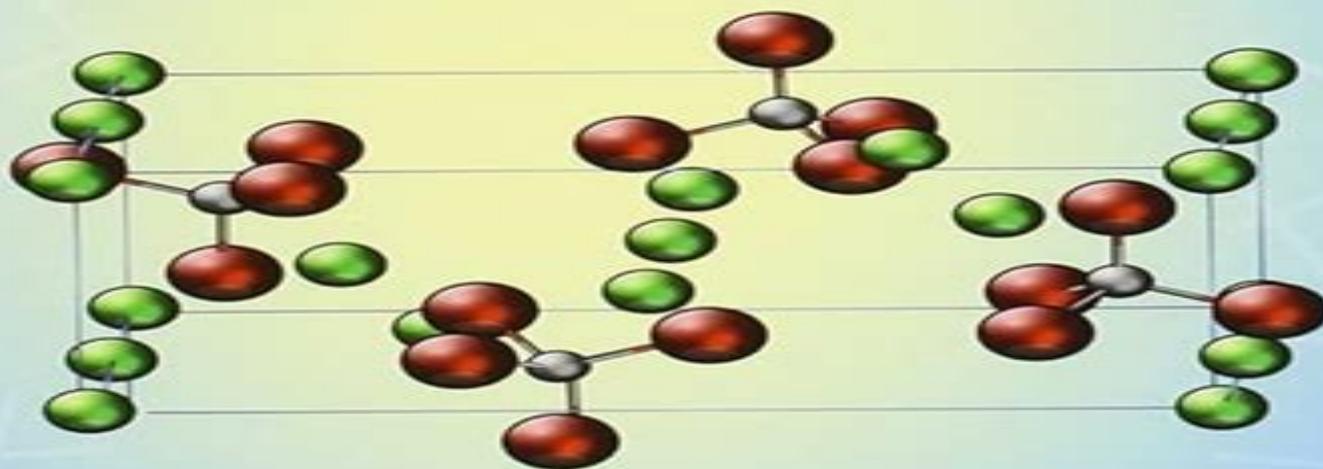


FOURTH EDITION SOLID STATE CHEMISTRY

AN INTRODUCTION



Lesley E. Smart • Elaine A. Moore



CRC Press
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Solid State Chemistry An Introduction

Lesley E. Smart, Elaine A. Moore



Solid State Chemistry An Introduction:

Solid State Chemistry Lesley E. Smart, Elaine A. Moore, 2016-04-19 Building a foundation with a thorough description of crystalline structures *Solid State Chemistry An Introduction Fourth Edition* presents a wide range of the synthetic and physical techniques used to prepare and characterize solids Going beyond basic science the book explains and analyzes modern techniques and areas of research The book covers A range of synthetic and physical techniques used to prepare and characterize solids Bonding superconductivity and electrochemical magnetic optical and conductive properties STEM ionic conductivity nanotubes and related structures such as graphene metal organic frameworks and FeAs superconductors Biological systems in synthesis solid state modeling and metamaterials This largely nonmathematical introduction to solid state chemistry includes basic crystallography and structure determination as well as practical examples of applications and modern developments to offer students the opportunity to apply their knowledge in real life situations and serve them well throughout their degree course New in the Fourth Edition Coverage of multiferroics graphene and iron based high temperature superconductors the techniques available with synchrotron radiation and metal organic frameworks MOFs More space devoted to electron microscopy and preparative methods New discussion of conducting polymers in the expanded section on carbon nanoscience *Solid State Chemistry* Lesley Smart, 1993 **Solid State Chemistry** Lesley Smart, 1998

