

Problems And Solution Of Solid State

Solid State Solid State Theory *New Directions in Solid State Chemistry* [Fundamentals of Solid State Engineering](#)
ELEMENTS OF SOLID STATE PHYSICS *Solid State Physics* **Fundamentals of Solid-State Electronics** *Foundations of Solid State Physics* **Magnetism in the Solid State** *Symmetry Principles in Solid State and Molecular Physics* *The Oxford Solid State Basics* *Solid State Theory* [Fundamentals of Solid-state Electronics](#) **Solid State Theory** **Solid State Materials Chemistry** **Solid-State Laser Engineering** [Solid State Properties](#) **Solid State NMR Studies of Biopolymers** [Solid State Chemistry](#) *Treatise on Solid State Chemistry* *Luminescence and the Solid State* *Solid State Physics* **Solid-State Physics** **Solid State Physics** *Solid State Chemistry and Its Applications* **Principles of the Solid State** **Advances in Solid State Theory** *Understanding Solid State Physics* *Handbook of Solid-State Lasers* **The Solid State** *Solid State Chemistry* **Theoretical Solid State Physics** *Physics of Solid-State Laser Materials* **Mass Spectrometry** [Modern Methods in Solid-state NMR](#) [The Oxford Solid State Basics](#) *Solid State Physics* **Solid State Physics** **Computational Chemistry of Solid State Materials** **Advanced Solid State Physics**

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The Solid State May 07 2020

[The Oxford Solid State Basics](#) Oct 31 2019 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.

Solid State Theory Oct 04 2022 DIVThorough, modern study of solid state physics; solid types and symmetry, electron states, electronic properties and cooperative phenomena. /div

Physics of Solid-State Laser Materials Feb 02 2020 This graduate-level text presents the fundamental physics of solid-state lasers, including the basis of laser action and the optical and electronic properties of laser materials. After an overview of the topic, the first part begins with a review of quantum mechanics and solid-state physics, spectroscopy, and crystal field theory; it then treats the quantum theory of radiation, the emission and absorption of radiation, and nonlinear optics; concluding with discussions of lattice vibrations and ion-ion interactions, and their effects on optical properties and laser action. The second part treats specific solid-state laser materials, the prototypical ruby and Nd-YAG systems being treated in greatest detail; and the book concludes with a discussion of novel and non-standard materials. Some knowledge of quantum mechanics and solid-state physics is assumed, but the discussion is as self-contained as possible, making this an excellent reference, as well as useful for independent study.

Mass Spectrometry Jan 03 2020

Solid State Chemistry Apr 05 2020

Solid-State Laser Engineering Jul 21 2021 This book, written from an industrial vantage point, describes the characteristics, design, and operation of solid-state lasers. As the title implies, the emphasis is placed on the technical aspects of these systems rather than on theoretical concepts. Lengthy

mathematical derivations have been avoided because the theory is not treated as an end in itself, but rather serves to explain the experimental results observed in the laboratory. However, there is sufficient theoretical background provided in each chapter to make the book self-contained. Solid-State Laser Engineering is mainly intended for the practicing scientist or engineer who is interested in the design or use of solid-state lasers. The response from readers has shown that the comprehensive treatment of the subject makes the work useful also to students of laser physics who want to supplement their theoretical knowledge with the engineering aspects of lasers. Although not written in the form of a college text, the book might be used in an advanced college course on laser technology. After a historical overview, the book starts with a review of the basic concepts of laser physics (Chap. 1). Analytical expressions of the threshold condition, gain, and output of laser oscillators are derived in Chap. 3. An oscillator followed by one or more amplifiers is a common architecture

in pulsed solid-state laser systems to boost output energy. Energy storage and gain of amplifiers is discussed in Chap. 4. Four chapters deal with the basic subsystems of solid-state lasers. These are the active medium, the optical resonator, the pumping system, and the thermal management. Properties of solid-state laser hosts and active ions are reviewed in Chap. 2.

