1. Record Nr. UNINA9910144728903321

Autore	Chen Yi-Long
Titolo	Mossbauer effect in lattice dynamics [[electronic resource]] : experimental techniques and applications / / Yi-Long Chen and De-Ping Yang
Pubbl/distr/stampa	Weinheim, : Wiley-VCH [Chichester, : John Wiley, distributor], c2007
ISBN	1-281-08804-8 9786611088040 3-527-61142-8 3-527-61143-6
Descrizione fisica	1 online resource (427 p.)
Altri autori (Persone)	YangDe-Ping
Disciplina	530.411 537.5352
Soggetti	Lattice dynamics Mossbauer effect Mossbauer spectroscopy Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Mossbauer Effect in Lattice Dynamics; Contents; Preface; 1 The Mossbauer Effect; 1.1 Resonant Scattering of -Rays; 1.2 The Mossbauer Effect; 1.2.1 Compensation for Recoil Energy; 1.2.2 The Discovery of the Mossbauer Effect; 1.3 The Mossbauer Spectrum; 1.3.1 The Measurement of a Mossbauer Spectrum; 1.3.2 The Shape and Intensity of a Spectral Line; 1.4 The Classical Theory; 1.5 The Quantum Theory; 1.5.1 Coherent States of a Harmonic Oscillator; 1.5.2 Gamma Radiation from a Bound Nucleus; 1.5.3 Mossbauer Effect in a Solid; 1.5.4 Average Energy Transferred; References; 2 Hyperfine Interactions 2.1 Electric Monopole Interaction2.1.1 A General Description; 2.1.2 The Isomer Shift; 2.1.3 Calibration of Isomer Shift; 2.1.4 Isomer Shift and Electronic Structure; 2.2 Electric Quadrupole Interaction; 2.2.1 Electric Quadrupole Splitting; 2.2.2 The Electric Field Gradient (EFG); 2.2.2.1 Sources of EFG; 2.2.2.2 Temperature Effect on EFG; 2.2.3 Intensities of

Sommario/riassunto

This up-to-date review closes an important gap in the literature by providing a comprehensive description of the M?ssbauer effect in lattice dynamics, along with a collection of applications in metals, alloys, amorphous solids, molecular crystals, thin films, and nanocrystals. It is the first to systematically compare M?ssbauer spectroscopy using synchrotron radiation to conventional M?ssbauer spectroscopy, discussing in detail its advantages and capabilities, backed by the latest theoretical developments and experimental examples.Intended as a self-contained volume that may be used as a c