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KEY=SOLUTIONS - NICKOLAS TIMOTHY

THE OXFORD SOLID STATE BASICS

Oxford University Press This is a first undergraduate textbook in Solid State Physics or Condensed Matter Physics. While most textbooks on the subject are extremely dry, this book is written to be much more exciting, inspiring, and entertaining.

CONCEPTS IN SOLIDS

LECTURES ON THE THEORY OF SOLIDS

World Scientific These lecture notes constitute a course on a number of central concepts of solid state physics ? classification of solids, band theory, the developments in one-electron band theory in the presence of perturbation, effective Hamiltonian theory, elementary excitations and the various types of collective elementary excitation (excitons, spin waves and phonons), the Fermi liquid, ferromagnetic spin waves, antiferromagnetic spin waves and the theory of broken symmetry.The book can be used in conjunction with a survey course in solid state physics, or as the basis of a first graduate-level course. It can be read by anyone who has had basic grounding in quantum mechanics.

SOLID STATE PHYSICS

SOLID STATE PHYSICS

Cengage Learning This book provides an introduction to the field of solid state physics for undergraduate students in physics, chemistry, engineering, and materials science.

SOLID STATE PHYSICS

John Wiley & Sons The ideal companion in condensed matter physics - now in new and revised edition. Solving homework problems is the single most effective way for students to familiarize themselves with the language and details of solid state physics. Testing problem-solving ability is the best means at the professor's disposal for measuring student progress at critical points in the learning process. This book enables any instructor to supplement end-of-chapter textbook assignments with a large number of challenging and engaging practice problems and discover a host of new ideas for creating exam questions. Designed to be used in tandem with any of the excellent textbooks on this subject, Solid State Physics: Problems and Solutions provides a self-study approach through which advanced undergraduate and first-year graduate students can develop and test their skills while acclimating themselves to the demands of the discipline. Each problem has been chosen for its ability to illustrate key concepts, properties, and systems, knowledge of which is crucial in developing a complete understanding of the subject, including: * Crystals, diffraction, and reciprocal lattices. * Phonon dispersion and electronic band structure. * Density of states. * Transport, magnetic, and optical properties. * Interacting electron systems. * Magnetism. * Nanoscale Physics.

QUANTUM COMPUTER SCIENCE

AN INTRODUCTION

Cambridge University Press In the 1990's it was realized that quantum physics has some spectacular applications in computer science. This book is a concise introduction to quantum computation, developing the basic elements of this new branch of computational theory without assuming any background in physics. It begins with an introduction to the quantum theory from a computer-science perspective. It illustrates the quantum-computational approach with several elementary examples of quantum speed-up, before moving to the major applications: Shor's factoring algorithm, Grover's search algorithm, and quantum error correction. The book is intended primarily for computer scientists who know nothing about quantum theory, but will also be of interest to physicists who want to learn the theory of quantum computation, and philosophers of science interested in quantum foundational issues. It evolved during six years of teaching the subject to undergraduates and graduate students in computer science, mathematics, engineering, and physics, at Cornell University.

SOLID-STATE PHYSICS FOR ELECTRONICS

John Wiley & Sons Describing the fundamental physical properties of materials used in electronics, the thorough coverage of this book will facilitate an understanding of the technological processes used in the fabrication of electronic and photonic devices. The book opens with an introduction to the basic applied physics of simple electronic states and energy levels. Silicon and copper, the building blocks for many electronic devices, are used as examples. Next, more advanced theories are developed to better account for the electronic and optical behavior of ordered materials, such as diamond, and disordered materials, such as amorphous silicon. Finally, the principal quasi-particles (phonons, polarons, excitons, plasmons, and polaritons) that are fundamental to explaining phenomena such as component aging (phonons) and optical performance in terms of yield (excitons) or communication speed (polarons) are discussed.

FEYNMAN DIAGRAM TECHNIQUES IN CONDENSED MATTER PHYSICS

Cambridge University Press An introduction to the application of Feynman diagram techniques for researchers and advanced undergraduate students in condensed matter theory and many-body physics.

ELECTRONIC STRUCTURE

BASIC THEORY AND PRACTICAL METHODS

Cambridge University Press The study of the electronic structure of materials is at a momentous stage, with the emergence of computational methods and theoretical approaches. Many properties of materials can now be determined directly from the fundamental equations for the electrons, providing insights into critical problems in physics, chemistry, and materials science. This book provides a unified exposition of the basic theory and methods of electronic structure, together with instructive examples of practical computational methods and real-world applications. Appropriate for both graduate students and practising scientists, this book describes the approach most widely used today, density functional theory, with emphasis upon understanding the ideas, practical methods and limitations. Many references are provided to original papers, pertinent reviews, and widely available books. Included in each chapter is a short list of the most relevant references and a set of exercises that reveal salient points and challenge the reader.

