Magnetic Properties Of Rare Earth And Transition Metal

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Sc, Y, La-Lu Rare Earth Elements - 1987-12-15
The volume "Rare Earth Elements" C10 deals with the rare earth tellurides, oxide tellurides, tellurates, telluride halides, tellurate halides, sulfide tellurides, selenide tellurides, and alkali rare earth tellurates. Another topic of this volume are the compounds of the rare earth elements with polonium. Sofaras meaningful and as in all earlier volumes of "Rare Earth Elements" Series C ("Seltenerdelemente" Reihe C), comparative data are presented in sections preceding treatment of the individual compounds and systems. Gaseous telluride molecules are described in the first section. The subsequent sections deal mainly with the chemical and physical properties of the solid tellurides, of which SmTe, EuTe, and TmTe play the most important rote. The most prominent feature of SmTe is the pressure-induced valence transition from divalent Sm to the intermediate valence state, similar to SmSe (see "Rare Earth Elements" C9). Main topics of the section on EuTe are the magnetic and spectroscopic investigations, which show only antiferromagnetic ordering at low temperatures, unlike the complex magnetic properties of EuSe. The magnetic phase diagram, magnetic resonances, exchange interactions, and anisotropies have been ex tensively studied. A pressure-induced valence change is also observed in TmTe with divalent Tm under ambient conditions. The valence changewas also reached by alloying with TmSe. The oxide tellurides have been studied less intensively than the other oxide chalcogenides and only the type M0 Te is known. Data on preparation, crystallographic, and magnetic 2 2 properties dominate this section.
Thermodynamic, Magnetic, and Superconductivity Properties of Selected Rare Earth-transition Metal Compounds - Bill Edward Higgins 1989

Magnetic Properties of Rare Earth Metals - R. Elliott 2013-06-29
The rare earths have a unique place among the elements. Although very much alike chemically and in most phy~ical properties they each have very different and striking magnetic properties. The reason, of course, lies in their 4f electrons which determine the magnetic properties but have little effect on other chemical and physical behaviour. Although they are not rare, some indeed are among the more common heavy elements in the earth's crust, the difficulty of separation has meant that their intricate magnetic properties have only recently been unravelled. Now, however, the general pattern of their magnetism is well charted and the underlying theory is well understood. Both are thoroughly summarised in this book. It provides an excellent example of the kind of extensive synthesis which is possible with modem solid state physics. it represents only a high plateau in the ascent to complete understanding. But It will become clear to the reader that while the overall position is satisfactory there are many details still to be elucidated experimentally and much to be done theoretically before all the underlying forces are identified and estimated from a priori calculations. It is hoped that the book will provide a useful stimulus in this direction. It should also be of use to those who are interested in related disciplines, for example the rare earth compounds, or the transition metals. In addition rare earths promise to be important technologically as alloy constituents.
Nuclear Science Abstracts - 1976

Rare Earths - Paul Caro 1998

Handbook on the Physics and Chemistry of Rare Earths - 2004-11-27
This volume of the Handbook adds five new chapters to the science of rare earths. Two of the chapters deal with intermetallic compounds. An overview of ternary systems containing rare earths, transition metals and indium – Chapter 218 – opens the volume. It is followed by Chapter 219 sorting out relationships between superconductivity and magnetism. The next two chapters are dedicated to complex compounds of rare earths: Chapter 220 describes structural studies using circularly polarized luminescence spectroscopy of lanthanide systems, while Chapter 221 examines rare-earth metal-organic frameworks, also known as coordination polymers. The final Chapter 222 deals with the catalytic activity of rare earths in site-selective hydrolysis of DNA and RNA.
Perovskites I - E. Burzo 1996-11-18
In subvolume 27F1 the magnetic properties of AMO3 - type and of (AR)MO3 - type perovskite oxides (A = alkaline-earth metal, M = d transition element, R = rare earth element) have been compiled. In some aspects this volume is a supplement to the previously published survey in Landolt-Börnstein of J.B. Goodenough and J.M. Longo Vol. III/4a (1970) and S. Nomura Vol. III/12a (1978). However this volume III/27F1 presents in itself a comprehensive state of the knowledge of the magnetic and magnetism-related properties of the considered compounds.
Circular Polarisation Dependent Spectroscopy to Investigate the Magnetic Properties of 4d-transition Metals and Rare Earth Compounds - Claus Neumann 1998