Solid State Physics Aug 29 2019 Solid State Physics is a textbook for students of physics, material science, chemistry, and engineering. It is the state-of-the-art presentation of the theoretical foundations and application of the quantum structure of matter and materials. This second edition provides timely coverage of the most important scientific breakthroughs of the last decade (especially in low-dimensional systems and quantum transport). It helps build readers' understanding of the newest advances in condensed matter physics with rigorous yet clear mathematics. Examples are an integral part of the text, carefully designed to apply the fundamental principles illustrated in the text to currently active topics of research. Basic concepts and recent advances in the field are explained in tutorial style and organized in an intuitive manner. The book is a basic reference work for students, researchers, and lecturers in any area of solid-state physics. Features additional material on nanostructures, giving students and lecturers the most significant features of low-dimensional systems, with focus on carbon allotropes Offers detailed explanation of dissipative and nondissipative transport, and explains the essential aspects in a field, which is commonly overlooked in textbooks Additional material in the classical and quantum Hall effect offers further aspects on magnetotransport, with particular emphasis on the current profiles Gives a broad overview of the band structure of solids, as well as presenting the foundations of the electronic band structure. Also features reported with new and revised material, which leads to the latest research

Treatise on Solid State Chemistry Mar 17 2021 The last quarter-century has been marked by the extremely rapid growth of the solid-state sciences. They include what is now the largest subfield of physics, and the materials engineering sciences have likewise flourished. And, playing an active role throughout this vast area of science and engineering have been very large numbers of chemists. Yet, even though the role of chemistry in the solid-state sciences has been a vital one and the solid-state sciences have, in turn, made enormous contributions to chemical thought, solid-state chemistry has not been recognized by the general body of chemists as a major subfield of chemistry. Solid-state chemistry is not even well defined as to content. Some, for example, would have it include only the quantum chemistry of solids and would reject thermodynamics and phase equilibria; this is nonsense. Solid-state chemistry has many facets, and one of the purposes of this Treatise is to help define the field. Perhaps the most general characteristic of solid-state chemistry, and one which helps differentiate it from solid-state physics, is its focus on the chemical composition and atomic configuration of real solids and on the relationship of composition and structure to the chemical and physical properties of the solid. Real solids are usually extremely complex and exhibit almost infinite variety in their compositional and structural features.

Advances in Solid State Theory Aug 10 2020 This book will introduce advanced concepts and topics of solid-state theory. To this end we need a tool box that enables us to treat electron–electron interactions, and possibly also electron–phonon or phonon–phonon interactions in some well-defined, appro

Handbook of Solid-State Lasers Jun 07 2020 Solid-state lasers which offer multiple desirable qualities, including enhanced reliability, robustness, efficiency and wavelength diversity, are absolutely indispensable for many applications. The Handbook of solid-state lasers reviews the key materials, processes and applications of solid-state lasers across a wide range of fields. Part one begins by reviewing solid-state laser materials. Fluoride laser crystals, oxide laser ceramics, crystals and fluoride laser ceramics doped by rare earth and transition metal ions are discussed alongside neodymium, erbium and ytterbium laser glasses, and nonlinear crystals for solid-state lasers. Part two then goes on to explore solid-state laser systems and their applications, beginning with a discussion of the principles, powering and operation regimes for solid-state lasers. The use of neodymium-doped materials is considered, followed by system sizing issues with diode-pumped quasi-three level materials, erbium glass lasers, and microchip, fiber, Raman and cryogenic lasers. Laser mid-infrared systems, laser induced breakdown spectroscopy and the clinical applications of surgical solid-state lasers are also explored. The use of solid-state lasers in defense programs is then reviewed, before the book concludes by presenting some environmental applications of solid-state lasers. With its distinguished editors and international team of expert contributors, the Handbook of solid-state lasers is an authoritative guide for all those involved in the design and application of this technology, including laser and materials scientists and engineers, medical and military professionals, environmental researchers, and academics working in this field. Reviews the materials used in solid-state lasers Explores the principles of solid-state laser systems and their applications Considers defence and environmental applications

Solid State Physics Sep 30 2019 Solid State Physics provides a broad introduction to some of the principal areas of the physical phenomena in solid materials and is aimed broadly at undergraduate students of physics and engineering related subjects. The physical properties of materials are intimately related to the crystalline symmetry of atoms as well as the atomic species present. This includes the electronic, mechanical, magnetic and optical properties of all materials. These subjects are treated in depth and provide the reader with the tools necessary for an understanding of the varied phenomena of materials. Particular emphasis is given to the reaction of materials to specific stimuli, such as the application of electric and magnetic fields. Nanotechnologies are based on the formation of nano-sized elements and structures. The final chapter of the book

provides a broad introduction to the topic and uses some of the main tools of solid state physics to explain the behavior of nanomaterials and why they are of importance for future technologies. FEATURES: • Provides a broad introduction to the principal areas of the physical phenomena in solid materials • Includes the electronic, mechanical, magnetic and optical properties of all materials • Explains the behavior of nanomaterials and why they are of importance for future technologies

