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Concepts of Elementary Particle Physics - Michael E. Peskin 2019-05-29

The purpose of this textbook is to explain the Standard Model of particle physics to a student with an undergraduate preparation in physics. Today we can claim to have a fundamental picture of the strong and weak subnuclear forces. Through an interplay between theory and experiment, we have learned

the basic equations through which these forces operate, and we have tested these equations against observations at particle accelerators. The story is beautiful and full of surprises. Using a simplified presentation that does not assume prior knowledge of quantum field theory, this book begins from basic concepts of special relativity and quantum mechanics, describes the key experiments that have clarified

the structure of elementary particle interactions, introduces the crucial theoretical concepts, and builds up to the full description of elementary particle interactions as we know them today.

Mathematical Methods - Sadri Hassani 2013-11-11

Intended to follow the usual introductory physics courses, this book contains many original, lucid and relevant examples from the physical sciences, problems at the ends of chapters, and boxes to emphasize important concepts to help guide students through the material.

The Book of Nothing - John D. Barrow 2009-05-20

What conceptual blind spot kept the ancient Greeks (unlike the Indians and Maya) from developing a concept of zero? Why did St. Augustine equate nothingness with the Devil? What tortuous means did 17th-century scientists employ in their attempts to create a vacuum? And why do contemporary quantum physicists believe that the void

is actually seething with subatomic activity? You'll find the answers in this dizzyingly erudite and elegantly explained book by the English cosmologist John D. Barrow. Ranging through mathematics, theology, philosophy, literature, particle physics, and cosmology, *The Book of Nothing* explores the enduring hold that vacuity has exercised on the human imagination. Combining high-wire speculation with a wealth of reference that takes in Freddy Mercury and Shakespeare alongside Isaac Newton, Albert Einstein, and Stephen Hawking, the result is a fascinating excursion to the vanishing point of our knowledge.

Gauge Field Theories - Mike Guidry 2008-07-11

Acquaints readers with the main concepts and literature of elementary particle physics and quantum field theory. In particular, the book is concerned with the elaboration of gauge field theories in nuclear physics; the possibility of creating fundamental new

states of matter such as an extended quark-gluon plasma in ultra-relativistic heavy ion collisions; and the relation of gauge theories to the creation and evolution of the universe. Divided into three parts, it opens with an introduction to the general principles of relativistic quantum field theory followed by the essential ingredients of gauge fields for weak and electromagnetic interactions, quantum chromodynamics and strong interactions. The third part is concerned with the interface between modern elementary particle physics and "applied disciplines" such as nuclear physics, astrophysics and cosmology. Includes references and numerous exercises.

Introduction to Elementary Particles - David Jeffery Griffiths 1987-01-01

Quarks and Leptones - Francis Halzen 1984-01-20
This self-contained text describes breakthroughs in our understanding of the structure and interactions of elementary

particles. It provides students of theoretical or experimental physics with the background material to grasp the significance of these developments.

Introduction to Many-Body Physics - Piers Coleman
2015-11-26

A modern, graduate-level introduction to many-body physics in condensed matter, this textbook explains the tools and concepts needed for a research-level understanding of the correlated behavior of quantum fluids. Starting with an operator-based introduction to the quantum field theory of many-body physics, this textbook presents the Feynman diagram approach, Green's functions and finite-temperature many-body physics before developing the path integral approach to interacting systems. Special chapters are devoted to the concepts of Fermi liquid theory, broken symmetry, conduction in disordered systems, superconductivity and the physics of local-moment metals. A strong emphasis on

concepts and numerous exercises make this an invaluable course book for graduate students in condensed matter physics. It will also interest students in nuclear, atomic and particle physics.

