

Bookmark File
PDF Character
Theory Of Finite
Groups I Martin
Isaacs Ggda

**Character
Theory Of
Finite
Groups I
Martin
Isaacs
Ggda**

This graduate-level

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PDF Character

Theory Of Finite

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Traces Of

theory of finite

groups over fields

and rings. The book

provides a balanced

and comprehensive

account of the

subject, detailing the

methods needed to

analyze

representations that

arise in many areas

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PDF Character

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Course Code

of mathematics. Key topics include the construction and use of character tables, the role of induction and restriction, projective and simple modules for group algebras, indecomposable representations, Brauer characters, and block theory.

This classroom-

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Iraca Ojala

tested text provides motivation through a large number of worked examples, with exercises at the end of each chapter that test the reader's knowledge, provide further examples and practice, and include results not proven in the text.

Prerequisites include a graduate course in

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Impos

abstract algebra, and familiarity with the properties of groups,

rings, field

extensions, and

linear algebra.

Representation

theory and character

theory have proved

essential in the study

of finite simple

groups since their

early development by

Frobenius. The

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PDF Character

Theory Of Finite

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author begins by

presenting the
foundations of
character theory in a
style accessible to
advanced

undergraduates that
requires only a basic
knowledge of group
theory and general
algebra. This theme
is then expanded in a
self-contained
account providing an

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Introduction to the

application of

character theory to

the classification of

simple groups. The

book follows both

strands of the theory:

the exceptional

characteristics of

Suzuki and Feit and

the block character

theory of Brauer and

includes refinements

of original proofs

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PDF Character
Theory Of Finite
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*that have become
available as the
subject has grown.*

*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*

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Theory Of Finite

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Learn 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

Bookmark File

PDF Character

Theory Of Finite

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

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Theory Of Finite
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

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Theory Of Finite

Groups J. Martin

Icons Cycle

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.

This Book Is An

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Minimal Ggda

Prerequisites. The Plan Is To Impose A Distance Structure On A Linear Space, Exploit It Fully And Then Introduce Additional Features Only When One Cannot Get Any Further Without Them. The Book

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Theory Of Finite

Naturally Falls Into
Two Parts And Each

Of Them Is

Developed

Independently Of

The Other The First

Part Deals With

Normed Spaces,

Their Completeness

And Continuous

Linear Maps On

Them, Including The

Theory Of Compact

Operators. The Much

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Spaces And Leads

Upto The Spectral

Theorem For

Compact Self-Adjoint

Operators. Four

Appendices Point Out

Areas Of Further Dev

elopment. Emphasis

Is On Giving A

Number Of Examples

To Illustrate Abstract

Concepts And On

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Results Proved In

*The Text. In Addition
To Proving Existence
And Uniqueness Of A
Solution, Its
Approximate
Construction Is
Indicated. Problems
Of Varying Degrees
Of Difficulty Are
Given At The End Of
Each Section. Their*

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Theory Of Finite

*Statements Contain
The Answers As Well.*

Groups J Martin

*Representations of
Finite Groups of Lie
Type*

*Introduction to
Representation
Theory*

A Guided Tour

*Character Theory of
Finite Groups*

**This book explores
the classical and**

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Isaacs Ggda

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),

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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,

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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

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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

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representations
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and applications
Isaacs Gada
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

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Theory Of Finite
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Isaacs Goda
representation of
 $GL_2(\mathbb{Z})$.

This volume
contains a
collection of
papers from the
Conference on
Character Theory
of Finite Groups,
held at the
Universitat de
Valencia, Spain,

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Theory Of Finite

on June 3-5, 2009,

Groups I Martin

in honor of I.

Isaacs Goda

Martin Isaacs. The

topics include

permutation

groups, character

theory,

p -groups, and

group rings. The

research articles

feature new

results on large

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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

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representations of

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cross
Isaacs, Gada
characteristic in

classical groups.

The expository

articles present

results on vertex

subgroups,

measuring

theorems in

permutation

groups, the

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development of
Groups I Martin
super character
Isaacs Goda
theory, and open

problems in

character theory.

