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Computational Problems for Physics - Rubin H. Landau 2018-05-30

Our future scientists and professionals must be conversant in computational techniques. In order to facilitate integration of computer methods into existing physics courses, this textbook offers a large number of worked examples and problems with fully guided solutions in Python as well as other languages (Mathematica, Java, C, Fortran, and Maple). It's also intended as a self-study guide for learning how to use computer methods in physics. The authors include an introductory chapter on numerical tools and indication of computational and physics difficulty level for each problem. Readers also benefit from the following features: • Detailed explanations and solutions in various coding languages. • Problems are ranked based on computational and physics difficulty. • Basics of numerical methods covered in an introductory chapter. • Programming guidance via flowcharts and pseudocode. Rubin Landau is a Distinguished Professor Emeritus in the Department of Physics at Oregon State University in Corvallis and a Fellow of the American Physical Society (Division of Computational Physics). Manuel Jose Paez-Mejia is a Professor of Physics at Universidad de Antioquia in Medellín, Colombia.

Physics for Scientists and Engineers - Raymond A. Serway 2013-01-08

Achieve success in your physics course by making the most of what PHYSICS FOR SCIENTISTS AND ENGINEERS has to offer. From a host of in-text features to a range of outstanding technology resources, you'll have everything you need to understand the natural forces and principles of physics. Throughout every chapter, the authors have built in a wide range of examples, exercises, and illustrations that will help you understand the laws of physics AND succeed in your course! Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Physics for Scientists and Engineers with Modern Physics - Raymond A. Serway 2013-03-05

Achieve success in your physics course by making the most of what PHYSICS FOR SCIENTISTS AND ENGINEERS WITH MODERN PHYSICS has to offer. From a host of in-text features to a range of outstanding technology resources, you'll have everything you need to understand the natural forces and principles of physics. Throughout every chapter, the authors have built in a wide range of examples, exercises, and illustrations that will help you understand the laws of physics AND succeed in your course! Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Physics for Scientists and Engineers - Paul A. Tipler 2003-07-10

This is an extensively revised edition of Paul Tipler's standard text for calculus-based introductory physics courses. It includes entirely new artwork, updated examples and new pedagogical features. There is also an online instructor's resource manual to support the text.

Research and Practice of Active Learning in Engineering Education - Erik de Graaff 2005

Since 2001, the international network Active Learning in Engineering education (ALE) organized a series of international workshops on innovation of engineering education. The papers in this book are selected to reflect the state of the art, based on contributions to the 2005 ALE workshop in Holland. This overview of experiences in research and practice aims to be a source of inspiration for engineering educators.

Physics for Scientists and Engineers, Volume 1 - Raymond A. Serway 2013-01-01

Achieve success in your physics course by making the most of what PHYSICS FOR SCIENTISTS AND ENGINEERS has to offer. From a host of in-text features to a range of outstanding technology resources, you'll have everything you need to understand the natural forces and principles of physics. Throughout every chapter, the authors have built in a wide range of examples, exercises, and illustrations that will help you understand the laws of physics AND succeed in your course! Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Physics for Scientists and Engineers, Volume 3 - Paul A. Tipler 2007-08-16

The Sixth Edition offers a completely integrated text and media solution that will enable students to learn more effectively and professors to teach more efficiently. The text includes a new strategic problem-solving approach, an integrated Maths Tutorial, and new tools to improve conceptual understanding.

