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Radioactivity May 15 2021 A recipient of the PROSE 2017 Honorable Mention in Chemistry & Physics, *Radioactivity: Introduction and History, From the Quantum to Quarks, Second Edition* provides a greatly expanded overview of radioactivity from natural and artificial sources on earth, radiation of cosmic origins, and an introduction to the atom and its nucleus. The book also includes historical accounts of the lives, works, and major achievements of many famous pioneers and Nobel Laureates from 1895 to the present. These leaders in the field have contributed to our knowledge of the science of the atom, its nucleus, nuclear decay, and subatomic particles that are part of our current knowledge of the structure of matter, including the role of quarks, leptons, and the bosons (force carriers). Users will find a completely revised and greatly expanded text that includes all new material that further describes the significant historical events on the topic dating from the 1950s to the present. Provides a detailed account of nuclear radiation – its origin and properties, the atom, its nucleus, and subatomic particles including quarks, leptons, and force carriers (bosons) Includes fascinating biographies of the pioneers in the field, including captivating anecdotes and insights Presents meticulous accounts of experiments and calculations used by pioneers to confirm their findings

Radioactivity: Introduction and History Sep 06 2020 *Radioactivity: Introduction and History* provides an introduction to radioactivity from natural and artificial sources on earth and radiation of cosmic origins. This book answers many questions for the student, teacher, and practitioner as to the origins, properties, detection and measurement, and applications of radioactivity. Written at a level that most students and teachers can appreciate, it includes many calculations that students and teachers may use in class work. *Radioactivity: Introduction and History* also serves as a refresher for experienced practitioners who use radioactive sources in his or her field of work. Also included are historical accounts of the lives and major achievements of many famous pioneers and Nobel Laureates who have contributed to our knowledge of the science of radioactivity. * Provides entry-level overview of every form of radioactivity including natural and artificial sources, and radiation of cosmic origin. * Includes many solved problems to practical questions concerning nuclear radiation and its interaction with matter * Historical accounts of the major achievements of pioneers and Nobel Laureates, who have contributed to our current knowledge of radioactivity

Chemistry: Principles and Practice Oct 08 2020 A text that truly embodies its name, **CHEMISTRY: PRINCIPLES AND PRACTICE** connects the chemistry students learn in the classroom (principles) with real-world uses of chemistry (practice). The authors accomplish this by starting each chapter with an application drawn from a chemical field of interest and revisiting that application throughout the chapter. The Case Studies, Practice of Chemistry essays, and Ethics in Chemistry questions reinforce the connection of chemistry topics to areas such as forensics, organic chemistry, biochemistry, and industry. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

College Physics Textbook Equity Edition Volume 3 of 3: Chapters 25 - 34 Apr 01 2020 This is

volume 3 of 3 (black and white) of "College Physics," originally published under a CC-BY license by Openstax College, a unit of Rice University. Links to the free PDF's of all three volumes and the full volume are at <http://textbookequity.org> This text is intended for one-year introductory courses requiring algebra and some trigonometry, but no calculus. College Physics is organized such that topics are introduced conceptually with a steady progression to precise definitions and analytical applications. The analytical aspect (problem solving) is tied back to the conceptual before moving on to another topic. Each introductory chapter, for example, opens with an engaging photograph relevant to the subject of the chapter and interesting applications that are easy for most students to visualize.

The Mechanical Universe Nov 20 2021 This book studies electricity and magnetism, light, the special theory of relativity, and modern physics.

The Subjectivity of Scientists and the Bayesian Approach Nov 08 2020 Intriguing examination of works by Aristotle, Galileo, Newton, Pasteur, Einstein, Margaret Mead, and other scientists in terms of subjectivity and the Bayesian approach to statistical analysis. "An insightful work." — Choice. 2001 edition.

Pacific 'A' Level Physics Volume 2 Aug 18 2021

TNPCEE Physics Sep 26 2019

Routledge Revivals: Art and Artifact in Laboratory Science (1985) Jun 15 2021 First published in 1985, this book provides a descriptive study of social activities in a neurosciences laboratory. Based on fieldwork conducted by the author in the laboratory during 1975 and 1976, and taking an ethnomethodological approach, it focuses on the phenomenon of the social accomplishment of natural scientific order. Through the examination of shop work and shop talk in this environment, it identifies an analyzable social basis in the local production of accounts of natural objects in laboratory research. This work will be of interest to students and scholars of ethnomethodology and sociology.