Modern Engineering

Thermodynamics - Robert T. Balmer 2011-01-25

Modern Engineering Thermodynamics is designed for use in a standard two-semester engineering thermodynamics course sequence. The first half of the text contains material suitable for a basic Thermodynamics course taken by engineers from all majors. The second half of the text is suitable for an Applied Thermodynamics course in mechanical engineering programs. The text has numerous features that are unique among engineering textbooks, including historical vignettes, critical thinking boxes, and case studies. All are designed to bring real engineering applications into a subject that can be somewhat abstract and mathematical.

Over 200 worked examples and more than 1,300 end of chapter problems provide opportunities to practice solving problems related to concepts in the text. Provides the reader with clear presentations of the fundamental principles of basic and applied engineering thermodynamics. Helps students develop engineering problem solving skills through the use of structured problem-solving techniques. Introduces the Second Law of Thermodynamics through a basic entropy concept, providing students a more intuitive understanding of this key course topic. Covers Property Values before the First Law of Thermodynamics to ensure students have a firm understanding of property data before using them. Over 200 worked examples and more than 1,300 end of chapter problems offer students extensive opportunity to practice solving problems. Historical Vignettes, Critical Thinking boxes and Case Studies throughout the book help relate abstract concepts to

actual engineering applications. For greater instructor flexibility at exam time, thermodynamic tables are provided in a separate accompanying booklet. Available online testing and assessment component helps students assess their knowledge of the topics. Email textbooks@elsevier.com for details.

Particle Astrophysics - Donald H. Perkins 2003

This book presents in a single text the latest dramatic developments in the related fields of elementary particle physics and the astrophysics of the early universe. Both experimental and theoretical aspects are presented at a level suitable for the average physics undergraduate.

Mrs. Perkins's Electric Quilt - Paul J. Nahin 2009-08-17

What does quilting have to do with electric circuit theory? The answer is just one of the fascinating ways that best-selling popular math writer Paul Nahin illustrates the deep interplay of math and physics in the world around us in his

latest book of challenging mathematical puzzles, *Mrs. Perkins's Electric Quilt*. With his trademark combination of intriguing mathematical problems and the historical anecdotes surrounding them, Nahin invites readers on an exciting and informative exploration of some of the many ways math and physics combine to create something vastly more powerful, useful, and interesting than either is by itself. In a series of brief and largely self-contained chapters, Nahin discusses a wide range of topics in which math and physics are mutually dependent and mutually illuminating, from Newtonian gravity and Newton's laws of mechanics to ballistics, air drag, and electricity. The mathematical subjects range from algebra, trigonometry, geometry, and calculus to differential equations, Fourier series, and theoretical and Monte Carlo probability. Each chapter includes problems--some three dozen in all--that challenge readers to try their hand at applying what they

have learned. Just as in his other books of mathematical puzzles, Nahin discusses the historical background of each problem, gives many examples, includes MATLAB codes, and provides complete and detailed solutions at the end. Mrs. Perkins's Electric Quilt will appeal to students interested in new math and physics applications, teachers looking for unusual examples to use in class--and anyone who enjoys popular math books.

Student Misconceptions and Errors in Physics and Mathematics

- Teresa Neidorf
2019-10-30

This open access report explores the nature and extent of students' misconceptions and misunderstandings related to core concepts in physics and mathematics and physics across grades four, eight and 12. Twenty years of data from the IEA's Trends in International Mathematics and Science Study (TIMSS) and TIMSS Advanced assessments are analyzed, specifically for five countries (Italy, Norway, Russian Federation, Slovenia,

and the United States) who participated in all or almost all TIMSS and TIMSS Advanced assessments between 1995 and 2015. The report focuses on students' understandings related to gravitational force in physics and linear equations in mathematics. It identifies some specific misconceptions, errors, and misunderstandings demonstrated by the TIMSS Advanced grade 12 students for these core concepts, and shows how these can be traced back to poor foundational development of these concepts in earlier grades. Patterns in misconceptions and misunderstandings are reported by grade, country, and gender. In addition, specific misconceptions and misunderstandings are tracked over time, using trend items administered in multiple assessment cycles. The study and associated methodology may enable education systems to help identify specific needs in the curriculum, improve instruction across grades and also raise possibilities for future TIMSS

assessment design and reporting that may provide more diagnostic outcomes.