FUNDAMENTALS OF CONDENSED MATTER PHYSICS

Cambridge University Press Based on an established course and covering all the fundamentals, central areas and contemporary topics of this diverse field, Fundamentals of Condensed Matter Physics is a much-needed textbook for graduate students. Coverage of concepts and techniques ensures that both theoretically and experimentally inclined students gain the strong understanding needed for research and teaching.

BAND THEORY AND ELECTRONIC PROPERTIES OF SOLIDS

Oxford University Press Band theory is evident all around us and yet is one of the most stringent tests of quantum mechanics. This textbook, one of the first in the new Oxford Master Series in Physics, attempts to reveal in a quantitative and fairly rigorous fashion how band theory leads to the everyday properties of materials. The book is suitable for final-year undergraduate and first-year graduate students in physics and materials science.

PHYSICS OF CONDENSED MATTER

Academic Press Physics of Condensed Matter is designed for a two-semester graduate course on condensed matter physics for students in physics and materials science. While the book offers fundamental ideas and topic areas of condensed matter physics, it also includes many recent topics of interest on which graduate students may choose to do further research. The text can also be used as a one-semester course for advanced undergraduate majors in physics, materials science, solid state chemistry, and electrical engineering, because it offers a breadth of topics applicable to these majors. The book begins with a clear, coherent picture of simple models of solids and properties and progresses to more advanced properties and topics later in the book. It offers a comprehensive account of the modern topics in condensed matter physics by including introductory accounts of the areas of research in which intense research is underway. The book assumes a working knowledge of quantum mechanics, statistical mechanics, electricity and magnetism and Green's function formalism (for the second-semester curriculum). Covers many advanced topics and recent developments in condensed matter physics which are not included in other texts and are hot areas: Spintronics, Heavy fermions, Metallic nanoclusters, Zno, Graphene and graphene-based electronic, Quantum hall effect, High temperature superdonductivity, Nanotechnology Offers a diverse number of Experimental techniques clearly simplified Features end of chapter problems

CONDENSED MATTER PHYSICS

John Wiley & Sons Now updated—the leading single-volume introduction to solid state and soft condensed matter physics This Second Edition of the unified treatment of condensed matter physics keeps the best of the first, providing a basic foundation in the subject while addressing many recent discoveries. Comprehensive and authoritative, it consolidates the critical advances of the past fifty years, bringing together an exciting collection of new and classic topics, dozens of new figures, and new experimental data. This updated edition offers a thorough treatment of such basic topics as band theory,

transport theory, and semiconductor physics, as well as more modern areas such as quasicrystals, dynamics of phase separation, granular materials, quantum dots, Berry phases, the quantum Hall effect, and Luttinger liquids. In addition to careful study of electron dynamics, electronics, and superconductivity, there is much material drawn from soft matter physics, including liquid crystals, polymers, and fluid dynamics. Provides frequent comparison of theory and experiment, both when they agree and when problems are still unsolved Incorporates many new images from experiments Provides end-of-chapter problems including computational exercises Includes more than fifty data tables and a detailed forty-page index Offers a solutions manual for instructors Featuring 370 figures and more than 1,000 recent and historically significant references, this volume serves as a valuable resource for graduate and undergraduate students in physics, physics professionals, engineers, applied mathematicians, materials scientists, and researchers in other fields who want to learn about the quantum and atomic underpinnings of materials science from a modern point of view.

MODERN CONDENSED MATTER PHYSICS

Cambridge University Press Comprehensive and accessible coverage from the basics to advanced topics in modern quantum condensed matter physics.

PHOTONIC PROBES OF SURFACES

Newnes This volume is devoted principally to optical spectroscopies of material surfaces and also encompasses scattering techniques and theoretical response analysis as well as spectroscopies. In addition to solid surfaces some attention is also devoted to interfaces between two solids, between a solid and a liquid and to a liquid-vapor interface. These surfaces may be clean and perfect, in which case the purpose of the spectroscopical method at hand is to determine the deviation of the atomic structure in the surface region from that in the bulk, namely the surface reconstruction. Otherwise the surface may be imperfect due to roughness, strain or overlayers, in which case the spectroscopy can yield information on the nature of such imperfections, including the monitoring of growth processes. One of the foremost purposes of surface spectroscopies is to extract information on atomic and molecular adsorbates on solid surfaces. Most of the 10 chapters are concerned with photonic sources of excitation, the respective spectral regions ranging from the far infrared to X-rays. In conclusion this book provides a state-of-the-art review of all major types of photonic probes of surfaces and interfaces and deals with both applications and experiment and theory.