Adapting Historical Knowledge Production to the Classroom Feb 09 2021 The aims of this book are:

- to contribute to professional development of those directly involved in science education (science teachers, elementary and secondary science teacher advisors, researchers in science education, etc),
- to contribute to the improvement of the quality of science education at all levels of education with the exploitation of elements from History of Science incorporated in science teaching –it is argued that through such approaches the students' motivation can be raised, their romantic understanding can be developed and consequently their conceptual understanding of science concepts can be improved since these approaches make science more attractive to them– and
- to contribute to the debate about science education at the international level in order to find new ways for further inquiry on the issues that the book is dealing with. The book is divided in two parts: The first expounds its philosophical and epistemological framework and the second combines theory and praxis, the theoretical insights with their practical applications.

Experimental Physics Oct 20 2021 This textbook provides the knowledge and skills needed for thorough understanding of the most important methods and ways of thinking in experimental physics. The reader learns to design, assemble, and debug apparatus, to use it to take meaningful data, and to think carefully about the story told by the data. Key Features: Efficiently helps students grow into independent experimentalists through a combination of structured yet thought-provoking and challenging exercises, student-designed experiments, and guided but open-ended exploration. Provides solid coverage of fundamental background information, explained clearly for undergraduates, such as ground loops, optical alignment techniques, scientific communication, and data acquisition using LabVIEW, Python, or Arduino. Features carefully designed lab experiences to teach fundamentals, including analog electronics and low noise measurements, digital electronics, microcontrollers, FPGAs, computer interfacing, optics, vacuum techniques, and particle detection methods. Offers a broad range of advanced experiments for each major area of physics, from condensed matter to particle physics. Also provides clear guidance for student development of projects not included here. Provides a detailed Instructor's Manual for every lab, so that the

instructor can confidently teach labs outside their own research area.

The Neglect of Experiment Aug 30 2022 What role have experiments played, and should they play, in physics? How does one come to believe rationally in experimental results? *The Neglect of Experiment* attempts to provide answers to both of these questions. Professor Franklin's approach combines the detailed study of four episodes in the history of twentieth century physics with an examination of some of the philosophical issues involved. The episodes are the discovery of parity nonconservation (or the violation of mirror symmetry) in the 1950s; the nondiscovery of parity nonconservation in the 1930s, when the results of experiments indicated, at least in retrospect, the symmetry violation, but the significance of those results was not realized; the discovery and acceptance of CP (combined parity-charge conjugations, paricle-antiparticle) symmetry; and Millikan's oil-drop experiment. Franklin examines the various roles that experiment plays, including its role in deciding between competing theories, confirming theories, and calling fo new theories. The author argues that one can provide a philosophical justification for these roles. He contends that if experiment plays such important roles, then one must have good reason to believe in experimental results. He then deals with deveral problems concerning such results, including the epistemology of experiment, how one comes to believe rationally in experimental results, the question of the influence of theoretical presuppositions on results, and the problem of scientific fraud. This original and important contribution to the study of the philosophy of experimental science is an outgrowth of many years of research. Franklin brings to this work more than a decade of experience as an experimental high-energy physicist, along with his significant contributions to the history and philosophy of science.

The Harvest of a Century Nov 28 2019 Physics was the leading science of the twentieth century and the book retraces important discoveries, made between 1895 and 2001, in 100 self-contained Episodes. Each is a short story of the scientists involved, their time and their work. The book is richly illustrated by about 600 portraits, photographs and figures.