Graphs drawn on

two-dimensional

surfaces have

always attracted

researchers by

their beauty and

by the variety of

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difficult questions
to which they give
rise. The theory of
such embedded
graphs, which
long seemed
rather isolated,
has witnessed the
appearance of
entirely
unexpected new
applications in

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Theory Of Finite

recent decades,

ranging from

Galois theory to

quantum gravity

models, and has

become a kind of

a focus of a vast

field of research.

The book provides

an accessible

introduction to

this new domain,

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including such
topics as
coverings of
Riemann surfaces,
the Galois group
action on
embedded graphs
(Grothendieck's
theory of "dessins
d'enfants"), the
matrix integral
method, moduli

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spaces of curves,

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the topology of

meromorphic

functions, and

combinatorial

aspects of

Vassiliev's knot

invariants and, in

an appendix by

Don Zagier, the

use of finite group

representation

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theory. The
presentation is
concrete

throughout, with
numerous figures,
examples
(including
computer
calculations) and
exercises, and
should appeal to
both graduate

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students and
researchers.

"The book is a
pleasure to read.
There is no
question but that
it will become,
and deserves to
be, a widely used
textbook and
reference." —
Bulletin of the

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American
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Mathematical
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Society. Character
theory provides a
powerful tool for
proving theorems
about finite
groups. In
addition to
dealing with
techniques for
applying

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Isaacs Ggda

characters to
"pure" group
theory, a large
part of this book is
devoted to the
properties of the
characters
themselves and
how these
properties reflect
and are reflected
in the structure of

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the group.

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Chapter I consists

Isaacs Goda

of ring theoretic

preliminaries.

Chapters 2 to 6

and 8 contain the

basic material of

character theory,

while Chapter 7

treats an

important

technique for the

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Isaacs Goda
application of
characters to
group theory.

Chapter 9
considers
irreducible
representations
over arbitrary
fields, leading to a
focus on subfields
of the complex
numbers in

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Isaacs Goda

Chapter 10. In
Chapter 15 the
author introduces
Brauer ' s theory
of blocks and
"modular
characters."

Remaining
chapters deal with
more specialized
topics, such as the
connections

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Isaacs Gqda

between the set of

degrees of the

irreducible

characters and

structure of a

group. Following

each chapter is a

selection of

carefully thought

out problems,

including

exercises,

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examples, further

Groups I Martin

Isaacs Gqda
results and

extensions and

variations of

theorems in the

text. Prerequisites

for this book are

some basic finite

group theory: the

Sylow theorems,

elementary

properties of

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permutation
Groups | Martin
Isaacs, G. G. G. G.

groups and
solvable and
nilpotent groups.
Also useful would
be some
familiarity with
rings and Galois
theory. In short,
the contents of a
first-year graduate
algebra course

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Isaacs Gada
should be
sufficient
preparation.

Theory of Groups
of Finite Order
A Semisimple
Introduction
Volume 1
Representation
Theory of Finite
Groups and
Associative

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Algebras
Groups | Martin
Isaac Goda

***Difference sets
are of central
interest in finite
geometry and
design theory.
One of the main
techniques to
investigate
abelian
difference sets is
a discrete version
of the classical***

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Isaacs Gada

***Fourier transform
(i.e., character
theory) in
connection with
algebraic number
theory. This
approach is
described using
only basic
knowledge of
algebra and
algebraic number
theory. It***

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Groups, I Martin

Isaacs, Ggda

***contains not only
most of our
present
knowledge about
abelian
difference sets,
but also gives
applications of
character theory
to projective
planes with
quasiregular
collineation***

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Theory Of Finite
groups.

**Therefore, the
book is of
interest both to
geometers and
mathematicians
working on
difference sets.
Moreover, the
Fourier transform
is important in
more applied
branches of**

Bookmark File
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Theory Of Finite
Groups I Martin
Isaacs Gods

***discrete
mathematics
such as coding
theory and shift
register
sequences.***

***This book
consists of three
parts, rather
different in level
and purpose. The
first part was
originally written***

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Theory Of Finite

Groups, I. Martin

Isaacs, Gabe

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.

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Isaacs Gcd

It completes in a certain sense the first part. The third part is an introduction to Brauer Theory. This is a clear, accessible and up-to-date exposition of modular representation theory of finite

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Theory Of Finite

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Isaacs, Gida

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.

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Isaacs Goda

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

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Isaacs Gada

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

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are discussed.

