Physical Properties Of Crystals Their Representation By Tensors And Matrices Oxford Science Publications

Bent-Shaped Liquid Crystals
The Physical Properties of Crystals and Gemstones - A Collection of Historical Articles on Structure, Hardness, Cleavage and Other Properties
Symmetry and Physical Properties of Crystals
Modern Crystallography IV
Physical Properties of Crystals
Crystals and Crystal Structures
International Tables for Crystallography,Volume D
Physical Properties of Magnetically Ordered Crystals
Symmetry, Group Theory, and the Physical Properties of Crystals
Quasicrystals
Tensors and Group Theory for the Physical Properties of Crystals
The Mathematics of the Physical Properties of Crystals
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Physical Properties of Crystals
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International Tables for Crystallography
International Tables for Crystallography, Physical Properties of Crystals
Properties of Materials
Laser Crystals
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Modern Crystallography IV
The Optical Properties of Crystals
Liquid Crystals
Tensor Properties of Crystals

DICKSON MARKS

Bent-Shaped Liquid Crystals Physical Properties of Crystals 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). International Tables for Crystallography Volume D: Physical Properties of Crystals is concerned with the influence of symmetry on the physical and tensor properties of crystals and on their structural phase transitions. This role is very important in many different disciplines of the science of materials such as crystallography, elasticity, solid-state physics, magnetism, optics, ferroelectricity and mineralogy.

The Physical Properties of Crystals and Gemstones - A Collection of Historical Articles on Structure, Hardness, Cleavage and Other Properties Springer Science & Business Media

Tensors, matrices, symmetry, and structure-property relationships form the main subjects of the book. While tensors and matrices provide the mathematical framework for

understanding anistropy, on which the physical and chemical properties of crystals and textured materials often depend, atomistic arguments are also needed to qualify the property coefficients in various directions. The atomistic arguments are partly based on symmetry and party on the basic physics and chemistry of materials.

Symmetry and Physical Properties of Crystals CRC Press
Excerpt from The Optical Properties of Crystals: With a General Introduction to Their Physical Properties, Bring Selected Parts of the Physical Crystallography A scientific treatment of this subject, then, can proceed only hand in hand with the entire physics of crystals. And in its theoretical aspect the edifice of crystal lore stands at the present day as one of the best established in the whole realm of physics, of fundamental importance for an understanding of the material world. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books. Find more at www.forgottenbooks.com This book is a reproduction of an important historical work. Forgotten Books uses state-of-the-art technology to digitally reconstruct the work, preserving the original format whilst repairing imperfections present in the aged copy. In rare cases, an imperfection in the original, such as a blemish or missing page, may be replicated in our edition. We do, however, repair the vast majority of imperfections successfully; any imperfections that remain are intentionally left to preserve the state of such historical works.

Modern Crystallography IV MDPI
Crystals are everywhere, from natural crystals (minerals) through the semiconductors and magnetic materials in electronic devices and computers or piezoelectric resonators at the heart of our quartz watches to electro-optical devices. Understanding them in depth is essential both for pure research and for their applications. This book provides a clear, thorough presentation of their symmetry, both at the microscopic space-group level and the macroscopic point-group level. The implications of the symmetry of crystals for their physical properties are then presented, together with their mathematical description in terms of tensors. The conditions on the symmetry of a crystal for a given property to exist then become clear, as does the symmetry of the property. The geometrical representation of tensor quantities or properties is presented, and its use in determining important relationships emphasized. An original feature of this book is that most chapters include exercises with complete solutions. This allows readers to test and improve their understanding of the material. The intended readership includes undergraduate and graduate students in materials science and materials-related aspects of electrical and optical engineering; researchers involved in the investigation of the physical properties of crystals and the design of applications based on crystal properties such as piezoelectricity, electro-optics, optical activity and all those involved in the characterization of the structural properties of materials.

Physical Properties of Crystals Oxford University Press
Complete with reference tables and sample problems, this volume serves as a textbook or reference for solid-state physics and chemistry, materials science, and engineering. Chapters illustrate symmetry, and its role in determining solid properties, as well as a demonstration of group theory.