From 'Science in the Making' to Understanding the Nature of Science Feb 21 2022 The Nature of Science is highly topical among science teacher educators and researchers. Increasingly, it is a mandated topic in state curriculum documents. This book draws together recent research on Nature of Science studies within a historical and philosophical framework suitable for students and teacher educators. Traditional science curricula and textbooks present science as a finished product. Taking a different approach, this book provides a glimpse of “science in the making” — scientific practice imbued with arguments, controversies, and competition among rival theories and explanations. Teaching about “science in the making” is a rich source of motivating students to engage creatively with the science curriculum. Readers are introduced to “science in the making” through discussion and analysis of a wide range of historical episodes from the early 19th century to early 21st century. Recent cutting-edge research is presented to provide insight into the dynamics of scientific progress. More than 90 studies from major science education journals, related to nature of science are reviewed. A theoretical framework, field tested with in-service science teachers, is developed for moving from ‘science in the making’ to understanding the Nature of Science.

Newton's Apple and Other Myths about Science Dec 22 2021 A falling apple inspired the law of gravity—or so the story goes. Is it true? Perhaps not. But why do such stories endure as explanations of how science happens? *Newton's Apple and Other Myths about Science* brushes away popular misconceptions to provide a clearer picture of scientific breakthroughs from ancient times to the present.

The Ten Most Beautiful Experiments Apr 25 2022 George Johnson tells the stories of ten beautiful experiments which changed the world. From Galileo singing to mark time as he measured the pull of gravity and Newton carefully inserting a needle behind his own eye, to Joule packing a thermometer on his honeymoon to take the temperature of waterfalls and Michelson recovering from a dark depression to discover that light moves at the same speed in every direction - these ten dedicated men employed diamonds, dogs, frogs and even their own bodies as they worked to discover the laws of nature and of the universe.

Resources in education Jul 17 2021

Modelling with Differential and Difference Equations Mar 01 2020 Any student wishing to solve problems via mathematical modelling will find that this book provides an excellent introduction to the subject.

Philosophy Of Science Jul 05 2020 An up-to-date, clear but rigorous introduction to the philosophy of science offering an indispensable grounding in the philosophical understanding of science and its problems. The book pays full heed to the neglected but vital conceptual issues such as the nature of scientific laws, while balancing and linking this with a full coverage of epistemological problems such as our knowledge of such laws.

Chemistry Mar 13 2021 Textbook outlining concepts of molecular science.

Living Science Chemistry 9 Mar 25 2022 Living Science for Classes 9 and 10 have been prepared on the basis of the syllabus developed by the NCERT and adopted by the CBSE and many other State Education Boards. Best of both, the traditional courses and the recent innovations in the field of basic Chemistry have been incorporated. The books contain a large number of worked-out examples, illustrations, illustrative questions, numerical problems, figures, tables and graphs.

The Role of Residual Oil in the Mechanistic Simulation of Foam Flow in Porous Media May 03 2020

Critical Analysis of Science Textbooks Aug 06 2020 The critical analysis of science textbooks is vital in improving teaching and learning at all levels in the subject, and this volume sets out a range of academic perspectives on how that analysis should be done. Each chapter focuses on an aspect of science textbook appraisal, with coverage of everything from theoretical and philosophical underpinnings, methodological issues, and conceptual frameworks for critical analysis, to practical techniques for evaluation. Contributions from many of the most distinguished scholars in the field give this collection its sure-footed contemporary relevance, reflecting the international standards of UNESCO as well as leading research organizations such as the American Association for the Advancement of Science (whose Project 2061 is an influential waypoint in developing protocols for textbook analysis). Thus the book shows how to gauge aspects of textbooks such as their treatment of controversial issues, graphical depictions, scientific historiography, vocabulary usage, accuracy, and readability. The content also covers broader social themes such as the portrayal of women and minorities. "Despite newer, more active pedagogies, textbooks continue to have a strong presence in classrooms and to embody students' socio-historical inheritance in science. Despite their ubiquitous presence, they have received relatively little on-going empirical study. It is imperative that we understand how textbooks influence science learning. This book presents a welcome and much needed analysis." Tina A. Grotzer Harvard University, Cambridge, Massachusetts, USA The present book provides a much needed survey of the current state of research into science textbooks, and offers a wide range of perspectives to inform the 'science' of writing better science textbooks. Keith S Taber University of Cambridge, Cambridge, United Kingdom

