

## 电子书推介 2022 年第 6 期（总第 11 期）

半导体所图书馆

2022-4-14

### **Advances in Semiconductor Lasers**

Edited by James J. Coleman, A. Catrina Bryce, Chennupati Jagadish

Copyright © 2022 Elsevier Ltd.

Chapter 1 - High-Power Slab-Coupled Optical Waveguide Lasers and Amplifiers

Chapter 2 - High-Power, High-Efficiency Monolithic Edge-Emitting GaAs-Based Lasers with Narrow Spectral Widths

Chapter 3 - Advances in Mode-Locked Semiconductor Lasers

Chapter 4 - GaN Laser Diodes on Nonpolar and Semipolar Planes

Chapter 5 - Mid-Infrared Semiconductor Lasers: A Review

Chapter 6 - Coherent Coupling of Vertical-Cavity Surface-Emitting Laser Arrays

Chapter 7 - Ultrafast Vertical-External-Cavity Surface-Emitting Semiconductor Lasers

Chapter 8 - Photonic Crystal Lasers

Chapter 9 - Metallic and Plasmonic Nanolasers

Chapter 10 - GaAs-Based Quantum Dot Lasers

Chapter 11 - InP-Based Quantum Dot Lasers

Chapter 12 - Semiconductor Nanowire Lasers

全文: <http://www.sciencedirect.com/science/book/9780123910660>

### **Silicon Photonics**

Edited by Sebastian Lourduoss, Ray T. Chen, Chennupati Jagadish

Copyright © 2022 Elsevier Ltd.

Chapter One - Epitaxial Integration of Antimonide-Based Semiconductor Lasers on Si

Chapter Two - III-V on Silicon Nanocomposites

Chapter Three - Transfer Printing for Silicon Photonics

Chapter Four - Semiconductor Membrane Lasers and Photodiode on Si

Chapter Five - Photonic Crystal Lasers and Nanolasers on Silicon

Chapter Six - Heterogeneous Integration of III-V Lasers on Si by Bonding

Chapter Seven - InP Photonic Integrated Circuits on Silicon

全文: <http://www.sciencedirect.com/science/book/9780128150993>

## **Defects in Semiconductors**

Edited by Lucia Romano, Vittorio Privitera, Chennupati Jagadish

Copyright © 2022 Elsevier Ltd.

Chapter One - Role of Defects in the Dopant Diffusion in Si

Chapter Two - Electron and Proton Irradiation of Silicon

Chapter Three - Ion Implantation Defects and Shallow Junctions in Si and Ge

Chapter Four - Defective Solid-Phase Epitaxial Growth of Si

Chapter Five - Nanoindentation of Silicon and Germanium

Chapter Six - Analytical Techniques for Electrically Active Defect Detection

Chapter Seven - Surface and Defect States in Semiconductors Investigated by Surface Photovoltage

Chapter Eight - Point Defects in ZnO

Chapter Nine - Point Defects in GaN

Chapter Ten - Point Defects in Silicon Carbide

全文: <http://www.sciencedirect.com/science/book/9780128019351>

## **III-Nitride Electronic Devices**

Edited by Rongming Chu, Keisuke Shinohara

Copyright © 2022 Elsevier Ltd.

Chapter One - Electronic properties of III-nitride materials and basics of III-nitride FETs

Chapter Two - Epitaxial growth of III-nitride electronic devices

Chapter Three - III-Nitride microwave power transistors

Chapter Four - III-Nitride millimeter wave transistors

Chapter Five - III-Nitride lateral transistor power switch

Chapter Six - III-Nitride vertical devices

Chapter Seven - Physics-based III-Nitride device modeling

Chapter Eight - Power electronics applications of III-nitride transistors

Chapter Nine - N-polar III-nitride transistors

Chapter Ten - III-Nitride ultra-wide-bandgap electronic devices

Chapter Eleven - III-Nitride p-channel transistors

Chapter Twelve - Emerging materials, processing and device concepts: Epitaxial transition metal nitride electronic materials

Chapter Thirteen - Epitaxial lift-off for III-nitride devices

全文: <http://www.sciencedirect.com/science/book/9780128175446>

## **Nitride Semiconductor Light-Emitting Diodes (LEDs) : Materials, Technologies, and Applications**

Second Edition • 2018

Edited by: JianJang Huang, Hao-Chung Kuo and Shyh-Chiang Shen

Part One: Materials and fabrication

Part Two: Performance of nitride LEDs

Part Three: Applications of nitride LEDs

全文: <http://www.sciencedirect.com/science/book/9780081019429>

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

Edited by: Mohamed Henini

Copyright © 2012 Elsevier Inc.

