

# Wiley Series in **Materials for Electronic and Optoelectronic Applications**

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## Aims and Scope

This series is devoted to electronic and optoelectronic materials and is relevant to graduates in materials science, engineering and technology, as well as graduates in physics and chemistry. It covers topical areas such as: crystal growth, optical, electrical and structural characterization, semiconductors, nanostructures, superconductors, photonic materials, display materials, magnetic materials, fibre-optics, electro-optical materials, etc. The books start from fundamental principles and build-up in a logical sequence to advanced concepts, and address the relevance of the subjects to their specific applications. The emphasis is on principles and up-to-date applications with examples.

**Do you have an idea for a new publication for the Series?  
Or perhaps you already have a proposal or a manuscript.**

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# PUBLISHED TITLES

A VALUABLE, TIMELY BOOK FOR THE CRYSTAL GROWTH COMMUNITY, EDITED BY ONE OF THE MOST RESPECTED MEMBERS IN THE FIELD

## Bulk Crystal Growth of Electronic, Optical and Optoelectronic Materials

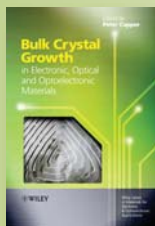
Peter Capper, Selex Sensors and Airborne Systems Infrared Ltd, UK

This insightful book covers the bulk growth of semiconductors, i.e. silicon, gallium arsenide, cadmium mercury telluride, indium phosphide, indium antimonide, gallium nitride, cadmium zinc telluride, a range of wide-bandgap II-VI compounds, diamond and silicon carbide, and a wide range of oxides/fluorides (including sapphire and quartz) that are used in many industrial applications.

- A separate chapter is devoted to the fascinating field of growth in various forms of microgravity, an activity that is 30-years old and which has revealed many interesting features, some of which have been very surprising to experimenters and theoreticians alike.
- Includes global interest with particular relevance to: USA, Canada, UK, France, Germany, Netherlands, Belgium, Italy, Spain, Switzerland, Japan, Korea, Taiwan, China, Australia and South Africa

This book will appeal to all those graduate students in the physical sciences who have an interest in materials and to workers in all the relevant fields discussed in the book who wish to remain up-to-date in their own areas and learn how their colleagues in other materials systems cope with common and unique problems. The latter will include workers utilising various epitaxial growth methods, as many of the materials covered here are used as substrates for epitaxy.

0470851422 • Cloth • 574pp • February 2005  
£115.00 €179.00 \$189.95



## Properties of Group-IV, III-V and II-VI Semiconductors

Sadao Adachi, Gunma University, Kiryu-shi, Japan

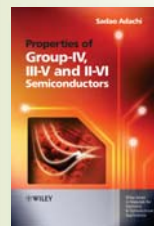
Almost all the semiconductors of practical interest are the group-IV, III-V and II-VI semiconductors and the range of technical applications of such semiconductors is extremely wide. The purpose of this book is twofold:

- to discuss the key properties of the group-IV, III-V and II-VI semiconductors,
- to systemize these properties from a solid-state physics aspect.

The majority of the text:

- is devoted to the description of the lattice structural, thermal, elastic, lattice dynamic, electronic energy-band structural, optical and carrier transport properties of these semiconductors. Some corrective effects and related properties, such as piezoelectric, elasto-optic and electro-optic properties, are also discussed
- contains convenient tables summarizing the various material parameters and the definitions of important semiconductor properties. In addition, graphs are included in order to make the information more quantitative and intuitive.
- is intended not only for semiconductor device engineers, but also physicists and physical chemists, and particularly students specializing in the fields of semiconductor synthesis, crystal growth, semiconductor device physics and technology.

0470090324 • Cloth • 406pp • February 2005  
£125.00 €195.00 \$206.50



# FORTHCOMING TITLES

## Optical Properties of Condensed Matter and Applications

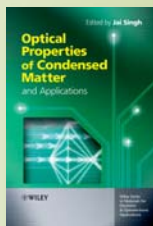
Jai Singh, Charles Darwin University, Australia

Following a semi-quantitative approach, this book presents a summary of the basic concepts, with examples and applications, and reviews recent developments in the study of optical properties of condensed matter systems.

Key Features:

- Covers basic knowledge as well as application topics
- Includes theory, experimental techniques and current and developing applications
- Written by internationally respected contributors working in physics and electrical engineering departments and government laboratories

0470021926 • Cloth • 464pp • September 2006  
£130.00 €199.00 \$214.50

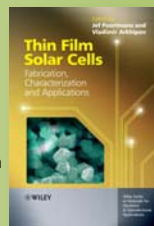


## Thin Film Solar Cells: Fabrication, Characterization and Applications

Jef Poortmans, IMEC, Belgium, Vladimir Arkhipov, IMEC, Belgium

Thin-film solar cells are either emerging or about to emerge from the research laboratory to become commercially available devices finding practical various applications. Currently no textbooks outlining the basic theoretical background, methods of fabrication and applications currently exist. Thus, this book aims to present for the first time an in-depth overview of this topic covering a broad range of thin-film solar cell technologies including both organic and inorganic materials, presented in a systematic fashion, by the scientific leaders in the respective domains. It covers a broad range of related topics, from physical principles to design, fabrication, characterization, and applications of novel photovoltaic devices.

0470091266 • Cloth • 536pp • October 2006  
£130.00 €195.00 \$235.00



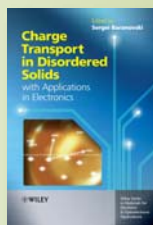
**BRINGS UP-TO-DATE, IN A ONE-STOP SOURCE, A KEY EVOLVING AREA IN THE FIELD OF ELECTRONIC MATERIALS**

## Charge Transport in Disordered Solids with Applications in Electronics

Sergei Baranovskii, Philipps University Marburg, Germany

This text aims to cover conduction in disordered solids from fundamental physical principles and theories, through practical material development with an emphasis on applications in all areas of electronic materials. Presenting basic physical concepts developed in this field in recent years in a uniform manner, through an international group of contributors.

0470095040 • Cloth • 512pp • September 2006  
£125.00 €195.00 \$206.50



## ADVANCE NOTIFICATION

### Dielectric Films for Advanced Microelectronics

Mikhail Baklanov, IMEC, Belgium, Karen Maex, IMEC, Belgium, Martin Green, NIST, USA

0470013605 • Cloth • 416pp • February 2007

### Liquid Phase Epitaxy of Electronic, Optical and Optoelectronic Materials

Peter Capper, Selex, UK, Michael Mauk, University of Pennsylvania, USA

0470852909 • Cloth • 408pp • March 2007

### Molecular Electronics

Mike Petty, University of Durham, UK

0470013079 • Cloth • 408pp • July 2007

0470013087 • Paper • 408pp • July 2007

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