INTRODUCTION TO SOLID-STATE THEORY

Springer Science & Business Media Introduction to Solid-State Theory is a textbook for graduate students of physics and materials science. It also provides the theoretical background needed by physicists doing research in pure solid-state physics and its applications to electrical engineering. The fundamentals of solid-state theory are based on a description by delocalized and localized states and - within the concept of delocalized states - by elementary excitations. The development of solid-state theory within the last ten years has shown that by a systematic introduction of these concepts, large parts of the theory can be described in a unified way. This form of description gives a "pictorial" formulation of many elementary processes in solids, which facilitates their understanding.

THE PHYSICS OF SOLIDS

Oxford University Press This comprehensive text covers the basic physics of the solid state starting at an elementary level suitable for undergraduates but then advancing, in stages, to a graduate and advanced graduate level. In addition to treating the fundamental elastic, electrical, thermal, magnetic, structural, electronic, transport, optical, mechanical and compositional properties, we also discuss topics like superfluidity and superconductivity along with special topics such as strongly correlated systems, high-temperature superconductors, the quantum Hall effects, and graphene. Particular emphasis is given to so-called first principles calculations utilizing modern density functional theory which for many systems now allow accurate calculations of the electronic, magnetic, and thermal properties.

SOLID STATE PHYSICS

Cambridge University Press Updated to reflect recent work in the field, this book emphasizes crystalline solids, going from the crystal lattice to the ideas of reciprocal space and Brillouin zones, and develops these ideas for lattice vibrations, for the theory of metals, and for semiconductors. The theme of lattice periodicity and its varied consequences runs through eighty percent of the book. Other sections deal with major aspects of solid state physics controlled by other phenomena: superconductivity, dielectric and magnetic properties, and magnetic resonance.

SOLID STATE PROPERTIES

FROM BULK TO NANO

Springer This book fills a gap between many of the basic solid state physics and materials sciencebooks that are currently available. It is written for a mixed audience of electricalengineering and applied physics students who have some knowledge of elementaryundergraduate quantum mechanics and statistical mechanics. This book, based on asuccessful course taught at MIT, is divided pedagogically into three parts: (I) ElectronicStructure, (II) Transport Properties, and (III) Optical Properties. Each topic is explainedin the context of bulk materials and then extended to low-dimensional materials whereapplicable. Problem sets review the content of each chapter to help students to understandthe material described in each of the chapters more deeply and to prepare them to masterthe next chapters.

QUANTUM FIELD THEORY AND CONDENSED MATTER

AN INTRODUCTION

Providing a broad review of many techniques and their application to condensed matter systems, this book begins with a review of thermodynamics and statistical mechanics, before moving onto real and imaginary time path integrals and the link between Euclidean quantum mechanics and statistical mechanics. A detailed study of the Ising, gauge-Ising and XY models is included. The renormalization group is developed and applied to critical phenomena, Fermi liquid theory and the renormalization of field theories. Next, the book explores bosonization and its applications to one-dimensional fermionic systems and the correlation functions of homogeneous and random-bond Ising models. It concludes with Bohm-Pines and Chern-Simons theories applied to the quantum Hall effect. Introducing the reader to a variety of techniques, it opens up vast areas of condensed matter theory for both graduate students and researchers in theoretical, statistical and condensed matter physics.

OPTICAL PROPERTIES OF SOLIDS

Oxford University Press For final year undergraduates and graduate students in physics, this book offers an up-to-date treatment of the optical properties of solid state materials.

THE POTENTIAL DISTRIBUTION THEOREM AND MODELS OF MOLECULAR SOLUTIONS

Cambridge University Press An understanding of statistical thermodynamic molecular theory is fundamental to the appreciation of molecular solutions. This complex subject has been simplified by the authors with down-to-earth presentations of molecular theory. Using the potential distribution theorem (PDT) as the basis, the text provides a discussion of practical theories in conjunction with simulation results. The authors discuss the field in a concise and simple manner, illustrating the text with useful models of solution thermodynamics and numerous exercises. Modern quasi-chemical theories that permit statistical thermodynamic properties to be studied on the basis of electronic structure calculations are given extended development, as is the testing of those theoretical results with ab initio molecular dynamics simulations. The book is intended for students taking up research problems of molecular science in chemistry, chemical engineering, biochemistry, pharmaceutical chemistry, nanotechnology and biotechnology.