Handbook of Magnetic Materials - K.H.J. Buschow 2011-03-02
Volume 19 of the Handbook of Magnetic Materials, as the preceding volumes, has a dual purpose. As a textbook it is intended to help those who wish to be introduced to a given topic in the field of magnetism without the need to read the vast amount of literature published. As a work of reference it is intended for scientists active in magnetism research. To this dual purpose, Volume 19 is composed of topical review articles written by leading authorities. In each of these articles an extensive description is given in graphical as well as in tabular form, much emphasis being placed on the discussion of the experimental material in the framework of physics, chemistry and material science. It provides readers with novel trends and achievements in magnetism. Composed of topical review articles written by leading authorities Intended to be of assistance to those who wish to be introduced to a given topic in the field of magnetism As a work of reference it is intended for scientists active in magnetism research Provide the readership with novel trends and achievements in magnetism
High-Entropy Alloys - B.S. Murty 2019-03-16
High-Entropy Alloys, Second Edition provides a complete review of the current state of the field of high entropy alloys (HEA). Building upon the first edition, this fully updated release includes new theoretical understandings of these materials, highlighting recent developments on modeling and new classes of HEAs, such as Eutectic HEAs and Dual phase HEAs. Due to their unique properties, high entropy alloys have attracted considerable attention from both academics and technologists. This book presents the fundamental knowledge, the spectrum of various alloy systems and their characteristics, key focus areas, and the future scope of the field in terms of research and technological applications. Provides an up-to-date, comprehensive understanding on the current status of HEAs in terms of theoretical understanding and modeling efforts Gives a complete idea on alloy design criteria of various classes of HEAs developed so far Discusses the microstructure property correlations in HEAs in terms of structural and functional properties Presents a comparison of HEAs with other multicomponent systems, like intermetallics and bulk metallic glasses
Localized to Itinerant Electronic Transition in Perovskite Oxides - S.L. Cooper 2001-02-26
Interest in the transition metal oxides with perovskite related structures goes back to the 1950s when the sodium tungsten bronzes NaxWO3 were shown to be metallic [1], the system Lal_xSr MnO3 was found to contain a ferromagnetic conductive phase [2], and La0.sSr0.sCoO3 was reported to be a ferromagnetic metal, but with a peculiar magnetization of 1.5 #a/Co atom [3]. Stoichiometric oxide perovskites have the generic formula AMO3 in which the A site is at the center of a simple cubic array

of M sites; the oxide ions form (180 ° 4)) M O M bridges to give an MO3 array of corner shared MO6/2 octahedra and the larger A cations have twelvefold oxygen coordination. Mismatch between the A O and M O equilibrium bond lengths introduces internal stresses. A compressive stress on the MO3 array is accommodated by a lowering of the M O M bond angle from 180 ° to (180 ° 4)); a tensile stress on the M O M bonds is accommodated by the formation of hexagonal polytypes [4].

Rare Earth Magnetism - Jens Jensen 1991-06-13

The aim of the authors in this monograph has not been to present a comprehensive review of the magnetic properties of rare earth metals, but rather to present a unified and coherent account of a limited but important area of rare earth magnetism, the magnetic structures and excitations, which both reflect the nature of the fundamental magnetic interactions and determine many of the characteristic properties of the metals. The authors have tried to concentrate on the essential principles and their applications to typical examples, generally restricting the discussion to the pure elements and considering alloys and compounds only when they are necessary to illuminate particular topics.

Rare-Earth Borides - Dmytro S. Inosov 2021-10-25

Rare-earth borides have attracted continuous interest for more than half a century both from the point of view of fundamental condensed matter physics and for practical applications in various fields of engineering. They demonstrate a wealth of unusual electronic and magnetic properties that have been closely investigated in recent decades using advanced spectroscopies and state-of-the-art physical characterization methods. Authored by leading experts in the field, this book features a comprehensive collection of reviews offering a cutting-edge summary of the research on rare-earth borides from various viewpoints. It includes chapters on the growth and characterization of single-crystal and thin-film samples, detailed description of their lattice structure and dynamics, electronic and magnetic properties in the bulk and at the surface, low-temperature ordering phenomena, and theoretical and experimental description of the unusual spectroscopic properties from the perspective of modern x-ray and neutron scattering, Raman spectroscopy, and electron spin resonance. The book will appeal to anyone interested in the physics and chemistry of solids and low-temperature physics, especially to researchers and postgraduate students who study magnetic and electronic properties of rare-earth compounds.