Philosophical Essays - Nicolae Sfetcu

A collection of personal essays in philosophy of science (physics, especially gravity), philosophy of information and communication technology, current social issues (emotional intelligence, COVID-19 pandemic, eugenics, intelligence), philosophy of art, and logic and philosophy of language. The distinction between falsification and refutation in the demarcation problem of Karl Popper Imre Lakatos - Heuristics and methodological tolerance Isaac Newton on the action at a distance in gravity: With or without God? Causal Loops in Time Travel The singularities as ontological limits of the general relativity Epistemology of Experimental Gravity - Scientific Rationality Philosophy of Blockchain Technology - Ontologies Big Data Ethics in Research Emotions and Emotional Intelligence in Organizations COVID-19 Pandemic - Philosophical Approaches Evolution and Ethics of Eugenics Epistemology of Intelligence Agencies Solaris, directed by Andrei Tarkovsky - Psychological and philosophical aspects Causal theories of reference for proper names CONTENTS: The distinction between falsification and refutation in the demarcation problem of Karl Popper - - - Abstract - - - Introduction - - - 1 The demarcation problem - - - 2 Pseudoscience - - - 3 Falsifiability - - - 4 Falsification and refutation - - - 5 Extension of falsifiability - - - 6 Criticism of falsifiability - - - 7 Support of falsifiability - - - 8 The current trend - - - Conclusions - - - Bibliography - - - Notes Imre Lakatos - Heuristics and methodological tolerance - - - Rational reconstruction of science through research programmes - - - Dogmatic Falsificationism - - - Justificationism - - - Bibliography Isaac Newton vs. Robert Hooke on the law of universal gravitation - - - Abstract - - - Introduction - - - Robert Hooke's contribution to the law of universal gravitation - - - Isaac Newton's contribution to the law of universal gravitation - - - Robert Hooke's claim of his priority on the law of universal gravitation - - - Newton's defense - - - The controversy in the opinion of other contemporary scientists - - - What the supporters of Isaac Newton say - - - What the supporters of Robert Hooke say - - - Conclusions - - - Bibliography - - - Notes Isaac Newton on the action at a distance in gravity: With or without God? - - - Abstract - - - Introduction - - - Principia - - - Correspondence with Richard Bentley - - - Queries in Opticks - - - Conclusions - - - Bibliography Causal Loops in Time Travel - - - Abstract - - - Introduction - - - History of the concept of time travel - - - Grandfather paradox - - - The philosophy of time travel - - - Causal loops - - - Conclusions - - - Bibliography - - - Notes The singularities as ontological limits of the general relativity - - - Abstract - - - Introduction - - - - - - - Classical Theory and Special Relativity - - - - - - - General Relativity (GR) - - - 1 Ontology of General Relativity -