Solid State Physics Nov 12 2020 The objective of Solid State Physics is to introduce college seniors and first-year graduate students in physics, electrical engineering, materials science, chemistry, and related areas to this diverse and fascinating field. I have attempted to present this complex subject matter in a coherent, integrated manner, emphasizing fundamental scientific ideas to give the student a strong understanding and "feel" for the physics and the orders of magnitude involved. The subject is varied, covering many important, sophisticated, and practical areas, which, at first, may appear unrelated but which are actually built on the same foundation: the bonding between atoms, the periodic translational symmetry, and the resulting electron energy levels. The text is comprehensive enough so that the basics of broad areas of present research are covered, yet flexible enough so that courses of varying lengths can be satisfied. The exercises at the end of each chapter serve to reinforce and extend the text.

Advanced Solid State Physics Jun 27 2019 Introduces students to the key research topics within modern solid state physics with the minimum of mathematics.

Fundamentals of Solid State Engineering Aug 02 2022 Provides a multidisciplinary introduction to quantum mechanics, solid state physics, advanced devices, and fabrication Covers wide range of topics in the same style and in the same notation Most up to date developments in semiconductor physics and nano-engineering Mathematical derivations are carried through in detail with emphasis on clarity Timely application areas such as biophotonics , bioelectronics

Solid State Materials Chemistry Aug 22 2021 A modern and thorough treatment of the field for upper-level undergraduate and graduate courses in materials science and chemistry.

Solid State Nov 05 2022 Acclaimed Beatles historian Kenneth Womack offers the most definitive account yet of the writing, recording, mixing, and reception of Abbey Road. In February 1969, the Beatles began working on what became their final album together. Abbey Road introduced a number of new techniques and technologies to the Beatles' sound, and included "Come Together," "Something," and "Here Comes the Sun," which all emerged as classics. Womack's colorful retelling of how this landmark album was written and recorded is a treat for fans of the Beatles. Solid State takes readers back to 1969 and into EMI's Abbey Road Studio, which boasted an advanced solid state transistor mixing desk. Womack focuses on the dynamics between John, Paul, George, Ringo, and producer George Martin and his team of engineers, who set aside (for the most part) the tensions and conflicts that had arisen on previous albums to create a work with an innovative (and, among some fans and critics, controversial) studio-bound sound that prominently included the new Moog synthesizer, among other novelties. As Womack shows, Abbey Road was the culmination of the instrumental skills, recording equipment, and artistic vision that the band and George Martin had developed since their early days in the same studio seven years earlier. A testament to the group's creativity and their producer's ingenuity, Solid State is required reading for all fans of the Beatles and the history of rock 'n' roll.

Luminescence and the Solid State Feb 13 2021 Since the discovery of the transistor in 1948, the study of the solid state has been burgeoning. Recently, cold fusion and the ceramic superconductor have given cause for excitement. There are two approaches possible to this area of science, namely, that of solid state physics and solid state chemistry, although both overlap extensively. The former is more concerned with electronic states in solids (including electromagnetics) whereas the latter is more concerned with interactions of atoms in solids. The area of solid state physics is well documented, however, there are very few texts which deal with solid state chemistry. Luminescence and the Solid State has been written to fulfil this need. The concepts regarding luminescence and phosphors are unique and have been covered extensively providing a useful reference source for anyone requiring such knowledge as a basis for further study. The discussion on the defect state, which is handled in chapter two, can be applied to many other systems, e.g. ceramic superconductors. The book has extensive, useful equations and figures, the derivations of which are simple and easy to follow. This useful, comprehensive text can be used for self-study and should also prove invaluable in a graduate study as an introduction to the solid state and luminescence.

Solid State Chemistry Apr 17 2021 Solid State Chemistry is a general textbook, composed for those with little background knowledge of the subject, but who wish to learn more about the various segments of solid state theory and technology. The information is presented in a form that can easily be understood and will be useful to readers wishing to build on their own store of knowledge and experience. Well presented in easy to understand format Informative textbook aimed primarily at the novice Comprehensively covers the segments of solid state theory and technology

The Oxford Solid State Basics Dec 26 2021 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.

