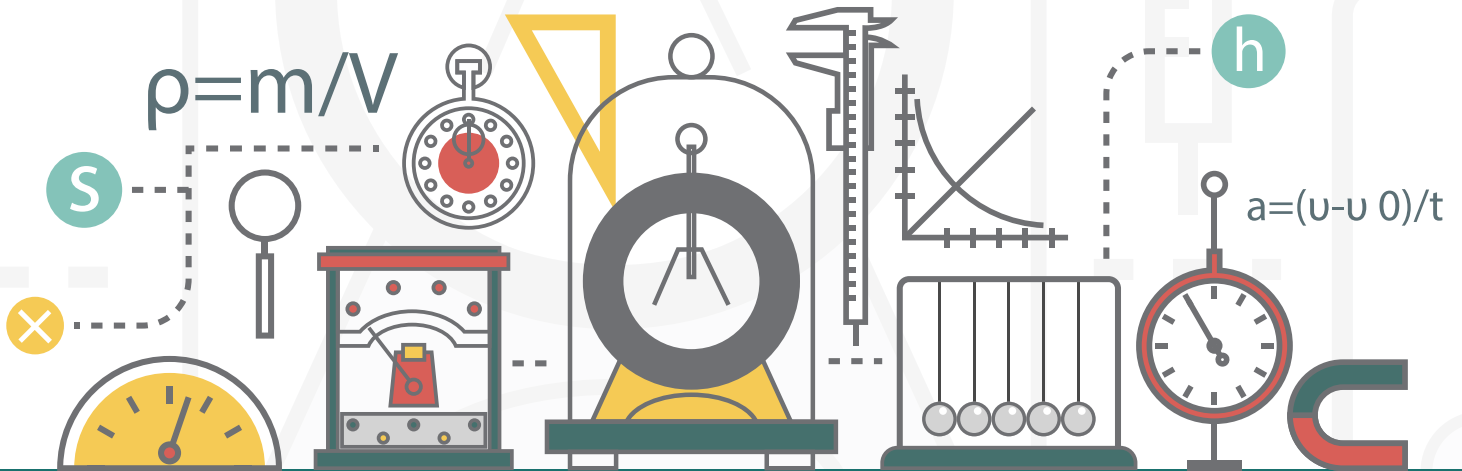


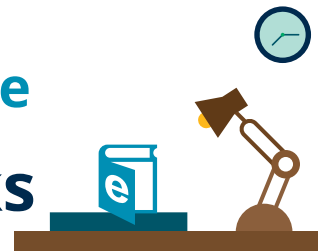


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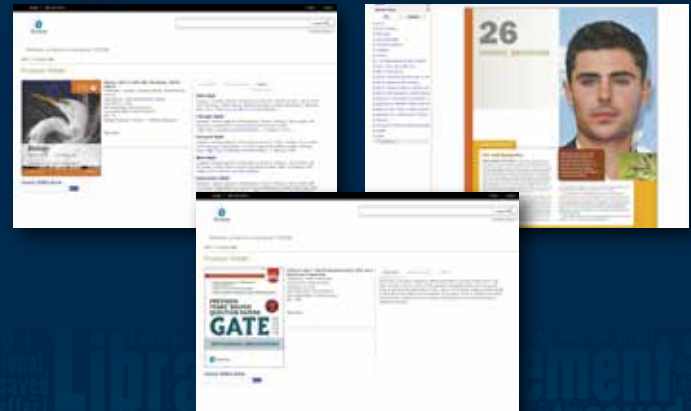
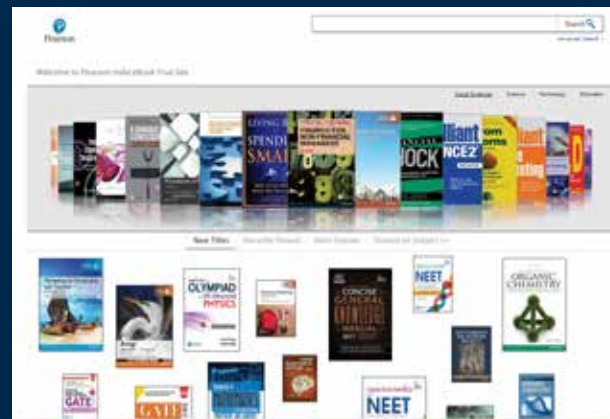
PHYSICS



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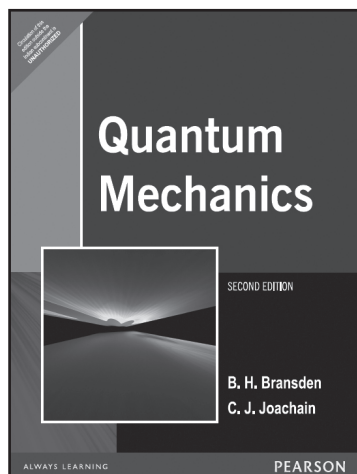
www.pearsoned.co.in/web/lecturecapture.aspx

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PHYSICS





Quantum Mechanics, 2/e

B.H. Bransden • C.J. Joachain

ISBN: 9788131708392 | © 2000 | Pages: 808

ABOUT THE BOOK

This book gives a modern, comprehensive introduction to the principles of quantum mechanics, to the main approximation methods and to the application of quantum theory to a wide variety of systems. The needs of students having an average mathematical ability are kept very much in mind, with the avoidance of complex mathematical arguments and any undue compression of material.

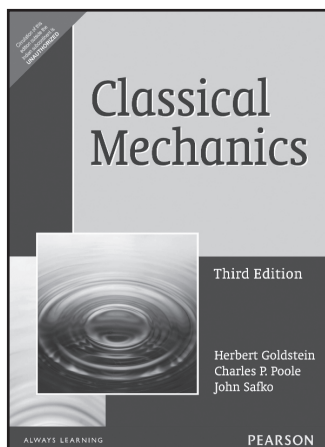
FEATURES

- Comprehensive coverage of core material in quantum mechanics.
- Full and detailed explanations to help students of average mathematical ability.
- Additional topics covered in this edition include: Feynman's path integrals; the Berry phase; quantum dots; quantum jumps; and Bose-Einstein condensation.
- New chapter on relativistic quantum mechanics.
- Problems set to help students monitor their progress and increase understanding.

CONTENTS

1. The origins of quantum theory.
2. The wave function and the uncertainty principle.
3. The Schrodinger equation.
4. One-dimensional examples.
5. The formalism of quantum mechanics.
6. Angular momentum.
7. The Schrodinger equation in three dimensions.
8. Approximation methods for stationary problems.
9. Approximation methods for time-dependent problems.
10. Several- and many-particle systems.
11. The interaction of quantum systems with radiation.
12. The interaction of quantum systems with external electric and magnetic fields.
13. Quantum collision theory.
14. Quantum statistics.
15. Relativistic quantum mechanics.
16. Further applications of quantum mechanics.
17. Measurement and interpretation.





Classical Mechanics, 3/e

Herbert Goldstein • Charles P. Poole • John Safko

ISBN: 9788131758915 | © 2011 | Pages: 664

ABOUT THE BOOK

For 30 years, this classic text has been the acknowledged standard in classical mechanics courses. *Classical Mechanics* enables students to make connections between classical and modern physics “an indispensable part of a physicist’s education. The authors have updated the topics, applications, and notations to reflect today’s physics curriculum. They introduce students to the increasingly important role that nonlinearities play in contemporary applications of classical mechanics. New numerical exercises help students develop skills in the use of computer techniques to solve problems in physics. Mathematical techniques are

presented in detail so that the text remains fully accessible to students who have not had an intermediate course in classical mechanics.

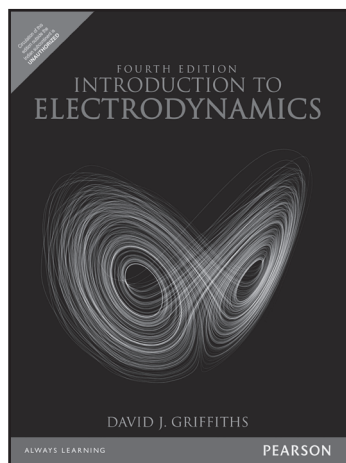
FEATURES

- The classical approach of this leading text book has been revised and updated
- A section on the Euler and Lagrange exact solutions to the three-body problem
- A section on the damped driven oscillator as an example of the workings of the Josephson junction
- Chapter on canonical perturbation theory has been streamlined and the mathematics has been simplified
- Approximately 45 new problems, mostly in Chapters 1–8 and 11.
- Problems sets are now divided into “Derivations” and “Exercises”
- Solutions for 19 select problems have been provided in Appendix C

CONTENTS

1. Survey of the Elementary Principles
2. Variational Principles and Lagrange’s Equations
3. The Central Force Problem
4. The Kinematics of Rigid Body Motion
5. The Rigid Body Equations of Motion
6. Oscillations
7. The Classical Mechanics of the Special Theory of Relativity
8. The Hamilton Equations of Motion
9. Canonical Transformations
10. Hamilton–Jacobi Theory and Action-Angle Variables
11. Classical Chaos
12. Canonical Perturbation Theory
13. Introduction to the Lagrangian and Hamiltonian Formulations for Continuous Systems and Fields





Introduction to Electrodynamics, 4/e

David J Griffiths

ISBN: 9789332550445 | © 2015 | Pages: 624

ABOUT THE BOOK

For junior/senior-level electricity and magnetism courses. This book is known for its clear, concise, and accessible coverage of standard topics in a logical and pedagogically sound order. The highly polished Fourth Edition features a clear, easy-to-understand treatment of the fundamentals of electromagnetic theory, providing a sound platform for the exploration of related applications (AC circuits, antennas, transmission lines, plasmas, optics, etc.). Its lean and focused approach employs numerous new examples and problems.

FEATURES

- The book features a friendly, informal style.
- Focuses clearly on basic electromagnetic theory, providing a sound platform for future exploration of related applications (such as AC circuits, antennas, transmission lines, plasmas, optics, etc.).
- A large collection of problems includes short, highly-focused problems that are placed immediately following the relevant text section while longer/more broadly-based problems are at the end of the chapter.
- Features a more extensive coverage of radiation theory than most texts at this level.