-- 2 Singularities ----- Black Holes ----- Event Horizon ----- Big Bang ----- Are there Singularities? -- 3 Ontology of Singularities ----- Ontology of black holes ----- The hole argument -- -- There are no singularities -- -- Conclusions -- -- Notes -- -- Bibliography Epistemology of Experimental Gravity - Scientific Rationality -- -- Introduction ----- Gravity ----- Gravitational tests ----- Methodology of Lakatos - Scientific rationality ----- The natural extension of the Lakatos methodology -- ----- Bifurcated programs ----- Unifying programs -- 1. Newtonian gravity ----- 1.1 Heuristics of Newtonian gravity ----- 1.2 Proliferation of post-Newtonian theories ----- 1.3 Tests of post-Newtonian theories ----- 1.3.1 Newton's proposed tests ----- 1.3.2 Tests of post-Newtonian theories ----- 1.4 Newtonian gravity anomalies ----- 1.5 Saturation point in Newtonian gravity -- 2. General relativity ----- 2.1 Heuristics of the general relativity ----- 2.2 Proliferation of post-Einsteinian gravitational theories ----- 2.3 Post-Newtonian parameterized formalism (PPN) ----- 2.4 Tests of general relativity and post-Einsteinian theories ----- 2.4.1 Tests proposed by Einstein -- ----- 2.4.2 Tests of post-Einsteinian theories ----- 2.4.3 Classic tests ----- 2.4.3.1 Precision of Mercury's perihelion ----- 2.4.3.2 Light deflection ----- 2.4.3.3 Gravitational redshift ----- 2.4.4 Modern tests ----- 2.4.4.1 Shapiro Delay ----- 2.4.4.2 Gravitational dilation of time ----- 2.4.4.3 Frame dragging and geodetic effect ----- -- 2.4.4.4 Testing of the principle of equivalence ----- 2.4.4.5 Solar system tests ----- 2.4.5 Strong field gravitational tests ----- 2.4.5.1 Gravitational lenses ----- 2.4.5.2 Gravitational waves ----- 2.4.5.3 Synchronization binary pulsars ----- 2.4.5.4 Extreme environments ----- 2.4.6 Cosmological tests ----- 2.4.6.1 The expanding universe ----- -- 2.4.6.2 Cosmological observations ----- 2.4.6.3 Monitoring of weak gravitational lenses -- -- 2.5 Anomalies of general relativity ----- 2.6 The saturation point of general relativity -- 3. Quantum gravity ----- 3.1 Heuristics of quantum gravity ----- 3.2 The tests of quantum gravity ----- 3.3 Canonical quantum gravity ----- 3.3.1 Tests proposed for the CQG ----- 3.3.2. Loop quantum gravity ----- 3.4 String theory ----- 3.4.1 Heuristics of string theory ----- 3.4.2. Anomalies of string theory ----- 3.5 Other theories of quantum gravity ----- 3.6 Unification (The Final Theory) -- 4. Cosmology -- -- Conclusions -- -- Notes -- -- Bibliography Philosophy of Blockchain Technology - Ontologies -- -- Abstract -- -- Introduction -- -- Blockchain Technology ----- Design ----- Models -- -- Bitcoin -- -- Philosophy -- -- Ontologies ----- Narrative ontologies ----- Enterprise ontologies -- -- Conclusions -- -- Bibliography -- -- Notes Big Data Ethics in Research -- -- Abstract -- -- 1. Introduction ----- 1.1 Definitions ----- 1.2 Big Data dimensions -- 2. Technology ----- 2.1 Applications ----- 2.1.1 In research -- 3. Philosophical aspects -- 4. Legal aspects ----- 4.1 GDPR ----- Stages of processing of personal data ----- Principles of data processing ----- Privacy policy and transparency ----- Purposes of data processing ----- Design and implicit confidentiality ----- The (legal) paradox of Big Data -- 5. Ethical issues ----- Ethics in research ----- Awareness ----- Consent ----- Control ----- Transparency ----- Trust ----- Ownership ----- Surveillance and security ----- Digital identity ----- Tailored reality ----- De-identification ----- Digital inequality ----- Privacy -- 6. Big Data research -- -- Conclusions -- -- Bibliography Emotions and Emotional Intelligence in Organizations -- -- Abstract -- 1. Emotions ----- 1.1 Models of emotion ----- 1.2 Processing emotions -- ----- 1.3 Happiness ----- 1.4 The philosophy of emotions ----- 1.5 The ethics of emotions -- 2. Emotional intelligence ----- 2.1 Models of emotional intelligence ----- 2.1.1 Model of abilities of Mayer and Salovey ----- 2.1.2 Goleman's mixed model ----- 2.1.3 The mixed model of Bar-On -- ----- 2.1.4 Petrides' model of traits ----- 2.2 Emotional intelligence in research and education ----- 2.3 The philosophy of emotional intelligence ----- 2.3.1 Emotional intelligence in Eastern philosophy -- 3. Emotional intelligence in organizations ----- 3.1 Emotional labor ----- 3.2 The philosophy of emotional intelligence in organizations ----- 3.3 Critique of emotional intelligence in organizations -- -- 3.4 Ethics of emotional intelligence in organizations ----- Conclusions -- -- Bibliography COVID-19 Pandemic - Philosophical Approaches -- -- Abstract -- -- Introduction -- 1 Viruses ----- 1.1 Ontology -- 2 Pandemics ----- 2.1 Social dimensions ----- 2.2 Ethics -- 3 COVID-19 ----- 3.1 Biopolitics ----- 3.2 Neocommunitism ----- 3.3 Desocialising -- 4 Forecasting -- -- Bibliography Evolution and Ethics of Eugenics -- -- Abstract -- -- Introduction -- -- New Eugenics -- -- The Future of Eugenics -- -- Conclusions --