Crystals and Crystal Structures Oxford University Press on

Demand
This handbook is a unique compendium of knowledge on all aspects of the physics of liquid crystals. In over 500 pages it provides detailed information on the physical properties of liquid crystals as well as the recent theories and results on phase transitions, defects and textures of different types of liquid crystals. An in-depth understanding of the physical fundamentals is a prerequisite for everyone working in the field of liquid crystal research. With this book the experts as well as graduate students entering the field get all the information they need.
International Tables for Crystallography,Volume D Springer
The use of single crystals for scientific and technological applications is now widespread in solid-state physics, optics, electronics, materials science, and geophysics. An understanding of the variation of physical properties with crystalline direction is essential to maximize the performance of solid-state devices. Written from a physical viewpoint and avoiding advanced mathematics, Tensor Properties of Crystals provides a concise introduction to the tensor properties of crystals at a level suitable for advanced undergraduate and graduate students. While retaining the successful basic format of the well-known first edition, this second edition brings the material up to date with the latest developments in nonlinear optics and modulated structures. Because of the increasing importance of nonlinear optics, a new chapter on optoelectronics has been added. This edition also includes a short discussion on incommensurate modulated structures in the final chapter because they are relevant to high temperature superconductors and to ferroelectric and ferromagnetic materials. The book extensively contains diagrams, worked examples, and problems with answers throughout.
Physical Properties of Magnetically Ordered Crystals Springer
The book provides an introduction to all aspects of the physics of quasicrystals. The chapters, each written by an expert in this field, cover quasiperiodic tilings and the modeling of the atomic structure of quasicrystals. The electronic density of states and the calculation of the electronic structure play a key role in this introduction, as does an extensive discussion of the atomic dynamics. The study of defects in quasicrystals by high resolution electron microscopy and the computer simulations of defects and fracture in decorated tilings are important subjects for the application of these aperiodic crystals.
Symmetry, Group Theory, and the Physical Properties of Crystals Springer
The knowledge about crystal structure and its correlation with physical properties is the prerequisite for designing new materials with taylored properties. This work provides for researchers and graduates a valuable resource on various techniques for crystal structure determinations. By discussing a broad range of different materials and tools the authors enable the understanding of why a material might be suitable for a particular application.
Quasicrystals John Wiley & Sons
Modern semiconductor and laser techniques would be unthinkable today without a highly developed physics of solids. As tailored materials increasingly gain significance, it is more important than ever to understand the basics of crystalline materials and the influence of their symmetry on

phenomenological aspects. This first international edition of a classic German standard integrates the latest developments in the field, including two-dimensional crystals and Giant Magneto-Resistance. Its aim is to impart the knowledge necessary to comprehend the manifold peculiarities of crystalline substances in a comprehensive and easily accessible manner. The book devotes much space to a coherent introduction to tensor calculation, making this the first to address the topic in a readily understandable way. Supplemented by 40 exercises with their solutions, this is an ideal textbook for students of physics and chemistry, solid state physicists and chemists, and materials scientists, but also a comprehensive resource for those who wish to get an overview of this important topic.

Tensors and Group Theory for the Physical Properties of Crystals Springer

Properties of molecules -- Corresponding-states principle -- Molecular crystals including crystalline polymers -- Elastic properties of molecular crystals including polymer crystals -- Transport properties of molecular crystals -- Fusion -- Liquids -- p-v-T properties of the liquid -- Heat capacity of liquids and polymer melts -- Thermal conductivity of non-associated liquids -- Diffusion of liquids -- Viscosity -- Physical properties of molecular glasses -- Catalog of molecular properties -- Computing schemes.

The Mathematics of the Physical Properties of Crystals CRC Press

Bent-Shaped Liquid Crystals: Structures and Physical Properties provides insight into the latest developments in the research on liquid crystals formed by bent-shaped mesogens. After a historical introduction, the expert authors discuss different kinds of mesophase structures formed by bent-shaped molecules. This book devotes the majority of its pages to physical properties such as polar switching, optics and non-linear optics, and behavior in restricted geometries. However, as chemistry is often highly relevant to the emergence of new phases, particularly with reflection symmetry breaking, it also involves a broad spectrum of interesting chemistry viewpoints.

Kristallphysik CRC Press

The greatest reward for an author is the feeling of satisfaction he gets when it becomes clear to him that readers find his work useful. After my book appeared in the USSR in 1975 I received many letters from fellow physicists including colleagues from Western European countries and the USA. Some of those letters, as well as official reviews of the book, made specific sug gestions for improving the book. The satisfaction I derived from all those kind and warm responses gave me the determination to continue work on the book in order to fulfill these wishes in the next edition. This possibility arose when one of the scientific editors from Springer-Verlag, Heidelberg, H. Latsch, who is the founder of the well-known series of quasi-monographs "Topics in Applied Physics", visited our Institute and suggested an English edition of my book. For all this, and for his subsequent help, I am sincerely thankful. I consider it my pleasant duty also to express my gratitude to the American physicist H. F. Ivey, who served as scientific editor of the trans lation. The English version of the book retains the structure of the Russian edition, though it is supplemented with many new data in the tables and figures. It reflects trends in the development of the physics and spectroscopy of laser crystals in recent years.

Growth and Properties Springer Science & Business Media

Modern Crystallography IV is devoted to a systematic and up- to-date description of fundamental physical properties of solid and liquid crystals. These include elastic and mechanical, dielectric and ferroelectric, magnetic and optical properties, transport phenomena and spectroscopy. An important feature of the treatment is its use of the crystallographic approach, an introduction to which is given in the opening chapter of the book. The topics are treated at a level understandable to students who have two years of university physics. Researchers and engineers working on practical applications should also find the book useful, as should specialists in other fields who wish to broaden their knowledge of crystallography and materials science. The book is written by a group of leading scientists from the Institute of Crystallography of the USSR Academy of Sciences.