Constructing Scientific Understanding Through Contextual Teaching Nov 01 2022 Learning by Doing" is about the history of experimentation in science education. The teaching of science through experiments and observation is essential to the natural sciences and its pedagogy. These have been conducted as both demonstration or as student exercises. The experimental method is seen as giving the student vital competence, skills and experiences, both at the school and at the university level. This volume addresses the historical development of experiments in science education, which has been largely neglected so far. The contributors of "Learning by Doing" pay attention to various aspects ranging from economic aspects of instrument making for science teaching, to the political meanings of experimental science education from the 17th to the 20th century. This collected volume opens the field for further debate by emphasizing the importance of experiments for both, historians of science and science educators. [Présentation de l'éditeur].

Millikan's School: A History of the California Institute of Technology Apr 13 2021 In November 1891, wealthy former abolitionist and Chicago politician Amos Throop founded a thoroughly undistinguished small college in Pasadena, California, which he named after himself. Millikan's School is the history of this institution that stands today at the pinnacle of world

academics, with 300 full-time faculty, nearly 1,000 undergraduate, 1,250 graduate students and 39 Caltech and alumni Nobel Prize recipients. Although Amos Throop — the name of the college was changed to Caltech in 1920 — could not have realized the importance of geography, the fact that Pasadena lay at the foot of Mount Wilson, was central to its success: astronomer George Ellery Hale built his telescope there in 1902, the finest at that time in the world. Later Hale joined the board of trustees of the struggling school and persuaded Arthur Amos Noyes, former president of MIT and the nation's leading physical chemist, to join him in Pasadena. The third member of Caltech's founding troika was renowned physicist Robert A. Millikan from the University of Chicago. The dedication of Caltech in 1920 and the proclamation of what it stood for in science and education set the stage for Millikan, who functioned as the school's president, to bring the best and the brightest from all over the world — Theodore von Kármán in aeronautics, Thomas Hunt Morgan in biology, Paul Sophus Epstein in physics, Beno Gutenberg in seismology, Linus Pauling in chemistry — to Pasadena to work in an ever larger number of areas in science and technology. The book also covers the funding, planning and construction of the 200-inch telescope on Palomar Mountain, Willy Fowler's work in nuclear astrophysics and the wartime rocket experiments that grew into the Jet Propulsion Laboratory (JPL), today the world leader in deep-space exploration. "Millikan's School presents an interesting and thoroughly reliable account of the astonishing change over a period of a few years of a small technical school in Pasadena, California, into one of the world's leading scientific institutions. " — Linus Pauling "In Millikan's School, Judith Goodstein tells the remarkable story of the rise of Caltech... She details how Millikan, aided by Hale and Arthur Amos Noyes, America's leading physical chemist and another of Hale's inspired acquisitions, took a former trade school and forged from it a 'grandiose university among the orange groves'... It would be impossible, while reading Goodstein's lively account, not to be impressed by the energy, drive and boundless enthusiasm of men like Millikan, Hale and Noyes... [who] had the bare-faced audacity to set about building an institute to rival the cream of the universities of Europe and America." — Marcus Chown, *New Scientist* "[Goodstein's] story is first and foremost the tale of three men: the astronomer George Ellery Hale, the chemist Alfred Noyes, and the physicist Robert Millikan. It is the story of their attempts to transform an undistinguished little school founded in 1891... into a world-class scientific establishment... [A] useful book." — Tony Rothman, *Science* "In Millikan's School, the story of Throop [University]'s transformation into Caltech is told with precision... Judith Goodstein's history offers a quick tour of the landmarks of science in the mid-20th Century and a glance at how pure science puts itself at the service of government, commerce and the military... Goodstein... approaches her subject with a healthy sense of humor and an acute sense of academic politics. She tells a wonderful story about how Caltech lost to Princeton in a bidding war over the services of Albert Einstein, for example... To her credit, Goodstein asks the hard question: 'What is the best way to do science?'... Millikan's School offers enough hard data to enable us to come to our own conclusions." — Jonathan Kirsch, *Los Angeles Times* "A cleanly written, scientifically well informed account of one of the world's foremost institutions for science and technology." — Ed Regis, *Nature* "Relying on archival material, published secondary sources, and interviews with institute scientists, Goodstein presents a highly readable account of Caltech's beginnings at the turn of the century... substantive, informative, and a good read." — Rebecca S. Lowen, *Technology and Culture* "As a history of science, this book is well crafted. Orderly in its flow, it is not only a tribute to Millikan, but also places him within the development of physics as a field." — Andrew Rolle, *Southern California Quarterly* "A fascinating history that speaks to issues far larger than Cal Tech itself... This well-written and honest account (witness the many cited instances of anti-Semitism in the scientific world) is both a good read and a sobering reminder that big science and top schools are not brought by storks." — Carroll Pursell, *History of Education Quarterly* "The author focuses on the personalities and the research fields of the principal scientific figures... The [...] emphasis on personalities, and capsule surveys of relevant scientific fields produce a book that can be apprehended by a wide audience." — Roger Geiger, *Isis* "This chronicle offers glimpses of the passion and drive that have motivated a roster of distinguished scientists." — *Publishers Weekly* "A