Bibliography Epistemology of Intelligence Agencies -- -- Abstract -- 1 Introduction ----- 1.1. History -- 2. Intelligence activity ----- 2.1. Organizations ----- 2.2. Intelligence cycle ----- 2.3 Intelligence gathering ----- 2.4. Intelligence analysis ----- 2.5. Counterintelligence ----- 2.6. Epistemic communities -- 3. Ontology -- 4. Epistemology ----- 4.1. The tacit knowledge (Polanyi) -- 5. Methodologies -- 6. Analogies with other disciplines ----- 6.1. Science ----- 6.2. Archeology ----- 6.3. Business ----- 6.4. Medicine -- 7. Conclusions -- -- Bibliography Solaris, directed by Andrei Tarkovsky - Psychological and philosophical aspects -- -- Abstract -- -- Introduction -- 1 Cinema technique -- 2 Psychological Aspects -- 3 Philosophical aspects -- -- Conclusions -- -- Bibliography -- -- Notes Causal theories of reference for proper names -- -- Abstract -- -- Introduction -- 1. The causal theory of reference -- 2. Saul Kripke -- 3. Gareth Evans -- 4. Michael Devitt -- 5. Blockchain and the causal tree of reference -- -- Conclusions -- -- Bibliografie About the author -- -- Nicolae Sfetcu ----- Contact Publishing House -- -- MultiMedia Publishing Pocket Guide to Accompany Physics for Scientists and Engineers, Fifth Edition, Serway, Beichner - V. Gordon Lind 2000-01-01

Physics for Scientists and Engineers, Volume 2 - Raymond A. Serway 2013-01-01
Achieve success in your physics course by making the most of what PHYSICS FOR SCIENTISTS AND ENGINEERS has to offer. From a host of in-text features to a range of outstanding technology resources, you'll have everything you need to understand the natural forces and principles of physics. Throughout every chapter, the authors have built in a wide range of examples, exercises, and illustrations that will help you understand the laws of physics AND succeed in your course! Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Physics - Raymond A. Serway 2012
Building upon Serway and Jewetta's solid foundation in the modern classic text, *Physics for Scientists and Engineers*, this first Asia-Pacific edition of *Physics* is a practical and engaging introduction to *Physics*. Using international and local case studies and worked examples to add to the concise language and high quality artwork, this new regional edition further engages students and highlights the relevance of this discipline to their learning and lives.

Science Education in the 21st Century - Ingrid V. Eriksson 2008
This is hardly another field in education which is more important for a country's future than science education. Yet more and more students elect to concentrate on other fields to the exclusion of science for a variety of reasons: 1. The perception of degree of difficulty, 2. The actual degree of difficulty, 3. The lack of perceived prestige and earnings associated with the field. 4. The dearth of good and easy to use texts. 5. The lack of society in comprehending the significance of science and creating attractive incentives for those who enter the field. This book presents new issues and challenges for the field.

Physics for Scientists and Engineers, Chapters 1-39 - Raymond A. Serway 2012-02-01
As a market leader, PHYSICS FOR SCIENTISTS AND ENGINEERS is one of the most powerful brands in the physics market. However, rather than resting on that reputation, the new edition of this text marks a significant advance in the already excellent quality of the book. While preserving concise language, state of the art educational pedagogy, and top-notch worked examples, the Eighth Edition features a unified art design as well as streamlined and carefully reorganized problem sets that enhance the thoughtful instruction for which Raymond A. Serway and John W. Jewett, Jr. earned their reputations. Likewise, PHYSICS FOR SCIENTISTS AND ENGINEERS will continue to accompany Enhanced WebAssign in the most integrated text-technology offering available today. In an environment where new Physics texts have appeared with challenging and novel means to teach students, this book exceeds all modern standards of education from the most solid foundation in the Physics market today. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Digital Design: International Version - John F Wakerly 2010-06-18
With over 30 years of experience in both industrial and university settings, the author covers the most widespread logic design practices while building a solid foundation of theoretical and engineering principles for students to use as they go forward in this fast moving field.