Physical Properties of Crystals, Their Representation by Tensors and Matrices Springer

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). International Tables for Crystallography Volume D: Physical Properties of Crystals is concerned with the influence of symmetry on the physical and tensor properties of crystals and on their structural phase transitions. This role is very important in many different disciplines of the science of materials such as crystallography, elasticity, solid-state physics, magnetism, optics, ferroelectricity and mineralogy.

Modern Crystallography Iv Forgotten Books

Springer-Verlag, Berlin Heidelberg, in conjunction with Springer-Verlag New York, is pleased to announce a new series: CRYSTALS Growth, Properties, and Applications The series presents critical reviews of recent developments in the field of crystal growth, properties, and applications. A substantial portion of the new series will be devoted to the theory, mechanisms, and techniques of crystal growth. Occasionally, clear, concise, complete, and tested instructions for growing crystals will be published, particularly in the case of methods and procedures that promise to have general applicability. Responding to the ever-increasing need for crystal substances in research and industry, appropriate space will be devoted to methods of crystal characterization and analysis in the broadest sense, even though reproducible results may be expected only when structures, microstructures, and composition are really known. Relations among procedures, properties, and the morphology of crystals will also be treated with reference to specific aspects of their practical application. In this way the series will bridge the gaps between the needs of research and industry, the pos sibilities and limitations of crystal growth, and the properties of crystals. Reports on the broad spectrum of new applications - in electronics, laser tech nology, and nonlinear optics, to name only a few - will be of interest not only to industry and technology, but to wider areas of applied physics as well and to solid state physics in particular. In response to the growing interest in and importance of organic crystals and polymers, they will also be treated.

Crystal Dislocations: Their Impact on Physical Properties of Crystals Nova Publishers

These volumes are a result of the personal research and graduate lectures given by the authors at the ecole Normale Superieure de Lyon and the University of Paris VII, respectively.

Featuring an easy-to-follow, accessible style, each volume describes important concepts and physical properties using classroom-friendly experiments, many of which the
Crystal Dislocations: Their Impact on Physical Properties of Crystals de Gruyter
The proposed existence of the edge and screw dislocation in the 1930s, and the subsequent work showing that dislocation theory could explain the plastic deformation of crystals, represent an important step in developing our understanding of materials into a science. The continued work involved with characterization of dislocations and linking them to a variety of physical properties in both single and poly crystals have made enormous progress over the past 50 years. It is rare to find a technical application involving a material with any crystal structure that is not impacted by dislocations; mechanical properties, massive phase transformations, interphases, crystal growth, electronic properties, the list goes on. In many systems the properties is controlled by the formation of partial dislocations separated by a stacking fault; for example plastic deformation via deformation twinning. And finally, giant strides have been made in characterization and modeling of systems containing dislocations. The Special Issue on “Crystal Dislocations” is intended to provide a unique international forum aimed at covering a broad range of results involving dislocations and their importance on crystal properties and crystal growth. Scientists working in a wide range of disciplines are invited to contribute to this cause.Dr. K. Peter D. Lagerlof, Associate Professor of CeramicsGuest Editor
The Tourmaline Springer Science & Business Media
International Tables for Crystallography is the definitive resource and reference work for crystallography and structural science. Each of the eight volumes in the series contains articles and tables of data relevant to crystallographic research and to applications of crystallographic methods in all sciences concerned with the structure and properties of materials. Emphasis is given to symmetry, diffraction methods and techniques of crystal-structure determination, and the physical and chemical properties of crystals. The data are accompanied by discussions of theory, practical explanations and examples, all of which are useful for teaching. Volume D is concerned with the influence of symmetry on the physical and tensor properties of crystals and on their structural phase transitions. This role is very important in many different disciplines of the science of materials such as crystallography, elasticity, solid-state physics, magnetism, optics, ferroelectricity and mineralogy, and Volume D deals with all these aspects in a unified way. The volume is divided into 3 parts: Part 1: Introduces the mathematical properties of tensors and group representations and gives their independent components for each of the crystallographic groups. Part 2: Devoted to the symmetry aspects of excitations in reciprocal space: phonons, electrons, Raman scattering and Brillouin scattering. Part 3: Deals with the symmetry aspects of structural phase transitions and twinning. A prominent feature is the joint description of twinning and domain structures, which are usually presented in completely separate ways in handbooks of physics and mineralogy. Supplementary software is provided to support and enhance Chapters 1.1 and 1.2 for the determination of irreducible group representations and tensor components, and Part 3 on structural phase transitions.

Physical Properties of Crystals Stewart Press
Modern Crystallography IV is devoted to a systematic and up- to-date description of fundamental physical properties of solid and liquid crystals. These include elastic and mechanical, dielectric and ferroelectric, magnetic and optical properties, transport phenomena and spectroscopy. An important feature of the treatment is its use of the crystallographic approach, an introduction to which is given in the opening chapter of the book. The topics are treated at a level understandable to students who have two years of university physics. Researchers and engineers working on practical applications should also find the book useful, as should specialists in other fields who wish to broaden their knowledge of crystallography and materials science. The book is written by a group of leading scientists from the Institute of Crystallography of the USSR Academy of Sciences.