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Lattice Dynamics of Molecular Crystals Polymorphism in Molecular Crystals Molecular crystals and Molecules Molecular Crystals Polymorphism in Molecular Crystals 2e Reactivity in Molecular Crystals Excitons in Molecular Crystals Organic Molecular Crystals Excitons, Magnons and Phonons in Molecular Crystals Excitons in Molecular Crystals Organic Molecular Crystals Exciton Dynamics in Molecular Crystals and Aggregates Excited State Dynamical Processes in Molecular Crystals Low-temperature Phase Transitions in Molecular Crystals Static and Dynamic Intermolecular Interactions in Molecular Crystals Polarization in Molecular Crystals Exciton Dynamics in Molecular Crystals and Aggregates Single-Particle Rotations in Molecular Crystals Physical Properties of Molecular Crystals, Liquids, and Glasses Structure and Properties of Molecular Crystals Relaxation Dynamics in Molecular Crystals Diffusion in Molecular Crystals Electronic States in molecular crystals Excitons in Molecular Crystals; Theory and Applications [by] D. F. Craig [and] S. H. Walmsley Ionized States in Molecular Crystals Three Transport Phenomena in Molecular Crystals Hindered Rotations in Molecular Crystals NMR Studies of Dynamics in Molecular Crystals Intrinsic Photoconductivity in Molecular Crystals Molecular Crystals and Liquid Crystals Infrared Intensity Studies in Molecular Crystals On the Prevalence of Phase Transitions in Molecular Crystals Relaxation Processes in Molecular Excited States Motions in molecular crystals Heat Transfer in Molecular Crystals Motions in Molecular Crystals Infrared Intensity Studies in Molecular Crystals Mechanisms of Energy Transfer in Molecular Crystals The Rotation of Diatomic Molecules in Molecular Crystals Intermolecular Interactions in Crystals

Three Transport Phenomena in Molecular Crystals Dec 29 2020
Molecular crystals and Molecules Dec 21 2022 Molecular Crystals and Molecules deals with some of the problems of molecular crystallography and certain aspects of molecular structure. This book is composed of eight chapters that specifically cover the significant progress of conformational research. The opening chapter describes the structure of crystals considering the close-packing principle, disorder elements, and binary systems. The next two chapters examine the calculation of crystal lattice energy and dynamics. These topics are followed by discussions on the molecular movement, structural, and thermodynamic aspects of crystals. The final chapters look into the parameters for conformational calculations of molecules, macromolecules, and biopolymers. This book will be of great value to physical chemists and researchers who are interested in crystal and molecular structure.
On the Prevalence of Phase Transitions in Molecular Crystals Jun 22 2020
Excitons in Molecular Crystals; Theory and Applications [by] D. F. Craig [and] S. H. Walmsley Feb 28 2021
Diffusion in Molecular Crystals May 02 2021
Motions in molecular crystals Apr 20 2020
Organic Molecular Crystals Apr 13 2022
Mechanisms of Energy Transfer in Molecular Crystals Dec 17 2019
Single-Particle Rotations in Molecular Crystals Sep 06 2021
NMR Studies of Dynamics in Molecular Crystals Oct 27 2020
Intrinsic Photoconductivity in Molecular Crystals Sep 25 2020
Relaxation Processes in Molecular Excited States May 22 2020 Relaxation phenomena of excited molecular states are abundant in all nature. They mediate such key processes as photochemical reactions or even the pathways of ordinary chemical reactions. However, for a long time the main research in electronic relaxation processes was concerned with anorganic solids, in part because of their great technological importance (photography, semiconductors ...) in part also because these compounds were the "workhorses" of the solid state physicists. In the last 30 years, there was a steadily increasing interest in organic molecular systems, first in molecular crystals and later in all forms of molecular solids (glasses, polymers, membranes, ...). The present volume combines papers on quite different types of relaxation phenomena: the type of solid studied, the electronic states involved, the physical processes responsible for the relaxations are all different. Nevertheless, after reading this book, a more clear and complete picture of the phenomenon "relaxa tion" emerges that proves that this volume is more than just a collection of individual articles. The volume starts with the paper "Spin-lattice and spin-spin relaxation in photo-excited triplet states in molecular crystals" by Jan Schmidt. Even in these seemingly simple systems of isolated guest molecules in a single crystal host, the relaxation phenomena are quite involved and a very thorough investigation is necessary to find the key relaxation processes. The end of the article provides a bridge to the following paper: it treats interactions of two molecules (dimers), where resonant interactions become important and lead to new, characteristic relaxation processes.
