

<<半导体光学和输运现象>>

图书基本信息

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### 内容概要

Well-balanced and up-to-date introduction to the field of semiconductor optics , including transport phenomena in semiconductors. Starting with the theoretical fundamentals of this field the book develops , assuming a basic knowledge of solid-state physics. The application areas of the theory covered include semiconductor lasers , detectors , electro-optic modulators , single-electron transistors , microcavities and double-barrier resonant tunneling diodes. One hundred problems with hints for solution help the readers to deepen their knowledge.

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## &lt;&lt;半导体光学和输运现象&gt;&gt;

## 书籍目录

1. Some Basic Facts on Semiconductors 1.1 Semiconductor Heterostructures 1.2 Doped and Modulation-Doped Semiconductors 2. Interaction of Matter and Electromagnetic Fields 2.1 Microscopic Maxwell Equations 2.2 The Many-Particle Hamiltonian 2.3 Second Quantization for Particles 2.4 Quantization of Electromagnetic Fields 2.4.1 Coherent States 2.5 The Interaction Hamiltonian of Fields and Particles 2.6 Macroscopic Maxwell Equations and Response Functions 2.6.1 Direct Calculation of Induced Charges and Currents 2.6.2 Phenomenological Theory of Linear Response 2.6.3 Time-Dependent Perturbation Theory 2.6.4 Longitudinal Response Functions 2.6.5 Transverse Response Functions 2.7 Measurable Quantities in Optics 2.7.1 Linear Optical Susceptibility and Macroscopic Polarization 2.7.2 Absorption Coefficient 2.8 Problems 3. One-Particle Properties 3.1 Hartree-Fock Theory for Zero Temperature 3.2 Hartree-Fock Theory for Finite Temperature 3.3 Band Structure and Ground-State Properties 3.3.1 The Local-Density Approximation 3.3.2 Lattice Periodicity 3.4 The Effective-Mass Approximation 3.5  $k_p$  Perturbation Theory for Degenerate Bands 3.6 Transition Matrix Elements 3.7 Density of States 3.8 Position of the Chemical Potential 3.9 Problems 4. Uncorrelated Optical Transitions 4.1 The Optical Bloch Equations 4.2 Linear Optical Properties 4.3 Nonlinear Optical Properties 4.3.1 Perturbation Analysis in the Frequency Domain 4.3.2 Introducing the Bloch Vector 4.3.3 Perturbation Analysis in the Time Domain 4.3.4 Alternative Approaches 4.4 Semiconductor Photodetectors 4.4.1 The Field-Field Correlation Function and its Relation to Coherence 4.5 Problems 5. Correlated Transitions of Bloch Electrons 5.1 Equations of Motion in the Hartree-Fock Approximation 5.2 Linear Optical Properties: The Continuum of Interband Transitions 5.2.1 The Bethe-Salpeter Equation 5.2.2 The Dielectric Function 5.3 Solution by Continued Fractions 5.4 Problems 6. Correlated Transitions near the Band Edge 6.1 The Semiconductor Bloch Equations 6.2 Linear Optical Properties: Bound Electron-Hole Pairs 6.2.1 The Coulomb Green's Function 6.2.2 Optical Properties due to Bound Electron-Hole Pairs 6.2.3 Numerical Methods 6.2.4 Excitons in Quantum Wells 6.2.5 Propagation of Light: Polaritons and Cavity Polaritons 6.3 Nonlinear Optical Properties 6.3.1 The Local-Field Approximation 6.3.2 Numerical Solutions 6.4 Problems 7. Influence of Static Magnetic Fields 7.1 One-Particle Properties 7.1.1 Effective Mass Theory for Isolated Bands 7.1.2 Degenerate Bloch Electrons in a Magnetic Field 7.1.3 One-Particle States in Quantum Wells 7.2 Optical Properties of Magneto-Excitons 7.2.1 Evaluation of the Coulomb Matrix Element 7.2.2 Linear Optical Properties 7.2.3 Semiconductor Bloch Equations in Two and Three Dimensions 7.2.4 Bose Condensation of Magnetoexcitons in Two Dimensions 7.2.5 Nonlinear Absorption of Magnetoexcitons in Quantum Wells 7.3 Problems 8. Influence of Static Electric Fields 8.1 Introduction 8.2 Uncorrelated Optical Transitions in Uniform Electric Fields 8.2.1 Optical Absorption 8.3 Correlated Optical Transitions in Uniform Electric Fields 8.3.1 An Analytical Model 8.3.2 Representation in Parabolic Coordinates 8.4 Quantum Wells in Electric Fields 8.5 Superlattices in Electric Fields 8.5.1 One-Particle States in Superlattices 8.5.2 Semiconductor Bloch Equations 8.6 Problems 9. Biexcitons 9.1 Truncation of the Many-Particle Problem in Coherently Driven Systems 9.1.1 Decomposition of Expectation Values 9.2 Equations of Motion in the Coherent Limit 9.2.1 Variational Methods 9.2.2 Eigenfunction Expansion 9.3 Bound-State and Scattering Contributions 9.3.1 Separation of Bound States 9.3.2 Biexcitonic Scattering Contributions 9.4 Signatures of Biexcitonic Bound States 9.4.1 Nonlinear Absorption 9.4.2 Four-Wave Mixing 9.5 Problems 10. Nonequilibrium Green's Functions 10.1 Time Evolution under the Action of External Fields 10.2 Definitions of One-Particle Green's Functions 10.3 Equations of Motion of One-Particle Green's Functions 10.4 Screened Interaction, Polarization, and Vertex Function 10.5 Quantum Kinetic Equations 10.5.1 The Two-Time Formalism 10.5.2 Reduction of Propagators to Single Time Functions 10.6 The Self-Energy in Different Approximations 10.6.1 Ground-State Energy 10.6.2 The Screened Hartree-Fock Approximation 10.7 The Screened Interaction 10.7.1 Separation of the Intraband and the Interband Susceptibility 10.7.2 The Screened Interaction in Random Phase Approximation 10.8 The Second-Order Born Approximation 10.9 Problems 11. The Electron-Phonon Interaction 11.1 The Phonon-Induced Interaction 11.2 The Phonon Green's Function 11.2.1 Eigenmodes of Lattice Vibrations 11.2.2 Green's Function Representation of the Density-Density Correlation Function 11.3 Electron Phonon Coupling in the Long-Wavelength Limit 11.3.1

