READ FREE OPTICAL PROCESSES IN SEMICONDUCTORS PANKOVE

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Optical Processes In Semiconductors Pankove Introduction

Optical Processes in Semiconductors

Comprehensive text and reference covers all phenomena involving light in semiconductors, emphasizing modern applications in semiconductor lasers, electroluminescence, photodetectors, photoconductors, photoemitters, polarization effects, absorption spectroscopy, more. Numerous problems. 339 illustrations.

Theory of Optical Processes in Semiconductors

Semiconductor optoelectronic devices are at the heart of all information generation and processing systems and are likely to be essential components of future optical computers. With more emphasis on optoelectronics and photonics in graduate programmes in physics and engineering, there is aneed for a text providing a basic understanding of the important physical phenomena involved. Such a training is necessary for the design, optimization, and search for new materials, devices, and application areas. This book provides a simple quantum mechanical theory of important optical processes,i.e. band-to-band, intersubband, and excitonic absorption and recombination in bulk, quantum wells, wires, dots, superlattices, and strained layers including electro-optic effects. The classical theory of absorption, quantization of radiation, and band picture based on k.p perturbation has beenincluded to provide the necessary background. Prerequisites for the book are a knowledge of quantum mechanics and solid state theory. Problems have been set at the end of each chapter, some of which may guide the reader to study processes not covered in the book. The application areas of thephenomena are also indicated.

Theory of Optical Processes in Semiconductors

The dominance of electronics in every steps of present day human civilization is the blessing of knowledge on properties, both electronic and optical, of bulk semiconductors(SCs) and their microstructures. The effective use of SCs and their microstructures for various applications depends on their detailed electronic and optical properties. This book discusses the bandgap of semiconductors as a function of both temperature and carrier density. The physics of MIS diodes is introduced and the variation of capacitance with voltage and carrier density is discussed. The methods of calculating the subband energies and wave functions in quantum wells(QWs) and superlattics(SLs) are then outlined.The concepts of strained layer epitaxy, critical thickness and the band structures are introduced taking Si-(Si, Ge)QWs as an example. A model calculation of mobility for alloy-disorder scattering and different phonon scattering is carried out for Si-(Si, Ge)QW. A brief description of the absorption processes in indirect gap bulk materials and QWs is finally given. It is believed that this book will be useful for undergraduate and postgraduate students, researchers and electronic device designers.

Electronic and Optical Processes in Semiconductors

This timely monograph addresses an important class of semiconductors and devices that constitute the underlying technology for blue lasers. It succinctly treats structural, electrical and optical properties of

nitrides and the substrates on which they are deposited, band structures of nitrides, optical processes, deposition and fabrication technologies, light-emitting diodes, and lasers. It also includes many tables and figures detailing the properties and performance of nitride semiconductors and devices.

Nitride Semiconductors and Devices

Provides a semi-quantitative approach to recent developments in the study of optical properties of condensed matter systems Featuring contributions by noted experts in the field of electronic and optoelectronic materials and photonics, this book looks at the optical properties of materials as well as their physical processes and various classes. Taking a semi-quantitative approach to the subject, it presents a summary of the basic concepts, reviews recent developments in the study of optical properties of materials and offers many examples and applications. Optical Properties of Materials and Their Applications, 2nd Edition starts by identifying the processes that should be described in detail and follows with the relevant classes of materials. In addition to featuring four new chapters on optoelectronic properties of organic semiconductors, recent advances in electroluminescence, perovskites, and ellipsometry, the book covers: optical properties of disordered condensed matter and glasses; concept of excitons; photoluminescence, photoinduced changes, and electroluminescence in noncrystalline semiconductors; and photoinduced bond breaking and volume change in chalcogenide glasses. Also included are chapters on: nonlinear optical properties of photonic glasses; kinetics of the persistent photoconductivity in crystalline III-V semiconductors; and transparent white OLEDs. In addition, readers will learn about excitonic processes in quantum wells; optoelectronic properties and applications of quantum dots; and more. Covers all of the fundamentals and applications of optical properties of materials Includes theory, experimental techniques, and current and developing applications Includes four new chapters on optoelectronic properties of organic semiconductors, recent advances in electroluminescence, perovskites, and ellipsometry Appropriate for materials scientists, chemists, physicists and electrical engineers involved in development of electronic materials Written by internationally respected professionals working in physics and electrical engineering departments and government laboratories Optical Properties of Materials and Their Applications, 2nd Edition is an ideal book for senior undergraduate and postgraduate students, and teaching and research professionals in the fields of physics, chemistry, chemical engineering, materials science, and materials engineering.