MANY-BODY THEORY OF SOLIDS

AN INTRODUCTION

Springer Science & Business Media here exists a gap in the present literature on quantum mechanics T and its application to solids. It has been difficult to find an intro ductory textbook which could take a student from the elementary quan tum mechanical ideas of the single-particle Schrodinger equations, through the formalism and new physical concepts of many-body theory, to the level where the student would be equipped to read the scientific literature and specialized books on specific topics. The present book, which I believe fills this gap, grew out of two courses which I have given for a number of years at the University of Cambridge: "Advanced Quan tum Mechanics," covering the quantization of fields, representations, and creation and annihilation operators, and "Many Body Theory," on the application of quantum field theory to solids. The first course is a final-year undergraduate physics course while the second is a joint first and fourth-year undergraduate math year postgraduate physics course ematics course. In an American context this would closely correspond to a graduate course at the masters level. In writing this book I have tried to stress the physical aspects of the mathematics preferring where possible to introduce a technique by using a simple illustrative example rather than develop a purely formal treat ment. In order to do this I have assumed a certain familiarity with solid state physics on the level of a normal undergraduate course, but the book should also be useful to those without such a background.

DENSITY FUNCTIONAL THEORY

A PRACTICAL INTRODUCTION

John Wiley & Sons Demonstrates how anyone in math, science, and engineering canmaster DFT calculations Density functional theory (DFT) is one of the most frequentlyused computational tools for studying and predicting the propertiesof isolated molecules, bulk solids, and material interfaces,including surfaces. Although the theoretical underpinnings of DFTare quite complicated, this book demonstrates that the basicconcepts underlying the calculations are simple enough to beunderstood by anyone with a background in chemistry, physics,engineering, or mathematics. The authors show how the widespreadavailability of powerful DFT codes makes it possible for studentsand researchers to apply this important computational technique toa broad range of fundamental and applied problems. Density Functional Theory: A Practical Introductionoffers a concise, easy-to-follow introduction to the key conceptsand practical applications of DFT, focusing on plane-wave DFT. Theauthors have many years of experience introducing DFT to studentsfrom a variety of backgrounds. The book therefore offers severalfeatures that have proven to be helpful in enabling students tomaster the subject, including: Problem sets in each chapter that give readers the opportunityto test their knowledge by performing their own calculations Worked examples that demonstrate how DFT calculations are usedto solve real-world problems Further readings listed in each chapter enabling readers toinvestigate specific topics in greater depth This text is written at a level suitable for individuals from avariety of scientific, mathematical, and engineering backgrounds.No previous experience working with DFT calculations is needed.

PRINCETON PROBLEMS IN PHYSICS WITH SOLUTIONS

Princeton University Press Aimed at helping the physics student to develop a solid grasp of basic graduate-level material, this book presents worked solutions to a wide range of informative problems. These problems have been culled from the preliminary and general examinations created by the physics department at Princeton University for its graduate program. The authors, all students who have successfully completed the examinations, selected these problems on the basis of usefulness, interest, and originality, and have provided highly detailed solutions to each one. Their book will be a valuable resource not only to other students but to college physics teachers as well. The first four chapters pose problems in the areas of mechanics, electricity and magnetism, quantum mechanics, and thermodynamics and statistical mechanics, thereby serving as a review of material typically covered in undergraduate courses. Later chapters deal with material new to most first-year graduate students, challenging them on such topics as condensed matter, relativity and astrophysics, nuclear physics, elementary particles, and atomic and general physics.