Solid State Chemistry Lesley E. Smart, Elaine A. Moore, 1995-06-27 Intended for first and second year undergraduates this introduction to solid state chemistry includes practical examples of applications and modern developments to offer students the opportunity to apply their knowledge in real life situations It aims to provide students with a thorough understanding of the traditional knowledge of crystal structures lattices unit cells close packing and octahedral and tetrahedral holes and their occupation by various ions in the well known crystal structures This descriptive work is augmented by free electron and band theory Links to other branches of chemistry and practical examples are emphasized as are the links back to band theory and crystal structures For this second edition the book has been updated throughout and has two new chapters one on X ray diffraction techniques and another on solid state preparative methods as well as new sections on symmetry and ferroelectrics **Solid State Chemistry: an Introduction** Aden Crowley, 2017-06-20 Solid state chemistry refers to that branch of chemistry which deals with the multidisciplinary study of the properties synthesis and structure of various solid state materials It is closely linked with other branches of chemistry like crystallography metallurgy solid state physics ceramics materials science thermodynamics and electronics etc This book explores all the important aspects of solid state chemistry in the present day scenario The topics covered in this extensive text deal with the core subjects of the subject Fundamental approaches evaluations and methodologies have been included in it This textbook is a complete source of knowledge on the present status of this important field *Introduction to Solid State Chemistry* James E. House, 2024-02-21 Introduction to Solid State Chemistry provides a strong background to the structures of solids and factors

that determine this structure The content presented will also stress transformations of solids both in physical forms and chemical composition In so doing topics such as phase transitions sintering reactions of coordination compounds photovoltaic compounds are described whilst kinetics and mechanisms of solid state reactions are covered in depth There are currently few books that deal with solid state chemistry where a considerable number instead deal with solid state physics and materials science engineering This book provides someone needing or wishing to learn about the chemistry of solids a comprehensive resource that describes structures of solids the behaviour of solids under applied stresses the types of reactions that solids undergo and the phenomenological aspects of reactions in solids Kinetics of reactions in solids is very seldom covered in current literature and an understanding of the mechanisms of reactions in solids is necessary for many applications James E House provides a balanced treatment of structure dynamics and behaviour of solids at a level commensurate with upper level undergraduates or beginning graduate students who wish to obtain an introduction and overview to solid state chemistry Provides a fundamental introduction and entry point to solid state chemistry acting as a useful prerequisite for further learning in the area Presents a balanced approach that not only emphasizes structures of solids but also provides information on reactions of solids and how they occur Gives much needed focus to the kinetics of reactions of solids and their mechanisms where existing literature covers little of this Explores crucial solid state chemistry topics such as solar energy conversion reactions of solid coordination compounds diffusion sintering and other transformations of solids Features accessible and well written examples and case studies featuring many new and bespoke supporting illustrations offering an excellent framework that will help students to understand reaction mechanisms Solid State Chemistry Lesley E. Smart, Elaine A. Moore, 2005-06-24 Intended for first and second year undergraduates this introduction to solid state chemistry includes practical examples of applications and modern developments to offer students the opportunity to apply their knowledge in real life situations The third edition of Solid State Chemistry An Introduction has been comprehensively revised and updated Building a foundation with a thorough description of crystalline structures the book presents a wide range of the synthetic and physical techniques used to prepare and characterize solids Other fundamental discussions include bonding superconductivity and electrochemical magnetic optical and conductive properties The authors have added sections on fuel cells and electrochromic materials conducting organic polymers organic superconductors and fullerenes mesoporous solids and ALPOs photonics giant magnetoresistance GMR and colossal magnetoresistance CMR and p wave triplet superconductors The book also includes a completely new chapter which examines the solid state chemical aspects of nanoscience Each chapter contains a set of review questions and an accompanying solutions manual is available Solid State Chemistry An Introduction Third Edition is written in a clear approachable style that enhances the material by integrating its concepts in the context of current applications and areas of promising research **Solid State Chemistry and its Applications** Anthony R. West, 2022-04-06 SOLID STATE

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Anthony R. West, 2014-03-17 Solid State Chemistry and its Applications 2nd Edition Student Edition is an extensive update and sequel to the bestselling textbook Basic Solid State Chemistry the classic text for undergraduate teaching in solid state chemistry worldwide Solid state chemistry lies at the heart of many significant scientific advances from recent decades including the discovery of high temperature superconductors new forms of carbon and countless other developments in the synthesis characterisation and applications of inorganic materials Looking forward solid state chemistry will be crucial for the development of new functional materials in areas such as energy catalysis and electronic materials This revised edition of Basic Solid State Chemistry has been completely rewritten and expanded to present an up to date account of the essential topics and recent developments in this exciting field of inorganic chemistry Each section commences with a gentle introduction covering basic principles progressing seamlessly to a more advanced level in order to present a comprehensive overview of the subject This new Student Edition includes the following updates and new features Expanded coverage of

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