Solid State Properties Jun 19 2021 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 elementary undergraduate quantum mechanics and statistical mechanics. This book, based on a successful course taught at MIT, is divided pedagogically into three parts: (I) Electronic Structure, (II) Transport Properties, and (III) Optical Properties. Each topic is explained in the context of bulk materials and then extended to low-dimensional materials where applicable. Problem sets review the content of each chapter to help students to understand the material described in each of the chapters more deeply and to prepare them to master the next chapters.

Theoretical Solid State Physics Mar 05 2020 Used widely in courses and frequently sought as a reference, this 2-volume work features comprehensive coverage of its subject. Volume 1 examines the fundamental theory of equilibrium properties of perfect crystalline solids. Volume 2 addresses non-equilibrium properties, defects, and disordered systems. 1973 edition.

Magnetism in the Solid State Feb 25 2022 This book presents a phenomenological approach to the field of solid state magnetism. It surveys the various theories and discusses their applicability in different types of materials. The text will be valuable as a text for graduate courses in magnetism and magnetic materials.

Fundamentals of Solid-State Electronics Apr 29 2022 This Solution Manual, a companion volume of the book, Fundamentals of Solid-State Electronics, provides the solutions to selected problems listed in the book. Most of the solutions are for the selected problems that had been assigned to the engineering undergraduate students who were taking an introductory device core course using this book. This Solution Manual also contains an extensive appendix which illustrates the application of the fundamentals to solutions of state-of-the-art transistor reliability problems which have been taught to advanced undergraduate and graduate students. This book is also available as a set with Fundamentals of Solid-State Electronics and Fundamentals of Solid-State Electronics — Study Guide.

Understanding Solid State Physics Jul 09 2020 Enables students to easily grasp basic solid state physics principles Keeping the mathematics to a minimum yet losing none of the required rigor, Understanding Solid State Physics clearly explains basic physics principles to provide a firm grounding in the subject. The author underscores the technological applications of the physics discussed and emphasizes the multidisciplinary nature of scientific research. After introducing students to solid state physics, the text examines the various ways in which atoms bond together to form crystalline and amorphous solids. It also describes the measurement of mechanical properties and the means by which the mechanical properties of solids can be altered or supplemented for particular applications. The author discusses how electromagnetic radiation interacts with the periodic array of atoms that make up a crystal and how solids react to heat on both atomic and macroscopic scales. She then focuses on conductors, insulators, semiconductors, and superconductors, including some basic semiconductor devices. The final chapter addresses the magnetic properties of solids as well as applications of magnets and magnetism. This accessible textbook provides a useful introduction to solid state physics for undergraduates who feel daunted by a highly mathematical approach. By relating the theories and concepts to practical applications, it shows how physics is used in the real world.

Solid State Chemistry and Its Applications Oct 12 2020 The first broad account offering a non-mathematical, unified treatment of solid state chemistry. Describes synthetic methods, X-ray diffraction, principles of inorganic crystal structures, crystal chemistry and bonding in solids; phase diagrams of 1, 2 and 3 component systems; the electrical, magnetic, and optical properties of solids; three groups of industrially important inorganic solids--glass, cement, and refractories; and certain aspects of organic solid state chemistry, including the "organic metal" of new materials.

Computational Chemistry of Solid State Materials Jul 29 2019 This is the first book to present both classical and quantum-chemical approaches to computational methods, incorporating the many new developments in this field from the last few years. Written especially for "non"-theoretical readers in a readily comprehensible and implemental style, it includes numerous practical examples of varying degrees of difficulty. Similarly, the use of mathematical equations is reduced to a minimum, focusing only on those important for experimentalists. Backed by many extensive tables containing detailed data for direct use in the calculations, this is the ideal companion for all those wishing to improve their work in solid state research.

Solid State Theory Nov 24 2021 "Solid-State Theory - An Introduction" is a textbook for graduate students of physics and material sciences. Whilst covering the traditional topics of older textbooks, it also takes up new developments in theoretical concepts and materials that are connected with such breakthroughs as the quantum-Hall effects, the high-T_c superconductors, and the low-dimensional systems realized in solids. Thus besides providing the fundamental concepts to describe the physics of the electrons and ions comprising the solid, including their interactions, the book casts a bridge to the experimental facts and gives the reader an excellent insight into current research fields. A compilation of problems makes the book especially valuable to both students and teachers.