Optical Properties of Materials and Their Applications

Optical methods for investigating semiconductors and the theoretical description of optical processes have always been an important part of semiconductor physics. Only the emphasis placed on different materials changes with time. Here, a large number of papers are devoted to quantum dots, presenting the theory, spectroscopic investigation and methods of producing such structures. Another major part of the book reflects the growing interest in diluted semiconductors and II-IV nanosystems in general. There are also discussions of the fascinating field of photonic crystals. `Classical' low dimensional systems, such as GsAs/GaAlAs quantum wells and heterostructures, still make up a significant part of the results presented, and they also serve as model systems for new phenomena. New materials are being sought, and new experimental techniques are coming on stream, in particular the combination of different spectroscopic modalities.

Coherent Nonlinear Optical Processes in Semiconductors

Semiconductors and Semimetals

Optical Properties of Semiconductor Nanostructures

Porous Semiconductors: Optical Properties and Applications provides an examination of porous semiconductor materials. Beginning with a description of the basic electrochemistry of porous semiconductors and the different kinds of porous semiconductor materials that can be fabricated, the book

moves on to describe the fabrication processes used in the production of porous semiconductor optical components. Concluding the text, a number of optical components based on porous semiconductor materials are discussed in depth. Porous Semiconductors: Optical Properties and Applications provides a thorough grounding in the design, fabrication and theory behind the optical applications of porous semiconductor materials for graduate and undergraduate students interested in optics, photonics, MEMS, and material science. The book is also a valuable reference for scientists, researchers, and engineers in the field of optics and materials science.

Dynamic Non-linear Optical Processes in III-V Semiconductors

This Third Edition updates a landmark text with the latest findings The Third Edition of the internationally lauded Semiconductor Material and Device Characterization brings the text fully up-to-date with the latest developments in the field and includes new pedagogical tools to assist readers. Not only does the Third Edition set forth all the latest measurement techniques, but it also examines new interpretations and new applications of existing techniques. Semiconductor Material and Device Characterization remains the sole text dedicated to characterization techniques for measuring semiconductor materials and devices. Coverage includes the full range of electrical and optical characterization methods, including the more specialized chemical and physical techniques. Readers familiar with the previous two editions will discover a thoroughly revised and updated Third Edition, including: Updated and revised figures and examples reflecting the most current data and information 260 new references offering access to the latest research and discussions in specialized topics New problems and review questions at the end of each chapter to test readers' understanding of the material In addition, readers will find fully updated and revised sections in each chapter. Plus, two new chapters have been added: Charge-Based and Probe Characterization introduces charge-based measurement and Kelvin probes. This chapter also examines probe-based measurements, including scanning capacitance, scanning Kelvin force, scanning spreading resistance, and ballistic electron emission microscopy. Reliability and Failure Analysis examines failure times and distribution functions, and discusses electromigration, hot carriers, gate oxide integrity, negative bias temperature instability, stress-induced leakage current, and electrostatic discharge. Written by an internationally recognized authority in the field, Semiconductor Material and Device Characterization remains essential reading for graduate students as well as for professionals working in the field of semiconductor devices and materials. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Semiconductors and Semimetals

This volume contains the proceedings of the NATO Advanced Research Workshop on Band Structure Engineering in Semiconductor Microstructures held at Il Ciocco, Castelvecchio Pascali in Tuscany between 10th and 15th April 1988. Research on semiconductor microstructures has expanded rapidly in recent years as a result of developments in the semiconductor growth and device fabrication technologies. The emergence of new semiconductor structures has facilitated a number of approaches to producing systems with certain features in their electronic structure which can lead to useful or interesting properties. The interest in band structure engineering has stimd ated a variety of physical investigations and nove 1 device concepts and the field now exhibits a fascinating interplay betwepn pure physics and device technology. Devices based on microstruc tures are useful vehicles for fundamental studies but also new device ideas require a thorough understanding of the basic physics. Around forty researchers gathered at I1 Ciocco in the Spring of 1988 to discuss band structure engineering in semiconductor microstructures.