Introduction to High Energy Physics - Donald H. Perkins
2000-04-13

This highly-regarded text provides a comprehensive introduction to modern particle physics. Extensively rewritten and updated, this 4th edition includes developments in elementary particle physics, as well as its connections with cosmology and astrophysics. As in previous editions, the balance between experiment and theory is continually emphasised. The stress is on the phenomenological approach and basic theoretical concepts rather than rigorous mathematical detail. Short descriptions are given of some of the key experiments in the field, and how they have influenced our thinking. Although most of the material is presented in the context of the Standard Model of quarks and leptons, the shortcomings of this model and new physics beyond its compass (such as supersymmetry, neutrino mass

and oscillations, GUTs and superstrings) are also discussed. The text includes many problems and a detailed and annotated further reading list.

[An Introduction To Quantum Field Theory](#) - Michael E. Peskin
2018-05-04

An Introduction to Quantum Field Theory is a textbook intended for the graduate physics course covering relativistic quantum mechanics, quantum electrodynamics, and Feynman diagrams. The authors make these subjects accessible through carefully worked examples illustrating the technical aspects of the subject, and intuitive explanations of what is going on behind the mathematics. After presenting the basics of quantum electrodynamics, the authors discuss the theory of renormalization and its relation to statistical mechanics, and introduce the renormalization group. This discussion sets the stage for a discussion of the physical principles that underlie the fundamental

interactions of elementary particle physics and their description by gauge field theories.

The History of the Laser -

Mario Bertolotti 2004-10-01

Since the invention of the first working laser in 1960, development of these devices has progressed at an unprecedented rate, to the extent that the laser is now a common part of everyday life, from the semiconductor laser used in CD players and telecommunication systems to the high power eximer lasers used in manufacturing processes. This book tra
Catalog of Copyright Entries. Third Series - Library of Congress. Copyright Office 1974

Introduction to Elementary Particle Physics - Alessandro

Bettini 2008-05-08

The Standard Model is the most comprehensive physical theory ever developed. This textbook conveys the basic elements of the Standard Model using elementary concepts, without the

theoretical rigor found in most other texts on this subject. It contains examples of basic experiments, allowing readers to see how measurements and theory interplay in the development of physics. The author examines leptons, hadrons and quarks, before presenting the dynamics and the surprising properties of the charges of the different forces. The textbook concludes with a brief discussion on the discoveries of physics beyond the Standard Model, and its connections with cosmology. Quantitative examples are given, and the reader is guided through the necessary calculations. Each chapter ends in the exercises, and solutions to some problems are included in the book. Complete solutions are available to instructors at www.cambridge.org/9781107406094.

Nuclear Science Abstracts - 1974

Intermediate Dynamics -

Patrick Hamill 2010

Intended for the two-semester, upper division undergraduate

Classical Mechanics course, Intermediate Dynamics provides a student-friendly approach. The text begins with an optional review of elementary physical concepts and continues to an in-depth study of mechanics. Each chapter includes numerous accessible exercises that help students review and understand key material while rigorous end-of-chapter problems challenge students to find solutions based on concepts discussed in the chapter. Additional computer problems are offered at the end of each chapter for those who would like to utilize numerical techniques.