Molecular Crystals Nov 20 2022 There has been an explosion of interest in the study of molecular crystals, and their applications in optics and electronics. This advanced 1994 textbook describes their chemical and physical structure, their optical and electronic properties and the reactions between neighbouring molecules in crystals. The author has taken into account research areas which have undergone extremely rapid development since the first edition was published in 1987. For instance, this edition features the applications of molecular materials in high-technology devices. There is also an additional chapter on C60 and organic non-linear optic materials. The level of treatment is aimed at first-year postgraduates or workers in industrial research laboratories wishing to gain insights into organic solid state materials. Molecular Crystals is also suitable for special topics in final year undergraduate courses in chemistry, physics and electronic engineering.
Excitons in Molecular Crystals May 14 2022
Lattice Dynamics of Molecular Crystals Feb 23 2023 The lattice dynamics of molecular crystals has undergone an enor mous progress in these last twenty years or so. The experimental and theoretical advances have been realized by two different approaches. From one side molecular spectroscopists have been primarily interested in the vibrational properties of the molecules themselves subjected to the perturbing influence of the crystal environment. From the other side the lattice dynamical theory familiar in solid state physics for atomic lattices has been extended to molecular arrays. Although the overlap between the two approaches has been considerable the reference material is rather scattered in specialized papers. The purpose of this book is to partly fill this gap and to discuss the lattice dynamical theory of molecular crystals in a compact and specialized form. As such, the book is not intended exclusively for researchers and specialists in the field but also for graduate students entering an activity in solid state mo lecular spectroscopy.
Polymorphism in Molecular Crystals Jan 22 2023 Polymorphism - the multiplicity of structures or forms - is a term that is used in many disciplines. In chemistry it refers to the existence of more than one crystal structure for a particular chemical substance. The properties of a substance are determined by its composition and by its structure. In the last two decades, there has been a sharp rise in the interest in polymorphic systems, as an intrinsically interesting phenomenon and as an increasingly important component in the development and marketing of a variety of materials based on organic molecules (e.g. pharmaceuticals, dyes and pigments, explosives, etc.). This book summarizes and brings up to date the current knowledge and understanding of polymorphism of molecular crystals, and concentrates it in one comprehensive source. The book will be an invaluable reference for students, researchers, and professionals in the field.

Polarization in Molecular Crystals Nov 08 2021
Ionized States in Molecular Crystals Jan 30 2021
Low-temperature Phase Transitions in Molecular Crystals Jan 10 2022
Reactivity in Molecular Crystals Sep 18 2022 Do you need to design syntheses that are * highly selective * fast * enantioselective with quantitative enantiomeric yield? This book describes in detail how best to exploit the enormous synthetic potential of solid state reactions. Written by leading experts, it provides in-depth information on * the theoretical and physico-chemical approach to solid state reactions * solid-to-solid organic reactions * stereoselective solid state photoreactions * reactivity and crystal structure An ideal companion to Dunitz and Bürgi's 'Structure Correlation', this book will be highly useful to synthetic organic chemists, stereochemists, crystallographers, and solid-state chemists
Electronic States in molecular crystals Apr 01 2021
Motions in Molecular Crystals Feb 17 2020
Molecular Crystals and Liquid Crystals Aug 25 2020
Excitons, Magnons and Phonons in Molecular Crystals Jun 15 2022
Structure and Properties of Molecular Crystals Jul 04 2021 The purpose of this book is to focus attention on crystallographic research on molecular crystals. In recent years, molecular crystals have ceased to be regarded as mere laboratory curiosities, especially since they have begun to make their appearance in the industrial field. This volume consists of three parts comprising six chapters. Part one is devoted to various aspects of the study of crystals. A knowledge of the three-dimensional structure of molecules is absolutely essential in order to understand the nature of chemical bonds and the mechanism and dynamics of reactions. Chapter one deals with the study of molecular structures by X-ray diffraction. This brings out the results that one may expect from the analysis of crystal structures. Recent results concerning molecular conformation and chemical reactivity are also described. By means of numerous examples, chapter two illustrates the importance of studying organic reactions in the solid state. A number of new reactions are also presented. In the future, crystallography may be used to predict crystal structures. Crystal engineering is of the utmost importance in designing new materials.