Porous Semiconductors

This book gives a fascinating picture of the state-of-the-art in silicon photonics and a perspective on what can be expected in the near future. It is composed of a selected number of reviews authored by world leaders in the field and is written from both academic and industrial viewpoints. An in-depth discussion of the route towards fully integrated silicon photonics is presented. This book will be useful not only to physicists,

chemists, materials scientists, and engineers but also to graduate students who are interested in the fields of microphotonics and optoelectronics.

Semiconductor Material and Device Characterization

This book describes semiconductors from a materials science perspective rather than from condensed matter physics or electrical engineering viewpoints. It includes discussion of current approaches to organic materials for electronic devices. It further describes the fundamental aspects of thin film nucleation and growth, and the most common physical and chemical vapor deposition techniques. Examples of the application of the concepts in each chapter to specific problems or situations are included, along with recommended readings and homework problems.

Band Structure Engineering in Semiconductor Microstructures

This book describes the application of c-axis aligned crystalline In-Ga-Zn oxide (CAAC-IGZO) technology in large-scale integration (LSI) circuits. The applications include Non-volatile Oxide Semiconductor Random Access Memory (NOSRAM), Dynamic Oxide Semiconductor Random Access Memory (DOSRAM), central processing unit (CPU), field-programmable gate array (FPGA), image sensors, and etc. The book also covers the device physics (e.g., off-state characteristics) of the CAAC-IGZO field effect transistors (FETs) and process technology for a hybrid structure of CAAC-IGZO and Si FETs. It explains an extremely low off-state current technology utilized in the LSI circuits, demonstrating reduced power consumption in LSI prototypes fabricated by the hybrid process. A further two books in the series will describe the fundamentals; and the specific application of CAAC-IGZO to LCD and OLED displays. Key features: • Outlines the physics and characteristics of CAAC-IGZO FETs that contribute to favorable operations of LSI devices. • Explains the application of CAAC-IGZO to LSI devices, highlighting attributes including low off-state current, low power consumption, and excellent charge retention. • Describes the NOSRAM, DOSRAM, CPU, FPGA, image sensors, and etc., referring to prototype chips fabricated by a hybrid process of CAAC-IGZO and Si FETs.

Silicon Photonics

This book deals with standard spectroscopic techniques which can be used to analyze semiconductor samples or devices, in both, bulk, micrometer and submicrometer scale. The book aims helping experimental physicists and engineers to choose the right analytical spectroscopic technique in order to get specific information about their specific demands. For this purpose, the techniques including technical details such as apparatus and probed sample region are described. More important, also the expected outcome from experiments is provided. This involves also the link to theory, that is not subject of this book, and the link to current experimental results in the literature which are presented in a review-like style. Many special spectroscopic techniques are introduced and their relationship to the standard techniques is revealed. Thus the book works also as a type of guide or reference book for people researching in optical spectroscopy of semiconductors.

The Materials Science of Semiconductors

Knowledge of the refractive indices and absorption coefficients of semiconductors is especially import in the design and analysis of optical and optoelectronic devices. The determination of the optical constants of semiconductors at energies beyond the fundamental absorption edge is also known to be a powerful way of studying the electronic energy-band structures of the semiconductors. The purpose of this book is to give tabulated values and graphical information on the optical constants of the most popular semiconductors over the entire spectral range. This book presents data on the optical constants of crystalline and amorphous semiconductors. A complete set of the optical constants are presented in this book. They are: the complex dielectric constant (E=e.+ieJ, complex refractive index (n*=n+ik), absorption coefficient (a.), and normal-incidence reflectivity (R). The semiconductor materials considered in this book are the group-IV elemental

and binary, llI-V, IT-VI, IV-VI binary semiconductors, and their alloys. The reader will fmd the companion book \"Optical Properties of Crystalline and Amorphous Semiconductors: Materials and Fundamental Principles\" useful since it emphasizes the basic material properties and fundamental prinCiples.

