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Guide to State-of-the-Art Electron Devices

Editor(s):Prof. Dr. Joachim N. Burghartz
First published:25 February 2013
Print ISBN:9781118347263 |Online ISBN:9781118517543 |DOI:10.1002/9781118517543

About this book

Winner, 2013 PROSE Award, Engineering and Technology

Concise, high quality and comparative overview of state-of-the-art electron device development, manufacturing technologies and applications

Guide to State-of-the-Art Electron Devices marks the 60th anniversary of the IRE electron devices committee and the 35th anniversary of the IEEE Electron Devices Society, as such it defines the state-of-the-art of electron devices, as well as future directions across the entire field.

Spans full range of electron device types such as photovoltaic devices, semiconductor manufacturing and VLSI technology and circuits, covered by IEEE Electron and Devices Society

Contributed by internationally respected members of the electron devices community

A timely desk reference with fully-integrated colour and a unique lay-out with sidebars to highlight the key terms

Discusses the historical developments and speculates on future trends to give a more rounded picture of the topics covered

A valuable resource R&D managers; engineers in the semiconductor industry; applied scientists; circuit designers; Masters students in power electronics; and members of the IEEE Electron Device Society.

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9781118517543

CMOS Sigma-Delta Converters: Practical Design Guide

Author(s):José M. de la Rosa, Rocío del Río
First published:15 March 2013
Print ISBN:9781119979258 |Online ISBN:9781118569238 |DOI:10.1002/9781118569238

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9781118569238

Coplanar Waveguide Circuits, Components, and Systems

Author(s):Rainee N. Simons Ph.D.,
First published:1 March 2001
Print ISBN:9780471161219 |Online ISBN:9780471224754 |DOI:10.1002/0471224758

About this book

Up-to-date coverage of the analysis and applications of coplanar waveguides to microwave circuits and antennas

The unique feature of coplanar waveguides, as opposed to more conventional waveguides, is their uniplanar construction, in which all of the conductors are aligned on the same side of the substrate. This feature simplifies manufacturing and allows faster and less expensive characterization using on-wafer techniques.

Coplanar Waveguide Circuits, Components, and Systems is an engineer's complete resource, collecting all of the available data on the subject. Rainee Simons thoroughly

discusses propagation parameters for conventional coplanar waveguides and includes valuable details such as the derivation of the fundamental equations, physical explanations, and numerical examples.

Coverage also includes:

Discontinuities and circuit elements

Transitions to other transmission media

Directional couplers, hybrids, and magic T

Microelectromechanical systems based switches and phase shifters

Tunable devices using ferroelectric materials

Photonic bandgap structures

Printed circuit antennas

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/0471224758

Optics, Light and Lasers: The Practical Approach to Modern Aspects of Photonics and Laser Physics, Second Edition

Author(s):Prof. Dr. Dieter Meschede

First published:20 November 2006

Print ISBN:9783527406289 |Online ISBN:9783527618873 |DOI:10.1002/9783527618873

About this book

Starting from the concepts of classical optics, Optics, Light and Lasers introduces in detail the phenomena of linear and nonlinear light matter interaction, the properties of modern laser sources, and the concepts of quantum optics. Several examples taken from the scope of modern research are provided to emphasize the relevance of optics in current developments within science and technology. The text has been written for newcomers to the topic and benefits from the author's ability to explain difficult sequences and effects in a straightforward and easily comprehensible way. To this second, completely updated and enlarged edition, new chapters on quantum optics, quantum information, matter waves, photonic fibres and materials have been added, as well as more than 100 problems on laser physics and applied optics.

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9783527618873

Resonant MEMS: Fundamentals, Implementation and Application

Editor(s):Oliver Brand PhD,, Isabelle Dufour PhD,, Stephen M. Heinrich PhD,, Fabien Josse PhD,
First published:20 April 2015
Print ISBN:9783527335459 |Online ISBN:9783527676330 |DOI:10.1002/9783527676330

Book Series:Advanced Micro and Nanosystems

About this book

Part of the AMN book series, this book covers the principles, modeling and implementation as well as applications of resonant MEMS from a unified viewpoint. It starts out with the fundamental equations and phenomena that govern the behavior of resonant MEMS and then gives a detailed overview of their implementation in capacitive, piezoelectric, thermal and organic devices, complemented by chapters addressing the packaging of the devices and their stability. The last part of the book is devoted to the cutting-edge applications of resonant MEMS such as inertial, chemical and biosensors, fluid properties sensors, timing devices and energy harvesting systems.