Handbook of Magnetic Materials - Ekkes Bruck 2020-11-27

Handbook of Magnetic Materials, Volume 29, highlights new advances in the field, with this new volume presenting interesting chapters written by an international board of authors on topics such as spin-orbit torque. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in the Handbook of Magnetic Materials series

Magnetic Properties of Rare Earth Metals - R. Elliott 1972-12-01

The rare earths have a unique place among the elements. Although very much alike chemically and in most phy~ical properties they each have very different and striking magnetic properties. The reason, of course, lies in their 4f electrons which determine the magnetic properties but have little effect on other chemical and physical behaviour. Although they are not rare, some indeed are among the more common heavy elements in the earth's crust, the difficulty of separation has meant that their intricate magnetic properties have only recently been unravelled. Now, however, the general pattern of their magnetism is well charted and the underlying theory is well understood. Both are thoroughly summarised in this book. It provides an excellent example of the kind of extensive synthesis which is possible with modem solid state physics. it represents only a high plateau in the ascent to complete understanding. But It will become clear to the reader that while the overall position is satisfactory there are many details still to be elucidated experimentally and much to be done theoretically before all the underlying forces are identified and estimated from a priori calculations. It is hoped that the book will provide a useful stimulus in this direction. It should also be of use to those who are interested in related disciplines, for example the rare earth compounds, or the transition metals. In addition rare earths promise to be important technologically as alloy constituents.

Rare Earth Intermetallics - W.E. Wallace 2012-12-02

Rare Earth Intermetallics provides an account of the magnetic characteristics of rare earth intermetallics. This book discusses bulk magnetic characteristics, such as temperature dependence of susceptibility, saturation magnetization, nature of the cooperative magnetic phase, low temperature specific heats, and related thermal properties. Other topics include the magnetic interactions, crystal field interaction by the operator equivalent method, and rare earth-nontransition metal systems. The miscellaneous IVA compounds, rare earth substitution, variation in the iron moment, and compounds with 4d and 5d transition metals are also elaborated in this text. This publication is recommended for students and researchers interested in rare earth intermetallics.

Rare Earth Elements, Alloys and Compounds - 2004-03-15

Volume 32 of Group III is a supplement to volume III/19 and deals with the magnetic properties of metals, alloys and metallic compounds which contain at least one transition element. The present subvolume III/32D deals with the magnetic properties of rare earth elements (section 2.1), as well as with alloys and compounds of rare earth elements either with 4d or 5d elements (section 2.5) or with Be, Mg, Zn, Cd or Hg (section 2.7). Each section provides an introduction and a list of references, and allows an easy overview of the substances discussed in it either through a special survey (sections 2.1 and 2.5) or a sensible subdivision of the material according to groups of substances and surveys compiled for each group individually (chapter 2.7).

Magnetism - Harry Suhl 2012-12-02

Magnetism, Volume V: Magnetic Properties of Metallic Alloys deals with the magnetic properties of metallic alloys and covers topics ranging from conditions favoring the localization of effective moments to the s-d model and the Kondo effect, along with perturbative, scattering, and Green's function theories of the s-d model. Asymptotically exact methods used in addressing the Kondo problem are also described. Comprised of 12 chapters, this volume begins with a review of experimental results and phenomenology concerning the formation of local magnetic moments in metals, followed by a Hartree-Fock description of local states. The intensive activity that followed Kondo's discovery of a serious divergence in the perturbative calculation of certain physical properties of magnetic alloys is described in detail. The parallel problems encountered when the matrix is superconducting are discussed from a theoretical viewpoint. The remaining chapters examine the coexistence of superconductivity and magnetism; magnetic hyperfine-interaction studies of the s-d model and the Kondo effect; functional integral methods for the problem of magnetic impurities; and magnetic moment effects in superconductors. This book will be of interest to students and practitioners in solid state physics.

Rare Earth and Transition Metal Doping of Semiconductor Materials - John Zavada 2016-02-01

Rare Earth and Transition Metal Doping of Semiconductor Material explores traditional semiconductor devices that are based on control of the electron's electric charge. This book looks at the semiconductor materials used for spintronics applications, in particular focusing on wide band-gap semiconductors doped with transition metals and rare earths. These materials are of particular commercial interest because their spin can be controlled at room temperature, a clear opposition to the most previous research on Gallium Arsenide, which allowed for control of spins at supercold temperatures. Part One of the book explains the theory of magnetism in semiconductors, while Part Two covers the growth of semiconductors for spintronics. Finally, Part Three looks at the characterization and properties of semiconductors for spintronics, with Part Four exploring the devices and the future direction of spintronics. Examines materials which are of commercial interest for producing smaller, faster, and more power-efficient computers and other devices Analyzes the theory behind magnetism in semiconductors and the growth of semiconductors for spintronics Details the properties of semiconductors for spintronics