Physics and Technology of Crystalline Oxide Semiconductor CAAC-IGZO

Our intent in producing this book was to provide a text that would be comprehensive enough for an introductory course in integrated optics, yet concise enough in its mathematical derivations to be easily readable by a practicing engineer who desires an overview of the field. The response to the first edition has indeed been gratifying; unusually strong demand has caused it to be sold out during the initial year of publication, thus providing us with an early opportunity to produce this updated and improved second edition. This development is fortunate, because integrated optics is a very rapidly progressing field, with significant new research being regularly reported. Hence, a new chapter (Chap. 17) has been added to review recent progress and to provide numerous additional references to the relevant technical literature. Also, thirty-five new problems for practice have been included to supplement those at the ends of chapters in the first edition. Chapters I through 16 are essentially unchanged, except for brief updating revisions and corrections of typographical errors. Because of the time limitations imposed by the need to provide an uninterrupted supply of this book to those using it as a course text, it has been possible to include new references and to briefly describe recent developments only in Chapter 17. However, we hope to provide details of this continuing progress in a future edition.

Spectroscopic Analysis of Optoelectronic Semiconductors

This book is the first to give a comprehensive review of the theory, fabrication, characterisation, and device applications of abrupt, shallow, and narrow doping profiles in semiconductors. Such doping profiles are a key element in the development of modern semiconductor technology. After an introductory chapter setting out the basic theoretical and experimental concepts involved, the fabrication of abrupt and narrow doping profiles by several different techniques, including epitaxial growth, is discussed. The techniques for characterising doping distributions are then presented, followed by several chapters devoted to the inherent physical properties of narrow doping profiles. The latter part of the book deals with specific devices. The book will be of great interest to graduate students, researchers and engineers in the fields of semiconductor physics and microelectronic engineering.

Optical Constants of Crystalline and Amorphous Semiconductors

The three volumes of this handbook treat the fundamentals, technology and nanotechnology of nitride semiconductors with an extraordinary clarity and depth. They present all the necessary basics of semiconductor and device physics and engineering together with an extensive reference section. Volume 2 addresses the electrical and optical properties of nitride materials. It includes semiconductor metal contacts, impurity and carrier concentrations, and carrier transport in semiconductors.

Integrated Optics: Theory and Technology

Nanowires are attracting wide scientific interest due to the unique properties associated with their one-dimensional geometry. Developments in the understanding of the fundamental principles of the nanowire growth mechanisms and mastering functionalization provide tools to control crystal structure, morphology, and the interactions at the material interface, and create characteristics that are superior to those of planar geometries. This book provides a comprehensive overview of the most important developments in the field of nanowires, starting from their synthesis, discussing properties, and finalizing with nanowire applications. The book consists of two parts: the first is devoted to the synthesis of nanowires and characterization, and the second investigates the properties of nanowires and their applications in future devices.

Delta-doping of Semiconductors

Semiconducting and Insulating Crystals details how absorption spectroscopy provides information on the nature, concentration, charge state and configuration of impurities in crystals and also on their kinetics and transformations under annealing. After an introduction of the bulk optical properties of semiconductors and insulators and of impurities in crystals, this book presents the physical bases necessary for the understanding of impurity spectra. The description of various set-ups and accessories used in absorption spectroscopy is followed by a presentation of experimental results on specific impurities and classes of impurities and their relation with those obtained by various computation and by other experimental techniques.

Handbook of Nitride Semiconductors and Devices, Electronic and Optical Processes in Nitrides

Today modern materials science is a vibrant, emerging scientific discipline at the forefront of physics, chemistry, engineering, biology and medicine, and is becoming increasingly international in scope as demonstrated by emerging international and intercontinental collaborations and exchanges. The overall purpose of this book is to provide timely and in-depth coverage of selected advanced topics in materials science. Divided into five sections, this book provides the latest research developments in many aspects of materials science. This book is of interest to both fundamental research and also to practicing scientists and will prove invaluable to all chemical engineers, industrial chemists and students in industry and academia.

Nanowires

The development of electronic materials and particularly advances in semiconductor technology have played a central role in the electronics revolution by allowing the production of increasingly cheap and powerful computing equipment and advanced telecommunications devices. This Concise Encyclopedia, which incorporates relevant articles from the acclaimed Encyclopedia of Materials Science and Engineering as well as newly commissioned articles, emphasizes the materials aspects of semiconductors and the technologies important in solid-state electronics. Growth of bulk crystals and epitaxial layers are discussed in the volume and coverage is included of defects and their effects on device behavior. Metallization and passivation issues are also covered. Over 100 alphabetically arranged articles, written by world experts in the field, are each intended to serve as the first source of information on a particular aspect of electronic materials. The volume is extensively illustrated with photographs, diagrams and tables. A bibliography is provided at the end of each article to guide the reader to recent literature. A comprehensive system of cross-references, a three-level subject index and an alphabetical list of articles are included to aid readers in the abstraction of information.