A First Course in Scientific Computing - Rubin H. Landau 2011-10-30

This book offers a new approach to introductory scientific computing. It aims to make students comfortable using computers to do science, to provide them with the computational tools and knowledge they need throughout their college careers and into their professional careers, and to show how all the pieces can work together. Rubin Landau introduces the requisite mathematics and computer science in the course of realistic problems, from energy use to the building of skyscrapers to projectile motion with drag. He is attentive to how each discipline uses its own language to describe the same concepts and how computations are concrete instances of the abstract. Landau covers the basics of computation, numerical analysis, and programming from a computational science perspective. The first part of the printed book uses the problem-solving environment Maple as its context, with the same material covered on the accompanying CD as both Maple and Mathematica programs; the second part uses the compiled language Java, with equivalent materials in Fortran90 on the CD; and the final part presents an introduction to LaTeX replete with sample files. Providing the essentials of computing, with practical examples, A First Course in Scientific Computing adheres to the principle that science and engineering students learn computation best while sitting in front of a computer, book in hand, in trial-and-error mode. Not only is it an invaluable learning text and an essential reference for students of mathematics, engineering, physics, and other sciences, but it is also a consummate model for future textbooks in computational science and engineering courses. A broad spectrum of computing tools and examples that can be used throughout an academic career Practical computing aimed at solving realistic problems Both symbolic and numerical computations A multidisciplinary approach: science + math + computer science Maple and Java in the book itself; Mathematica, Fortran90, Maple and Java on the accompanying CD in an interactive workbook format

Physics for Global Scientists and Engineers, Volume 2 - Raymond A. Serway 2016-10-01

This second edition of Serway's Physics For Global Scientists and Engineers is a practical and engaging introduction for students of calculus-based physics. Students love the Australian, Asia-Pacific and international case studies and worked examples, concise language and high-quality artwork, in two, easy-to-carry volumes. * NEW key topics in physics, such as the Higgs boson, engage students and keep them interested * NEW Maths icons highlight mathematical concepts in the text and direct students to the relevant information in the Maths Appendix * NEW Index of Symbols provides students with a quick reference for the symbols used throughout the book This volume (two) includes Electricity and magnetism, Light and optics, and Quantum physics. Volume one covers Mechanics, Mechanical properties of solids and fluids, Oscillations and mechanical waves, and Thermodynamics.

An Equation for Every Occasion - John M. Henshaw 2016-06-15

Smartly conceived and fast paced, his book offers something for anyone curious about math and its impacts.

Image Modeling of the Human Eye - Rajendra Acharya U 2008

Written by pioneers in the field, this groundbreaking resource gives you full details on state-of-the-art 2D and 3D eye imaging and modeling techniques that are paving the way to breakthrough clinical applications in eye health. It's the first book to explore in depth a new generation of computational methods that combine image processing, simulation, and statistical discrimination tools in efforts to improve early detection of cataracts, diabetic retinopathy, glaucoma, iridocyclitis, corneal haze, maculopathy, and other visual impairments and conditions. Supported by 250 illustrations, this comprehensive volume presents the essentials of the human eye, eye imaging systems, and imaging optics. You discover latest advances in computer-based detection and identification of various eye conditions, including issues involving automatic retinal image registration, computer-based optic disc localization, and contour detection using ellipse fitting and wavelet transform. The book explains various infra-red and bio-heat analysis methods, including 2D and 3D ocular surface temperature profiles produced by FEM simulation of the eye structure. This unique volume examines corneal surface temperature with contact lens wear, boundary element modeling of heat transfer in the eye, and the role of aqueous humor hydrodynamics in human eye heat transfer. Moreover, you find chapters that explore age factors, temperature measurement during silicone hydrogel lens wear, and IR imaging.

The Physics of Thin Film Optical Spectra - Olaf Stenzel 2015-09-22

The book bridges the gap between fundamental physics courses (such as optics, electrodynamics, quantum mechanics and solid state physics) and highly specialized literature on the spectroscopy, design, and application of optical thin film coatings. Basic knowledge from the above-mentioned courses is therefore presumed. Starting from fundamental physics, the book enables the reader derive the theory of optical coatings and to apply it to practically important spectroscopic problems. Both classical and semiclassical approaches are included. Examples describe the full range of classical optical coatings in various spectral regions as well as highly specialized new topics such as rugate filters and resonant grating waveguide structures. The second edition has been updated and extended with respect to probing matter in different spectral regions, homogenous and inhomogeneous line broadening mechanisms and the Fresnel formula for the effect of planar interfaces.