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9783527676330

Understanding Lasers: An Entry Level Guide, Fourth Edition

Author(s):Jeff Hecht
First published:12 December 2018
Print ISBN:9781119310648 |Online ISBN:9781119310693 |DOI:10.1002/9781119310693

About this book

The expanded fourth edition of the book that offers an essential introduction to laser technology and the newest developments in the field

The revised and updated fourth edition of Understanding Lasers offers an essential

guide and introduction that explores how lasers work, what they do, and how they are applied in the real world. The author—a Fellow of The Optical Society—reviews the key concepts of physics and optics that are essential for understanding lasers and explains how lasers operate. The book also contains information on the optical accessories used with lasers.

Written in non-technical terms, the book gives an overview of the wide-variety laser types and configurations. Understanding Lasers covers fiber, solid-state, excimer, helium-neon, carbon dioxide, free-electron lasers, and more. In addition, the book also explains concepts such as the difference between laser oscillation and amplification, the importance of laser gain, and tunable lasers. The updated fourth edition highlights the most recent research and development in the field. This important resource:

Includes a new chapter on fiber lasers and amplifiers

Reviews new topics on physics of optical fibers and fiber lasers, disk lasers, and Ytterbium lasers

Contains new sections on Laser Geometry and Implications, Diode Laser Structures, Optimal Parametric Sources, and 3D Printing and Additive Manufacturing

Puts the focus on research and emerging developments in areas such as spectroscopy, slow light, laser cooling, and extremely precise measurements

Contains appendices, glossary, and index that help make this book a useful reference

Written for engineering and physics students, engineers, scientists, and technicians, the fourth edition of Understanding Lasers contains the basic concepts of lasers and the most recent advances in the technology.

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9781119310693

High-k Gate Dielectrics for CMOS Technology

Editor(s):Prof. Gang He, Prof. Zhaoqi Sun
First published:22 August 2012
Print ISBN:9783527330324 |Online ISBN:9783527646340 |DOI:10.1002/9783527646340

About this book

A state-of-the-art overview of high-k dielectric materials for advanced field-effect transistors, from both a fundamental and a technological

viewpoint, summarizing the latest research results and development solutions. As such, the book clearly discusses the advantages of these
materials over conventional materials and also addresses the issues that accompany their integration into existing production technologies.
Aimed at academia and industry alike, this monograph combines introductory parts for newcomers to the field as well as advanced sections
with directly applicable solutions for experienced researchers and developers in materials science, physics and electrical engineering.
全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9783527646340

Fundamentals of Semiconductor Manufacturing and Process Control

Author(s):Gary S. May Ph.D.,, Costas J. Spanos Ph.D.,

First published:9 May 2006
Print ISBN:9780471784067 |Online ISBN:9780471790280 |DOI:10.1002/0471790281

About this book

A practical guide to semiconductor manufacturing from process control to yield modeling and experimental design

Fundamentals of Semiconductor Manufacturing and Process Control covers all issues involved in manufacturing microelectronic devices and circuits, including fabrication sequences, process control, experimental design, process modeling, yield modeling, and CIM/CAM systems. Readers are introduced to both the theory and practice of all basic manufacturing concepts.

Following an overview of manufacturing and technology, the text explores process monitoring methods, including those that focus on product wafers and those that focus on the equipment used to produce wafers. Next, the text sets forth some fundamentals of statistics and yield modeling, which set the foundation for a detailed discussion of how statistical process control is used to analyze quality and improve yields.

The discussion of statistical experimental design offers readers a powerful approach for systematically varying controllable process conditions and determining their impact on output parameters that measure quality. The authors introduce process modeling concepts, including several advanced process control topics such as

run-by-run, supervisory control, and process and equipment diagnosis.

Critical coverage includes the following:

* Combines process control and semiconductor manufacturing

* Unique treatment of system and software technology and management of overall manufacturing systems

* Chapters include case studies, sample problems, and suggested exercises

* Instructor support includes electronic copies of the figures and an instructor's manual

Graduate-level students and industrial practitioners will benefit from the detailed exami?nation of how electronic materials and supplies are converted into finished integrated circuits and electronic products in a high-volume manufacturing environment.