Rare Earth Transition Metal Borocarbides (Nitrides) - Karl-Hartmut Müller 2001-03-31

The quaternary rare-earth transition-metal borocarbides are a new class of magnetic superconductors, discovered in 1994. The book contains a detailed description of the theoretical approaches used to explain the properties of these systems, with their intriguing array of magnetic and superconducting properties. The borocarbides are located in their context among the other magnetic or superconducting systems, especially the magnetic superconductors, and the book shows how our understanding has grown impressively due to the combination of a wide range of high quality samples and advanced measurement techniques. A number of important aspects nevertheless remain to be investigated, and these are outlined especially in the last part of the book.

Electronic, Elastic, and Magnetic Properties of GdN and MgN - Reham Shabara 2012

The high pressure structural phase transition in the rare earth compounds has the interest of researchers in many fields, especially in the spintronics applications. The authors of this book try to introduce you

a reference in ab initio calculations and magnetic properties of two different compounds of rare earths, one from rare earth nitrides GdN and rare earth alkaline MgN.Our calculation is a first- principles study of GdN and MgN compounds in different structures within the framework of density functional theory.

Perovskites I (Part b) - E. Burzo 1996-11-18

In subvolume 27F1 the magnetic properties of AMO3 - type and of (AR)MO3 - type perovskite oxides (A = alkaline-earth metal, M = d transition element, R = rare earth element) have been compiled. In some aspects this volume is a supplement to the previously published survey in Landolt-Börnstein of J.B. Goodenough and J.M. Longo Vol. III/4a (1970) and S. Nomura Vol. III/12a (1978). However this volume III/27F1 presents in itself a comprehensive state of the knowledge of the magnetic and magnetism-related properties of the considered compounds.

Handbook of Crystal Structures and Magnetic Properties of Rare Earth Intermetallics - Andrej Szytula 1994-03-08

Rare-earth intermetallics, also known as lanthanide elements, play an important role in the study of magnetic materials and the development of semi- and super-conducting materials. This handbook provides an up-to-date compilation of crystallographic, physical, and magnetic data on rare-earth intermetallic compounds. Over 20 different structure types are described in detail with an emphasis on how crystal structure can affect magnetic properties. Theoretical models for magnetic interactions are described as well as the impact of crystal electric fields on transport properties, magneto crystalline anistropy and hyperfine interactions. This book provides materials scientists, engineers and physicists with all the critical information needed to use rare-earth intermetallics effectively in the development of new materials.

Amorphous and Liquid Normal, Transition and Rare Earth Metals - Jaime Keller 1975*

Surface Magnetism - Mathias Getzlaff 2010-09-18

This volume reviews selected aspects related to surface magnetism. It emphasizes the correlation of structural, electronic and magnetic properties in rare earth metal systems and ferromagnetic transition metals.

Magnetic Nanostructured Materials - Ahmed A. El Gendy 2018-06-29

Magnetic Nanostructured Materials: From Lab to Fab presents a complete overview of the translation of nanostructured materials into realistic applications, drawing on the most recent research in the field to discuss the fundamentals, synthesis and characterization of nanomagnetics. A wide spectrum of nanomagnetic applications is included, covering industrial, environmental and biomedical fields, and using chemical, physical and biological methods. Materials such as Fe, Co, CoxC, MnGa, GdSi, ferrite nanoparticles and thin films are highlighted, with their potential applications discussed, such as magnetic refrigeration, energy harvesting, magnetic sensors, hyperthermia, MRI, drug delivery, permanent magnets, and data storage devices. Offering interdisciplinary knowledge on the materials science of nanostructured materials and magnetics, this book will be of interest to researchers in materials science, engineering, physics and chemistry with interest in magnetic nanomaterials, as well as postgraduate students and professionals in industry and government. Provides interdisciplinary knowledge on the materials science of nanostructured materials and magnetics Aids in the understanding of complex fundamentals and synthesis methods for magnetic nanomaterials Includes examples of real applications Shows how laboratory work on magnetic nanoparticles connects to industrial implementation and applications

Rare Earth Elements, Alloys and Compounds - 2004-03-15

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Handbook on the Physics and Chemistry of Rare Earths - 2011-09-22