CONTENTS

- | | |
|------------------------------|------------------------------------|
| 1. Vector Analysis | 7. Electrodynamics |
| 2. Electrostatics | 8. Conservation Law. |
| 3. Potentials | 9. Electromagnetic Waves |
| 4. Electric Fields in Matter | 10. Potentials and Fields |
| 5. Magnetostatics | 11. Radiation |
| 6. Magnetic Fields in Matter | 12. Electrodynamics and Relativity |

Appendix A: Vector Calculus in Curvilinear Coordinates

Appendix B: The Helmholtz Theorem

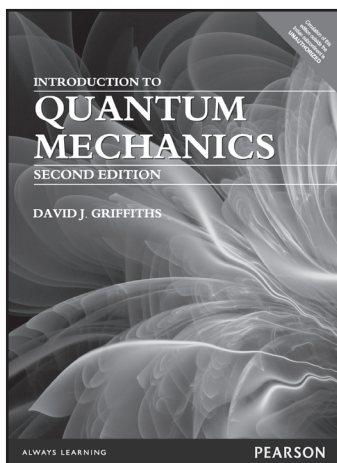
Appendix C: Units

Index

ABOUT THE AUTHOR

David Griffiths received his BA and PhD from Harvard University. He held post-doctoral positions at the University of Utah and the University of Massachusetts (Amherst), and taught at Hampshire College, Mount Holyoke College, and Trinity College (Hartford) before joining the faculty at Reed College, where he has taught for over 30 years. In 2001-2002 he was visiting Professor of Physics at the Five Colleges (UMass, Amherst, Mount Holyoke, Smith, and Hampshire), and in the spring of 2007 he taught electrodynamics at Stanford.

Griffiths is a Consulting Editor of *The American Journal of Physics*, and a Fellow of the American Physical Society. In 1997 he was awarded the Millikan Medal by the American Association of Physics Teachers. He has spent sabbaticals at SLAC, Lawrence Berkeley Laboratory, and UC Berkeley. Although his PhD was in elementary particle theory, his recent research is in electrodynamics and quantum mechanics. He is the author of forty-five papers and three books: *Introduction to Electrodynamics* (Fourth Edition, Prentice Hall, 2013), *Introduction to Elementary Particles* (Second Edition, Wiley-VCH, 2008), and *Introduction to Quantum Mechanics* (Second Edition, Prentice Hall, 2005).



Introduction to Quantum Mechanics, 2/e

David J. Griffiths

ISBN: 9789332542891 | © 2015 | Pages: 496

ABOUT THE BOOK

This text first teaches students how to apply the theories of quantum mechanics, and then provides them with a more insightful discussion of what it means. Fundamental principles are covered, quantum theory presented, and special techniques developed for solving realistic problems. The two-part coverage organizes topics under basic theory, and assembles an arsenal of approximation schemes with illustrative applications.

The book avoids the temptation to include every possible relevant topic, in order to give students a complete treatment that is not oppressively long. It follows a straightforward writing style entertains and informs without intimidating.

FEATURES

- Completely rewritten chapter on the formalism of quantum mechanics -NEW
- Chapter on measurement and interpretation -NEW
- Additional problems and worked examples -NEW
- Concise yet comprehensive presentation
- Streamlines the treatment for more effective instructor presentation and student comprehension
- Introduces students to computer-based material using Mathematica

CONTENTS

I. THEORY

1. The Wave Function
2. The Time-Independent Schrodinger Equation
3. Formalism
4. Quantum Mechanics in Three Dimensions
5. Identical Particles

II. APPLICATIONS

6. Time-Independent Perturbation Theory
7. The Variational Principles
8. The WKB Approximation
9. Time-Dependent Perturbation Theory
10. The Adiabatic Approximation
11. Scattering
12. Measurement and Interpretation

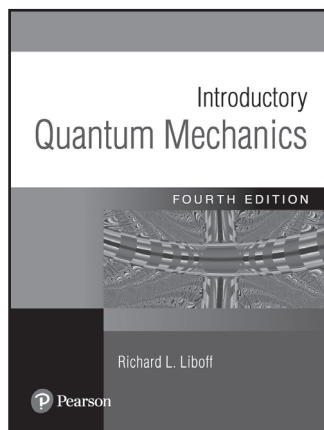
Appendix: Linear Algebra

Index

ABOUT THE AUTHOR

David J. Griffiths, Reed College





Introductory Quantum Mechanics, 4/e

Richard Liboff

ISBN: 9788131704417 | © 2003 | Pages: 896

ABOUT THE BOOK

Careful and detailed explanations of challenging concepts, and comprehensive and up-to-date coverage in this best-selling quantum mechanics text, continue to set the standard in physics education. In this new edition, a new chapter on the revolutionary topic of quantum computing (not currently covered in any other text at this level) and thorough updates to the rest of the text bring it up to date.

FEATURES

- Introductory Quantum Mechanics, Fourth Edition is well known for its wealth of great problems (869 in total).
- Comprehensive coverage makes the book adaptable to any course.
- The book uses precise presentation and careful use of appropriate math.
- A new chapter on the revolutionary topic of quantum computing and numerous revisions throughout the rest of the book bring it up to date.
- More than 30 new problems have been added.

CONTENTS

I. ELEMENTARY PRINCIPLES AND APPLICATIONS TO PROBLEMS IN ONE DIMENSION.

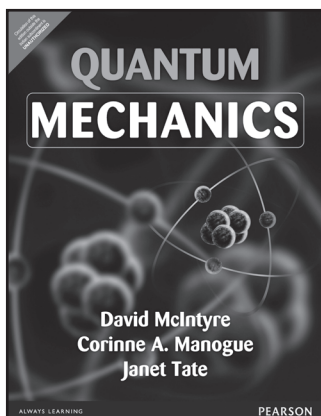
1. Review of Concepts of Classical Mechanics.
2. Historical Review: Experiments and Theories.
3. The Postulates of Quantum Mechanics: Operators, Eigenfunctions, and Eigenvalues.
4. Preparatory Concepts: Function Spaces and Hermitian Operators.
5. Time Development, Conservation Theorems, and Parity.
6. Time Development, Conservation Theorems, and Parity.
7. Additional One-Dimensional Problems: Bound and Unbound States.
8. Finite Potential Well, Periodic Lattice, and Some Simple Problems with Two Degrees of Freedom.

II. FURTHER DEVELOPMENT OF THE THEORY AND APPLICATIONS TO PROBLEMS IN THREE DIMENSIONS.

9. Angular Momentum.
10. Problems in Three Dimensions.
11. Elements of Matrix Mechanics: Spin Wavefunctions.
12. Application to Atomic, Molecular, Solid-State, and Nuclear Physics: Elements of Quantum Statistics.
13. Perturbation Theory.
14. Scattering in Three Dimensions.
15. Relativistic Quantum Mechanics.
16. Quantum Computing.

ABOUT THE AUTHOR

Dr. Richard Liboff is presently a Professor of Applied Physics, Applied Math, and Electrical Engineering at Cornell University. He has served as visiting professor at numerous universities and was awarded a Fulbright Scholarship in 1984 in support of a Visiting Professorship of Physics at Tel Aviv University. He has written over 100 scientific articles and has authored four textbooks. His research specialties include condensed-matter theory, kinetic theory, applied math, and elements of astrophysics.



Quantum Mechanics, 1/e

David McIntyre • Corinne A. Manogue • Janet Tate

ISBN: 9789332571648 | © 2016 | Pages: 624

NEW

ABOUT THE BOOK

This innovative new text approaches *Quantum Mechanics* in a manner more closely aligned with the methods used in real modern physics research. Most texts start with a bit of history and then move directly to wave-particle problems with the incumbent heavy mathematical analysis; McIntyre, Manogue, and Tate aim to ground the student's knowledge in experimental phenomena and use a more approachable, less intimidating, more powerful mathematical matrix model.

Beginning with the Stern-Gerlach experiments and the discussion of spin measurements, and using bra-ket notation, *Quantum Mechanics* introduces students to an important notational system that is used throughout quantum mechanics. This non-traditional presentation is designed to enhance students' understanding and strengthen their intuitive grasp of the subject, and has been class tested extensively. The text takes advantage of the versatile SPINS software, which allows the student to simulate Stern-Gerlach measurements in succession. This interaction gets to the heart of Quantum Mechanics, and introduces the student to the mathematics they will be using throughout the course. A solid alternative to the classical texts currently available, it is designed for junior- to senior-level Quantum Mechanics courses taken by physics majors.

FEATURES

- A more moderate transition to the essential mathematics is characterized by the authors' new approach, which focuses on modern research (quantum computing, etc), along with coverage of bra-ket notation and matrix mechanics. Students who are able to take advantage of the strengths of matrices and bra-ket will likely find the complex mathematics less daunting than in a standard quantum text.
- The focus on modern experimental quantum mechanics makes the material more engaging, and allows the student to stay connected with current research trends.
- A wide range of online activities are used to integrate and expand upon the features in the physical text. The activities on the website are organized both by topic, as well as by learning objective, allowing instructors to develop their course around topical knowledge or work on a specific learning objective.
- Online activities are organized in a wiki environment so that users can share their reflections on their use/adaptation of any one activity. Some activities take advantage of various pieces of software, such as SPINS, which is a cross-platform java program used to simulate Stern-Gerlach experiments. The online activities section, in the author's words, is a "living, growing thing," and the number of activities will grow as the website expands.
- The Web page as a whole serves not only as a resource for this Quantum book, which constitutes two pages within the wiki, but also for other courses in the Paradigms of Physics curriculum. In the physical text there is a concentration on making the mathematics of quantum mechanics easier to digest. Working with modern experimental quantum mechanics makes the material more engaging, and allows the student to stay connected with current research trends.

CONTENTS

1. Stern-Gerlach Experiments
2. Operators And Measurement
3. Schrödinger Time Evolution

»»

4. Quantum Spookiness
 5. Quantized Energies: Particle in a Box
 6. Unbound States
 7. Angular Momentum
 8. Hydrogen Atom
 9. Harmonic Oscillator
 10. Perturbation Theory
 11. Hyperfine Structure and the Addition of Angular Momentum
 12. Perturbation of Hydrogen
 13. Identical Particles
 14. Time dependent perturbation theory
 15. Periodic Systems
 16. Modern Applications
- Appendices

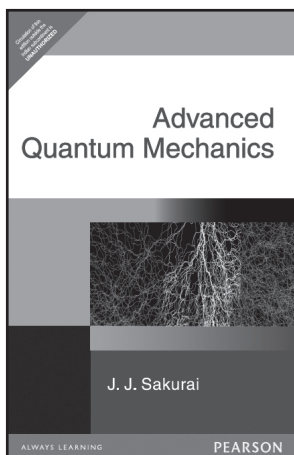
ABOUT THE AUTHOR

David H. McIntyre received a B.S. degree in physics from the University of Arizona and M.S. and Ph.D. degrees in physics from Stanford University. He has been on the physics faculty at Oregon State University since 1989 and is one of the original developers of the Paradigms in Physics program. His other teaching interests include computational physics, computer interfacing, and optical physics. His laboratory research interests are in laser spectroscopy and optical physics.