An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/0471790281

Coherent Laser Beam Combining

Editor(s):Arnaud Brignon

First published:2 August 2013

Print ISBN:9783527411504 |Online ISBN:9783527652778 |DOI:10.1002/9783527652778

CHAPTER 6： Coherent Beam Combining and Atmospheric Compensation with Adaptive Fiber Array Systems (Pages: 167-191)

CHAPTER 7： Refractive Index Changes in Rare Earth-Doped Optical Fibers and Their Applications in All-Fiber Coherent Beam Combining (Pages: 193-230)

CHAPTER 8： Coherent Beam Combining of Pulsed Fiber Amplifiers in the Long-Pulse Regime (Nano- to Microseconds) (Pages: 231-276)

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CHAPTER 14：Phase-Conjugate Self-Organized Coherent Beam Combination (Pages: 427-453)

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全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9783527652778

Halide Perovskites: Photovoltaics, Light Emitting Devices, and Beyond

Editor(s):Tze-Chien Sum, Nripan Mathews

First published:29 October 2018

Online ISBN:9783527800766 |DOI:10.1002/9783527800766

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CHAPTER 2.3：Charge-Selective Contact Materials for Perovskite Solar Cells (PSCs) (Pages: 131-153)

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全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9783527800766

Nitride Semiconductor Devices: Fundamentals and Applications

Author(s):Prof. Dr. Hadis Morkoç

First published:2 April 2013

Print ISBN:9783527411016 |Online ISBN:9783527649006 |DOI:10.1002/9783527649006

About this book

This book gives a clear presentation of the necessary basics of semiconductor and device physics and engineering. It introduces readers to fundamental issues that will enable them to follow the latest technological research. It also covers important applications, including LED and lighting, semiconductor lasers, high power switching devices, and detectors. This balanced and up-to-date treatment makes the text an essential educational tool for both advanced students and professionals in the

electronics industry.

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9783527649006

Handbook of Optical Systems: Volume 5: Metrology of Optical Components and Systems, Volume 5

Editor(s):Herbert Gross, Bernd Dörband, Henriette Müller
First published:3 April 2012
Print ISBN:9783527403813 |Online ISBN:9783527699230 |DOI:10.1002/9783527699230

In this Volume

Volume 5 topics comprise the methods of measuring the properties of optical systems. The different fundamental techniques, such as propagation measurement and polarimetry, are introduced and discussed in detail and clarity. The presentation allows the reader, after having devised an optical system, to perform the measurements best suited to ascertain that the system fulfills the specific needs and requirements. The following chapters provide a survey on materials, coatings and surfaces of optical components, and combine this with a treatment of light and radiation. The book thus serves as a one-stop reference for metrology of optical systems.

Other Volumes

Volume 1: Fundamentals of Technical Optics

Volume 2: Physical Image Formation

Volume 3: Aberration Theory and Correction of Optical Systems

Volume 4: Survey of Optical Instruments

全文：https://onlinelibrary.wiley.com/doi/book/10.1002/9783527699230

Semiconductor Terahertz Technology: Devices and Systems at Room Temperature Operation

Editor(s):Guillermo Carpintero, Luis Enrique García Muñoz, Hans L. Hartnagel, Sascha Preu, Antti V. Räisänen
First published:23 July 2015
Print ISBN:9781118920428 |Online ISBN:9781118920411

|DOI:10.1002/9781118920411

About this book

Key advances in Semiconductor Terahertz (THz) Technology now promises important new applications enabling scientists and engineers to overcome the challenges of accessing the so-called "terahertz gap". This pioneering reference explains the fundamental methods and surveys innovative techniques in the generation, detection and processing of THz waves with solid-state devices, as well as illustrating their potential applications in security and telecommunications, among other fields.

With contributions from leading experts, Semiconductor Terahertz Technology: Devices and Systems at Room Temperature Operation comprehensively and systematically covers semiconductor-based room temperature operating sources such as photomixers, THz antennas, radiation concepts and THz propagation as well as room-temperature operating THz detectors.

The second part of the book focuses on applications such as the latest photonic and electronic THz systems as well as emerging THz technologies including: whispering gallery resonators, liquid crystals, metamaterials and graphene-based devices.

This book will provide support for practicing researchers and professionals and will be an indispensable reference to graduate students in the field of THz technology.

Key features:

Includes crucial theoretical background sections to photomixers, photoconductive switches and electronic THz generation & detection.

Provides an extensive overview of semiconductor-based THz sources and applications.

Discusses vital technologies for affordable THz applications.

Supports teaching and studying increasingly popular courses on semiconductor THz technology.