Download Ebook Basic Concepts Of Crystallography Read Pdf Free

Basic Concepts of Crystallography Introduction to Crystallography **Introduction to Crystallography** Crystallography and Crystal Defects Crystallography of Quasicrystals **Introduction to Crystallography** Crystallography and Crystal Defects **Electron Crystallography Basic Elements of Crystallography Crystallography** Pharmaceutical Crystallography *The Basics of Crystallography and Diffraction* **International Tables for Crystallography: Space-group symmetry Crystallography Made Crystal Clear Crystallography and Crystal Defects Fundamentals of X-ray Crystallography** The Basics of Crystallography and Diffraction **International Tables for Crystallography,Volume C Crystallography** *Foundations of Crystallography with Computer Applications International Tables for Crystallography, Definition and Exchange of Crystallographic Data* **Fundamentals of Crystallography An Introduction to X-ray Crystallography** Fundamentals of Crystallography **Numerical Problems in Crystallography Crystallography Handbook of Crystallography Crystallography of Quasicrystals** *Geometry of Crystals, Polycrystals, and Phase Transformations* **Structure of Materials The Basics of Crystallography and Diffraction** Foundations of Crystallography with Computer Applications *Structure Determination by X-Ray Crystallography Basic Elements of Crystallography, Second Edition* **Handbook of Crystallography** Introduction to Mineralogy **Raman Spectroscopy in Graphene Related Systems Early Days of X-ray Crystallography** *Crystal Structure Determination* Pharmaceutical Crystals

Foundations of Crystallography with Computer Applications Mar 05 2020 Taking a straightforward, logical approach that emphasizes symmetry and crystal relationships, Foundations of Crystallography with Computer Applications, Second Edition provides a thorough explanation of the topic for students studying the solid state in chemistry, physics, materials science, geological sciences, and engineering. It is also written **Crystallography of Quasicrystals** Jul 09 2020 From tilings to quasicrystal structures and from surfaces to the n-dimensional approach, this book gives a full, self-contained in-depth description of the crystallography of quasicrystals. It aims not only at conveying the concepts and a precise picture of the structures of quasicrystals, but it also enables the interested reader to enter the field of quasicrystal structure analysis. Going beyond metallic quasicrystals, it also describes the new, dynamically growing field of photonic quasicrystals. The readership will be graduate students and researchers in crystallography, solid-state physics, materials science, solid- state chemistry and applied mathematics. *International Tables for Crystallography, Definition and Exchange of Crystallographic Data* Feb 13 2021 International Tables for Crystallography Volume G, Definition and

exchange of crystallographic data, describes the standard data exchange and archival file format (the Crystallographic Information File, or CIF) used throughout crystallography. It provides in-depth information vital for small-molecule, inorganic and macromolecular crystallographers, mineralogists, chemists, materials scientists, solid-state physicists and others who wish to record or use the results of a single-crystal or powder diffraction experiment. The volume also provides the detailed data ontology necessary for programmers and database managers to design interoperable computer applications. The accompanying CD-ROM contains the CIF dictionaries in machine-readable form and a collection of libraries and utility programs. This volume is an essential guide and reference for programmers of crystallographic software, data managers handling crystal-structure information and practising crystallographers who need to use CIF.
Crystallography of Quasicrystals Jul 01 2022 From tilings to quasicrystal structures and from surfaces to the n-dimensional approach, this book gives a full, self-contained in-depth description of the crystallography of quasicrystals. It aims not only at conveying the concepts and a precise picture of the structures of quasicrystals, but it also enables the interested reader to enter the field of quasicrystal structure analysis. Going beyond metallic quasicrystals, it also describes the new, dynamically growing field of photonic quasicrystals. The readership will be graduate students and researchers in crystallography, solid-state physics, materials science, solid- state chemistry and applied mathematics.
International Tables for Crystallography: Space-group symmetry Oct 24 2021
Foundations of Crystallography with Computer Applications Mar 17 2021 X-ray crystallography provides a unique opportunity to study the arrangement of atoms in a molecule. This book's modern computer-graphics centered approach facilitates the extrapolation of these valuable observations. A unified treatment of crystal systems, the book explains how atoms are arranged in crystals using the metric matrix. Featuring t
Introduction to Crystallography Sep 03 2022 This book invites you on a systematic tour through the fascinating world of crystals and their symmetries. The reader will gain an understanding of the symmetry of external crystal forms (morphology) and become acquainted with all the symmetry elements needed to classify and describe crystal structures. The book explains the context in a very vivid, non-mathematical way and captivates with clear, high-quality illustrations. Online materials accompany the book; including 3D models the reader can explore on screen to aid in the spatial understanding of the structure of crystals. After reading the book, you will not only know what a space group is and how to read the International Tables for Crystallography, but will also be able to interpret crystallographic specifications in specialist publications. If questions remain, you also have the opportunity to ask the author on the book's website.
Introduction to Mineralogy Oct 31 2019 The first edition of this book has been out of print for seven years. The ques tion as to whether a new edition should be produced was answered affirmatively on many counts. I think that the considerations which led me to write this book in 1949 are still valid (see Preface to the First Edition). Moreover, a description of those areas of interest which together comprise the field of Mineralogy seems to be more necessary than ever, because of the rapid advances which have been made. Due to the rapid extension of our knowledge, I did not dare again to treat the whole field by myself. Accordingly, Professor ZEMANN kindly agreed to revise the first part of the book