Corinne A. Manogue received an A.B. degree in mathematics and physics from Mount Holyoke College and a Ph.D. degree in physics from the University of Texas at Austin. She has been on the physics faculty at Oregon State University since 1988 and is the Director and one of the original developers of the Paradigms in Physics program. She is a Fellow of the American Physical Society and was awarded the Excellence in Undergraduate Physics Teaching Award from the American Association of Physics Teachers in 2008. She is coauthoring a textbook on The Geometry of Vector Calculus. Her theoretical research interests use the octonions to parameterize higher dimensional theories of particle physics.

Janet Tate received a B.Sc. degree in physics and chemistry from the University of Natal and M.S. and Ph.D. degrees in physics from Stanford University. She has been on the physics faculty at Oregon State University since 1989 and is one of the original developers of the Paradigms in Physics program. She is particularly interested in helping students to improve their critical thinking skills, especially through experimental work and writing. Her laboratory research interests are in experimental condensed matter physics.





Advanced Quantum Mechanics

J. J. Sakurai

ISBN: 9788177589160 | © 1967 | Pages: 336

ABOUT THE BOOK

This widely-regarded classic presents the major advances in the fundamentals of quantum physics. No familiarity with relativistic quantum mechanics or quantum field theory is presupposed, but the reader is assumed to be familiar with non-relativistic quantum mechanics, classical thermodynamics and classical mechanics.

CONTENTS

Part I: Classical Fields

1. Particles & Fields a Discrete and Continuous Mechanical Systems
2. Classical Scalar Fields

Part II: The Quantum Theory of Radiation

5. Classical Radiation Field
6. Creation, Annihilation, and Number Operators
7. Quantized Radiation Field
8. Emission and Absorption of Photons by Atoms

Part III: Relativistic Quantum Mechanics of Spin-1/2 Particles

13. Probability Conservation in Relativistic Quantum Mechanics
14. The Dirac Equation
15. Simple Solutions; Non-Relativistic Approximations; Plane Waves
16. Relativistic Covariance
17. Bilinear Covariants

Part IV: Covariant Perturbation Theory

24. Natural Units and Dimensions
25. S-Matrix Expansion in the Interaction Representation + First Order Processes; Mott Scattering and Hyperon Decay
26. Two-photon annihilation and Compton Scattering; the Electron Propagator

3. Classical Maxwell Fields
4. Vector Potentials in Quantum Mechanics.

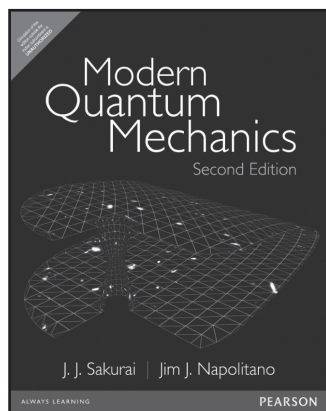
9. Rayleigh Scattering, Thomson Scattering and the Rama Effect
10. Radiation Damping and Resonance Fluorescence
11. Dispersion Relations and Causality
12. The Self-energy of a Bound Electron; the Lamb Shift

18. Dirac Operators in the Heisenberg Representation
19. Zitterbewegung and Negative-Energy Solutions
20. Central Force Problems; the Hydrogen Atom
21. Hole Theory and Charge Conjugation
22. Quantization of the Dirac Field
23. Weak Interactions and Parity Nonconservation; the Two-Component Neutrino

27. Feynman's Space-Time Approach to the Electron Propagator
28. Moller Scattering and the Photon Propagator; One Meson Exchange Interactions
29. Mass and Charge Renormalization; Radiative Corrections

ABOUT THE AUTHOR

The late **J. J. Sakurai**, noted theorist in particle physics, was born in Tokyo, Japan, in 1933. He received his B.A. from Harvard University in 1956, and his Ph. D. from Cornell University in 1958. Appointed assistant professor at the University of Chicago, he worked there until he became a professor at the University of California, Los Angeles in 1970. Sakurai died in 1982 while he was a visiting professor at CERN in Geneva, Switzerland.



Modern Quantum Mechanics, 2/e

J. J. Sakurai • Jim J. Napolitano

ISBN: 9789332519008 | © 2014 | Pages: 524

ABOUT THE BOOK

This best-selling classic provides a graduate-level, non-historical, modern introduction of quantum mechanical concepts. The author, J. J. Sakurai, was a renowned theorist in particle theory. This revision by Jim Napolitano retains the original material and adds topics that extend the text's usefulness into the 21st century. The introduction of new material, and modification of existing material, appears in a way that better prepares the student for the next course in quantum field theory. Students will still find such classic developments as neutron interferometer experiments, Feynman

path integrals, correlation measurements, and Bell's inequality. The style and treatment of topics is now more consistent across chapters.

The Second Edition has been updated for currency and consistency across all topics and has been checked for the right amount of mathematical rigor.

FEATURES

- The chapter on scattering theory (Chapter 6 in this edition) is completely reorganized, with a new introduction based on time dependent perturbation theory.
- Explicit solutions to the Schrödinger Wave Equation have been added, including the linear potential, the simple harmonic oscillator using generating functions, and the derivation of spherical harmonics.
- A discussion of SO(4) symmetry and its application to solving the hydrogen atom and approximation techniques based on extreme time dependences have been added to early chapters.
- The chapter on identical particles (Chapter 7 in this edition) is now expanded to include the technique of second quantization and its application to electrons in solids and the quantized electromagnetic field.
- A new chapter on relativistic wave mechanics has been added (Chapter 8).
- Discussion, including literature references, of experimental demonstration of quantum mechanical phenomena is featured, including: the Stern-Gerlach experiment on cesium atoms, muon spin rotation and g-2, neutrino oscillations, "bouncing" ultracold neutrons, Berry's phase with neutrons, elastic scattering of protons from nuclei, the effects of exchange symmetry in nuclear decay, and the Casimir effect, among others.
- Advanced mathematical techniques (for example generating functions and contour integrals) associated with quantum mechanical calculations appear throughout.

CONTENTS

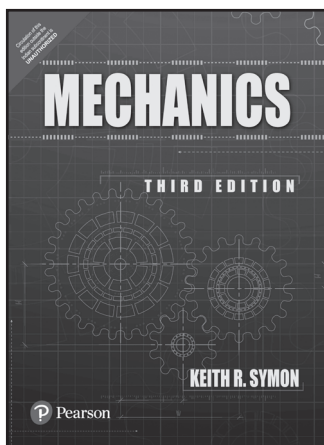
- | | |
|----------------------------------|-----------------------------------|
| 1. Fundamental Concepts | 5. Approximation Methods |
| 2. Quantum Dynamics | 6. Scattering Theory |
| 3. Theory of Angular Momentum | 7. Identical Particles |
| 4. Symmetry in Quantum Mechanics | 8. Relativistic Quantum Mechanics |

Appendices

- A. Electromagnetic Units
- B. Brief Summary of Elementary Solutions to Schrödinger's Wave Equation

ABOUT THE AUTHOR

The late **J.J. Sakurai**, noted theorist in particle physics, was born in Tokyo, Japan in 1933. He received his B.A. from Harvard University in 1955 and his PhD from Cornell University in 1958. He was appointed as an assistant professor at the University of Chicago, where he worked until he became a professor at the University of California, Los Angeles in 1970. Sakurai died in 1982 while he was visiting a professor at CERN in Geneva, Switzerland.



Mechanics, 3/e

Keith R. Symon

ISBN: 9789332573918 | © 2016 | Pages: 656

NEW

ABOUT THE BOOK

This text is intended as the basis for an intermediate course in mechanics at the undergraduate level. Such a course, as essential preparation for advanced work in physics, has several major objectives. It must develop in the student a thorough understanding of the fundamental principles of mechanics. It should treat in detail certain specific problems of primary importance in physics, for example, the harmonic oscillator and the motion of a particle under a central force

FEATURES

- The treatment throughout the book is intended to emphasize the modern point of view with mathematical rigor
- The examples treated in the text have been worked out so as to integrate as far as possible, the mathematical treatment with physical interpretation
- Two chapters on the theory of relativity has been added in this edition.
- The problems at end of each chapter requires more or less physical ingenuity in addition to an understanding of the text.

CONTENTS

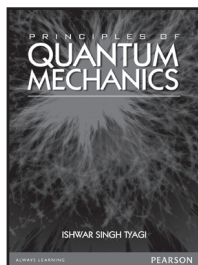
1. Elements of Newtonian Mechanics.
2. Motion of a Particle in One Dimension.
3. Motion of a Particle in Two or Three Dimensions.
4. The Motion of a System of Particles.
5. Rigid Bodies.
Rotation about an Axis.
Statics.
6. Gravitation.
7. Moving Coordinate Systems.
8. Introduction to the Mechanics of Continuous Media.
9. Lagrange's Equations.
10. Tensor Algebra.
11. Inertia and Stress Tensors.
The Rotation of a Rigid Body.
12. Theory of Small Vibrations.
13. Basic Postulates of the Special Theory of Relativity.
Relativistic Dynamics.
Bibliography.
Answers to Odd-Numbered Problems.

ABOUT THE AUTHOR

Keith R. Symon, University of Wisconsin



Also Available



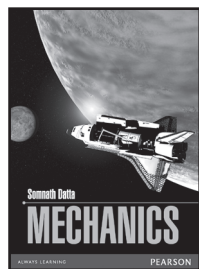
Principles of Quantum Mechanics

Dr Ishwar Singh Tyagi

ISBN: 9788131773352 | © 2013 | Pages: 584

ABOUT THE BOOK

Principles of Quantum Mechanics comprehensively covers all relevant topics to meet the requirements of both undergraduate and postgraduate students of physics. The initial chapters of the book introduce the basic fundamentals of the subject to help the first-time learners and the later chapters cover aspects that will prepare them to apply quantum mechanics to understand the various physical phenomena, for example, the working of micro- and nano-devices.



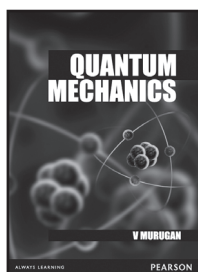
Mechanics

Somnath Datta

ISBN: 9788131773734 | © 2012 | Pages: 650

ABOUT THE BOOK

This book meets the requirement for an ideal text on Mechanics for undergraduate students. The book gives the readers a better understanding of topics like Rectilinear Motion, Conservation of Energy and Equation of Motion. Provides a good number of examples with good use real time illustration and exercises for practice and challenge.