## &lt;&lt;半导体光学和输运现象&gt;&gt;

Coupling to Longitudinal Optical Phonons11.3.2 Coupling to Acoustic Phonons11.4 The Phonon Self-Energy11.4.1 The Polaron11.4.2 Dephasing Induced by Phonons11.5 Nonequilibrium Phonons11.5.1 Renormalization of Phonons11.5.2 Kinetic Equation for the Phonon Green's Function11.6 Problems12.Scattering and Screening Processes12.1 Carrier Phonon Scattering12.1.1 Luminescence Spectra12.1.2 Four-Wave-Mixing Experiments12.1.3 Nonequilibrium Phonons12.2 Carrier-Carrier Scattering12.2.1 The Limit of Quasi-Equilibrium12.3 Scattering in the Presence of Bound States12.3.1 Exciton-Phonon Scattering12.3.2 Exciton-Exciton versus Exciton-Electron Scattering12.4 Problems13.The Semiconductor Laser13.1 Introduction13.2 Semiclassical Approach13.2.1 The Semiconductor Bloch Equations in a Cavity13.2.2 The Standard Rate Equations13.2.3 Extended Rate Equations13.2.4 Spectral Hole-Burning13.3 Quantum Theory13.3.1 The Photon Kinetics13.3.2 The Carrier Kinetics13.3.3 The Semiconductor Laser Linewidth13.4 Problems14.Classical Transport14.1 Transport Coefficients(Without Magnetic Field)14.1.1 Electrical Conductivity14.1.2 Peltier Coefficient14.1.3 Thermal Conductivity14.2 Transport Coefficients(with Magnetic Field)14.2.1 Hall Effect and Hall Resistance14.3 Towards Ballistic Electrons:The Hot-Electron Transistor14.4 Problems15.Electric Fields in Mesoscopic Systems15.1 Elementary Approach15.1.1 Resonant Tunneling 15.1.2 Quantized Conductance15.1.3 Coulomb Blockade and the SET Transistor15.2 Resonant Tunneling 15.2.1 Boundary Conditions and Discretization15.2.2 Scattering Contributions15.2.3 Numerical Results15.2.4 Time-Dependent Phenomena15.3 Problems16.Electric and Magnetic Fields in Mesoscopic Systems16.1 The Integer Quantum Hall Effect16.2 Edge Channels and the Landauer-Buttiker Multiprobe Formula16.2.1 Edge Channels16.3 Microscopic Derivation of the Landauer-Büttiker Formula16.3.1 Linear Response Theory16.3.2 The Multiprobe Landauer-Büttiker Formula16.4 The Fractional Quantum Hall Effect16.5 Magnetotransport Through Dot or Antidot-Lattices16.6 ProblemsReferencesIndex

## <<半导体光学和输运现象>>

### 章节摘录

版权页：插图：Semiconductors have entered our everyday life to such a degree that the notion of a "silicon age" has been employed. Silicon is in fact the most important material as far as commercial applications of semiconductors are concerned. However, while silicon satisfies most of our current needs for electronics, it is only of limited use for optoelectronic applications. Semiconductor lasers, which are at the heart of compact disc players (present in most households), laser printers, and light modulators, the key to today's telecommunication systems, require a direct band gap. Hence, many other semiconductor materials are subjects of current interest. Moreover, today's scientists are no longer satisfied with the variety of bulk materials provided by nature, but have become artists who design semiconductor heterostructures and mesoscopic semiconductor devices corresponding to their needs and interests. This often results in surprising and quite remarkable material properties. Many of these structures, and their optical and transport properties will be discussed in this book.

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