Optical Absorption of Impurities and Defects in Semiconducting Crystals

This monograph is concerned with the III-V bulk and low-dimensional semiconductors, with the emphasis on the implications of multi-valley bandstructures for the physical mechanisms essential for opto-electronic devices. The optical response of such semiconductor materials is determined by many-body effects such as screening, gap narrowing, Fermi-edge singularity, electron-hole plasma and liquid formation. Consequently, the discussion of these features reflects such interdependencies with the dynamics of excitons and carriers resulting from intervalley coupling.

Materials Science

Nanometre sized structures made of semiconductors, insulators, and metals and grown by modern growth technologies or by chemical synthesis exhibit novel electronic and optical phenomena due to the confinement of electrons and photons. Strong interactions between electrons and photons in narrow regions lead to inhibited spontaneous emission, thresholdless laser operation, and Bose-Einstein condensation of exciton-polaritons in microcavities. Generation of sub-wavelength radiation by surface plasmon-polaritons at metal-

semiconductor interfaces, creation of photonic band gaps in dielectrics, and realization of nanometer sized semiconductor or insulator structures with negative permittivity and permeability, known as metamaterials, are further examples in the area of Nanophotonics. The studies help develop spasers and plasmonic nanolasers of subwavelength dimensions, paving the way to use plasmonics in future data centres and high-speed computers working at THz bandwidth with less than a few fJ/bit dissipation. The present book is aimed at graduate students and researchers providing them with an introductory textbook on Semiconductor Nanophotonics. It gives an introduction to electron-photon interactions in Quantum Wells, Wires, and Dots and then discusses the processes in microcavities, photonic band gap materials, metamaterials, and related applications. The phenomena and device applications under strong light-matter interactions are discussed, mostly by using classical and semi-classical theories. Numerous examples and problems accompany each chapter.

Concise Encyclopedia of Semiconducting Materials & Related Technologies

Provides a multidisciplinary introduction to quantum mechanics, solid state physics, advanced devices, and fabrication Covers wide range of topics in the same style and in the same notation Most up to date developments in semiconductor physics and nano-engineering Mathematical derivations are carried through in detail with emphasis on clarity Timely application areas such as biophotonics , bioelectronics

Optical Properties of III–V Semiconductors

This book will be useful to solid-state scientists, device engineers, and students involved in semiconductor design and technology. It provides a lucid account of band structure, density of states, charge transport, energy transport, and optical processes, along with a detailed description of many devices. It includes sections on superlattices and quantum well structures, the effects of deep-level impurities on transport, and the quantum Hall effect. This 8th edition has been revised and updated, including several new sections.

Semiconductor Nanophotonics

Unparalleled coverage of the most vibrant research field in photovoltaics! Hybrid perovskites, revolutionary game-changing semiconductor materials, have every favorable optoelectronic characteristic necessary for realizing high efficiency solar cells. The remarkable features of hybrid perovskite photovoltaics, such as superior material properties, easy material fabrication by solution-based processing, large-area device fabrication by an inkjet technology, and simple solar cell structures, have brought enormous attentions, leading to a rapid development of the solar cell technology at a pace never before seen in solar cell history. Hybrid Perovskite Solar Cells: Characteristics and Operation covers extensive topics of hybrid perovskite solar cells, providing easy-to-read descriptions for the fundamental characteristics of unique hybrid perovskite materials (Part I) as well as the principles and applications of hybrid perovskite solar cells (Part II). Both basic and advanced concepts of hybrid perovskite devices are treated thoroughly in this book; in particular, explanatory descriptions for general physical and chemical aspects of hybrid perovskite photovoltaics are included to provide fundamental understanding. This comprehensive book is highly suitable for graduate school students and researchers who are not familiar with hybrid perovskite materials and devices, allowing the accumulation of the accurate knowledge from the basic to the advanced levels.

Fundamentals of Solid State Engineering

This graduate text explains the physical properties and applications of a wide range of smart materials.