lively tale... [Goodstein's] individual profiles are lean and candid; her background on subjects as diverse as nuclear astrophysics, seismology, aeronautical design, quantum mechanics and rocket fuel are crisp and understandable... With a light style... and meticulous documentation, Goodstein has produced a tale worthy of her subject... " — Marshall Robinson, Foundation News "A distinguished and uniquely American institution has found its chronicler and its chronicle in Judith Goodstein's thorough but compact story of Millikan 's School. The emergence of Caltech as a powerhouse of science and engineering and a makeweight in the technological advancement of 20th century industry is both beautifully and reliably presented." — Harry Woolf, Institute for Advanced Study, Princeton University

Natural Laws as Dispositions Jan 11 2021 The book provides a novel account of laws of nature via dispositions. Laws of nature play a paramount role in philosophy, science and everyday life. Understanding laws of nature is philosophically interesting on its own right but also many important notions belonging to philosophy of science, like causation, prediction and explanation, are intimately related to the laws of nature. The book outlines the alleged characteristics of the laws of nature and introduces the main families of theories of laws of nature - neo-humean, ADT and dispositional theories. It then develops an account of dispositions the 'triadic process picture of dispositions' (TPD) and applies it to the debate about laws of nature. Finally, the (TPD) account of the necessity of the laws of nature is presented: laws of nature are naturally necessary and metaphysically contingent. Thus the book provides an introduction to the debates about laws of nature as well as dispositions, while at the same time developing a novel theory and thus is interesting for the beginner as well as expert in these fields.

Students' Understanding of Research Methodology in the Context of Dynamics of Scientific Progress Jun 27 2022 This book discusses how to improve high school students' understanding of research methodology based on alternative interpretations of data, role of controversies, creativity and the scientific method, in the context of the oil drop experiment. These aspects form an important part of the nature of science (NOS). The study reported in this volume is based on a reflective, explicit and activity-based approach to teaching nature of science (NOS) that can facilitate high school students' understanding of how scientists elaborate theoretical frameworks, design experiments, report data that leads to controversies and finally with the collaboration of the scientific community a consensus is reached. Most students changed their perspective and drew concept maps in which they emphasized the creative, accumulative, controversial nature of science and the scientific method.

Instructor's Manual Jun 23 2019 NEW Click here to visit the Virtual ChemLab Frequently Asked Questions (FAQ) document This Instructor's Lab Manual / Workbook is similar to the Student Lab Manual / Workbook and additionally contains an overview of the full capabilities of the Site License version of Virtual ChemLab, installation instructions, and the answers for the laboratory assignments provided in the student laboratory workbook. This product is available within: * Virtual ChemLab, General Chemistry, Instructor Lab Manual / Workbook and Student CD Combo Package, v2.5 (0-13-228010-8) (Valuepack) and/or * should be ordered in conjunction with Virtual ChemLab, General Chemistry, Instructor Site License CD, v2.5 (0-13-185749-5)