Test Bank to Accompany Physics for Scientists and Engineers, Fifth Edition - Edward Adelson 2000

College Physics - Raymond A. Serway 2003

This 5" by 7" paperback is a section-by-section capsule of the textbook that provides a handy guide for looking up important concepts, equations, and problem-solving hints.

Causal Loops in Time Travel - Nicolae Sfetcu 2019-02-16

About the possibility of time traveling based on several specialized works, including those of Nicholas J. J. Smith ("Time Travel"), William Grey ("Troubles with Time Travel"), Ulrich Meyer ("Explaining causal loops"), Simon Keller and Michael Nelson ("Presentists should believe in time-travel"), Frank Arntzenius and Tim Maudlin ("Time Travel and Modern Physics"), and David Lewis ("The Paradoxes of Time Travel"). The article begins with an Introduction in which I make a short presentation of the time travel, and continues with a History of the concept of time travel, main physical aspects of time travel, including backward time travel in the past in general relativity and quantum physics, and time travel in the future, then a presentation of the Grandfather paradox that is approached in almost all specialized works, followed by a section dedicated to the Philosophy of time travel, and a section in which I analyze Causal loops for time travel. I finish my work with Conclusions, in which I sustain my personal opinions on the time travel, and the Bibliography on which the work is based. Keywords: time travel, grandfather paradox, causal loops, temporal paradoxes, causality CONTENTS Abstract Introduction History of the concept of time travel Grandfather paradox The philosophy of time travel Causal loops Conclusions Bibliography Notes DOI: 10.13140/RG.2.2.17802.31680

Study Guide with Student Solutions Manual, Volume 1 for Serway/Jewett's Physics for Scientists and Engineers - Raymond A. Serway 2016-12-05

The perfect way to prepare for exams, build problem-solving skills, and get the grade you want! For Chapters 1-22, this manual contains detailed solutions to approximately 20% of the problems per chapter (indicated in the textbook with boxed problem numbers). The manual also features a skills section, important notes from key sections of the text, and a list of important equations and concepts. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Photogrammetry - Karl Kraus 2007

This textbook deals with the basics and methods of photogrammetry and laser scanning which are used to determine the form and location of objects, with measurements provided by sensors placed in air planes as well as on terrestrial platforms. Many examples and exercises with solutions are included. Photogrammetry, Laserscanning.

Quantum Legacies - David Kaiser 2020-03-25

The ideas at the root of quantum theory remain stubbornly, famously bizarre: a solid world reduced to puffs of probability; particles that tunnel through walls; cats suspended in zombielike states, neither alive nor dead; and twinned particles that share entangled fates. For more than a century, physicists have grappled with these conceptual uncertainties while enmeshed in the larger uncertainties of the social and political worlds around them, a time pocked by the rise of fascism, cataclysmic world wars, and a new nuclear age. In Quantum Legacies, David Kaiser introduces readers to iconic episodes in physicists' still-unfolding quest to understand space, time, and matter at their most fundamental. In a series of vibrant essays, Kaiser takes

us inside moments of discovery and debate among the great minds of the era—Albert Einstein, Erwin Schrödinger, Stephen Hawking, and many more who have indelibly shaped our understanding of nature—as they have tried to make sense of a messy world. Ranging across space and time, the episodes span the heady 1920s, the dark days of the 1930s, the turbulence of the Cold War, and the peculiar political realities that followed. In those eras as in our own, researchers' ambition has often been to transcend the vagaries of here and now, to contribute lasting insights into how the world works that might reach beyond a given researcher's limited view. In *Quantum Legacies*, Kaiser unveils the difficult and unsteady work required to forge some shared understanding between individuals and across generations, and in doing so, he illuminates the deep ties between scientific exploration and the human condition.