Introduction to Nuclear and Particle Physics - A Das
2003-12-23

' The original edition of *Introduction to Nuclear and Particle Physics* was used with great success for single-semester courses on nuclear and particle physics offered by American and Canadian universities at the undergraduate level. It was also translated into German,

and used overseas. Being less formal but well-written, this book is a good vehicle for learning the more intuitive rather than formal aspects of the subject. It is therefore of value to scientists with a minimal background in quantum mechanics, but is sufficiently substantive to have been recommended for graduate students interested in the fields covered in the text. In the second edition, the material begins with an exceptionally clear development of Rutherford scattering and, in the four following chapters, discusses sundry phenomenological issues concerning nuclear properties and structure, and general applications of radioactivity and of the nuclear force. This is followed by two chapters dealing with interactions of particles in matter, and how these characteristics are used to detect and identify such particles. A chapter on accelerators rounds out the experimental aspects of the field. The final seven chapters

deal with elementary-particle phenomena, both before and after the realization of the Standard Model. This is interspersed with discussion of symmetries in classical physics and in the quantum domain, bringing into full focus the issues concerning CP violation, isotopic spin, and other symmetries. The final three chapters are devoted to the Standard Model and to possibly new physics beyond it, emphasizing unification of forces, supersymmetry, and other exciting areas of current research. The book contains several appendices on related subjects, such as special relativity, the nature of symmetry groups, etc. There are also many examples and problems in the text that are of value in gauging the reader's understanding of the material.

Contents: Rutherford Scattering Nuclear Phenomenology Nuclear Models Nuclear Radiation Applications of Nuclear Physics Energy Deposition in Media Particle Detection Accelerators Propertie

s and Interactions of Elementary Particles Symmetries Discrete Transformations Neutral Kaons, Oscillations, and CP Violation Formulation of the Standard Model Standard Model and Confrontation with Data Beyond the Standard Model Readership: Advanced undergraduates and researchers in nuclear and particle physics.

Keywords: Rutherford Scattering; Nuclear Properties; Nuclear Structure; Elementary Particles; Sub-Structure of Particles; Particle Detectors; Interactions in Matter; The Standard Model; Symmetries of Nature; Theories of Nuclear and Particle Structure; Radioactivity; Supersymmetry

Reviews: "The book by Das and Ferbel is particularly suited as a basis for a one-semester course on both subjects since it contains a very concise introduction to those topics and I like very much the outline and contents of this book." Kay Konigsmann

Universität Freiburg, Germany
“The book provides an introduction to the subject very well suited for the introductory course for physics majors. Presentation is very clear and nicely balances the issues of nuclear and particle physics, exposes both theoretical ideas and modern experimental methods. Presentation is also very economic and one can cover most of the book in a one-semester course. In the second edition, the authors updated the contents to reflect the very recent developments in the theory and experiment. They managed to do it without substantial increase of the size of the book. I used the first edition several times to teach the course ‘Introduction to Subatomic Physics’ and I am looking forward to use this new edition to teach the course next year.” Professor Mark Strikman Pennsylvania State University, USA “This book can be recommended to those who find elementary particle physics of absorbing interest.” Contemporary Physics ' *An Introduction to Particle*

Physics and the Standard Model - Robert Mann
2011-07-01
An Introduction to the Standard Model of Particle Physics familiarizes readers with what is considered tested and accepted and in so doing, gives them a grounding in particle physics in general. Whenever possible, Dr. Mann takes an historical approach showing how the model is linked to the physics that most of us have learned in less challenging areas. Dr. Mann reviews special relativity and classical mechanics, symmetries, conservation laws, and particle classification; then working from the tested paradigm of the model itself, he: Describes the Standard Model in terms of its electromagnetic, strong, and weak components Explores the experimental tools and methods of particle physics Introduces Feynman diagrams, wave equations, and gauge invariance, building up to the theory of Quantum Electrodynamics Describes the theories of the Strong and

Electroweak interactions
Uncovers frontier areas and explores what might lie beyond our current concepts of the subatomic world Those who work through the material will develop a solid command of the basics of particle physics. The book does require a knowledge of special relativity, quantum mechanics, and electromagnetism, but most importantly it requires a hunger to understand at the most fundamental level: why things exist and how it is that anything happens. This book will prepare students and others for further study, but most importantly it will prepare them to open their minds to the mysteries that lie ahead. Ultimately, the Large Hadron Collider may prove the model correct, helping so many realize their greatest dreams ... or it might poke holes in the model, leaving us to wonder an even more exciting possibility: that the answers lie in possibilities so unique that we have not even dreamt of them.
Problems and Solutions in Medical Physics - Kwan-Hoong