ADVANCED SOLID STATE PHYSICS

CRC Press Solid state physics continues to be the most rapidly growing subdiscipline in physics. As a result, entering graduate students wishing to pursue research in this field face the daunting task of not only mastering the old topics but also gaining competence in the problems of current interest, such as the fractional quantum Hall effect, strongly correlated electron systems, and quantum phase transitions. This book is written to serve the needs of such students. I have attempted in this book to present some of the standard topics in a way that makes it possible to move smoothly to current material. Hence, all the interesting topics are not presented at the end of the book. For example, immediately after the first 50 pages, Anderson's analysis of local magnetic moments is presented as an application of Hartree-Fock theory; this affords a discussion of the relationship with the Kondo model and how scaling ideas can be used to uncloak low-energy physics. As the key problems of current interest in solid state involve some aspects of electron-electron interactions or disorder or both, I have focused on the archetypal problems in which such physics is central. However, only those problems in which there is a consensus view are discussed extensively. In addition, I have placed the emphasis on physics rather than on techniques. Consequently, I focus on a clear presentation of the phenomenology along with a pedagogical derivation of the relevant equations. A key goal of the detailed derivations is to make it possible for the students who have read this book to immediately comprehend research papers on related topics. A key omission in this book is magnetism beyond the Stoner criterion and local magnetic moments. This omission has arisen primarily because the topic is adequately treated in the book by Assa Auerbach.

COMPUTER VISION - ECCV '94

THIRD EUROPEAN CONFERENCE ON COMPUTER VISION, STOCKHOLM, SWEDEN, MAY 2 - 6, 1994. PROCEEDINGS

Springer Science & Business Media Computer vision - ECCV'94. -- v. 1

PHYSICS AT SURFACES

Cambridge University Press Physics at Surfaces is a unique graduate-level introduction to the physics and chemical physics of solid surfaces, and atoms and molecules that interact with solid surfaces. A subject of keen scientific inquiry since the last century, surface physics emerged as an independent discipline only in the late 1960s as a result of the development of ultra-high vacuum technology and high speed digital computers. With these tools, reliable experimental measurements and theoretical calculations could at last be compared. Progress in the last decade has been truly striking. This volume provides a synthesis of the entire field of surface physics from the perspective of a modern condensed matter physicist with a healthy interest in chemical physics. The exposition intertwines experiment and theory whenever possible, although there is little detailed discussion of technique. This much-needed text will be invaluable to graduate students and researchers in condensed matter physics, physical chemistry and materials science working in, or taking graduate courses in, surface science.

ELECTRICAL DOUBLE LAYER AT A METAL-DILUTE ELECTROLYTE SOLUTION INTERFACE

Springer Science & Business Media Most of the properties of a metal-electrolyte interface, even the spe cific nature of an electrode reaction, proneness of a metal to cor rosion, etc., are primarily determined by the electrical double layer (EDL) at this boundary. It is therefore no surprise that for the last, at least, one hundred years intent attention should have been centered on EDL. So much of material has been gathered to date that we are easi ly lost in this maze of information. A substantial part of the attempts to systematize these facts is made at present within the framework of thermodynamics. Such a confined approach is undoubtedly inadequate. The Gouy-Chapman theory and the Stern-Grahame model of the dense part of EDL developed 40-70 years ago, tailored appropriately to suit the occasion, inevitably underlie any description of EDL. This route is rather too narrow to explain all the facts at our disposal. A dire necessity has thus arisen for widening the principles of the micros copic theory. This is precisely the objective of our monograph. Fur thermore, we shall dwell at length on the comparison of the theory with experiment: without such a comparative analysis, any theory, however elegant it may be, is just an empty drum.

SOLID-STATE PHYSICS

INTRODUCTION TO THE THEORY

Springer Science & Business Media While the standard solid state topics are covered, the basic ones often have more detailed derivations than is customary (with an empasis on crystalline solids). Several recent topics are introduced, as are some subjects normally included only in condensed matter physics. Lattice vibrations, electrons, interactions, and spin effects (mostly in magnetism) are discussed the most comprehensively. Many problems are included whose level is from "fill in the steps" to long and challenging, and the text is equipped with references and several comments about experiments with figures and tables.

QUANTUM INFORMATION

AN OVERVIEW

Springer Science & Business Media This book gives an overview for practitioners and students of quantum physics and information science. It provides ready access to essential information on quantum information processing and communication, such as definitions, protocols and algorithms. Quantum information science is rarely found in clear and concise form. This book brings together this information from its various sources. It allows researchers and students in a range of areas including physics, photonics, solid-state electronics, nuclear magnetic resonance and information technology, in their applied and theoretical branches, to have this vital material directly at hand.