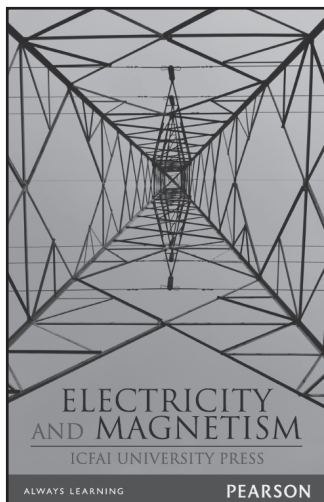
Quantum Mechanics

V. Murugan

ISBN: 9788131773628 | © 2014 | Pages: 728

ABOUT THE BOOK

Spread over 16 chapters, this book gives a comprehensive introduction to the fundamental postulates and the mathematical formalism of quantum mechanics. It spells the rules that facilitate translation of abstract mathematical information into physical terms to enable students understand the emergence of particle property in all quantum objects. With the right balance of theory and problems, this book gives an insight to the conceptual framework of quantum systems, which shaped our understanding of the physical universe and its evolution through the years.



Electricity and Magnetism

ICFAI University Press

ISBN: 9788131773727 | © 2012 | Pages: 440

ABOUT THE BOOK

Electricity and Magnetism is designed for undergraduate courses in Physics. It comprehensively covers the topics of electricity and magnetism and brings out the relationship between the two forces with adequate emphasis on principles, theory and pedagogy. Illustrations are specially made to suit classroom presentation. Written in a simple and lucid language, the book progresses from the basic laws, which help the students to stay focused on the key tenets, without getting lost in the maze of intricate details

FEATURES

- It traces the origin of electromagnetic radiations, starting from the first principles.
- In-depth coverage of Current, Resistance and Electric Circuits, Gauss's Law and Magnetism
- Electric Charge and Electric Field and Electric Potential discussed in detail
- Student centric pedagogy with 90 solved examples and over 120 exercises.

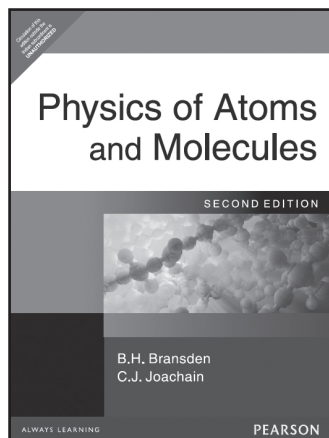
CONTENTS

1. Electric Charge and Electric Field
2. Electric Potential
3. Current, Resistance and Electric Circuits
4. Gauss's Law
5. Capacitance and Dielectrics
6. Magnetism
7. Sources of Magnetic field
8. Electromagnetic Induction
9. Inductance
10. Alternating Current
11. Electromagnetic Waves

ABOUT THE AUTHOR

ICFAI University Press, Hyderabad





Physics of Atoms and Molecules, 2e

B.H. Bransden • C.J. Joachain

ISBN: 9788177582796 | © 2003 | Pages: 1128

ABOUT THE BOOK

The study of atomic and molecular physics is a key component of undergraduate courses in physics, because of its fundamental importance to the understanding of many aspects of modern physics. The aim of this new edition is to provide a unified account of the subject within an undergraduate framework, taking the opportunity to make improvements based on the teaching experience of users of the first edition, and cover important new developments in the subject.

FEATURES

- Revised material on molecular structure and spectra.
- Extended material on electronic and atomic collisions.
- A new chapter describing applications based on the use of the maser and the laser, including laser spectroscopy, laser cooling and trapping of atoms, Bose Einstein condensation, atom lasers and atomic systems in intense laser fields.
- A new chapter describing other applications, including magnetic resonance, atom optics, atoms in cavities, ions in traps, atomic clocks and astrophysics.
- Revised appendices include new material on molecules and updated tables of physical constants.
- Solutions of selected problems.

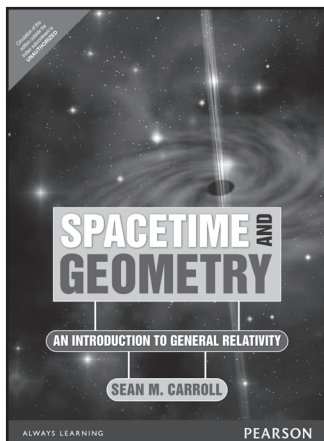
CONTENTS

1. Electrons, photons and atoms.
2. The elements of quantum mechanics.
3. One-electron atoms.
4. Interaction of one-electron atoms with electromagnetic radiation.
5. One-electron atoms: fine structure and hyperfine structure.
6. Interaction of one-electron atoms with external electric and magnetic fields.
7. Two-electron atoms.
8. Many-electron atoms.
9. Interaction of many-electron atoms with electromagnetic radiation and with static electric and magnetic fields.
10. Molecular structure.
11. Molecular spectra.
12. Atomic collisions: basic concepts and potential scattering.
13. Electron-atom collisions and atomic photoionisation.
14. Atom-atom collisions.
15. Masers, lasers and their interaction with atoms and molecules.
16. Further developments and applications of atomic and molecular physics.
17. Appendices.

ABOUT THE AUTHOR

B.H. Bransden, Department of Physics, University of Durham

C.J. Joachain, Physique Theorique, Universite Libre de Bruxelles



Spacetime and Geometry: An Introduction to General Relativity, 1/e

Sean Carroll

ISBN: 9789332571655 | © 2016 | Pages: 536

NEW

ABOUT THE BOOK

Spacetime and Geometry: An Introduction to General Relativity provides a lucid and thoroughly modern introduction to general relativity for advanced undergraduates and graduate students. It introduces modern techniques and an accessible and lively writing style to what can often be a formal and intimidating subject. Readers are led from physics of flat spacetime (special relativity), through the intricacies of differential geometry and Einstein's equations, and on to exciting

applications such as black holes, gravitational radiation, and cosmology. Subtle points are illuminated throughout the text by careful and entertaining exposition. A straightforward and lucid approach, balancing mathematical rigor and physical insight, are hallmarks of this important text.

FEATURES

- This is the most up-to-date text available on general relativity.
- A very accessible and lively writing style provides a refreshing change for what can be a formal and intimidating subject.
- Spacetime and Geometry provides an excellent balance and blend of mathematical rigor and physical insight.
- Explanations of complex theory are exceptionally clear.

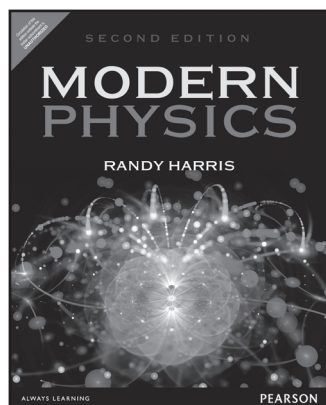
CONTENTS

1. Special Relativity and Flat Spacetime.
2. Manifolds.
3. Curvature.
4. Gravitation.
5. The Schwarzschild Solution.
6. More General Black Holes.
7. Perturbation Theory and Gravitational Radiation.
8. Cosmology.
9. Quantum Field Theory in Curved Spacetime.
10. Appendices.

ABOUT THE AUTHOR

Sean Carroll, University of Chicago





Modern Physics, 2/e

Randy Harris

ISBN: 9789332570962 | © 2016 | Pages: 640

NEW

ABOUT THE BOOK

Modern Physics, Second Edition provides a clear, precise, and contemporary introduction to the theory, experiment, and applications of modern physics. Ideal for both physics majors and engineers, this eagerly awaited second edition puts the modern back into modern physics courses. Pedagogical features throughout the text focus the reader on the core concepts and theories while offering optional, more advanced sections, examples, and cutting-edge applications to suit a variety of students and courses. Critically acclaimed for

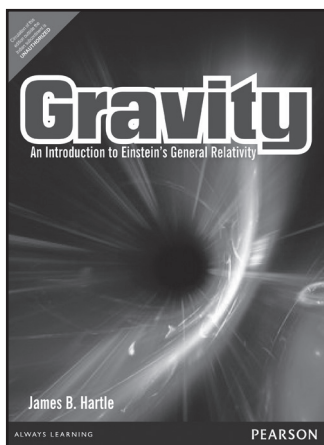
his lucid style, in the second edition, Randy Harris applies the same insights into recent developments in physics, engineering, and technology.

FEATURES

- A contemporary approach that incorporates recent developments in physics and up-to-date applications in engineering and technology make the physics relevant and engaging.
- Critically acclaimed for a lucid and precise style, the book carefully balances concepts, theory, experimental data, and theory. It strives for complete exposition of fundamental ideas while addressing common misconceptions.
- Progress and Applications sections survey current applications of the theories described in the chapter. Students see how what they learn applies to their chosen career and the opportunities available for professional physicists and engineers.
- Worked Examples in the text carefully walk students step-by-step through solving problems to better prepare them to tackle the end-of-chapter problems.
- Optional/Advanced sections are clearly labeled so that professors can pick and choose sections to optimally match the level, scope, and emphasis of their course.
- Chapter Outlines and brief introductions give students a learning roadmap to the chapter ahead.
- Chapter Summaries now incorporate a Basic Equations section to show how each equation relates to the key topics in the chapter, and to one another.
- Challenge Problems are highlighted so professors can easily build assignments of ideal level, and know where they can push their best students.

CONTENTS

1. Dawn of a New Age
2. Special Relativity
3. Waves and Particles I: Electromagnetic Radiation Behaving as Particles
4. Waves and Particles II: Matter Behaving as Waves
5. Bound States: Simple Cases
6. Unbound States: Obstacles, Tunneling and Particle-Wave Propagation
7. Quantum Mechanics in Three Dimensions and The Hydrogen Atom
8. Spin and Atomic Physics
9. Statistical Mechanics
10. Bonding: Molecules and Solids
11. Nuclear Physics
12. Fundamental Particles and Interactions
13. Appendices



Gravity: An Introduction to Einstein's General Relativity

James B. Hartle

ISBN: 9789332535084 | © 2014 | Pages: 560

ABOUT THE BOOK

Einstein's theory of general relativity is a cornerstone of modern physics. It also touches upon a wealth of topics that students find fascinating—black holes, warped spacetime, gravitational waves, and cosmology. Until now, it has not been included in the curriculum of many undergraduate physics courses because the required math is too advanced. The aim of this ground-breaking new text is to bring general relativity into the undergraduate curriculum and make this fundamental theory

accessible to virtually all physics majors. Using a “physics first” approach to the subject, renowned relativist James Hartle provides a fluent and accessible introduction that uses a minimum of new mathematics and illustrates a wealth of applications. Recognizing that there is typically not enough time in a short introductory course for the traditional, math-first, approach to the subject, Hartle presents a physics-first introduction to general relativity that begins with the essential physical applications.