Ng 2019-03-27

The second in a three-volume set exploring Problems and Solutions in Medical Physics, this volume explores common questions and their solutions in Nuclear Medicine. This invaluable study guide should be used in conjunction with other key textbooks in the field to provide additional learning opportunities. Topics include radioactivity and nuclear transformation, radionuclide production and radiopharmaceuticals, non-imaging detectors and counters, instrumentation for gamma imaging, SPECT and PET/CT, imaging techniques, radionuclide therapy, internal radiation dosimetry, and quality control and radiation protection in nuclear medicine. Each chapter provides examples, notes, and references for further reading to enhance understanding. Features: Consolidates concepts and assists in the understanding and applications of theoretical concepts in medical physics Assists lecturers and instructors in

setting assignments and tests
Suitable as a revision tool for
postgraduate students sitting
medical physics, oncology, and
radiology sciences
examinations

Two Dukes and a Lady - Lorna
James 2017-08-14

Charles Ashdown, Duke of
Densmore, and his closest
friend William Kenwood, Duke
of Tennison, love gambling and
womanizing too much to ever
be ensnared by a debutante.
Certainly, no decent wife would
allow the debauchery they
enjoy. But the only woman
they've ever loved has
returned. Unfortunately,
Society, and likely darling Lily,
will never accept the sharing
relationship they'd like to
propose. Lillian Drew returns
to England after her husband's
mysterious death and finds
solace with her girlhood
crushes, Charles and William.
Sure, they're as
unapologetically crass and self-
centered as always, but she
loves them both. When her
dead husband's creditors come
after her, she has no choice but
to remarry, though she can't

make up her mind which duke
she'll propose to. With a toss of
one of the few coins she has
left to her name, she hopes the
loser will understand.

Nuclear and Particle Physics -
1996

Number-Crunching - Paul J.
Nahin 2011-08-08

More stimulating mathematics
puzzles from bestselling author
Paul Nahin How do technicians
repair broken communications
cables at the bottom of the
ocean without actually seeing
them? What's the likelihood of
plucking a needle out of a
haystack the size of the Earth?
And is it possible to use
computers to create a universal
library of everything ever
written or every photo ever
taken? These are just some of
the intriguing questions that
best-selling popular math
writer Paul Nahin tackles in
Number-Crunching. Through
brilliant math ideas and
entertaining stories, Nahin
demonstrates how odd and
unusual math problems can be
solved by bringing together
basic physics ideas and today's

powerful computers. Some of the outcomes discussed are so counterintuitive they will leave readers astonished. Nahin looks at how the art of number-crunching has changed since the advent of computers, and how high-speed technology helps to solve fascinating conundrums such as the three-body, Monte Carlo, leapfrog, and gambler's ruin problems. Along the way, Nahin traverses topics that include algebra, trigonometry, geometry, calculus, number theory, differential equations, Fourier series, electronics, and computers in science fiction. He gives historical background for the problems presented, offers many examples and numerous challenges, supplies MATLAB codes for all the theories discussed, and includes detailed and complete solutions. Exploring the intimate relationship between mathematics, physics, and the tremendous power of modern computers, *Number-Crunching* will appeal to anyone interested in understanding how these three important

fields join forces to solve today's thorniest puzzles.

Relativity - Wolfgang Rindler
2006-04-06

This text brings the challenge and excitement of modern relativity and cosmology at rigorous mathematical level within reach of advanced undergraduates and beginning graduates.

The Cave Twins - Lucy Fitch Perkins 1916

One in a series of stories that introduce a period of history and a geographical location through the adventures of twins. Here, cave twins Firetop and Firefly take us to prehistoric times when man was a hunter and wore the skins of animals.

