

## 电子书推介 2022 年第 5 期（总第 10 期）

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### **Mid-infrared Optoelectronics: Materials, Devices, and Applications**

Edited by: Eric Tournié and Laurent Cerutti

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Part One: Fundamentals

Part Two: Light sources

Part Three: Photodetectors

Part Four: New approaches

Part Five: Application of mid-IR devices

全文: <http://www.sciencedirect.com/science/book/9780081027097>

### **Handbook of Advanced Electronic and Photonic Materials and Devices**

Edited by: Hari Singh Nalwa

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Volume 1: Semiconductors

Volume 2: Semiconductors Devices

Volume 3: High-Tc Superconductors and Organic Conductors

Volume 4: Ferroelectrics and Dielectrics

Volume 5: Chalcogenide Glasses and Sol-Gel Materials

Volume 6: Nanostructured Materials

Volume 7: Liquid Crystals, Display and Laser Materials

Volume 8: Conducting Polymers

Volume 9: Nonlinear Optical Materials

Volume 10: Light-Emitting Diodes, Lithium Batteries and Polymer Devices

全文: <http://www.sciencedirect.com/science/book/9780125137454>

### **Future Directions in Silicon Photonics**

Edited by Sebastian Lourdudoss, John E. Bowers, Chennupati Jagadish

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Chapter One - Building blocks of silicon photonics

Chapter Two - Heterogeneously integrated III–V photonic devices on Si

Chapter Three - Quantum dot lasers for silicon photonics

Chapter Four - Microchannel epitaxy of III–V layers on Si substrates

Chapter Five - Epitaxial lateral overgrowth of III-V semiconductors on Si for photonic integration

Chapter Six - Monolithic integration of lattice-matched Ga(NAsP)-based laser structures on CMOS-compatible Si (001) wafers for Si-photonics applications

Chapter Seven - Growth of III–V semiconductors and lasers on silicon substrates by MOCVD

Chapter Eight - Nano-ridge laser monolithically grown on (001) Si

Chapter Nine - Quantum dot microcavity lasers on silicon substrates

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## **Optical Fiber Telecommunications VII**

Edited by: Alan E. Willner

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Part I: Devices/Subsystems Technologies

Part II: System and Network Technologies

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## **Handbook of Silicon Based MEMS Materials and Technologies**

Edited by: Markku Tilli, Teruaki Motooka, ... Veikko Lindroos

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Part I: Silicon as MEMS Material

Part II: Modeling in MEMS

Part III: Measuring MEMS

Part IV: Micromachining Technologies in MEMS

Part V: Encapsulation and Integration of MEMS

全文: <http://www.sciencedirect.com/science/book/9780323299657>

## **Molecular Beam Epitaxy: From Research to Mass Production**

Edited by: Mohamed Henini

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### **Description**

Molecular Beam Epitaxy (MBE): From Research to Mass Production, Second Edition, provides a comprehensive overview of the latest MBE research and applications in epitaxial growth, along with a detailed discussion and 'how to' on processing molecular or atomic beams that occur on the surface of a heated crystalline substrate in a vacuum. The techniques addressed in the book can be deployed wherever precise thin-film devices with enhanced and unique properties for computing, optics or photonics are required. It includes new semiconductor materials, new device structures that are commercially available, and many that are at the advanced research stage.

This second edition covers the advances made by MBE, both in research and in the mass production of electronic and optoelectronic devices. Enhancements include new chapters on MBE growth of 2D materials, Si-Ge materials, AlN and GaN materials, and hybrid ferromagnet and semiconductor structures.

