides an extensive development of both the Bender Method and the Signalizer Functor Method, which play a central role in the proof of the Classification Theorem. This book would be a valuable companion text for a graduate group theory course."--Publisher's website

Finite Groups II Apr 04 2020 17):~t? L It CIFDr- ! wei! unsre Weisheit Einfalt ist, From "Lohengrin", Richard Wagner At the time of the appearance of the first volume of this work in 1967, the tempestuous development of finite group theory had already made it virtually impossible to give a complete presentation of the subject in one treatise. The present volume and its successor have therefore the more modest aim of giving descriptions of the recent development of certain important parts of the subject, and even in these parts no attempt at completeness has been made. Chapter VII deals with the representation theory of finite groups in arbitrary fields with particular attention to those of non-zero charac teristic. That part of modular representation theory which is essentially the block theory of complex characters has not been included, as there are already monographs on this subject and others will shortly appear. Instead, we have restricted ourselves to such results as can be obtained by purely module-theoretical means.

Finite Groups May 30 2022 The theory of groups, especially of finite groups, is one of the most delightful areas of mathematics. Its proofs often have elegance and crystalline beauty. This textbook is intended for the reader who has been exposed to about three years of serious mathematics. The notion of a group appears widely in mathematics and even further afield in physics and chemistry, and the fundamental idea should be known to all mathematicians. In this textbook a purely algebraic approach is taken and the choice of material is based upon the notion of conjugacy. The aim is not only to cover basic material, but also to present group theory as a living, vibrant and growing discipline, by including references and discussion of

some work up to the present day.

Products of Finite Groups Jan 26 2022 The study of finite groups factorised as a product of two or more subgroups has become a subject of great interest during the last years with applications not only in group theory, but also in other areas like cryptography and coding theory. It has experienced a big impulse with the introduction of some permutability conditions. The aim of this book is to gather, order, and examine part of this material, including the latest advances made, give some new approach to some topics, and present some new subjects of research in the theory of finite factorised groups. Some of the topics covered by this book include groups whose subnormal subgroups are normal, permutable, or Sylow-permutable, products of nilpotent groups, and an exhaustive structural study of totally and mutually permutable products of finite groups and their relation with classes of groups. This monograph is mainly addressed to graduate students and senior researchers interested in the study of products and permutability of finite groups. A background in finite group theory and a basic knowledge of representation theory and classes of groups is recommended to follow it.

Topics in Finite Groups Jul 20 2021 These notes derive from a course of lectures delivered at the University of Florida in Gainesville during 1971/2. Dr Gagen presents a simplified treatment of recent work by H. Bender on the classification of non-soluble groups with abelian Sylow 2-subgroups, together with some background material of wide interest. The book is for research students and specialists in group theory and allied subjects such as finite geometries.

The Theory of Finite Groups Nov 04 2022 From reviews of the German edition: "This is an exciting text and a refreshing contribution to an area in which challenges continue to flourish and to captivate the viewer. Even though representation theory and constructions of simple groups have been omitted, the text serves as a springboard for deeper study in many directions." Mathematical Reviews

Representing Finite Groups Sep 29 2019 This graduate textbook presents the basics of representation theory for finite groups from the point of view of semisimple algebras and modules over them. The presentation interweaves insights from specific examples with development of general and powerful tools based on the notion of semisimplicity. The elegant ideas of commutant duality are introduced, along with an introduction to representations of unitary groups. The text progresses systematically and the presentation is friendly and inviting. Central concepts are revisited and explored from multiple viewpoints. Exercises at the end of the chapter help reinforce the material. Representing Finite Groups: A Semisimple Introduction would serve as a textbook for graduate and some advanced undergraduate courses in mathematics. Prerequisites include acquaintance with elementary group theory and some familiarity with rings and modules. A final chapter presents a self-contained account of notions and results in algebra that are used. Researchers in mathematics and mathematical physics will also find this book useful. A separate solutions manual is available for instructors.

On Characters of Finite Groups May 18 2021 This book explores the classical and beautiful character theory of finite groups. It does it by using some rudiments of the language of categories. Originally emerging from two courses offered at Peking University (PKU), primarily for third-year students, it is now better suited for graduate courses, and provides broader coverage than books that focus almost exclusively on groups. The book presents the basic tools, notions and theorems of character theory (including a new treatment of the control of fusion and isometries), and introduces readers to the categorical language at several levels. It includes and proves the major results on characteristic zero representations without any assumptions about the base field. The book includes a dedicated chapter on graded representations and applications of polynomial invariants of finite groups, and its closing chapter addresses the more recent notion of the Drinfeld double of a finite group and the corresponding representation of GL_2(Z).

A Course on Finite Groups Apr 28 2022 Introduces the richness of group theory to advanced undergraduate and graduate students, concentrating on the finite aspects. Provides a wealth of exercises and problems to support self-study. Additional online resources on more challenging and more specialised topics can be used as extension material for courses, or for further independent study.