FEATURES

- Examples come first, derivations later. In this “physics first” approach, relevant simple solutions of the Einstein equation are presented first, before introducing the field equations of general relativity and their supporting mathematics. This brings the student to the heart of the physical phenomena as quickly as possible.
- The emphasis is on the exciting phenomena of gravitational physics and the growing connection between theory and observation. Global positioning system, black holes, X-ray sources, pulsars, quasars, gravitational waves, the big bang, and the large scale structure of the universe, for example, are used to illustrate the widespread role of how general relativity describes a wealth of everyday and exotic phenomena.
- Novel and simple examples are presented to keep the presentation concise and accessible: for instance, Schwarzschild black hole, spherical stars, weak gravitational waves in flat spacetime.
- Mathematics, beyond the typical advanced calculus knowledge, is kept to a minimum. Only absolutely essential new mathematical concepts are introduced, and these only when needed.
- The text's layered structure allows the text to be used for a range of courses depending on the length and level of the course—from junior level to introductory graduate level in physics and astronomy. After just the first few chapters, a student will take away a broad introduction to some of the basic phenomena of gravitational physics, and not just mathematical tools.
- Illustrative boxes are interspersed throughout, providing students with applications, experiments, ideas, examples, and interesting sidelights that extend and complement concepts presented in the basic text without interrupting its flow

CONTENTS

I. Space and Time in Newtonian Physics and Special Relativity

- | | |
|---------------------------|--------------------------------------|
| 1. Gravitational Physics. | 4. Principles of Special Relativity. |
| 2. Geometry as Physics. | 5. Special Relativistic Mechanics. |
| 3. Newtonian Physics. | |

II. The Curved Spacetimes of General Relativity

- | | |
|-------------------------------------------|-------------------------------------|
| 6. Gravity as Geometry. | 10. Solar System Tests. |
| 7. Description of Curved Spacetime. | 11. Relativistic Gravity in Action. |
| 8. Geodesics. | 12. Black Holes. |
| 9. The Geometry Outside a Spherical Star. | 13. Astrophysical Black Holes. |



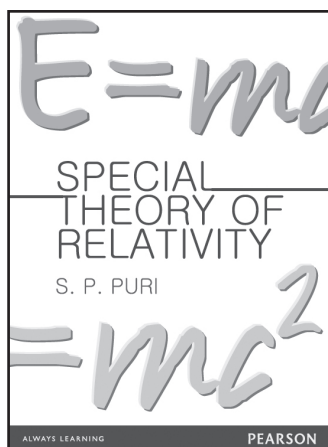
14. A Little Rotation.
15. Rotating Black Holes.
16. Gravitational Waves.

III. The Einstein Equation

20. A Little More Math.
21. Curvature and the Einstein Equation.
22. The Source of Curvature.

17. The Universe Observed.
18. Cosmological Models.
19. Which Universe and Why?

23. Gravitational Wave Emission.
24. Relativistic Stars.



Special Theory of Relativity

Dr. S P Puri

ISBN: 9788131785010 | © 2013 | Pages: 232

ABOUT THE BOOK

Special Theory of Relativity is primarily intended as a textbook for the students of physics at the undergraduate level. Examining developments in the field as well as the predictions of special relativity that have taken place since 1959, its comprehensive coverage includes engaging explanations of the mathematical treatment as well as the applications of the special theory of relativity.

FEATURES

- Includes applications of special theory of relativity in a chapter
- 45 solved problems and 100 unsolved problems for practice
- Answers to unsolved problems included

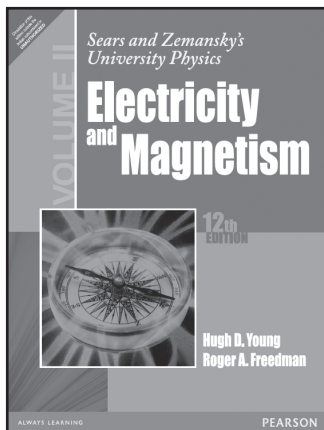
CONTENTS

1. Newtonian Mechanics and Galilean Principle of Relativity
2. Lorentz Transformations and Its Kinematic Consequences, Intervals, Causality
3. Mathematical Background
4. Relativistic Mechanics of a Particle, Collisions and Conservation Laws
5. Optical Applications of Lorentz Transformation
6. Covariant Electrodynamics
7. Applications of Special Theory of Relativity
8. Introduction to General Relativity

ABOUT THE AUTHOR

Prof. S. P. Puri, ex U.G.C. Emeritus Fellow, was Professor and Chairman, Department of Physics, Punjab University, Chandigarh.





Sears and Zemansky's University Physics “ Volume II : Electricity and Magnetism

Hugh D. Young • Roger A. Freedman

ISBN: 9788131758625 | © 2011 | Pages: 452

ABOUT THE BOOK

University Physics “ Mechanics, encapsulated the chapters relating to Mechanics from *Sears and Zemansky's University Physics* Twelfth Edition. The book continues an unmatched history of innovation and careful execution that was established by the bestselling eleventh edition. Assimilating the best ideas from education research, this new edition provides enhanced problem-solving instruction, pioneering visual and conceptual pedagogy, the first systematically enhanced problems, and the most pedagogically proven and widely used homework and tutorial systems available.

FEATURES

- The acclaimed, consistent, and explicit four-step problem-solving framework (Identity, Set Up, Execute, and Evaluate) is used throughout every worked example, chapter-specific problem-solving strategy, and solution. Worked examples incorporate vivid sketches to guide you through this important step
- Student interest in the subject is kindled by a thought-provoking probe, which kicks off each new chapter. Based on real-life situations, these questions, pertinent to the topic under discussion, are convincingly addressed at the chapter-end and enable you to correlate observed effects with physical causes
- A streamlined and systematic learning path of instruction followed by practice includes Learning Goals at the start of each chapter and Visual Chapter Summaries that consolidate each concept in figures, math, and words
- The instructional power of figures is enhanced by using the research-proven technique of “annotation” (chalkboard-style commentary integrated into the figures to guide you in interpreting the figure)
- Renowned for providing the widest-ranging and most effective problems available, the twelfth edition goes further “ its provides the first library of physics problems systematically enhanced based on feedback about student performance
- There is also a Chapter Opening Question and a list of Learning Goals to make the reader think about the subject matter of the chapter ahead. (To find the answer for the question, look for the ? icon.)
- At the end of each chapter is a collection of Discussion Questions that probe and extend the student’s conceptual understanding

CONTENTS

1. Electric Charge and Electric Field
2. Gauss’s Law
3. Electric Potential
4. Capacitance and Dielectrics
5. Current, Resistance, and Electromotive Force
6. Direct-Current Circuits
7. Magnetic Field and Magnetic Forces
8. Sources of Magnetic Field
9. Electromagnetic Induction
10. Inductance
11. Alternating Current
12. Electromagnetic Waves





University Physics with Modern Physics, 14e

Young • Freedman • Ford

COMING SOON ISBN: TBA | © 2013 | Pages: 1624

NEW EDITION

ABOUT THE BOOK

University Physics has been revered for its emphasis on fundamental principles and how to apply them. This text is known for its clear and thorough narrative, as well as its uniquely broad, deep, and thoughtful sets of worked examples that provide students with key tools for developing both conceptual understanding and problem-solving skills.

The Fourteenth Edition improves the defining features of the text while adding new features influenced by education research to teach the skills needed by today's students.

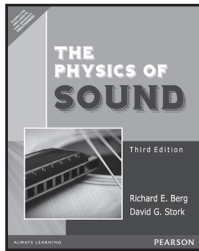
FEATURES

- Consistent Problem-Solving Approach
- Annotated Equations to help students make a connection between a conceptual and a mathematical understanding of physics.
- Bridging Problems to help students move from single-concept worked examples to multi-concept problems
- Context-rich data-based reasoning problems that require students to use experimental evidence, presented in a tabular or graphical format, to formulate conclusions.
- Passage Problems that require students to investigate multiple aspects of a real-life physical situation, typically biological in nature, as described in a reading passage.

CONTENTS

- | | |
|---------------------------------------------|--------------------------------------------------|
| 1. Units, Physical Quantities, and Vectors | 23. Electric Potential |
| 2. Motion Along a Straight Line | 24. Capacitance and Dielectrics |
| 3. Motion in Two or Three Dimensions | 25. Current, Resistance, and Electromotive Force |
| 4. Newton's Laws of Motion | 26. Direct-Current Circuits |
| 5. Applying Newton's Laws | 27. Magnetic Field and Magnetic Forces |
| 6. Work and Kinetic Energy | 28. Sources of Magnetic Field |
| 7. Potential Energy and Energy Conservation | 29. Electromagnetic Induction |
| 8. Momentum, Impulse, and Collision | 30. Inductance |
| 9. Rotation of Rigid Bodies | 31. Alternating Current |
| 10. Dynamics of Rotational Motion | 32. Electromagnetic Waves |
| 11. Equilibrium and Elasticity | 33. The Nature and Propagation of Light |
| 12. Fluid Mechanics | 34. Geometric Optics |
| 13. Gravitation | 35. Interference |
| 14. Periodic Motion | 36. Diffraction |
| 15. Mechanical Waves | 37. Relativity |
| 16. Sound and Hearing | 38. Photons: Light Waves Behaving as Particles |
| 17. Temperature and Heat | 39. Particles Behaving as Waves |
| 18. Thermal Properties of Matter | 40. Quantum Mechanics I: Wave Functions |
| 19. The First Law of Thermodynamics | 41. Quantum Mechanics II: Atomic Structure |
| 20. The Second Law of Thermodynamics | 42. Molecules and Condensed Matter |
| 21. Electric Charge and Electric Field | 43. Nuclear Physics |
| 22. Gauss's Law | 44. Particle Physics and Cosmology |

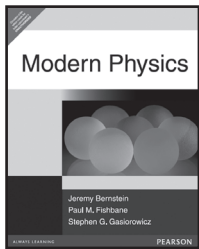
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ABOUT THE AUTHOR**Hugh D. Young** - Carnegie Mellon University**Roger A. Freedman** - University of California, Santa Barbara**A. Lewis Ford** - Texas A&M University**Also Available****The Physics of Sound, 3/e****Richard E Berg**

ISBN: 9788131768587 | © 2005 | Pages: 416

ABOUT THE BOOK

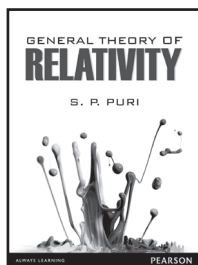
Using a hands-on and experimental approach, this book incorporates developments in digital audio technology—including consumer products—into a firm foundation of the physics of sound. Selected topics are interesting to a broad audience, with many applications of sound and waves beyond strictly musical applications. No background in physics, mathematics, or music is required.

**Modern Physics****Jeremy Bernstein • Paul M. Fishbane
Stephen G. Gasiorowicz**

ISBN: 9788131724668 | © 2000 | Pages: 624

ABOUT THE BOOK

This comprehensive text provides a clear, correct, and up-to-date introduction and survey of the topics of importance to tomorrow's engineers and scientists. The presentation includes the description of the history of the topics, to show students how we got to where we are; it stresses the importance of observation and experiment; and it emphasizes numbers, so that students develop a feel for the magnitudes involved and for when different principles become important.