dealing with Crystallography. He made many important corrections. In Part II the basic question arose as to whether the physical-chemical approach to rock forming processes, becoming more and more important, required inclusive treatment of the fundamentals of physical chemistry in the book. I see certain dangers in trying to produce a petrology text which is physical chemically self-sufficient. Thus, I retain the same opinion which prevailed when I wrote the previous edition; namely that the necessary basic knowledge should be acquired in lectures and laboratory classes in physics, chemistry, and physical chemistry, and with the help of standard literature dealing with these subjects. This back ground is, therefore, presumed and fundamentals are only referred to occasionally.

Basic Concepts of Crystallography Nov 05 2022 Written by an experienced university teacher, this textbook is based on the author's lectures, and is designed to answer students' questions rather than delving into obscure details. The well-balanced approach gives precedence to a visual, intuitive understanding, with only as much math as is necessary. The author covers the topic of symmetry in crystals from basic elements to physical properties, backed by numerous clear-cut illustrations and easy-to-read crystallographic tables. The result is a compact and self-contained treatment suitable for crystallography courses in physics, chemistry, materials science and biology - irrespective of the academic background.

Fundamentals of X-ray Crystallography Jul 21 2021 FUNDAMENTALS OF X-RAY CRYSTALLOGRAPHY is based on the author's research and teaching experience over many years. Using geometric concepts and methods it systematically analyses and deduces the crystal symmetry principle and the crystal diffraction theory, establishing distinctive three-dimensional concepts which are easy to understand, grasp and apply. The whole book is divided into three parts: geometric crystallography principles, micro-space symmetry principle and basic principle of X-ray diffraction in crystal. The first and second section carry an in-depth discussion and analysis on macro-symmetry, micro-symmetry and symmetrical composition law of crystal respectively using the principle that the symmetric distribution of equivalent point in space is consistent space symmetry. The first two sections also systematically deduce the thirty two point groups and two hundred thirty micro-space symmetric combinations. Section three details Laue scattering equation and Prague reflection equation and describes practical use of several important single crystal diffraction methods and apparatus on the basis of mutual relations between crystal lattice and its reciprocal lattice, using reciprocal lattice and reflection ball mathematical model and their interaction relation. In addition, starting from the principle that reciprocal lattice point system disappearance caused by translation vector in microscopic crystal space, it states system extinction law of diffraction, and deduces one hundred twenty diffraction groups. This book lays the foundation for study of crystallography, crystal structure analysis and protein crystallography. It is a must-have for undergraduate and postgraduate students and a very good reference for researchers engaged in relevant studies.