SOLID STATE PHYSICS

PRINCIPLES AND MODERN APPLICATIONS

Springer Science & Business Media Intended for a two semester advanced undergraduate or graduate course in Solid State Physics, this treatment offers modern coverage of the theory and related experiments, including the group theoretical approach to band structures, Moessbauer recoil free fraction, semi-classical electron theory, magnetoconductivity, electron self-energy and Landau theory of Fermi liquid, and both quantum and fractional quantum Hall effects. Integrated throughout are developments from the newest semiconductor devices, e.g. space charge layers, quantum wells and superlattices. The first half includes all material usually covered in the introductory course, but in greater depth than most introductory textbooks. The second half includes most of the important developments in solid-state researches of the past half century, addressing e.g. optical and electronic properties such as collective bulk and surface modes and spectral function of a quasiparticle, which is a basic concept for understanding LEED intensities, X ray fine structure spectroscopy and photoemission. So both the fundamental principles and most recent advances in solid state physics are explained in a class-tested tutorial style, with end-of-chapter exercises for review and reinforcement of key concepts and calculations.

ELEMENTARY STATISTICAL PHYSICS

Courier Corporation Graduate-level text covers properties of the Fermi-Dirac and Bose-Einstein distributions; the interrelated subjects of fluctuations, thermal noise, and Brownian movement; and the thermodynamics of irreversible processes. 1958 edition.

ELEMENTARY SOLID STATE PHYSICS

PRINCIPLES AND APPLICATIONS

Pearson Education India

THE PHYSICS OF QUANTUM MECHANICS

Oxford University Press "First published by Cappella Archive in 2008."

THEORY OF THE INHOMOGENEOUS ELECTRON GAS

Springer Science & Business Media The theory of the inhomogeneous electron gas had its origin in the Thomas Fermi statistical theory, which is discussed in the first chapter of this book. This already leads to significant physical results for the binding energies of atomic ions, though because it leaves out shell structure the results of such a theory cannot reflect the richness of the Periodic Table. Therefore, for a long time, the earlier method proposed by Hartree, in which each electron is assigned its own personal wave function and energy, dominated atomic theory. The extension of the Hartree theory by Fock, to include exchange, had its parallel in the density description when Dirac showed how to incorporate exchange in the Thomas-Fermi theory. Considerably later, in 1951, Slater, in an important paper, showed how a result similar to but not identical with that of Dirac followed as a simplification of the Hartree-Fock method. It was Gombas and other workers who recognized that one could also incorporate electron correlation consistently into the Thomas-Fermi-Dirac theory by using uniform electron gas relations locally, and progress had been made along all these avenues by the 1950s.

MECHANICS OF MATERIALS

For the past forty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence. The revision of their classic Mechanics of Materials text features a new and updated design and art program; almost every homework problem is new or revised; and extensive content revisions and text reorganizations have been made. The multimedia supplement package includes an extensive strength of materials Interactive Tutorial (created by George Staab and Brooks Breeden of The Ohio State University) to provide students with additional help on key concepts, and a custom book website offers online resources for both instructors and students.

SUPERCONDUCTIVITY

PHYSICS AND APPLICATIONS

John Wiley & Sons Superconductivity: Physics and Applications brings together major developments that have occurred within the field over the past twenty years. Taking a truly modern approach to the subject the authors provide an interesting and accessible introduction. Brings a fresh approach to the physics of superconductivity based both on the well established and convergent picture for most low-Tc superconductors, provided by the BCS theory at the microscopic level, and London and Ginzburg-Landau theories at the phenomenological level, as well as on experiences gathered in high-Tc research in recent years. Includes end of chapter problems and numerous relevant examples Features brief interviews with key researchers in the field A prominent feature of the book is the use of SI units throughout, in contrast to many of the current textbooks on the subject which tend to use cgs units and are considered to be outdated

ADVANCES IN ATOMIC, MOLECULAR, AND OPTICAL PHYSICS

Elsevier This volume of Advances in Atomic, Molecular, and Optical Physics continues the tradition of the Advances series. It contains contributions from experts in the field of atomic, molecular, and optical (AMO) physics. The articles contain some review material, but are intended to provide a comprehensive picture of recent important developments in AMO physics. Both theoretical and experimental articles are included in the volume. International experts Comprehensive articles New developments

OPTICAL PROPERTIES OF SOLIDS

Academic Press Optical Properties of Solids covers the important concepts of intrinsic optical properties and photoelectric emission. The book starts by providing an introduction to the fundamental optical spectra of solids. The text then discusses Maxwell's equations and the dielectric function; absorption and dispersion; and the theory of free-electron metals. The quantum mechanical theory of direct and indirect transitions between bands; the applications of dispersion relations; and the derivation of an expression for the dielectric function in the self-consistent field approximation are also encompassed. The book further tackles current-current correlations; the fluctuation-dissipation theorem; and the effect of surface plasmons on optical properties and photoemission. People involved in the study of the optical properties of solids will find the book invaluable.