Solid-State Physics Dec 14 2020 While the standard solid state topics are covered, the basic ones often have more detailed derivations than is customary (with an emphasis 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.

Foundations of Solid State Physics Mar 29 2022 An essential guide to solid state physics through the lens of dimensionality and symmetry *Foundations of Solid State Physics* introduces the essential topics of solid state physics as taught globally with a focus on understanding the properties of solids from the viewpoint of dimensionality and symmetry. Written in a conversational manner and designed to be accessible, the book contains a minimal amount of mathematics. The authors' noted experts on the topic offer an insightful review of the basic topics, such as the static and dynamic lattice in real space, the reciprocal lattice, electrons in solids, and transport in materials and devices. The book also includes more advanced topics: the quasi-particle concept (phonons, solitons, polarons, excitons), strong electron-electron correlation, light-matter interactions, and spin systems. The authors' approach makes it possible to gain a clear understanding of conducting polymers, carbon nanotubes, nanowires, two-dimensional chalcogenides, perovskites and organic crystals in terms of their expressed dimension, topological connectedness, and quantum confinement. This important guide: -Offers an understanding of a variety of technology-relevant solid-state materials in terms of their dimension, topology and quantum confinement -Contains end-of-chapter problems with different degrees of difficulty to enhance understanding -Treats all classical topics of solid state physics courses - plus the physics of low-dimensional systems Written for students in physics, material sciences, and chemistry, lecturers, and other academics, *Foundations of Solid State Physics* explores the basic and advanced topics of solid state physics with a unique focus on dimensionality and symmetry.

Solid State Physics Jan 15 2021 This book emphasizes the physical principles underlying the theoretical interpretation of the basic crystalline, electric and magnetic properties of solids. Its self-contained chapters are widely used as a reference and provide invaluable grounding for physicists and metallurgists.

ELEMENTS OF SOLID STATE PHYSICS Jul 01 2022 This revised and updated Fourth Edition of the text builds on the strength of previous edition and gives a systematic and clear exposition of the fundamental principles of solid state physics. The text covers the topics, such as crystal structures and chemical bonds, semiconductors, dielectrics, magnetic materials, superconductors, and nanomaterials. What distinguishes this text is the clarity and precision with which the author discusses the principles of physics, their relations as well as their applications. With the introduction of new sections and additional information, the fourth edition should prove highly useful for the students. This book is designed for the courses in solid state physics for B.Sc. (Hons.) and M.Sc. students of physics. Besides, the book would also be useful to the students of chemistry, material science, electrical/electronic and allied engineering disciplines. New to the Fourth Edition • Solved examples have been introduced to explain the fundamental principles of physics. • Matrix representation for symmetry operations has been introduced in Chapter 1 to enable the use of Group Theory for treating crystallography. • A section entitled 'Other Contributions to Heat Capacity', has been introduced in Chapter 5. • A statement on 'Kondo effect (minimum)' has been added in Chapter 14. • A section on 'Graphenes' has been introduced in Chapter 16. • The section on 'Carbon Nanotubes', in Chapter 16 has been revised. • A "Lesson on Group Theory", has been added as Appendix.

Solid State Physics May 31 2022 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.

Fundamentals of Solid-state Electronics Oct 24 2021 This Solution Manual, a companion volume of the book, *Fundamentals of Solid-State Electronics*, provides the solutions to selected problems listed in the book. Most of the solutions are for the selected problems that had been assigned to the engineering undergraduate students who were taking an introductory device core course using this book. This Solution Manual also contains an extensive appendix which illustrates the application of the fundamentals to solutions of state-of-the-art transistor reliability problems which have been taught to advanced undergraduate and graduate students.

Principles of the Solid State Sep 10 2020 Uses an integrated, scientists' approach to the principles regulating the synthesis, structure and physical characteristics of crystalline solids. Mathematical derivations are kept to a minimum. Covers electrical properties of metals and band semiconductors, superionic conductors, ferrites and solid electrolytes. Features end-of-chapter problem sets.

Symmetry Principles in Solid State and Molecular Physics Jan 27 2022 High-level text applies group theory to physics problems, develops methods for solving molecular vibration problems and for determining the form of crystal tensors, develops translational properties of crystals, more. 1974 edition.