National Educators' Workshop: Update 2001: Standard Experiments in Engineering, Materials Science, and Technology - 2002

Optical Fiber Communications - Mohammed Alhaider 2017-12-16

Optical fiber communication has indeed come a long way from the 1970s. From being a favorite subject of science fiction movies and books, today it is believable reality that finds applications in many spheres. This book explores the dominant role of optical fiber communication in the telecommunication industry, as it caters to the ever-increasing demand for high data rate transmission. It provides an overview of the history and origin of optic fiber communication and discusses the manufacturing techniques, characteristics and current applications of optic fibers. It also describes the types of fiber links in use today, the elements of optic fiber communication and the design considerations. It finally presents a brief outlook of the proposed new technologies to overcome the limitations of current optical fibers and enhance their data carrying capacity to meet the emerging demands worldwide. The book is targeted at students (as an introductory course material) and those who are not familiar with the subject and are eager to know more.

Announcer - American Association of Physics Teachers 2001

An Introduction to Modern Astrophysics - Bradley W. Carroll 2017-09-07

An Introduction to Modern Astrophysics is a comprehensive, well-organized and engaging text covering every major area of modern astrophysics, from the solar system and stellar astronomy to galactic and extragalactic astrophysics, and cosmology. Designed to provide students with a working knowledge of modern astrophysics, this textbook is suitable for astronomy and physics majors who have had a first-year introductory physics course with calculus. Featuring a brief summary of the main scientific discoveries that have led to our current understanding of the universe; worked examples to facilitate the understanding of the concepts presented in the book; end-of-chapter problems to practice the skills acquired; and computational exercises to numerically model astronomical systems, the second edition of An Introduction to Modern Astrophysics is the go-to textbook for learning the core astrophysics curriculum as well as the many advances in the field.

American Journal of Physics - 2002

Process Imaging For Automatic Control - David M. Scott 2018-10-03

As industrial processes and their corresponding control models increase in complexity, the data provided by traditional point sensors is no longer adequate to ensure product quality and cost-effective operation. Process Imaging for Automatic Control demonstrates how in-process imaging technologies surpass the limitations of traditional monitoring systems by providing real-time multidimensional measurement and control data. Combined with suitable data extraction and control schemes, such systems can optimize the performance of a wide variety of industrial processes. Contributed by leading international experts, Process Imaging for Automatic Control offers authoritative, comprehensive coverage of this new area of process control technology, including: Basic goals of process modeling and their application to automatic control Direct imaging devices and applications, such as machine vision and spatial measurement of flow velocity, pressure, shear, pH, and temperature Various techniques, hardware implementations, and image reconstruction methods for process tomography Image enhancement and restoration State estimation methods State space control system models, control strategies, and implementation issues Five chapters

devoted to case studies and advanced applications From theory to practical implementation, this book is the first to treat the entire range of imaging techniques and their application to process control. Supplying broad coverage with more than 270 illustrations and nearly 700 cited references, it presents an accessible introduction to this rapidly growing, interdisciplinary technology.

Global Navigation Satellite Systems - Ahmed Mohamed 2013-06-19

Today, satellite navigation offers convenient alternative to terrestrial and stellar navigation methods that is not only ubiquitous and easy to operate but also available day and night. The radio navigation technology, first appeared in the 1930s and matured in the 1940s, did not take off until the late 1960s and 1970s with the launch of the first navigation satellites by the US Naval and Air Forces, resulting from the NAVSTAR GPS program. The end user navigation equipment, bulky and expensive at the beginning, did not emerge until the microprocessor became viable during the late 1970s. Now-a-day three other global navigation satellite systems are fully or partially operational: the Russian GLONASS, the European Union Galileo, and the Chinese BeiDou. Where does the future lie? Probably in a network of global satellite navigation systems, with increase in satellite coverage and improved accuracy, integrity, and reliability, as these systems further mature. End user equipment will continue to be smaller, more accurate and cheaper. Yet in many respects, satellite navigation systems owe most to the old-time stellar navigation, by keeping man look up to the sky for help.