Handbook of Crystallography Dec 02 2019 This book resulted from a series of frustrations. Analytical electron microscopy requires exactly what its name implies: quantitative information to conduct an analysis. The frustrations arose when I started hunting for specific forms of equations in a form understandable to a non-crystaHographer, for definitions of subtle concepts related to crystallography, for intelligible interpretations of

space group symbols and their significance. What I frequently discovered was that such information was buried in a giant tome and couched in terms familiar to crystallographers but not to electron microscopists in general, or it was located in an old reference not available in my library, or it was found in an out-of-print book, or it was in a Russian book no longer available, etc. So to minimize the frustrations, I started a notebook containing the details, particularly after I had found forms of equations useful for quick calculations or equations in a form useful for proving, doing, or extending calculations found in a reference. The resulting notebook grew to a respectable size, requiring some organizing of the contents. Finally, the size became large enough, and has proven useful enough, to produce the notebook as a book.

International Tables for Crystallography,Volume C May 19 2021 International Tables for Crystallography are no longer available for purchase from Springer. For further information please contact Wiley Inc. (follow the link on the right hand side of this page). The purpose of Volume C is to provide the mathematical, physical and chemical information needed for experimental studies in structural crystallography. The volume covers all aspects of experimental techniques, using all three principal radiation types, from the selection and mounting of crystals and production of radiation, through data collection and analysis, to interpretation of results. As such, it is an essential source of information for all workers using crystallographic techniques in physics, chemistry, metallurgy, earth sciences and molecular biology.

Introduction to Crystallography May 31 2022 Clear, concise explanation of logical development of basic crystallographic concepts. Topics include crystals and lattices, symmetry, x-ray diffraction, and more. Problems, with answers. 114 illustrations. 1969 edition.

Crystallography and Crystal Defects Aug 22 2021 Crystallography and Crystal Defects Revised Edition A. Kelly, Churchill College, Cambridge, UK G. W. Groves, Exeter College, Oxford, UK and P. Kidd, Queen Mary and Westfield College, University of London, UK The concepts of crystallography are introduced here in such a way that the physical properties of crystals, including their mechanical behaviour, can be better understood and quantified. A unique approach to the treatment of crystals and their defects is taken in that the often separate disciplines of crystallography, tensor analysis, elasticity and dislocation theory are combined in such a way as to equip materials scientists with knowledge of all the basic principles required to interpret data from their experiments. This is a revised and updated version of the widely acclaimed book by Kelly and Groves that was first published nearly thirty years ago. The material remains timely and relevant and the first edition still holds an unrivalled position at the core of the teaching of crystallography and crystal defects today. Undergraduate readers will acquire a rigorous grounding, from first principles, in the crystal classes and the concept of a lattice and its defects and their descriptions using vectors. Researchers will find here all the theorems of crystal structure upon which to base their work and the equations necessary for calculating interplanar spacings, transformation of indices and manipulations involving the stereographic projection and transformations of tensors and matrices.

The Basics of Crystallography and Diffraction Apr 05 2020 This book provides a clear introduction to topics which are essential to students in a wide range of scientific disciplines

but which are otherwise only covered in specialised and mathematically detailed texts. It shows how crystal structures may be built up from simple ideas of atomic packing and co-ordination, it develops the concepts of crystal symmetry, point and space groups by way of two dimensional examples of patterns and tilings, it explains the concept of the reciprocal lattice in simple terms and shows its importance in an understanding of light, X-ray and electron diffraction. Practical examples of the applications of these techniques are described and also the importance of diffraction in the performance of optical instruments. The book is also of value to the general reader since it shows, by biographical and historical references, how the subject has developed and thereby indicates some of the excitement of scientific discovery.

The Basics of Crystallography and Diffraction Jun 19 2021 Crystallography and diffraction are widely used throughout many branches of science for studying structure. However, many students find these subjects abstruse and difficult. The aim of this book is to show, through relevant examples and without relying on complex mathematics, that the basic ideas behind crystallography and diffraction are simple and easily comprehensible. It is written by an experienced teacher with the needs of the student to the fore.