This multi-contributor handbook discusses Molecular Beam Epitaxy (MBE), an epitaxial deposition technique which involves laying down layers of materials with atomic thicknesses on to substrates. It summarizes MBE research and application in epitaxial growth with close discussion and a 'how to' on processing molecular or atomic beams that occur on a surface of a heated crystalline substrate in a vacuum.

MBE has expanded in importance over the past thirty years (in terms of unique authors, papers and conferences) from a pure research domain into commercial applications (prototype device structures and more at the advanced research stage). MBE is important because it enables new device phenomena and facilitates the production of multiple layered structures with extremely fine dimensional and compositional control. The techniques can be deployed wherever precise thin-film devices with enhanced and unique properties for computing, optics or photonics are required. This book covers the advances made by MBE both in research and mass production of electronic and optoelectronic devices. It includes new semiconductor materials, new device structures which are commercially available, and many more which are at the advanced research stage.

全文: <http://www.sciencedirect.com/science/book/9780123878397>

## **Lasers for Medical Applications: Diagnostics, Therapy and Surgery**

Edited by: Helena Jelínková

Part I: Laser–tissue interaction

Part II: Types of laser used in medicine

Part III: Lasers in diagnostics

Part IV: Laser therapy and surgery

全文: <http://www.sciencedirect.com/science/book/9780857092373>

## **Introduction to Fiber-Optic Communications**

Authors: Rongqing Hui

Copyright © 2020 Elsevier Inc.

Introduction to Fiber-Optic Communications provides students with the most up-to-date, comprehensive coverage of modern optical fiber communications and applications, striking a fine balance between theory and practice that avoids excessive mathematics and derivations. Unlike other textbooks currently available, this book covers all of the important recent technologies and developments in the field, including electro-optic modulators, coherent optical systems, and silicon integrated photonic circuits. Filled with practical, relevant worked examples and exercise problems, the book presents complete coverage of the topics that optical and communications engineering students need to be successful.

From principles of optical and optoelectronic components, to optical transmission system design, and from conventional optical fiber links, to more useful optical communication systems with advanced modulation formats and high-speed DSP, this book covers the necessities on the topic, even including today's important application areas of passive optical networks, datacenters and optical interconnections.

全文: <http://www.sciencedirect.com/science/book/9780128053454>

## **Optical Fiber Telecommunications: Systems and Networks**

Sixth Edition • 2013

Copyright © 2013 Elsevier Inc.

Optical Fiber Telecommunications VI (A&B) is the sixth in a series that has chronicled the progress in the R&D of lightwave communications since the early 1970s. Written by active authorities from academia and industry, this edition brings a fresh look to many essential topics, including devices, subsystems, systems and networks. A central theme is the enabling of high-bandwidth communications in a cost-effective manner for the development of customer applications. These volumes are an ideal reference for R&D engineers and managers, optical systems implementers, university researchers and students, network operators, and investors.

Volume A is devoted to components and subsystems, including photonic integrated circuits, multicore and few-mode fibers, photonic crystals, silicon photonics, signal processing, and optical interconnections.

Volume B is devoted to systems and networks, including advanced modulation formats, coherent detection, Tb/s channels, space-division multiplexing, reconfigurable networks, broadband access, undersea cable, satellite communications, and microwave photonics.

全文: <http://www.sciencedirect.com/science/book/9780123969606>

## **Reliability of Semiconductor Lasers and Optoelectronic Devices**

Edited by: Robert W. Herrick and Osamu Ueda

Copyright © 2021 Elsevier Ltd.