Semiconductor Physics

This timely monograph addresses an important class of semiconductors and devices that constitute the

underlying technology for blue lasers. It succinctly treats structural, electrical and optical properties of nitrides and the substrates on which they are deposited, band structures of nitrides, optical processes, deposition and fabrication technologies, light-emitting diodes, and lasers. It also includes many tables and figures detailing the properties and performance of nitride semiconductors and devices.

Hybrid Perovskite Solar Cells

Systematically discusses the growth method, material properties, and applications for key semiconductor materials MOVPE is a chemical vapor deposition technique that produces single or polycrystalline thin films. As one of the key epitaxial growth technologies, it produces layers that form the basis of many optoelectronic components including mobile phone components (GaAs), semiconductor lasers and LEDs (III-Vs, nitrides), optical communications (oxides), infrared detectors, photovoltaics (II-IV materials), etc. Featuring contributions by an international group of academics and industrialists, this book looks at the fundamentals of MOVPE and the key areas of equipment/safety, precursor chemicals, and growth monitoring. It covers the most important materials from III-V and II-VI compounds to quantum dots and nanowires, including sulfides and selenides and oxides/ceramics. Sections in every chapter of Metalorganic Vapor Phase Epitaxy (MOVPE): Growth, Materials Properties and Applications cover the growth of the particular materials system, the properties of the resultant material, and its applications. The book offers information on arsenides, phosphides, and antimonides; nitrides; lattice-mismatched growth; CdTe, MCT (mercury cadmium telluride); ZnO and related materials; equipment and safety; and more. It also offers a chapter that looks at the future of the technique. Covers, in order, the growth method, material properties, and applications for each material Includes chapters on the fundamentals of MOVPE and the key areas of equipment/safety, precursor chemicals, and growth monitoring Looks at important materials such as III-V and II-VI compounds, quantum dots, and nanowires Provides topical and wide-ranging coverage from well-known authors in the field Part of the Materials for Electronic and Optoelectronic Applications series Metalorganic Vapor Phase Epitaxy (MOVPE): Growth, Materials Properties and Applications is an excellent book for graduate students, researchers in academia and industry, as well as specialist courses at undergraduate/postgraduate level in the area of epitaxial growth (MOVPE/ MOCVD/ MBE).

Smart Electronic Materials

The first true \"introduction\" to semiconductor optoelectronic devices, this book provides an accessible, well-organized overview of optoelectric devices that emphasizes basic principles. Coverage begins with an optional review of key concepts— such as properties of compound semiconductor, quantum mechanics, semiconductor statistics, carrier transport properties, optical processes, and junction theory— then progress gradually through more advanced topics. The \"Second Edition\" has been both updated and expanded to include the recent developments in the field.

Electronic Structure and Optical Properties of Semiconductors

\"The most striking feature of the book is its modern outlookprovides a wonderful foundation. The most wonderful feature is its efficient style of expositionan excellent book.\" PHYSICS TODAY \"There is nothing quite like itThose embarking on research into the optical properties of semiconductors will benefit from working through these chaptersa solid introduction to the optical properties of semiconductors\" CONTEMPORARY PHYSICS

Optical Properties of Semiconductors

With the invention of the laser it was possible to think about a fast and efficient way to make the information transmission, thus originating the first ideas of transmission through wave guides. This led to the invention of the optical fibers, for which scientific-technological research has been constantly developed in order to improve the efficiency of information transmission for different applications. Then, various techniques and

materials used for the manufacture of optical fibers have been developed, which have been improved over the years, obtaining high efficiency in the transmission of information, as well as different types of optical fiber applications. This book intends to provide the reader a review of some different fiber optic applications as well as some ideas about the future of growing in this important technological area.

Electrical and Optical Properties of Semiconductors

Bridging the gap between a general solid-state physics textbook and research articles, the renowned authors provide detailed explanations of the electronic, vibrational, transport, and optical properties of semiconductors. Their approach is a physical and intuitive one, rather than formal and pedantic. This textbook has been written with both students and researchers in mind, and the authors therefore present theories to explain experimental results. Throughout, the emphasis is on understanding the physical properties of Si, and similar tetrahedrally coordinated semiconductors, with explanations based on physical insights. Each chapter is enriched by an extensive collection of tables of material parameters, figures and problems -- many of the latter 'lead students by the hand' to arrive at the results.

Nitride Semiconductors and Devices

Metalorganic Vapor Phase Epitaxy (MOVPE)