Structure Determination by X-Ray Crystallography Feb 02 2020 Crystallography may be described as the science of the structure of materi als, using this word in its widest sense, and its ramifications are apparent over a broad front of current scientific endeavor. It is not surprising, therefore, to find that most universities offer some aspects of crystallography in their undergraduate courses in the physical sciences. It is the principal aim of this book to present an introduction to structure determination by X-ray crystal lography that is appropriate mainly to both final-year undergraduate studies in crystallography, chemistry, and chemical physics, and introductory post graduate work in this area of crystallography. We believe that the book will be of interest in other disciplines, such as physics, metallurgy, biochemistry, and geology, where crystallography has an important part to play. In the space of one book, it is not possible either to cover all aspects of crystallography or to treat all the subject matter completely rigorously. In particular, certain mathematical results are assumed in order that their applications may be discussed. At the end of each chapter, a short bibliog raphy is given, which may be used to extend the scope of the treatment given here. In addition, reference is made in the text to specific sources of information. We have chosen not to discuss experimental methods extensively, as we consider that this aspect of crystallography is best learned through practical experience, but an attempt has been made to simulate the interpretive side of experimental crystallography in both examples and exercises.

Crystallography Jan 27 2022 A long history -- Symmetry -- Crystal structures -- Diffraction -- Seeing atoms -- Sources of radiation

Early Days of X-ray Crystallography Aug 29 2019 2012 marked the centenary of one of the most significant discoveries of the early twentieth century, the discovery of X-ray diffraction (March 1912, by Laue, Friedrich, and Knipping) and of Bragg's law (November 1912). The discovery of X-ray diffraction confirmed the wave nature of X-rays and the space-lattice hypothesis. It had two major consequences: the analysis of the structure of atoms, and the determination of the atomic structure of materials. This had a momentous impact in chemistry, physics, mineralogy, material science, and biology. This book relates

the discovery itself, the early days of X-ray crystallography, and the way the news of the discovery spread round the world. It explains how the first crystal structures were determined, and recounts which were the early applications of X-ray crystallography. It also tells how the concept of space lattice has developed since ancient times, and how our understanding of the nature of light has changed over time. The contributions of the main actors of the story, prior to the discovery, at the time of the discovery and immediately afterwards, are described through their writings and are put into the context of the time, accompanied by brief biographical details.

Basic Elements of Crystallography, Second Edition Jan 03 2020 This book is intended to be a complete and clear introduction to the field of crystallography. It includes an extensive discussion on the 14 Bravais lattices and the reciprocal to them, basic concepts of point- and space-group symmetry, the crystal structure of elements and binary compounds, and much more. The purpose of this textbook is to illustrate rather than describe "using many words" the structure of materials. Even readers who are completely not familiar with the topic, but still want to learn how the atoms are arranged in crystal structures, will find this book useful. Each chapter is accompanied by exercises designed in such a way to encourage students to explore the different crystal structures they are learning about. The solutions to exercises are provided at the end of the textbook.

Introduction to Crystallography Oct 04 2022 This text takes the reader step by step through the basic concepts of crystallography, and provides an account of symmetry and crystal structures. This revised edition features a final chapter on the geometrical construction of diffraction patterns.

Crystallography and Crystal Defects Apr 29 2022 The classic book that presents a unified approach to crystallography and the defects found within crystals, revised and updated This new edition of Crystallography and Crystal Defects explains the modern concepts of crystallography in a clear, succinct manner and shows how to apply these concepts in the analyses of point, line and planar defects in crystalline materials. Fully revised and updated, this book now includes: Original source references to key crystallographic terms familiar to materials scientists Expanded discussion on the elasticity of cubic materials New content on texture that contains more detail on Euler angles, orientation distribution functions and an expanded discussion on examples of textures in engineering materials Additional content on dislocations in materials of symmetry lower than cubic An expanded discussion of twinning which includes the description and classification of growth twins The inclusion and explanation of results from atomistic modelling of twin boundaries Problem sets with new questions, detailed worked solutions, supplementary lecture material and online computer programs for crystallographic calculations. Written by authors with extensive lecturing experience at undergraduate level, Crystallography and Crystal Defects, Third Edition continues to take its place as the core text on the topic and provides the essential resource for students and researchers in metallurgy, materials science, physics, chemistry, electrical, civil and mechanical engineering.