Groups I Martin

Finally, the

Isaacs, Gdn
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

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Isaacs Gada

***students, with
some previous
knowledge of
ordinary
character theory,
and researchers
studying the
representation
theory of finite
groups.***

***Introduces the
richness of group
theory to***

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Theory Of Finite
Groups I Martin
Isaacs Gida

***advanced
undergraduate
and graduate
students,
concentrating on
the finite
aspects. Provides
a wealth of
exercises and
problems to
support self-
study. Additional
online resources***

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Isaacs Gida

***on more
challenging and
more specialised
topics can be
used as
extension
material for
courses, or for
further
independent
study.***

***A Course on
Finite Groups***

Page 56/144

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Theory Of Finite

Groups | Martin

Isaacs, G. J.

**Representations
of Finite and
Compact Groups
Modular**

**Representation
Theory of Finite
Groups**

**Characters of
Finite Groups**

*The text begins
with a review of
group actions and
Sylow theory. It*

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Zassenhaus

theorem, the

theory of

commutators,

coprime actions on

groups, transfer

theory, Frobenius

groups, primitive

and multiply

transitive

permutation

groups, the

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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

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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

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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

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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

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*theory and not just
read about it.*

Groups J Martin

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

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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.

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Mass | G. J. Janaki

He was also honored by being the selected MAA Polya Lecturer in 2003-2005.

Very roughly speaking, representation theory studies symmetry in linear spaces. It is a beautiful mathematical subject which has

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Iran G J

many applications,

ranging from

number theory and

combinatorics to

geometry,

probability theory,

quantum

mechanics, and

quantum field

theory. The goal of

this book is to give

a ``holistic''

introduction to

representation

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Isaac Glick

studies

representations of

associative

algebras and

treating the

representation

theories of groups,

Lie algebras, and

quivers as special

cases. Using this

approach, the book

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covers a number of

standard topics in

the representation

theories of these

structures.

Theoretical

material in the

book is

supplemented by

many problems

and exercises

which touch upon a

lot of additional

topics; the more

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Arts & Sciences

difficult exercises are provided with hints. The book is designed as a textbook for advanced undergraduate and beginning graduate students. It should be accessible to students with a strong background in linear algebra and a basic

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Isaac Got

*knowledge of
abstract algebra.
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*

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Theory Of Finite

Groups J. Martin
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

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Theory Of Finite
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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.

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Groups! Martin
Neumann,
Columbia

University, New
York, USA Markus J.
Pflaum, University
of Colorado,
Boulder, USA Dierk
Schleicher, Jacobs
University,
Bremen, Germany

*Applications of
Finite Groups
focuses on the
applications of*

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Physics, including

representation

theory, crystals,

wave equations,

and nuclear and

molecular

structures. The

book first

elaborates on

matrices, groups,

and

representations.

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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

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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,

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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

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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

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finite groups.

Finite Groups of Lie

Type

Representations

and Characters of

Groups

Finite Geometry

and Character

Theory

A Course in Finite

Group

Representation

Theory

This book is intended

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Groups J. Martin

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

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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

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Incorporated

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.

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Isaac G. G. G.

This updated edition of this classic book is devoted to ordinary representation theory and is addressed to finite group theorists intending to study and apply character theory. It contains many exercises and examples, and the list of problems contains a number of open questions.

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Immacula

Provides an introduction to various aspects of the representation theory of finite groups. This book covers such topics as general non-commutative algebras, Frobenius algebras, representations over non-algebraically closed fields and fields of non-zero characteristic, and

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integral
representations.

This book provides a modern introduction to the representation theory of finite groups. Now in its second edition, the authors have revised the text and added much new material. The theory is developed in terms of modules, since this is appropriate for more

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Isaacs

advanced work, but considerable emphasis is placed upon constructing characters. Included here are the character tables of all groups of order less than 32, and all simple groups of order less than 1000. Applications covered include Burnside's $p^a q^b$ theorem, the use of

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Isaac Ojila

character theory in
studying subgroup
structure and
permutation groups,
and how to use
representation theory
to investigate
molecular vibration.

Each chapter features
a variety of exercises,
with full solutions
provided at the end of
the book. This will be
ideal as a course text

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in representation theory, and in view of the applications, will be of interest to chemists and physicists as well as mathematicians.