Chapter 1 - Introduction to optoelectronic devices

Chapter 2 - Reliability engineering in optoelectronic devices and fiber optic transceivers

Chapter 3 - Case studies in fiber optic reliability

Select Chapter 4 - Materials science of defects in GaAs-based semiconductor lasers

Select Chapter 5 - Grown-in defects and thermal instability affecting the reliability of lasers: III-Vs versus III-nitrides

Chapter 6 - Reliability of lasers on silicon substrates for silicon photonics

Chapter 7 - Degradation mechanisms of InGaN visible LEDs and AlGaN UV LEDs

全文: <http://www.sciencedirect.com/science/book/9780128192542>

## **Handbook of Terahertz Technology for Imaging, Sensing and Communications**

Edited by: Daryoosh Saeedkia

Part I: Fundamentals of terahertz technology for imaging, sensing and communications

Part II: Recent progress and novel techniques in terahertz technology

Part III: Applications of terahertz technology

全文: <http://www.sciencedirect.com/science/book/9780857092359>

## **The Physics of SiO<sub>2</sub> and its Interfaces**

Proceedings of the International Topical Conference on the Physics of SiO<sub>2</sub> and Its Interfaces Held at the IBM Thomas J. Watson Research Center, Yorktown Heights, New York, March 22–24, 1978

Edited by: SOKRATES T. PANTELIDES

CHAPTER I: TRANSPORT PROPERTIES AND TUNNELING

CHAPTER II: ELECTRONIC STRUCTURE AND SPECTRA

CHAPTER III: THERMAL AND STRUCTURAL PROPERTIES

CHAPTER IV: DEFECTS AND IMPURITIES IN THERMAL SiO<sub>2</sub>

CHAPTER V: DEFECTS AND IMPURITIES IN  $\alpha$ -QUARTZ AND FUSED SILICA

CHAPTER VI: ELECTRONIC STRUCTURE OF THE Si-SiO<sub>2</sub> INTERFACE

CHAPTER VII: THE STOICHIOMETRY OF THE Si-SiO<sub>2</sub> INTERFACE

CHAPTER VIII: INTERFACE PROPERTIES

全文: <http://www.sciencedirect.com/science/book/9780080230498>

### **III-Nitride Semiconductor Optoelectronics**

Edited by Zetian Mi, Chennupati Jagadish

Copyright © 2022 Elsevier Ltd

Chapter One - Materials Challenges of AlGaN-Based UV Optoelectronic Devices

Chapter Two - Development of Deep UV LEDs and Current Problems in Material and Device Technology

Chapter Three - Growth of High-Quality AlN on Sapphire and Development of AlGaN-Based Deep-Ultraviolet Light-Emitting Diodes

Chapter Four - III-N Wide Bandgap Deep-Ultraviolet Lasers and Photodetectors

Chapter Five - Al(Ga)N Nanowire Deep Ultraviolet Optoelectronics

Chapter Six - Growth and Structural Characterization of Self-Nucleated III-Nitride Nanowires

Chapter Seven - Selective Area Growth of InGaN/GaN Nanocolumnar Heterostructures by Plasma-Assisted Molecular Beam Epitaxy

Chapter Eight - InN Nanowires: Epitaxial Growth, Characterization, and Device Applications

Chapter Nine - Dynamic Atomic Layer Epitaxy of InN on/in GaN and Its Application for Fabricating Ordered Alloys in Whole III-N System

Chapter Ten - Nitride Semiconductor Nanorod Heterostructures for Full-Color and White-Light Applications

Chapter Eleven - III-Nitride Electrically Pumped Visible and Near-Infrared Nanowire Lasers on (001) Silicon

Chapter Twelve - Exploring the Next Phase in Gallium Nitride Photonics: Cubic Phase Light Emitters Heterointegrated on Silicon

全文: <http://www.sciencedirect.com/science/book/9780128095843>

### **High Performance Silicon Imaging: Fundamentals and Applications of CMOS and CCD Sensors**

Second Edition • 2020

Edited by: Daniel Durini

Copyright © 2020 Elsevier Ltd.

High Performance Silicon Imaging: Fundamentals and Applications of CMOS and CCD Sensors, Second Edition, covers the fundamentals of silicon image sensors, addressing existing performance issues and current and emerging solutions. Silicon imaging is a fast growing area of the semiconductor industry. Its use in cell phone cameras is already well established, with emerging applications including web,

security, automotive and digital cinema cameras. The book has been revised to reflect the latest state-of-the art developments in the field, including 3D imaging, advances in achieving lower signal noise, and new applications for consumer markets.

The fundamentals section has also been expanded to include a chapter on the characterization and testing of CMOS and CCD sensors that is crucial to the success of new applications. This book is an excellent resource for both academics and engineers working in the optics, photonics, semiconductor and electronics industries.

全文: <http://www.sciencedirect.com/science/book/9780081024348>