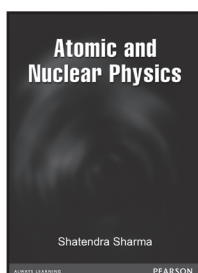
General Theory of Relativity

Dr. S. P. Puri

ISBN: 9788131795682 | © 2013 | Pages: 368

ABOUT THE BOOK

General Theory of Relativity is the generalization of special relativity to include gravitation. It emphasizes that the law of Physics must be same for all observers and thereby extended it to non-inertial frames. This text is intended as a textbook for the students of Physics at the undergraduate and postgraduate level. It gives equal importance to the mathematical and physical aspects of general theory of relativity and hence strengthening the foregrounds.



Atomic and Nuclear Physics

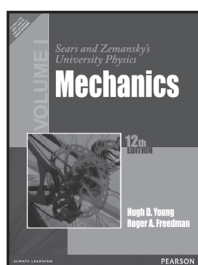
Shatendra K. Sharma

ISBN: 9788131719244 | © 2008 | Pages: 620

ABOUT THE BOOK

The book describes the basics of Atomic and Nuclear Physics, related phenomena, and the physics of Nuclear Reactors and the Instruments and Applications for the same.

The flow of the chapters in the book gradually moves from Atomic Physics, then to Quantum Physics, and finally to Nuclear Physics.



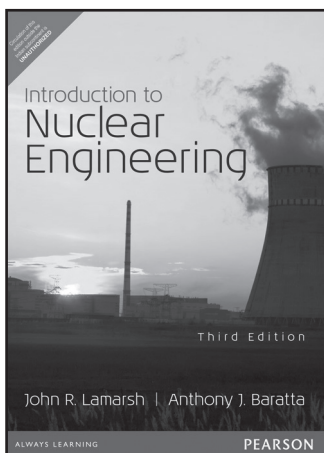
Sears and Zemansky's University Physics-Volume I : Mechanics

Hugh D. Young • Roger A. Freedman

ISBN: 9788131759851 | © 2011 | Pages: 544

ABOUT THE BOOK

University Physics – Mechanics, encapsulated the chapters relating to Mechanics from Sears and Zemansky's University Physics Twelfth Edition. The book continues an unmatched history of innovation and careful execution that was established by the bestselling eleventh edition. Assimilating the best ideas from education research, this new edition provides enhanced problem-solving instruction, pioneering visual and conceptual pedagogy, the first systematically enhanced problems, and the most pedagogically proven and widely used homework and tutorial systems available.



Introduction to Nuclear Engineering, 3/e

John R. Lamarsh • Anthony J. Baratta

ISBN: 9789332536708 | © 2014 | Pages: 744

ABOUT THE BOOK

The text is designed for junior and senior level Nuclear Engineering students.

The third edition of this highly respected text offers the most current and complete introduction to nuclear engineering available. *Introduction to Nuclear Engineering* has been thoroughly updated with new information on French, Russian, and Japanese nuclear reactors. All units have been revised to reflect current standards. In addition to the numerous end-of-chapter problems, computer exercises have been added.

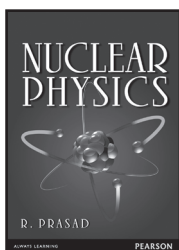
FEATURES

- NEW - Discussions of new reactor types including the AP600, ABWR, and SBWR as well as an extensive section on non-US design reactors.
- NEW - The authors have added a discussion on the nuclear Navy and its impact on the development of nuclear energy.
- NEW - Basic nuclear theory chapters include additional discussions on binding energy and such topics as the semi-empirical mass formula and elementary quantum mechanics.
- NEW - Changes in reactor theory sections include a more complete discussion of solutions to the diffusion equation and a more general derivation of the point kinetics equation.
- NEW - Chapter on radiation effects updated to include the latest standards—Both SI and conventional units are discussed and used in examples and problems in this chapter.
- NEW - Topics in reactor safety now include a complete discussion of the Chernobyl accident and an updated section on TMI and the use of computer codes in safety analysis.

CONTENTS

1. Nuclear Engineering.
2. Atomic and Nuclear Physics.
3. Interaction of Radiation with Matter.
4. Nuclear Reactors and Nuclear Power.
5. Neutron Diffusion and Moderation.
6. Nuclear Reactor Theory.
7. The Time-Dependent Reactor.
8. Heat Removal from Nuclear Reactors.
9. Radiation Protection.
10. Radiation Shielding.
11. Reactor Licensing, Safety, and the Environment.

Also Available



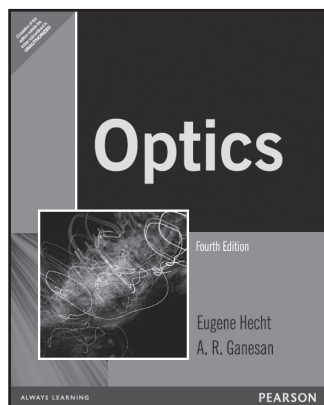
Nuclear Physics

R Prasad

ISBN: 9789332522657 | © 2014 | Pages: 504

ABOUT THE BOOK

Nuclear Physics provides a clear and concise introduction to the subject. Fundamentals aside, the book reviews the evolution of the subject from its emergence to its present-day advancements and critically examines the future directions of nuclear and particle physics.



Optics, 4/e

Eugene Hecht • A. R. Ganesan

ISBN: 9788131718070 | © 2008 | Pages: 650

ABOUT THE BOOK

Accurate, authoritative, and comprehensive, *Optics*, Fourth Edition has been revised to provide students with the most up-to-date coverage of optics. The market leader for over a decade, this text provides a balance of theory and instrumentation, while also including the necessary classical background. The writing style is lively and accessible.

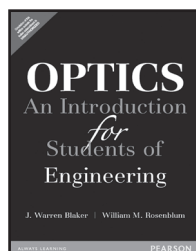
FEATURES

- NEW AND UPDATED! New illustrations and photos, as well as revised art, are included throughout enhancing the already outstanding visual pedagogy of this textbook.
- UPDATED! Chapter 3 Electromagnetic Theory, Photons, and Light has been fully revised and updated to reflect advances in the field.
- The text employs a careful balance of theory and instrumentation and provides students with the necessary classical background.
- Coherence is introduced early on in the text and leads immediately into a discussion of Young's Experiments. To underscore the quantum mechanical nature of interference, many optical interference photos are accompanied by equivalent material particle fringe patterns.

CONTENTS

- | | |
|--------------------------------|---------------------------------------------|
| 1. A Brief History. | 7. Polarization. |
| 2. Wave Motion. | 8. Interference. |
| 3. The Propagation of Light. | 9. Diffraction. |
| 4. Geometrical Optics. | 10. Fourier Optics. |
| 5. More on Geometrical Optics. | 11. Basics of Coherence Theory. |
| 6. The Superposition of Waves. | 12. Modern Optics: Lasers and Other Topics. |

Also Available



Optics: An Introduction for Students of Engineering

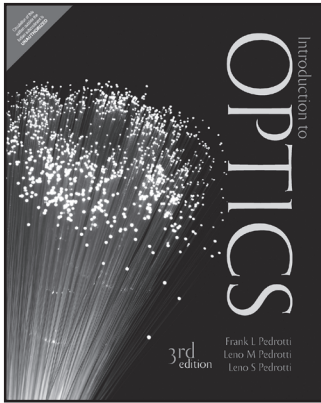
J W Blaker • Robert Rosenblum

ISBN: 9789332559431 | © 2016 | Pages: 336

ABOUT THE BOOK

NEW

This book provides a concise overview of optic design and a thorough examination of engineering applications.



Introduction to Optics, 3/e

Frank L Pedrotti • Leno M Pedrotti • Leno S Pedrotti

ISBN: 9789332534995 | © 2014 | Pages: 672

ABOUT THE BOOK

The text is a comprehensive and up-to-date introduction to optics suitable for one- or two-term intermediate and upper level undergraduate physics and engineering students.

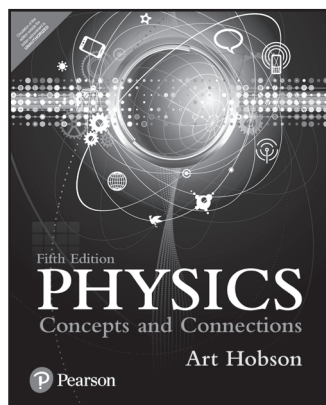
The reorganized table of contents provides instructors the flexibility to tailor the chapters to meet their individual needs.

FEATURES

- **New Problems-** The third edition contains over 50 new Problems. Figures accompany end-of-chapter Problems to help students visualize the situation.
- **Improved Art Program-** The third edition includes over 50 new and revised figures. Electronic versions of most figures will be available to instructors for presentation.
- **Chapter 6, Laser Basics –** Formerly introduced in Chapter 21, lasers are now introduced early which establishes the importance of the laser as an optical instrument; allows for early introduction of various applications, demonstrations, and discussions that build on the use of a laser. Chapter 6 includes updates to semiconductor lasers, introduction of fiber lasers, and addition of more solid state lasers.
- **Thoroughly Updated-**In addition to Chapter 6 on Laser Basics, chapters on Optical Interferometry (9), Fiber Optics (10), and Holography (15) have been updated. Updates include a modernization of the treatment and the addition of modern applications.
- **New Applications-** Modern applications have been added to make the material relevant and interesting. Applications include: Liquid Crystal Displays, CCD's, CD and DVD Technology, Optical Parametric Oscillators and Amplifiers as Tunable Sources of Radiation, Near Field Microscopy, Ultra Short Pulses, Manipulation of Atoms with Lasers (Optical Tweezers, Optical Cooling and Trapping), selected applications in Nanophotonics and Biophotonics, more extensive treatment of communication systems using optical fibers, and Wavelength Division Multiplexing.

CONTENTS

- | | |
|--------------------------------------|--------------------------------------------------|
| 1. Nature of Light | 16. Holography |
| 2. Geometrical Optics | 17. Optical Detectors and Displays |
| 3. Optical Instrumentation | 18. Matrix Methods in Paraxial Optics |
| 4. Properties of Lasers | 19. Optics of the Eye |
| 5. Wave Equations | 20. Aberration Theory |
| 6. Superposition of Waves | 21. Fourier Optics |
| 7. Interference of Light | 22. Theory of Multilayer Films |
| 8. Optical Interferometry | 23. Fresnel Equations |
| 9. Coherence | 24. Nonlinear Optics and the Modulation of Light |
| 10. Fiber Optics | 25. Optical Properties of Materials |
| 11. Fraunhofer Diffraction | 26. Laser Operation |
| 12. The Diffraction Grating | 27. Characteristics of Laser Beams |
| 13. Fresnel Diffraction | |
| 14. Matrix Treatment of Polarization | |
| 15. Production of Polarized Light | |



Physics: Concepts and Connections, 5e

Art Hobson

ISBN: 9789332575769 | © 2016 | Pages: 536

NEW

ABOUT THE BOOK

Written for the non-science major, this text emphasizes modern physics and the scientific process—and engages students by drawing connections between physics and everyday experience. Hobson takes a conceptual approach, with an appropriate focus on quantitative skills. The Fifth Edition increases coverage of key environmental topics such as global warming and energy, and adds new topics such as momentum. Hobson’s text remains the least expensive textbook available for students taking nonmajors physics.