An Introduction to X-ray Crystallography Dec 14 2020 A textbook for the student beginning a serious study of X-ray crystallography.

Numerical Problems in Crystallography Oct 12 2020 This book aims at enhancing the understanding of topics in crystallography through solving numerical problems. Designed

into nine chapters on major topics in crystallography, the book deals with more than 600 carefully selected solved examples, problems, and multiple-choice questions. Unit cell composition, construction and calculations, Miller indices, structure factor calculations, and X-ray diffraction methods are some of the many useful topics discussed in this book. Each chapter begins with a brief theoretical explanation of the topic followed by solved numerical examples for further clarity on the subject. The topic “crystallography” is interdisciplinary in nature. Its rudimentary knowledge, therefore, is essential to the beginners in physics, chemistry, mathematics, molecular biology, geology, metallurgy, and particularly materials science and mineralogy. This book also is of immense value to senior undergraduate and graduate students of physics, chemistry, and other basic sciences.
The Basics of Crystallography and Diffraction Nov 24 2021 This book provides a clear introduction to topics which are essential to students in a wide range of scientific disciplines but which are otherwise only covered in specialised and mathematically detailed texts. It shows how crystal structures may be built up from simple ideas of atomic packing and co-ordination, it develops the concepts of crystal symmetry, point and space groups by way of two dimensional examples of patterns and tilings, it explains the concept of the reciprocal lattice in simple terms and shows its importance in an understanding of light, X-ray and electron diffraction. Practical examples of the applications of these techniques are described and also the importance of diffraction in the performance of optical instruments. The book is also of value to the general reader since it shows, by biographical and historical references, how the subject has developed and thereby indicates some of the excitement of scientific discovery.
Geometry of Crystals, Polycrystals, and Phase Transformations Jun 07 2020 Organized into a two-part structure aimed at readers of differing experience levels, Geometry of Crystals, Polycrystals, and Phase Transformations is accessible to both newcomers and advanced researchers within the field of crystallography. The first part of the text covers what any reader in the material sciences, physics, chemistry, earth sciences and natural sciences in general should know about crystallography. It is intentionally concise and covers sufficient material to form a firm foundation. The second part is aimed at researchers and discusses phase transformations, deformations, and interface crystallography in depth. The phase transformations are limited to those dominated by crystallography. The entire book contains worked examples and uniquely deals not just with crystals but aggregates of crystals and solid-state transformations between crystals.
Crystallography and Crystal Defects Aug 02 2022 Crystallography and Crystal Defects Revised Edition A. Kelly, Churchill College, Cambridge, UK G. W. Groves, Exeter College, Oxford, UK and P. Kidd, Queen Mary and Westfield College, University of London, UK The concepts of crystallography are introduced here in such a way that the physical properties of crystals, including their mechanical behaviour, can be better understood and quantified. A unique approach to the treatment of crystals and their defects is taken in that the often separate disciplines of crystallography, tensor analysis, elasticity and dislocation theory are combined in such a way as to equip materials scientists with knowledge of all the basic principles required to interpret data from their experiments. This is a revised and updated version of the widely acclaimed book by Kelly and Groves that was first published nearly thirty years ago. The material remains timely and relevant and the first

edition still holds an unrivalled position at the core of the teaching of crystallography and crystal defects today. Undergraduate readers will acquire a rigorous grounding, from first principles, in the crystal classes and the concept of a lattice and its defects and their descriptions using vectors. Researchers will find here all the theorems of crystal structure upon which to base their work and the equations necessary for calculating interplanar spacings, transformation of indices and manipulations involving the stereographic projection and transformations of tensors and matrices.