Exciton Dynamics in Molecular Crystals and Aggregates Oct 07 2021
Infrared Intensity Studies in Molecular Crystals Jul 24 2020
Relaxation Dynamics in Molecular Crystals Jun 03 2021
Infrared Intensity Studies in Molecular Crystals Jan 18 2020
Excitons in Molecular Crystals Aug 17 2022
Hindered Rotations in Molecular Crystals Nov 27 2020
Heat Transfer in Molecular Crystals Mar 20 2020 Heat Transfer in Molecular Crystals.
Excited State Dynamical Processes in Molecular Crystals Feb 11 2022
Exciton Dynamics in Molecular Crystals and Aggregates Mar 12 2022
Static and Dynamic Intermolecular Interactions in Molecular Crystals Dec 09 2021
Polymorphism in Molecular Crystals 2e Oct 19 2022 Most people are familiar with the fact that diamond and graphite are both composed only of carbon; yet they have very different properties which result from the very different structures of the two solids - they are polymorphs of carbon. Understanding the relationship between the structures and the properties of materials is of fundamental importance in developing and producing new materials with improved or new properties. The existence of polymorphic systems allows the direct study of the connection between structures and properties. This book provides grounding on the fundamental structural and energetic basis for polymorphism, the preparation and characterization of polymorphic substances and its importance in the specific areas of pharmaceuticals, pigments and high energy (explosive) materials. The closing chapter describes the intellectual property implications and some of the precedent patent litigations in which polymorphism has played a central role. The book contains over 2500 references to provide a ready entry into the relevant literature.
Intermolecular Interactions in Crystals Oct 15 2019 This new book brings together the latest information on intermolecular bonding within molecular crystals, providing a very useful introductory text for graduates.
Organic Molecular Crystals Jul 16 2022 This book is based on the results of many years of experimental work by the author and his colleagues, dealing with the electronic properties of organic crystals. E. Silinsh has played a leading role in pOinting out the importance of the polarization energy by an excess carrier, in determining not only the character of the carrier mobility in organic crystals, but in determining the band gap and the nature of the all-important trapping site in these crystals. The one-electron model of electronic conductivity that has been so successful in dealing with inorganic semiconductors is singular ly unsuccessful in rationalizing the unusual physical properties of organic crystals. A many-body theory is required, and the experimental manifestation of this is the central role played by the crystal polarization enerqies in transferring the results obtained with the isolated molecule, to the solid. The careful studies of E. Silinsh in this field have shown tn detail how this polarization energy develops around the excess carrier (and also the hole-electron pair) sitting on a molecular site in the crystal. As with all insulators, trapping sites playa dominant role in reducing the magnitude of ~he current that can theoretically pass through the organic crystal. It is usually the case that these trapping sites are energetically distributed within the forbidden band of the crystal. For many years, an exponential distribution has shown itself to be useful and reasonably correct: However,' E.
Physical Properties of Molecular Crystals, Liquids, and Glasses Aug 05 2021 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 Rotation of Diatomic Molecules in Molecular Crystals Nov 15 2019

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