FEATURES

- Modern physics is introduced early in the text and integrated throughout.
- The “great ideas” of physics are covered in depth—versus an encyclopedic approach to all of the topics of physics.
- “How Do We Know...?” sections emphasize the process of science throughout. An interesting question is posed with a conclusion which provides scientific evidence.
- Making Estimates examples and exercises help students develop the ability to make “back of the envelope calculations”—often a goal of this course.
- Concept Checks, integrated throughout each chapter, prompt students to stop and check their understanding of key concepts. Answers are provided at the end of each chapter.
- End-of-chapter Review Questions, Conceptual Exercises, and Problems can be assigned as homework or used by students for self-study.

CONTENTS

Part 1: Prelude: Of Stars and Atoms

1. The Way of Science: Experience and Reason
2. Atoms: The Nature of Things

Part 2: The Newtonian Universe: A Clockwork Kingdom

3. How Things Move: Galileo Asks the Right Questions
4. Why Things Move as They Do
5. Newton’s Universe

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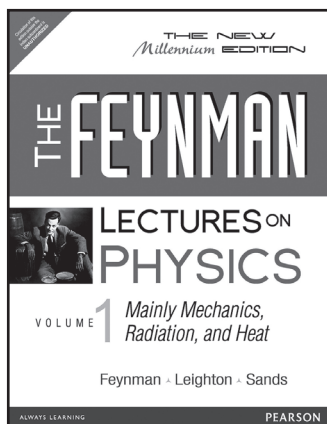
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ABOUT THE AUTHOR

Art Hobson, University of Arkansas



The Feynman Lectures on Physics: Volume I: The New Millennium Edition: Mainly Mechanics, Radiation, and Heat

Richard P. Feynman • Robert B. Leighton • Matthew Sands

ISBN: 9788131792117 | © 2012 | Pages: 560

ABOUT THE BOOK

Timeless and collectible, *The Feynman Lectures on Physics* are essential reading, not just for students of Physics, but for anyone seeking an insightful introduction to the field from the inimitable Richard P. Feynman.

When I look at *The Feynman Lectures on Physics*, I feel a very personal sense of closeness to them," said Feynman, looking back at the origins of these books. Ranging from Newton's laws through the special theory of relativity, optics, statistical mechanics, and thermodynamics, the lectures collected in Volume I of *The Feynman Lectures on Physics* stand as a monument to clear exposition and deep insight and to Feynman's deep connection with the field.

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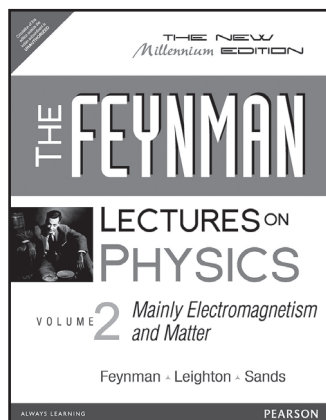
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ABOUT THE AUTHOR

Richard P. Feynman was a professor of physics at Caltech from 1959 to 1988. In 1965 he shared a Nobel Prize in Physics for his work on the development of quantum electrodynamics.

Robert B. Leighton was a physicist and astronomer, an esteemed teacher and textbook author, and professor at Caltech for many years.

Matthew Sands has been a professor at Caltech, deputy director of the Stanford Linear Accelerator Centre, and vice chancellor for science at the University of California, Santa Cruz



The Feynman Lectures on Physics: Volume II: The New Millennium Edition: Mainly Electromagnetism and Matter

Richard P. Feynman • Robert B. Leighton • Matthew Sands

ISBN: 9788131792124 | © 2012 | Pages: 592

ABOUT THE BOOK

Timeless and collectible, *The Feynman Lectures on Physics* are essential reading, not just for students of Physics, but for anyone seeking an insightful introduction to the field from the inimitable Richard P. Feynman.

“When I look at *The Feynman Lectures on Physics*, I feel a very personal sense of closeness to them,” said Feynman, looking back at the origins of these books. Ranging from Gauss’s law and Maxwell’s electrodynamics to waveguides, dielectrics, magnetic materials, and elasticity, the lectures collected in Volume II of *The Feynman Lectures on Physics* stand as a monument to clear exposition and deep insight and to Feynman’s deep connection with the field.

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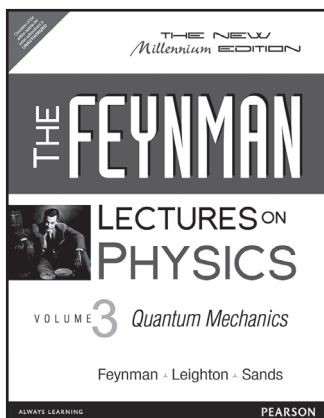
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ABOUT THE AUTHOR

Richard P. Feynman was a professor of physics at Caltech from 1959 to 1988. In 1965 he shared a Nobel Prize in Physics for his work on the development of quantum electrodynamics.

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Matthew Sands has been a professor at Caltech, deputy director of the Stanford Linear Accelerator Centre, and vice chancellor for science at the University of California, Santa Cruz.



The Feynman Lectures on Physics: Volume III : The New Millennium Edition: Quantum Mechanics

Richard P. Feynman • Robert B. Leighton • Matthew Sands

ISBN: 9788131792131 | © 2012 | Pages: 400

ABOUT THE BOOK

Timeless and collectible, *The Feynman Lectures on Physics* are essential reading, not just for students of Physics, but for anyone seeking an insightful introduction to the field from the inimitable Richard P. Feynman.

“When I look at *The Feynman Lectures on Physics*, I feel a very personal sense of closeness to them,” said Feynman, looking back at the origins of these books. Ranging from probability amplitudes to spin, two-state systems, propagation in a crystal lattice, semiconductors, symmetry, and conservation laws, the lectures collected in Volume III of *The Feynman Lectures on Physics* stand as a monument to clear exposition and deep insight and to Feynman’s deep connection with the field.

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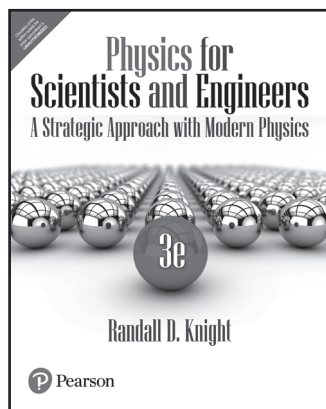
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ABOUT THE AUTHOR

Richard P. Feynman was a professor of physics at Caltech from 1959 to 1988. In 1965 he shared a Nobel Prize in Physics for his work on the development of quantum electrodynamics.

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Physics for Scientists and Engineers: A Strategic Approach with Modern Physics, 3/e

Randall D. Knight

ISBN: 9789332575721 | © 2016 | Pages: 1472

NEW

ABOUT THE BOOK

Were you looking for the book with access to MasteringPhysics? This product is the book alone, and does NOT come with access to MasteringPhysics. Buy the book and access card package to save money on this resource.

As the most widely adopted new physics book in more than 50 years, Knight's *Physics for Scientists and Engineers* was published to widespread critical acclaim

from professors and students. In the Third Edition, Knight builds on the research-proven instructional techniques he introduced in the first and second editions, as well as national data of student performance, to take student learning even further. Knight's unparalleled insight into student learning difficulties, and his impeccably skillful crafting of text and figures at every level—from macro to micro—to address these difficulties, results in a uniquely effective and accessible book, leading students to a deeper and better-connected understanding of the concepts and more proficient problem-solving skills.

For the Third Edition, Knight continues to apply the best results from educational research, and to refine and tailor them for this course and its students. New pedagogical features (Chapter Previews, Challenge Examples, and Data-based Examples), end-of-chapter problem sets enhanced through analysis of national student metadata, and fine-tuned and streamlined content take the hallmarks of the previous editions—exceptionally effective conceptual explanation and problem-solving instruction—to a new level.

FEATURES

- Builds problem-solving skills and confidence using an explicit, methodical, and consistent approach.
- A consistent 4-step approach provides a problem-solving framework throughout the book (and all supplements): students learn the importance of making assumptions (in the MODEL step) and gathering information and making sketches (in the VISUALIZE step) before treating the problem mathematically (SOLVE) and then analyzing their result (ASSESS).
- Detailed problem-solving strategies for different topics and categories of problems are developed throughout the book, each one built on the MODEL/VISUALIZE/SOLVE/ASSESS framework.
- Tactics Boxes give step-by-step procedures for developing specific skills (drawing free-body diagrams, using ray tracing, etc.).
- Worked examples follow the 4-step strategies and include careful explanations of the underlying, and often unstated, reasoning.
- The Student Workbook provides straightforward confidence- and skill-building exercises, bridging the gap between worked examples and end-of-chapter problems. Worksheets following the MODEL/VISUALIZE/SOLVE/ASSESS framework provide tear-out templates for students to follow when practicing solving problems.
- Promotes a deeper and better-connected understanding using a structured learning path and an inductive approach with exceptional clarity.
- Each chapter begins with a roadmap of the upcoming material (see “Chapter Previews” below). Looking Back references consolidate connections with previous topics.
- Unique and critically acclaimed visual chapter summaries consolidate understanding by providing each concept in words, math, and figures and organizing these into a vertical hierarchy—from General Principles (top) to Applications (bottom).