Pharmaceutical Crystals Jun 27 2019 An important resource that puts the focus on understanding and handling of organic crystals in drug development Since a majority of pharmaceutical solid-state materials are organic crystals, their handling and processing are critical aspects of drug development. Pharmaceutical Crystals: Science and Engineering offers an introduction to and thorough coverage of organic crystals, and explores the essential role they play in drug development and manufacturing. Written contributions from leading researchers and practitioners in the field, this vital resource provides the fundamental knowledge and explains the connection between pharmaceutically relevant properties and the structure of a crystal. Comprehensive in scope, the text covers a range of topics including: crystallization, molecular interactions, polymorphism, analytical methods, processing, and chemical stability. The authors clearly show how to find solutions for pharmaceutical form selection and crystallization processes. Designed to be an accessible guide, this book represents a valuable resource for improving the drug development process of small drug molecules. This important text: Includes the most important aspects of solid-state organic chemistry and its role in drug development Offers solutions for pharmaceutical form selection and crystallization processes Contains a balance between the scientific fundamental and pharmaceutical applications Presents coverage of crystallography, molecular interactions, polymorphism, analytical methods, processing, and chemical stability Written for both practicing pharmaceutical scientists, engineers, and senior undergraduate and graduate students studying pharmaceutical solid-state materials, Pharmaceutical Crystals: Science and Engineering is a reference and textbook for understanding, producing, analyzing, and designing organic crystals which is an imperative skill to master for anyone working in the field.

Basic Elements of Crystallography Feb 25 2022 A complete & clear introduction to the field of crystallography including an extensive discussion of the 14 Bravais lattices & the reciprocal to them, basic concepts of point group symmetry, the crystal structure of elements & binary compounds, & much more.

Crystal Structure Determination Jul 29 2019 A concise introduction to modern crystal structure determination, emphasizing both the crystallographic background and the successive practical steps. In the theoretical sections, more importance is attached to a good understanding, than to a rigorous mathematical treatment. The most important measuring techniques, including the use of modern area detectors, and the methods of data reduction, structure solution and refinement are discussed from a practical point of view. Special emphasis is put on the ability to recognize and avoid possible errors and traps, and to judge the quality of results.

Fundamentals of Crystallography Jan 15 2021 Offers a rigorous treatment of the theory of crystallography and detailed descriptions of experimental applications in a wide range of

sciences, including computational aspects, protein crystallography and crystal physics.
Fundamentals of Crystallography Nov 12 2020 A crystal, also known as crystalline solid is a solid material whose components like atoms, ions and molecules are arranged in highly ordered microscopic structure which forms a crystal lattice that is extendable in any direction. The field of science that deals with the determination of arrangement of atoms in crystalline solids is known as crystallography. It focuses on measuring the crystal structure. It also studies how crystals are formed. X-ray crystallography, and electron and neutron diffraction are the techniques used to determine the structure of the crystals. X-ray crystallography is the method of determining the molecular and atomic structures of the crystals. Electron diffraction is the technique of determining the wave nature of electrons. Neutron crystallography is used for determining the magnetic and atomic structure of the crystals. The topics included in this book related to the field of crystallography are of utmost significance and bound to provide incredible insights to readers. It is compiled in such a manner, that it will provide an in-depth knowledge about the theory and practice of crystallography. In this book, constant effort has been made to make the understanding of difficult concepts related to the field of crystallography as easy and informative as possible, for the readers.

Handbook of Crystallography Aug 10 2020 This book resulted from a series of frustrations. Analytical electron microscopy requires exactly what its name implies: quantitative information to conduct an analysis. The frustrations arose when I started hunting for specific forms of equations in a form understandable to a non-crystaHographer, for definitions of subtle concepts related to crystallography, for intelligible interpretations of space group symbols and their significance. What I frequently discovered was that such information was buried in a giant tome and couched in terms familiar to crystallographers but not to electron microscopists in general, or it was located in an old reference not available in my library, or it was found in an out-of-print book, or it was in a Russian book no longer available, etc. So to minimize the frustrations, I started a notebook containing the details, particularly after I had found forms of equations useful for quick calculations or equations in a form useful for proving, doing, or extending calculations found in a reference. The resulting notebook grew to a respectable size, requiring some organizing of the contents. Finally, the size became large enough, and has proven useful enough, to produce the notebook as a book.