Solar Hydrogen Generation - Krishnan Rajeshwar 2008-02-21

Given the backdrop of intense interest and widespread discussion on the prospects of a hydrogen energy economy, this book aims to provide an authoritative and up-to-date scientific account of hydrogen generation using solar energy and renewable sources such as water. While the technological and economic aspects of solar hydrogen generation are evolving, the scientific principles underlying various solar-assisted water splitting schemes already have a firm footing. This book aims to expose a broad-based audience to these principles. This book spans the disciplines of solar energy conversion, electrochemistry, photochemistry, photoelectrochemistry, materials chemistry, device physics/engineering, and biology.

Fundamentals and Applications of Complex Analysis - Harold Cohen 2003-07-31

This book is intended to serve as a text for first and second year courses in single variable complex analysis. The material that is appropriate for more advanced study is developed from elementary material. The concepts are illustrated with large numbers of examples, many of which involve problems students encounter in other courses. For example, students who have taken an introductory physics course will have encountered analysis of simple AC circuits. This text revisits such analysis using complex numbers. Cauchy's residue theorem is used to evaluate many types of definite integrals that students are introduced to in the beginning calculus sequence. Methods of conformal mapping are used to solve problems in electrostatics. The book contains material that is not considered in other popular complex analysis texts.

Student Solutions Manual and Study Guide for Serway and Jewett's Physics for Scientists and Engineers, Sixth Edition - John R. Gordon 2004

Six Ideas that Shaped Physics - Thomas Andrew Moore 2003

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

Physics for Scientists and Engineers, Volume 5, Chapters 40-46 - Raymond A. Serway 2010-01-12
As a market leader, PHYSICS FOR SCIENTISTS AND ENGINEERS is one of the most powerful brands in the physics market. However, rather than resting on that reputation, the new edition of this text marks a significant advance in the already excellent quality of the book. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Excelling in A-level Physics - Stathis Stefanidis 2018-02-07

The book covers the requirements for the A-level exams on Capacitors. The theory is presented in a structured way in the form of Questions and Answers. Using simple steps, explanations, practice exercises and tests, you will be supported to develop your understanding of this thematic unit. The book includes

plenty of: * Solved problems * Multiple choice questions * Conceptual questions * Fill-in the gaps * True or False statements. Written by an experienced teacher, the book offers a unique and innovative way of approaching, learning and excelling in your A-level Physics exams.

2004 Physics Education Research Conference - Jeffrey Marx 2005-09-29

The 2004 Physics Education Research (PER) Conference brought together researchers in how we teach physics and how it is learned. Student understanding of concepts, the efficacy of different pedagogical techniques, and the importance of student attitudes toward physics and knowledge were all discussed. These Proceedings capture an important snapshot of the PER community, containing an incredibly broad collection of research papers of work in progress.

Conceptual metaphor and embodied cognition in science learning - Tamer G Amin 2018-10-03

Scientific concepts are abstract human constructions, invented to make sense of complex natural phenomena. Scientists use specialised languages, diagrams, and mathematical representations of various kinds to convey these abstract constructions. This book uses the perspectives of embodied cognition and conceptual metaphor to explore how learners make sense of these concepts. That is, it is assumed that

human cognition - including scientific cognition - is grounded in the body and in the material and social contexts in which it is embedded. Understanding abstract concepts is therefore grounded, via metaphor, in knowledge derived from sensory and motor experiences arising from interaction with the physical world. The volume consists of nine chapters that examine a number of intertwined themes: how systematic metaphorical mappings are implicit in scientific language, diagrams, mathematical representations, and the gestures used by scientists; how scientific modelling relies fundamentally on metaphor and can be seen as a form of narrative cognition; how implicit metaphors can be the sources of learner misconceptions; how conceptual change and the acquisition of scientific expertise involve learning to coordinate the use of multiple implicit metaphors; and how effective instruction can build on recognising the embodied nature of scientific cognition and the role of metaphor in scientific thought and learning. The volume also includes three extended commentaries from leading researchers in the fields of cognitive linguistics, the learning sciences, and science education, in which they reflect on theoretical, methodological and pedagogical issues raised in the book. This book was originally published as a special issue of the International Journal of Science Education.