»»

- The student's understanding of groups of chapters is also consolidated. Each Part begins with a two-page introductory Overview of the chapters ahead. Each Part ends with a Summary that draws together key concepts from the preceding chapter into a visual Knowledge Structure.
- New concepts are introduced through observations about the real world and theories grounded by making sense of observations. This inductive approach illustrates how science operates, and has been shown to improve student learning by reconciling new ideas with what they already know.
- NOTE paragraphs throughout guide students away from known preconceptions and around common sticking points and highlight many math- and vocabulary-related issues that have been proven to cause difficulties.
- Stop to Think questions at the end of a section allow students to quickly check their understanding. Using powerful ranking-task and graphical techniques, they are designed to efficiently probe key misconceptions and encourage active reading. (Answers are provided at the end of the chapter.)
- Hand-drawn sketches are incorporated into select worked examples to provide a clear model of what students should draw during their own problem solving.
- Pioneers the implementation of proven visual techniques that cognitive science has shown significantly increase engagement, assimilation, and retention of science concepts.
- Figures are carefully streamlined in detail and color so students focus on the physics—or instance, the object of interest in mechanics.
- Explicit instruction as annotations directly on figures helps students to interpret figures and graphs.
- Extensive use is made of multiple representations — placing different representations side by side to help students develop the key skill of translating between words, math, and figures. Essential to good problem-solving, this skill is overlooked in most physics textbooks.
- Analogy is used throughout the text and figures to consolidate student understanding by comparing with a more familiar concept or situation.
- Conceptual Questions require careful reasoning and can be used for group discussions or individual work.
- Exercises (for each section) allow students to build up their skills and confidence with straightforward, one-step questions.
- Problems (spanning concepts from the whole chapter), require in-depth reasoning and planning, and allow students to practice their problem-solving strategies. Context-rich problems require students to simplify and model more complex real-world situations. Specifically labeled problems integrate concepts from multiple previous chapters.
- Challenge Problems push the best students even further.
- The end-of-chapter problems are rated by students to show difficulty level with the variety expanded to include more real-world, challenging, and explicitly calculus-based problems.
- The revised Workbook is tightly integrated with the main text—following the same textbook strategies, and is explicitly referenced throughout the text.

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ABOUT THE AUTHOR

Randy Knight has taught introductory physics for nearly 30 years at Ohio State University and California Polytechnic University, where he is currently Professor of Physics and Director of the Minor in Environmental Studies. Randy received a Ph.D. in physics from the University of California, Berkeley, and was a post-doctoral fellow at the Harvard-Smithsonian Center for Astrophysics before joining the faculty at Ohio State University. It was at Ohio State, under the mentorship of Professor Leonard Jossem, that he began to learn about the research in physics education that, many years later, led to *Five Easy Lessons: Strategies for Successful Physics Teaching* and this book. Randy's research interests are in the field of lasers and spectroscopy. When he's not in the classroom or in front of a computer, you can find Randy hiking, sea kayaking, playing the piano, or spending time with his wife Sally and their seven cats.





Conceptual Physics, 12e

Paul G. Hewitt

COMING SOON ISBN: TBA | © 2015 | Pages: 824

NEW EDITION

ABOUT THE BOOK

Since defining this course 30 years ago, Paul Hewitt's best-selling text continues as the benchmark by which all others are judged. In *Conceptual Physics* Twelfth Edition Paul Hewitt makes physics interesting, understandable, and relevant for non-science majors. The Twelfth Edition will delight students with informative and fun Hewitt-Drew-It screencasts, updated content and applications.

Hewitt's text is guided by the principle of "concepts before calculations" and is famous for engaging students with analogies and imagery from the real-world that build a strong conceptual understanding of physical principles ranging from classical mechanics to modern physics.

This program presents a better teaching and learning experience—for you and your students.

- **Prepare for lecture:** NEW! 100 Hewitt-Drew-It screencasts, authored and narrated by Paul Hewitt, explain physics concepts through animation and narration. The exciting new Screencasts, accessed through QR codes in the textbook, will enable students to engage with the physics concepts more actively outside of class.
- **Make physics delightful:** Relevant and accessible narrative, analogies from real-world situations, and simple representations of the underlying mathematical relationships make physics more appealing to students.
- **Build a strong conceptual understanding of physics:** Students gain a solid understanding of physics through practice and problem solving in the book.

FEATURES

- Make physics delightful
- NEW! Updated applications are available for digital technology, environment, and energy. These topics are at the forefront of everyone's consciousness these days and an intelligent awareness of their scientific foundations will give rise to better decision making in the political arena.
- NEW! A new interior design provides an attractive, fresh, and accessible new look, updating a classic text to be even more student friendly.
- An extensive full-color figure and photo program includes the author's hallmark cartoons, which are both approachable and informative.
- Fun and easy-to-perform projects involve students in the scientific process of exploration and observation.
- Insight boxes provide short snippets of information about how topics in the text relate to real-life situations, experiments, and other parts of the book.
- Enhanced coverage of topics in energy and environment are included and help to keep students aware of current events.
- Build a strong conceptual understanding of physics
- NEW! Revised End of Chapter sections fit Bloom's Taxonomy. All end of chapter material has been rearranged and revised as needed to fit into Bloom's taxonomy categories.
- All sections are now numbered to allow for more instructor flexibility in assigning class material.
- Check Yourself and Check Your Answer boxes embedded within the text help students gauge their level of understanding of the material just covered.
- Practicing Physics boxes allow students to work through a problem or experiment based on the material covered in each chapter.
- A wide variety of problems are provided at the end of each chapter.



- Conceptual Ranking end of chapter exercises help students master important concepts.
- Multiple-choice Practice Exams at the end of each part enable the student to assess their grasp of the material they just learned.
- Prepare for lecture
- Conceptual Ranking end of chapter exercises help students master important concepts.
- Multiple-choice Practice Exams at the end of each part enable the student to assess their grasp of the material they just learned.

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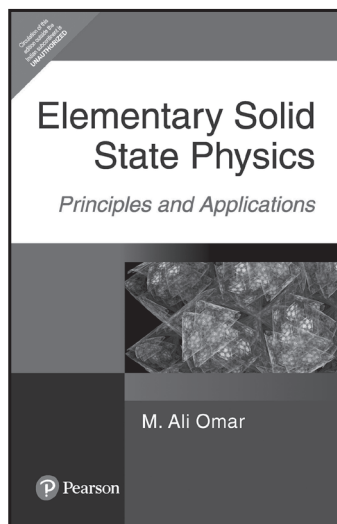
E. Exponential Growth and Doubling Time

ABOUT THE AUTHOR

Paul G. Hewitt was a Silver Medalist flyweight Boxing Champion for New England States at the age of 17. He was then a cartoonist, sign painter, and uranium prospector before beginning his physics studies.

Conceptual Physics was first published in 1971, while Hewitt was teaching at City College of San Francisco. He has also served as a guest lecturer at the University of California at Berkeley, the University of California at Santa Cruz, the University of Hawaii at Manoa, and the University of Hawaii at Hilo. Hewitt returned to San Francisco to teach at the City College and the well-known science museum, The Exploratorium. He retired from full-time teaching in 2000, and currently resides in St. Petersburg, Florida.





Elementary Solid State Physics

M. Ali Omar

ISBN: 9788177583779 | © 1999 | Pages: 699

ABOUT THE BOOK

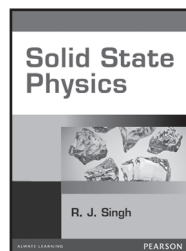
The volume is intended to serve as a general text in solid state physics for undergraduates in physics, applied physics, engineering, and other related scientific disciplines. It covers a wide range of topics with as many practical applications as possible.

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10. Superconductivity
11. Topics in Metallurgy and Defects in Solids
12. Materials and Solid-State Chemistry
13. Solid-State Biophysics



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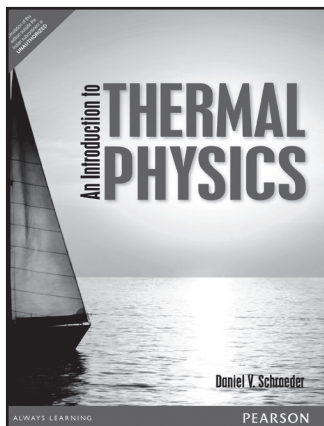
Solid State Physics

R J Singh

ISBN: 9788131754016 | © 2011 | Pages: 608

ABOUT THE BOOK

This book is written as per the core module syllabus of the major universities and targets undergraduate B.Sc students. The book uses lecture style in explaining the concepts which would facilitate easy understanding of the concepts.



An Introduction to Thermal Physics

Daniel V. Schroeder

ISBN: 9789332535077 | © 2014 | Pages: 336

ABOUT THE BOOK

This text provides a balanced, well-organized treatment of thermodynamics and statistical mechanics, making thermal physics interesting and accessible to anyone who has completed a year of calculus-based introductory physics. Part I introduces essential concepts of thermodynamics and statistical mechanics from a unified view, applying concepts in a select number of illustrative examples. Parts II and III explore further applications of classical thermodynamics and statistical mechanics. Throughout, the emphasis is on real-world applications.

FEATURES

- A balanced treatment of both classical thermodynamics and statistical mechanics, showing the relation between them without confusing the student.
- A rich supply of applications capture students' attention and show how thermal physics relates to engineering, chemistry, earth science, condensed matter physics, astrophysics, and everyday life.
- Integrated problems at the ends of sections and subsections encourage students to actively apply what they have been reading and check their understanding.
- The text includes many problems that require the use of the computer; for instance, spreadsheet calculations, plotting, numerical integration, root finding, and Monte Carlo simulation.
- The text is accessible to anyone who has completed a year of calculus-based introductory physics.
- A clear and lively writing style engages readers.

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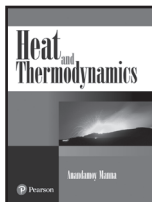
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Also Available



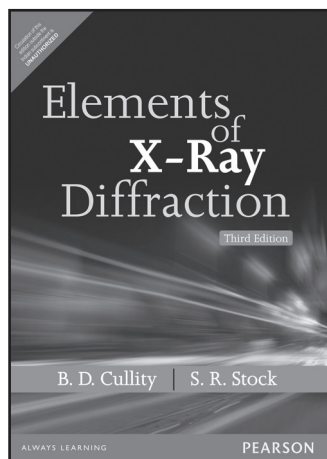
Heat and Thermodynamics

Anandamoy Manna

ISBN: 9788131754009 | © 2012 | Pages: 508

ABOUT THE BOOK

The book is meant for an introductory course on Heat & Thermodynamics. The book uses variety of diagrams, charts and learning aids to enable easy understanding of the subject.



Elements of X-Ray Diffraction, 3/e

B.D. Cullity • S.R. Stock

ISBN: 9789332535169 | © 2014 | Pages: 656

ABOUT THE BOOK

This revision of a classical text is intended to acquaint the reader, who has no prior knowledge of the subject, with the theory of x-ray diffraction, the experimental methods involved, and the main applications. The text is a collection of principles and methods designed directly for the student and not a reference tool for the advanced reader

FEATURES

- No metallurgical data are given beyond that necessary to illustrate the diffraction methods involved.
- X-ray diffraction is stressed rather than metallurgy.
- The book is divided into three main parts—Fundamentals; experimental methods; and applications.
- The subject of crystal structure is approached through, and, based on, the concept of the point lattice (Bravais lattice), because the point lattice of a substance is so closely related to its diffraction pattern.
- The book is written entirely in terms of the Bragg law and can be read without any knowledge of the reciprocal lattice.

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