An Introductory
Approach
Linear Algebraic
Groups and Finite
Groups of Lie Type
The Character Theory
of Finite Groups of Lie

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Theory Of Finite
Type
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The authors aim to treat the basic theory of representations of finite groups of Lie type, such as linear, unitary, orthogonal and symplectic

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groups. They emphasize the Curtis-Alvis duality map and Mackey's theorem and the results that can be deduced from it. They also discuss Deligne-Lusztig induction. This will be the first elementary

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treatment of this material in book form and will be welcomed by beginning graduate students in algebra.

A comprehensive guide to the vast literature and range of results around Lusztig's

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character theory
of finite groups of
Lie type.

Barry Simon,
I.B.M. Professor of
Mathematics and
Theoretical
Physics at the
California Institute
of Technology, is
the author of
several books,

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including such classics as
""Methods of Mathematical
Physics"" (with M. Reed) and
""Functional Integration and
Quantum Physics"". This
new book, based on courses given

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at Princeton,
Groups I Martin
Caltech, ETH-
Isaacs Goda
Zurich, and other
universities, is an
introductory
textbook on
representation
theory. According
to the author,
'Two facets
distinguish my
approach. First,

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Isaacs, Goda

this book is relatively elementary, and second, while the bulk of the books on the subject is written from the point of view of an algebraist or a geometer, this book is written with an analytical

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flavor'. The exposition in the book centers around the study of representation of certain concrete classes of groups, including permutation groups and compact semi

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simple Lie groups.

It culminates in

the complete

proof of the Weyl

character formula

for

representations of

compact Lie

groups and the

Frobenius formula

for characters of

permutation

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groups. Extremely

well tailored both

for a one-year

course in

representation

theory and for

independent

study, this book is

an excellent

introduction to the

subject which,

according to the

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author, is unique

in having 'so much

innate beauty so

close to the

surface'.

The

representation

theory of the

symmetric groups

is a classical topic

that, since the

pioneering work of

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Frobenius, Schur and Young, has grown into a huge body of theory, with many important connections to other areas of mathematics and physics. This self-contained book provides a

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detailed

introduction to the

subject, covering

classical topics

such as the Littlew

ood-Richardson

rule and the

Schur-Weyl

duality.

Importantly the

authors also

present many

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recent advances
in the area,
including

Lassalle's
character

formulas, the

theory of partition

algebras, and an

exhaustive

exposition of the

approach

developed by A.

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M. Vershik and A.

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wealth of
examples and
exercises makes
this an ideal
textbook for
graduate
students. It will
also serve as a
useful reference
for more

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experienced
researchers
across a range of
areas, including
algebra, computer
science, statistical
mechanics and
theoretical
physics.

Finite Group

Theory

Applications of the

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Character Theory
of Finite Groups to

String Theory

Representation

Theory of the

Symmetric Groups

On Characters of

Finite Groups

The finite groups
of Lie type are of
basic importance
in the theory of

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groups. A classic

in its field, this

book presents

the theories of

finite groups of

Lie type in a clear

and accessible

style, especially

with regard to the

main concepts of

the theory and

the techniques of

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proof used, and

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Isaacs Gada

gives a detailed

exposition of the

complex

representation

theory.

This book places

character theory

and its

applications to

finite groups

within the reach

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of people with a
comparatively
modest

mathematical

background. The

work

concentrates

mostly on

applications of

character theory

to finite groups.

The main themes

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are degrees and

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irreducible

characters, the

class number and

the number of

nonlinear

irreducible

characters,

values of

irreducible

characters,

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Isaacs, G. D.

characterizations
and

generalizations of
Frobenius

groups, and

generalizations of
monomial

groups. The

presentation is

detailed, and

many proofs of

known results are

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new.

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,

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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

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abelian
subgroups of p -
groups,
construction of
certain wreath
products,
computing
idempotents in
group algebras of
finite groups, and
using dual pairs
to study

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representations

of cross

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characteristic in
classical groups.