The Publishers' Trade List Annual - 1981

Understanding Analysis - Stephen Abbott 2012-12-06

This elementary presentation exposes readers to both the process of rigor and the rewards inherent in taking an axiomatic approach to the study of functions of a real variable. The aim is to

challenge and improve mathematical intuition rather than to verify it. The philosophy of this book is to focus attention on questions which give analysis its inherent fascination. Each chapter begins with the discussion of some motivating examples and concludes with a series of questions.

Calculus of Variations and Optimal Control Theory -

Daniel Liberzon 2012

This textbook offers a concise yet rigorous introduction to calculus of variations and optimal control theory, and is a self-contained resource for graduate students in engineering, applied mathematics, and related subjects. Designed specifically for a one-semester course, the book begins with calculus of variations, preparing the ground for optimal control. It then gives a complete proof of the maximum principle and covers key topics such as the Hamilton-Jacobi-Bellman theory of dynamic programming and linear-quadratic optimal control.

Calculus of Variations and Optimal Control Theory also traces the historical development of the subject and features numerous exercises, notes and references at the end of each chapter, and suggestions for further study.

Offers a concise yet rigorous introduction Requires limited background in control theory or advanced mathematics

Provides a complete proof of the maximum principle Uses consistent notation in the exposition of classical and modern topics

Traces the historical development of the subject Solutions manual (available only to teachers)

Leading universities that have adopted this book include:

University of Illinois at Urbana-Champaign ECE 553: Optimum Control Systems

Georgia Institute of Technology ECE 6553: Optimal Control and Optimization

University of Pennsylvania ESE 680: Optimal Control Theory

University of Notre Dame EE 60565: Optimal Control

Particle Physics - Brian R. Martin 2013-03-22

2013-03-22

An essential introduction to particle physics, with coverage ranging from the basics through to the very latest developments, in an accessible and carefully structured text. Particle Physics: Third Edition is a revision of a highly regarded introduction to particle physics. In its two previous editions this book has proved to be an accessible and balanced introduction to modern particle physics, suitable for those students needed a more comprehensive introduction to the subject than provided by the 'compendium' style physics books. In the Third Edition the standard model of particle physics is carefully developed whilst unnecessary mathematical formalism is avoided where possible. Emphasis is placed on the interpretation of experimental data in terms of the basic properties of quarks and leptons. One of the major developments of the past decade has been the establishing of the existence of neutrino oscillations. This will have a profound effect on the

plans of experimentalists. This latest edition brings the text fully up-to-date, and includes new sections on neutrino physics, as well as expanded coverage of detectors, such as the LHC detector. End of chapter problems with a full set of hints for their solutions provided at the end of the book. An accessible and carefully structured introduction to this demanding subject. Includes more advanced material in optional 'starred' sections. Coverage of the foundations of the subject, as well as the very latest developments.

Six Ideas That Shaped Physics: Unit Q - Particles Behaves Like Waves - Thomas A Moore
2003-01-09

SIX IDEAS THAT SHAPED PHYSICS is the 21st century's alternative to traditional, encyclopedic textbooks. Thomas Moore designed SIX IDEAS to teach students: --to apply basic physical principles to realistic situations --to solve realistic problems --to resolve contradictions between their preconceptions and the laws of

physics --to organize the ideas of physics into an integrated hierarchy

Teach Yourself Java for Macintosh in 21 Days - Laura Lemay 1996-01-01

Takes a tutorial approach towards developing and serving Java applets, offering step-by-step instruction on such areas as motion pictures, animation, applet interactivity, file transfers, sound, and type. Original. (Intermediate).