全文: <http://www.sciencedirect.com/science/book/9780128121368>

## **Handbook of Optical Constants of Solids**

Edited by: Edward D. Palik

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### **Description**

This set of five volumes, four volumes edited by Edward D. Palik and a volume by Gorachand Ghosh, is a unique resource for any science and technology library. It provides materials researchers and optical device designers with reference facts in a context not available anywhere else. The singular functionality of the set derives from the unique format for the three core volumes that comprise the Handbook of Optical Constants of Solids. The Handbook satisfies several essential needs: first, it affords the most comprehensive database of the refractive index and extinction (or loss) coefficient of technically important and scientifically interesting dielectrics. This data has been critically selected and evaluated by authorities on each material. Second, the dielectric constant database is supplemented by tutorial chapters covering the basics of dielectric theory and reviews of experimental techniques for each wavelength region and material characteristic. As an additional resource, two of the tutorial chapters summarize the relevant characteristics of each of the materials in the database.

The data in the core volumes have been collected and analyzed over a period of

twelve years, with the most recent completed in 1997. The volumes systematically define the dielectric properties of 143 of the most engaging materials, including metals, semiconductors, and insulators. Together, the three Palik books contain nearly 3,000 pages, with about 2/3 devoted to the dielectric constant data. The tutorial chapters in the remaining 1/3 of the pages contain a wealth of information, including some dielectric data. Hence, the separate volume, Index to Handbook of Optical Constants of Solids, which is included as part of the set, substantially enhances the utility of the Handbook and in essence, joins all the Palik volumes into one unit. It is then of great importance to users of the set. A final volume rounds out the set. The Handbook of Thermo-Optic Coefficients of Optical Materials with Applications collects refractive index measurements and their temperature dependence for a large number of crystals and glasses. Mathematical models represent these data, and in turn are used in the design of nonlinear optical devices.

全文: <http://www.sciencedirect.com/science/book/9780125444156>

### **Handbook of Thin Film Devices**

Authors: Maurice H. Francombe

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Volume 1: Hetero-Structures for High Performance Devices

Volume 2: Semiconductor Optical and Electro-Optical Devices

Volume 3: Superconducting film devices

Volume 4: Magnetic thin film devices

Volume 5: Ferroelectric Film Devices

全文: <http://www.sciencedirect.com/science/book/9780122653209>

### **Reference Data for Engineers : Radio, Electronics, Computer, and Communications (Ninth Edition)**

Edited by: Wendy M. Middleton and Mac E. Van Valkenburg

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#### **Description**

Reference Data for Engineers is the most respected, reliable, and indispensable reference tool for technical professionals around the globe. Written by professionals for professionals, this book is a complete reference for engineers, covering a broad range of topics. It is the combined effort of 96 engineers, scientists, educators, and other recognized specialists in the fields of electronics, radio, computer, and communications technology.

By providing an abundance of information on essential, need-to-know topics without heavy emphasis on complicated mathematics, Reference Data for Engineers is an absolute "must-have" for every engineer who requires comprehensive electrical, electronics, and communications data at his or her fingertips. Featured in the Ninth Edition is updated coverage on intellectual property and patents, probability and design, antennas, power electronics, rectifiers, power supplies, and properties of materials. Useful information on units, constants and conversion factors, active filter design, antennas, integrated circuits, surface acoustic wave design, and digital signal processing is also included. The Ninth Edition also offers new knowledge in the fields of satellite technology, space communication, microwave science, telecommunication, global positioning systems, frequency data, and radar.

全文: <http://www.sciencedirect.com/science/book/9780750672917>

### **Advances in Infrared Photodetectors**

Edited by Sarath D. Gunapala, David R. Rhiger, Chennupati Jagadish

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Chapter 1 - Type-II Superlattice Infrared Detectors

Chapter 2 - Quantum Well Infrared Photodetectors

Chapter 3 - Quantum Dot Infrared Photodetectors

Chapter 4 - Terahertz Semiconductor Quantum Well Photodetectors

Chapter 5 - Homo- and Heterojunction Interfacial Workfunction Internal Photo-Emission Detectors from UV to IR

Chapter 6 - HgCdTe Long-Wave Infrared Detectors

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