The expository
articles present
results on vertex
subgroups,
measuring
theorems in
permutation
groups, the

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development of
super character
theory, and open
problems in
character theory.
Originating from
a summer school
taught by the
authors, this
concise
treatment
includes many of

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Isaacs, G. D.

the main results
in the area. An
introductory
chapter
describes the
fundamental
results on linear
algebraic groups,
culminating in
the classification
of semisimple
groups. The

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second chapter
introduces more
specialized

topics in the

subgroup

structure of

semisimple

groups and

describes the

classification of

the maximal

subgroups of the

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simple algebraic

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groups. The

authors then

systematically

develop the

subgroup

structure of finite

groups of Lie

type as a

consequence of

the structural

results on

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algebraic groups.

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This approach

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will help students

to understand the

relationship

between these

two classes of

groups. The book

covers many

topics that are

central to the

subject, but

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missing from

Groups I Martin

existing

Isaacs Goda

textbooks. The

authors provide

numerous

instructive

exercises and

examples for

those who are

learning the

subject as well as

more advanced

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topics for

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research

Isaacs Ggda

students working

in related areas.

Graphs on

Surfaces and

Their

Applications

Some Problems

in the Character

Theory of Finite

Groups

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Linear

Representations

of Finite Groups

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.

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Character

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

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Theory Of Finite
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Isaac Onda

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

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Lees Cg1b

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,

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**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**

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Theory Of Finite

Groups, J. Martin
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.

This book provides a
modern introduction
to the representation
theory of finite groups.

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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

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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

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Ipsas Gids

**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.
Representation theory
studies maps from
groups into the general
linear group of a finite-
dimensional vector**

space. For finite groups the theory comes in two distinct flavours. In the 'semisimple case' (for example over the field of complex numbers) one can use character theory to completely understand the representations. This by far is not sufficient when the characteristic of the field divides the

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order of the group.

Modular

Representation Theory

of finite Groups

comprises this second

situation. Many

additional tools are

needed for this case.

To mention some,

there is the systematic

use of Grothendieck

groups leading to the

Cartan matrix and the

decomposition matrix

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of the group as well as Green's direct analysis of indecomposable representations. There is also the strategy of writing the category of all representations as the direct product of certain subcategories, the so-called 'blocks' of the group. Brauer's work then establishes correspondences between the blocks of

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**the original group and
blocks of certain**

subgroups the

philosophy being that

one is thereby reduced

to a simpler situation.

In particular, one can

measure how

nonsemisimple a

category a block is by

the size and structure

of its so-called 'defect

group'. All these

concepts are made

**explicit for the
example of the special
linear group of two-by-
two matrices over a
finite prime field.**

**Although the
presentation is
strongly biased
towards the module
theoretic point of view
an attempt is made to
strike a certain
balance by also
showing the reader the**

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group theoretic approach. In particular, in the case of defect groups a detailed proof of the equivalence of the two approaches is given. This book aims to familiarize students at the masters level with the basic results, tools, and techniques of a beautiful and important algebraic

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the semisimple case

are assumed to be

known, although all

facts to be used are

restated (without

proofs) in the text.

Otherwise the book is
entirely self-contained.

Conjugacy Classes and

Complex Characters

Character Theory of

Finite Groups. Isaacs

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**Functional Analysis
Conference in Honor**

**of I. Martin Isaacs,
June 3-5, 2009,
Universitat de
València, València,
Spain**

Through the
fundamental work
of Deligne and
Lusztig in the
1970s, further
developed mainly

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Isaacs Ggda

by Lusztig, the character theory of reductive groups over finite fields has grown into a rich and vast area of mathematics. It incorporates tools and methods from algebraic geometry, topology, combinatorics and computer algebra,

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Isaacs, Gola

and has since evolved substantially. With this book, the authors meet the need for a contemporary treatment, complementing in core areas the well-established books of Carter and Digne-Michel.

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Focusing on applications in finite group theory, the authors gather previously scattered results and allow the reader to get to grips with the large body of literature available on the subject, covering topics such as

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regular
embeddings, the
Jordan

decomposition of
characters, d-
Harish-Chandra
theory and Lusztig
induction for
unipotent
characters.

Requiring only a
modest background
in algebraic

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geometry, this
Groups, J. Martin
useful reference is

Isaacs, Gada
suitable for

beginning graduate
students as well as
researchers.

Representation

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Groups

Representations

and Characters of

Finite Groups

The Okounkov-

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Vershik Approach,
Groups, Martin
Character
Isaacs, Ggda
Formulas, and
Partition Algebras
Characters and
Blocks of Finite
Groups