Nanomaterials and Nanosystems

Ceramic Materials
Science and Engineering

Contents

Fields of interests
Ceramics, Glass, Composites, Natural Materials; Inorganic Chemistry; Continuum Mechanics and Mechanics of Materials

Target groups
Research

Product category
Monograph

Due May 2012
► approx. *€ (D) 139,05 | € (A) 142,94 | sFr 186,50
► approx. € 129,95 | £117.00

Due May 2012
2nd ed. 2012. XX, 970 p. 778 illus., 659 in color. Hardcover
► *€ (D) 101,60 | € (A) 104,45 | sFr 126,50
► € 94,95 | £85.50
ISBN 978-1-4614-3522-8

Due July 2012
2012. 230 p. 60 illus., 10 in color. Hardcover
► approx. *€ (D) 106,95 | € (A) 109,95 | sFr 133,50
► approx. € 99,95 | £90.00
ISBN 978-4-431-54063-1

T. Kakeshita, Osaka University, Japan (Ed)

Progress in Advanced Structural and Functional Materials Design

This book describes clearly various research topics investigated for these 10 years in the Research Center of Advanced Structural and Functional Materials Design in Osaka University, Japan. Every chapter is aimed at understanding most advanced researches in materials science by describing its fundamentals and details as much as possible.

Features
► Collection of cutting edge of original researches in Osaka University aimed for materials design ► Rewrite front-line research of materials design so as to be understood by undergraduate students ► Definite edition of Global COE at Osaka University

Contents
From the Contents: Advanced Materials Design.- Advanced materials design for recycling society.- Advanced materials design through structural control.- Advanced materials design through solid-solid phase transformations.- Advanced materials design using magnetic field.- Advanced materials design by electrochemistry.- Advanced materials design by deformation.- Advanced materials design by radiation of high energy particles.- Advanced materials design by using laser.- Advanced materials design by using plasma.- Advanced materials design by using FSW technique.- Advanced materials design by lithography technique.

Fields of interests
Structural Materials; Characterization and Evaluation of Materials; Optical and Electronic Materials

Target groups
Research

Product category
Monograph
Chalcogenides

Metastability and Phase Change Phenomena

A state-of-the-art description of photo-induced effects observed in amorphous chalcogenides is presented with the accent on the underlying physics. A comparison is made between sulphur(selenium)-based chalcogenides where numerous photo-induced phenomena take place entirely within the amorphous phase and tellurides where a crystal-to-amorphous phase-change is a major effect and correlations between various phenomena and structure and glass-forming ability are discussed. Applications of photo-induced metastability in devices - present and upcoming optical memories among others - are discussed, while, to orient the reader, the various disc formats are described.

Features
- Comprehensive state-of-the-art report on optical effects in chalcogenide materials
- Describes future basis of optical memories
- Integrates materials science and physics
- A reference work for researchers and engineers alike

Contents

Fields of interests
Optical and Electronic Materials; Optics, Optoelectronics, Plasmonics and Optical Devices; Engineering, general

Target groups
Professional/practitioner

Product category
Monograph