Electron Crystallography Mar 29 2022 Includes bibliographical references and index.

Raman Spectroscopy in Graphene Related Systems Sep 30 2019 Raman spectroscopy is the inelastic scattering of light by matter. Being highly sensitive to the physical and chemical properties of materials, as well as to environmental effects that change these properties, Raman spectroscopy is now evolving into one of the most important tools for nanoscience and nanotechnology. In contrast to usual microscopyrelated techniques, the advantages of using light for nanoscience relate to both experimental and fundamental aspects.

Structure of Materials May 07 2020 This highly readable, popular textbook for upper undergraduates and graduates comprehensively covers the fundamentals of crystallography and symmetry, applying these concepts to a large range of materials. New to this edition are more streamlined coverage of crystallography, additional coverage of magnetic point group

symmetry and updated material on extraterrestrial minerals and rocks. New exercises at the end of chapters, plus over 500 additional exercises available online, allow students to check their understanding of key concepts and put into practice what they have learnt. Over 400 illustrations within the text help students visualise crystal structures and more abstract mathematical objects, supporting more difficult topics like point group symmetries. Historical and biographical sections add colour and interest by giving an insight into those who have contributed significantly to the field. Supplementary online material includes password-protected solutions, over 100 crystal structure data files, and Powerpoints of figures from the book.

Crystallography Apr 17 2021 As a self-study guide, course primer or teaching aid, Borchardt-Ott's Crystallography is the perfect textbook for students and teachers alike. In fact, it can be used by chemists, mineralogists, physicists and geologists. Based on the author's more than 20 years of teaching experience, the book has numerous line drawings designed especially for the text and a large number of exercises - with solutions - at the end of each chapter. The fourth edition of the original German text has been translated into English for an international readership. The heart of the book is firmly fixed in geometrical crystallography. It is from the concept of the space lattice that symmetry operations, Bravais lattices, space groups and point groups are all developed. Molecular symmetry and crystal formsare treated. Much emphasis is placed on the correspondence between point groups and space groups. The sections on crystal chemistry and X-ray diffraction are intended as an introduction to these fields.

Crystallography Sep 10 2020 Starting from the basic features of crystal morphology and symmetry without assuming that the reader knows anything about crystals this textbook shows how they provide an insight into the way in which crystals are based on a repeating pattern of atoms. After summarizing and comparing the main features of the seven crystal systems and thirty-two crystal classes, the book goes on to treat X-ray crystallography in sufficient detail to provide an understanding of its uses in identification and in textural and structural studies, and to relate it to selected area electron diffraction methods in the electron microscope. Thus the student is brought to a level where he can understand the significance of crystallographic work, and has a thorough background if he wishes to move on to more specialist works. Problems and answers are included

Pharmaceutical Crystallography Dec 26 2021 Taking an intuitive and informal approach to solid-state structure and crystallographic concepts, this book is written for anyone who needs a clear understanding of modern crystallography

Crystallography Made Crystal Clear Sep 22 2021 Crystallography Made Crystal Clear is designed to meet the need for an X-ray analysis that is between brief textbook sections and complete treatments. The book provides non-crystallographers with an intellectually satisfying explanation of the principles of how protein models are gleaned from X-ray analysis. The understanding of these concepts will foster wise use of the models, including the recognition of the strengths and weaknesses of pictures or computer graphics. Since proteins comprise the majority of the mass of macromolecules in cells and carry out biologically important tasks, the book will be of interest to biologists. Provides accessible descriptions of principles of x-ray crystallography, built on simple foundations for anyone with a basic science background Leads the reader through clear, thorough, unintimidating

explanations of the mathematics behind crystallography Explains how to read crystallography papers in research journals If you use computer-generated models of proteins or nucleic acids for: Studying molecular interactions Designing ligands, inhibitors, or drugs Engineering new protein functions Interpreting chemical, kinetic, thermodynamic, or spectroscopic data Studying protein folding Teaching macromolecule structure,and if you want to read new structure papers intelligently; become a wiser user of macromolecular models; and want to introduce undergraduates to the important subject of x-ray crystallography, then this book is for you.