Duelling Idiots and Other Probability Puzzlers - Paul J. Nahin 2012-07-22

What are your chances of dying on your next flight, being called for jury duty, or winning the lottery? We all encounter probability problems in our everyday lives. In this collection of twenty-one puzzles, Paul Nahin challenges us to think creatively about the laws of probability as they apply in playful, sometimes deceptive, ways to a fascinating array of speculative situations. Games of Russian roulette, problems involving the accumulation of insects on flypaper, and strategies for

determining the odds of the underdog winning the World Series all reveal intriguing dimensions to the workings of probability. Over the years, Nahin, a veteran writer and teacher of the subject, has collected these and other favorite puzzles designed to instruct and entertain math enthusiasts of all backgrounds. If idiots A and B alternately take aim at each other with a six-shot revolver containing one bullet, what is the probability idiot A will win? What are the chances it will snow on your birthday in any given year? How can researchers use coin flipping and the laws of probability to obtain honest answers to embarrassing survey questions? The solutions are presented here in detail, and many contain a profound element of surprise. And some puzzles are beautiful illustrations of basic mathematical concepts: "The Blind Spider and the Fly," for example, is a clever variation of a "random walk" problem, and "Duelling Idiots" and "The

Underdog and the World Series" are straightforward introductions to binomial distributions. Written in an informal way and containing a plethora of interesting historical material, *Duelling Idiots* is ideal for those who are fascinated by mathematics and the role it plays in everyday life and in our imaginations.

Nuclear and Particle Physics - Brian R. Martin 2011-08-31
An accessible introduction to nuclear and particle physics with equal coverage of both topics, this text covers all the standard topics in particle and nuclear physics thoroughly and provides a few extras, including chapters on experimental methods; applications of nuclear physics including fission, fusion and biomedical applications; and unsolved problems for the future. It includes basic concepts and theory combined with current and future applications. An excellent resource for physics and astronomy undergraduates in higher-level courses, this text also serves well as a general

reference for graduate studies.

Modern Electrodynamics -

Andrew Zangwill 2013

An engaging writing style and a strong focus on the physics make this graduate-level textbook a must-have for electromagnetism students.

The British National

Bibliography - Arthur James Wells 2002

Introduction To High Energy Physics, 4th Edition - Perkins Donald H. 2009-04-23

Density Functional Theory -

David Sholl 2011-09-20

Demonstrates how anyone in math, science, and engineering can master DFT calculations
Density functional theory (DFT) is one of the most frequently used computational tools for studying and predicting the properties of isolated molecules, bulk solids, and material interfaces, including surfaces. Although the theoretical underpinnings of DFT are quite complicated, this book demonstrates that the basic concepts underlying the

calculations are simple enough to be understood by anyone with a background in chemistry, physics, engineering, or mathematics. The authors show how the widespread availability of powerful DFT codes makes it possible for students and researchers to apply this important computational technique to a broad range of fundamental and applied problems. Density Functional Theory: A Practical Introduction offers a concise, easy-to-follow introduction to the key concepts and practical applications of DFT, focusing on plane-wave DFT. The authors have many years of experience introducing DFT to students from a variety of backgrounds. The book therefore offers several features that have proven to be helpful in enabling students to master the subject, including: Problem sets in each chapter that give readers the opportunity to test their knowledge by performing their own calculations Worked examples that demonstrate how DFT calculations are

used to solve real-world problems Further readings listed in each chapter enabling readers to investigate specific topics in greater depth This text is written at a level suitable for individuals from a variety of scientific, mathematical, and engineering backgrounds. No previous experience working with DFT calculations is needed.

Relativity, Gravitation and Cosmology - Ta-Pei Cheng
2010

An introduction to Einstein's general theory of relativity, this work is structured so that interesting applications, such as gravitational lensing, black holes and cosmology, can be presented without the readers having to first learn the difficult mathematics of tensor calculus.

Introduction to High Energy Physics - Donald H. Perkins
2000-04-13

An introduction to modern particle physics includes all the recent developments in elementary particle physics, as well as its connections with cosmology and astrophysics.