This continuing authoritative series deals with the chemistry, materials science, physics and technology of the rare earth elements. Volume 38 of the Handbook on the Physics and Chemistry of Rare Earth incorporates a recapitulation of the scientific achievements and contributions made by the late Professor LeRoy Eyring (1919-2005) to the science of the lanthanide oxides in which the lanthanide element has a valence equal to or greater than three. · Authoritative · Comprehensive · Up-to-date · Critical

Glassy Metals: Magnetic, Chemical and Structural Properties - Ryusuke Hasegawa 2018-01-18

Covers: structure of metallic glass alloys; theory of magnetism in noncrystalline solids; electronic structure of metallic glasses; magnetism in transition metal base amorphous alloys; application of metallic glasses in low-frequency magnetic devices; magnetic material properties and applications of metallic glasses in electronic devices; rare-earth transition metal base alloys; corrosion properties of amorphous alloys.

Rare Earth and Transition Metal Doping of Semiconductor Materials - Volkmar Dierolf 2016-01-23

Rare Earth and Transition Metal Doping of Semiconductor Material explores traditional semiconductor devices that are based on control of the electron’s electric charge. This book looks at the semiconductor materials used for spintronics applications, in particular focusing on wide band-gap semiconductors doped with transition metals and rare earths. These materials are of particular commercial interest because their spin can be controlled at room temperature, a clear opposition to the most previous research on Gallium Arsenide, which allowed for control of spins at supercold temperatures. Part One of the book explains the theory of magnetism in semiconductors, while Part Two covers the growth of semiconductors for spintronics. Finally, Part Three looks at the characterization and properties of semiconductors for spintronics, with Part Four exploring the devices and the future direction of spintronics. Examines materials which are of commercial interest for producing smaller, faster, and more power-efficient computers and other devices Analyzes the theory behind magnetism in semiconductors and the growth of semiconductors for spintronics Details the properties of semiconductors for spintronics

Rare Earth Magnets and Their Applications - George C. Hadjipanayis 2002

This volume includes the contributions to the Seventeenth International Workshop on Rare-earth Magnets and Their Applications (August 18-22, 2002, Newark, Delaware, USA). The objective is to bring together scientists and engineers of industry, government, universities, and research institutes from different backgrounds to review their current understanding of rare earth magnets and their applications, and to exchange ideas and information. The Workshop will concentrate on the practical aspects of fabrication, processing, and application of rare earth magnets, as well as on the fundamental aspects of rare earth transition metal alloys and their magnetic hysteresis behavior.

Rare Earth-Transition Metal-Boron Compounds - Emil Burzo 2022-11-20

This book presents advances in the field of rare-earth (R) – transition metal (M) – boron compounds with extensive references. Since titanium and scandium do not form compounds with rare-earths, the Sc/Ti-M-B series are additionally presented. In each chapter the crystal structures, the complex physical properties as determined from neutron diffraction, magnetic measurements, resonance studies, transport properties and band structure calculations are critical analyzed. The models used in describing the experimental evidence are also presented. Tables with the main properties of the R-M-B compounds are given and representative data are illustrated in figures. In this way, the book provides state-of-the art knowledge and a valuable analysis of up-to-date results in the field. The technical applications, as permanent magnets, thermoelectric and magnetocaloric devices, hydrogen storage are also highlighted along with the authors insights into future directions in the field. The book is of interest for scientists involved in the development of the field as well as those working in the technical uses of rare-earth compounds.

Rare Earth Permanent-Magnet Alloys’ High Temperature Phase Transformation - Shuming Pan 2014-02-26

The process of high temperature phase transition of rare earth permanent-magnet alloys is revealed by photographs taken by high voltage TEM. The relationship between the formation of nanocrystal and magnetic properties is discussed in detail, which effects alloys composition and preparation process. The experiment results verified some presumptions, and were valuable for subsequent scientific research and creating new permanent-magnet alloys. The publication is intended for researchers, engineers and managers in the field of material science, metallurgy, and physics. Prof. Shuming Pan is senior engineer of Beijing General Research Institute of Non-ferrous Metal.