Solid State NMR Studies of Biopolymers May 19 2021 The content of this volume has been added to MagRes (formerly Encyclopedia of Magnetic Resonance) - the http://onlinelibrary.wiley.com/book/10.1002/9780470034590/homepage/rf_coils_virtual_issue.htm?cm=on-chem&cs=chem-analytic&cu=sitename-In&cd=sitename-In-MRIgroup-VI ultimate online resource for NMR and MRI/a. The field of solid state NMR of biological samples [ssNMR] has blossomed in the past 5-10 years, and a cohesive overview of the technology is needed for new practitioners in industry and academia. This title provides an overview of Solid State NMR methods for studying structure dynamics and ligand-

binding in biopolymers, and offers an overview of RF pulse sequences for various applications, including not only a systematic catalog but also a discussion of theoretical tools for analysis of pulse sequences. Practical examples of biochemical applications are included, along with a detailed discussion of the many aspects of sample preparation and handling that make spectroscopy on solid proteins successful. About EMR Handbooks / eMagRes Handbooks The Encyclopedia of Magnetic Resonance (up to 2012) and eMagRes (from 2013 onward) publish a wide range of online articles on all aspects of magnetic resonance in physics, chemistry, biology and medicine. The existence of this large number of articles, written by experts in various fields, is enabling the publication of a series of EMR Handbooks / eMagRes Handbooks on specific areas of NMR and MRI. The chapters of each of these handbooks will comprise a carefully chosen selection of articles from eMagRes. In consultation with the eMagRes Editorial Board, the EMR Handbooks / eMagRes Handbooks are coherently planned in advance by specially-selected Editors, and new articles are written (together with updates of some already existing articles) to give appropriate complete coverage. The handbooks are intended to be of value and interest to research students, postdoctoral fellows and other researchers learning about the scientific area in question and undertaking relevant experiments, whether in academia or industry. Have the content of this Handbook and the complete content of eMagRes at your fingertips! Visit: <http://www.wileyonlinelibrary.com/ref/eMagRes> View other eMagRes publications http://onlinelibrary.wiley.com/book/10.1002/9780470034590/homepage/emagres_publications.htm target="_blank" here/a

Modern Methods in Solid-state NMR Dec 02 2019 Solid-state NMR covers an enormous range of material types and experimental techniques. Although the basic instrumentation and techniques of solids NMR are readily accessible, there can be significant barriers, even for existing experts, to exploring the bewildering array of more sophisticated techniques. In this unique volume, a range of experts in different areas of modern solid-state NMR explain about their area of expertise, emphasising the “practical aspects” of implementing different techniques, and illustrating what questions can and cannot be addressed. Later chapters address complex materials, showing how different NMR techniques discussed in earlier chapters can be brought together to characterise important materials types. The volume as a whole focusses on topics relevant to the developing field of “NMR crystallography” – the use of solids NMR as a complement to diffraction crystallography. This book is an ideal complement to existing introductory texts and reviews on solid-state NMR. New researchers wanting to understand new areas of solid-state NMR will find each chapter to be the equivalent to spending time in the laboratory of an internationally leading expert, learning the hints and tips that make the difference between knowing about a technique and being ready to put it into action. With no equivalent on the market, it will be of interest to every solid-state NMR researcher (academic and postgraduate) working in the chemical sciences.

Solid State Theory Sep 22 2021 "Solid-State Theory - An Introduction" is a textbook for graduate students of physics and material sciences. Whilst covering the traditional topics of older textbooks, it also takes up new developments in theoretical concepts and materials that are connected with such breakthroughs as the quantum-Hall effects, the high-T_c superconductors, and the low-dimensional systems realized in solids. Thus besides providing the fundamental concepts to describe the physics of the electrons and ions comprising the solid, including their interactions, the book casts a bridge to the experimental facts and gives the reader an excellent insight into current research fields. A compilation of problems makes the book especially valuable to both students and teachers.

New Directions in Solid State Chemistry Sep 03 2022 In the new edition of this widely praised textbook, all the chapters have been revised and the authors have brought the work completely up to date by the addition of new material on numerous topics. In recent years, solid state chemistry has emerged as a very important element of mainstream chemistry and materials science. Students, teachers and researchers need to understand the chemistry of solids because of the crucial role this plays in determining the properties of materials. An understanding of solid state chemistry is also essential in materials design, and many fascinating relationships between the structure and properties of solids have been discovered by chemists. This text requires only an understanding of basic physics, chemistry and crystallography, and is enhanced with the most recent examples, case studies and references. It will be of value to advanced students and researchers studying solid state chemistry and materials science as a text and reference work.