Magnetic Properties of Metals - H.P.J. Wijn 2012-12-06
During the last decades the knowledge of the magnetic properties of the d transition elements and of their metallic alloys and compounds has increased widely. The improvement of preparation techniques for well-defined substances, the development of sophisticated measuring methods and above all the drive to obtain more insight in the origin of magnetic interactions in solids have resulted in the publication of many specific magnetic properties for an abundance of all kinds of metallic materials. The data assembled in this booklet are selected from the comprehensive compilation of magnetic and related properties of metals in the Landolt-Bornstein New Series Group III sub volumes 19a, band c. It has been attempted to include preferentially those properties which are of a basic character and which therefore are most often needed by scientists active in the field of solid state magnetism. In the field of magnetism, there is a gradual transition from the use of cgs/emu units to SI units. It was, however, not intended to represent all data in the units of one system, regardless of how nice this would have been from a systematic point of view. Instead, mostly preference was given to the system of units that was originally used by the authors whose work is quoted. Thus cgs/ emu units occur most frequently. Of colirse the user of the tables and figures is helped in several ways to convert the data to the units which he is most familiar with, see, e. g.
Magnetic Properties of Rare-earth Nitrates with K3R2(NO3)9 Structure - Gang Luo 2001

Handbook on the Physics and Chemistry of Rare Earths - 2018-08-06
Handbook on the Physics and Chemistry of Rare Earths: Including Actinides, Volume 53, is a continuous series covering all aspects of rare earth science, including chemistry, life sciences, materials science and physics. The book focuses on rare earth elements [Sc, Y, and the lanthanides (La through Lu], but when relevant, information is included on the related actinide elements. Individual chapters are comprehensive, up-to-date, critical reviews written by highly experienced, invited experts, with this release including chapters on a Comparison of the Electronic Properties of Lanthanides with Formally Isoelectronic Actinides, Redox catalysis with redox-inactive rare-earth ions in artificial photosynthesis, and more. The series, which was started in 1978 by Professor Karl A. Gschneidner Jr., combines, and integrates, both the fundamentals and applications of these elements with two published volumes each year. Presents up-to-date overviews and new developments in the field of rare earths, covering both their physics and chemistry Contains Individual chapters that are comprehensive and broad, with critical reviews Provides contributions from highly experienced, invited experts
Glassy Metals: Magnetic, Chemical and Structural Properties - Ryusuke Hasegawa 2018-01-18
Covers: structure of metallic glass alloys; theory of magnetism in noncrystalline solids; electronic structure of metallic glasses; magnetism in transition metal base amorphous alloys; application of metallic glasses in low-frequency magnetic devices; magnetic material properties and applications of metallic glasses in electronic devices; rare-earth transition metal base alloys; corrosion properties of amorphous alloys.
Handbook of Magnetic Materials - K.H.J. Buschow 2001
Volume 13 of the Handbook of Magnetic Materials, as the preceding volumes, has a dual purpose. As a textbook it is intended to be of assistance to those who wish to be introduced to a given topic in the field of magnetism without the need to read the vast amount of literature published. As a work of reference it is intended for scientists active in magnetism research. To this dual purpose, Volume 13 of the Handbook is composed of topical review articles written by leading authorities. In each of these articles an extensive description is given in graphical as well as in tabular form, much emphasis being placed on the discussion of the experimental material in the framework of physics, chemistry and material science. In Chapter 1 of this volume a general review of the experimental work on interlayer exchange coupling is presented along with a discussion of the current understanding of this field. There exists an extensive amount of scientific efforts devoted to 4f and 5f systems, including experimental and theoretical, as well as basic and applied research. Chapter 2 aims at reviewing a part of these efforts from the viewpoint of microscopic theory. Special attention is paid to the many new developments in the field. One of the intentions is to bring to the fore the darker areas of DFT theory applications. A review of novel experimental results and first-principle energy-band calculations of MOKE spectra will be presented in Chapter 3. Conventional co-operative phenomena, such as long-range order and elementary excitation, have realisations in nonmagnetic situations. This applies also to the phenomena of geometrical frustration. In Chapter 4 this topic is addressed by developing the basic principles underlying the magnetic phenomena.
Magnetic Materials - Nicola A. Spaldin 2010-08-19
Magnetic Materials is an excellent introduction to the basics of magnetism, magnetic materials and their applications in modern device technologies. Retaining the concise style of the original, this edition has been thoroughly revised to address significant developments in the field, including the improved understanding of basic magnetic phenomena, new classes of materials, and changes to device paradigms. With homework problems, solutions to selected problems and a detailed list of references, Magnetic Materials continues to be the ideal book for a one-semester course and as a self-study guide for researchers new to the field. New to this edition: • Entirely new chapters on Exchange Bias Coupling, Multiferroic and Magnetoelectric Materials, Magnetic Insulators • Revised throughout, with substantial updates to the chapters on Magnetic Recording and Magnetic Semiconductors, incorporating the latest advances in the field • New example problems with worked solutions
Properties of Rare Earth and Transition Group Ions - Brebis Bleaney 1963