[Chemistry Education and Contributions from History and Philosophy of Science](#) Sep 18 2021 This book explores the relationship between the content of chemistry education and the history and philosophy of science (HPS) framework that underlies such education. It discusses the need to present an image that reflects how chemistry developed and progresses. It proposes that chemistry should be taught the way it is practiced by chemists: as a human enterprise, at the interface of scientific practice and HPS. Finally, it sets out to convince teachers to go beyond the traditional classroom practice and explore new teaching strategies. The importance of HPS has been recognized for the science curriculum since the middle of the 20th century. The need for teaching chemistry within a historical context is not difficult to understand as HPS is not far below the surface in any science classroom. A review of the literature shows that the traditional chemistry classroom, curricula, and textbooks while dealing with concepts such as law, theory, model,

explanation, hypothesis, observation, evidence and idealization, generally ignore elements of the history and philosophy of science. This book proposes that the conceptual understanding of chemistry requires knowledge and understanding of the history and philosophy of science.

“Professor Niaz’s book is most welcome, coming at a time when there is an urgently felt need to upgrade the teaching of science. The book is a huge aid for adding to the usual way - presenting science as a series of mere facts - also the necessary mandate: to show how science is done, and how science, through its history and philosophy, is part of the cultural development of humanity.” Gerald Holton, Mallinckrodt Professor of Physics & Professor of History of Science, Harvard University “In this stimulating and sophisticated blend of history of chemistry, philosophy of science, and science pedagogy, Professor Mansoor Niaz has succeeded in offering a promising new approach to the teaching of fundamental ideas in chemistry. Historians and philosophers of chemistry --- and above all, chemistry teachers --- will find this book full of valuable and highly usable new ideas” Alan Rocke, Case Western Reserve University “This book artfully connects chemistry and chemistry education to the human context in which chemical science is practiced and the historical and philosophical background that illuminates that practice. Mansoor Niaz deftly weaves together historical episodes in the quest for scientific knowledge with the psychology of learning and philosophical reflections on the nature of scientific knowledge and method. The result is a compelling case for historically and philosophically informed science education. Highly recommended!” Harvey Siegel, University of Miami “Books that analyze the philosophy and history of science in Chemistry are quite rare. ‘Chemistry Education and Contributions from History and Philosophy of Science’ by Mansoor Niaz is one of the rare books on the history and philosophy of chemistry and their importance in teaching this science. The book goes through all the main concepts of chemistry, and analyzes the historical and philosophical developments as well as their reflections in textbooks. Closest to my heart is Chapter 6, which is devoted to the chemical bond, the glue that holds together all matter in our earth. The chapter emphasizes the revolutionary impact of the concept of the ‘covalent bond’ on the chemical community and the great novelty of the idea that was conceived 11 years before quantum mechanics was able to offer the mechanism of electron pairing and covalent bonding. The author goes then to describe the emergence of two rival theories that explained the nature of the chemical bond in terms of quantum mechanics; these are valence bond (VB) and molecular orbital (MO) theories. He emphasizes the importance of having rival theories and interpretations in science and its advancement. He further argues that this VB-MO rivalry is still alive and together the two conceptual frames serve as the tool kit for thinking and doing chemistry in creative manners. The author surveys chemistry textbooks in the light of the how the books preserve or not the balance between the two theories in describing various chemical phenomena. This Talmudic approach of conceptual tension is a universal characteristic of any branch of evolving wisdom. As such, Mansoor’s book would be of great utility for chemistry teachers to examine how can they become more effective teachers by recognizing the importance of conceptual tension”. Sason Shaik Saeree K. and Louis P. Fiedler Chair in Chemistry Director, The Lise Meitner-Minerva Center for Computational Quantum Chemistry, The Hebrew University of Jerusalem, ISRAEL

Atomic Spectroscopy Jan 23 2022 Spectroscopy is an indispensable tool in understanding physical and chemical structure, and today very sophisticated spectroscopic instruments are available with modern data processing techniques. This book covers the elementary and basic aspects of atomic spectroscopy like Bohr’s theory and atomic physics up to the latest developments including laser cooling, Bose-Einstein condensates and atom lasers. Spectroscopy plays a major role in every field of science and this book would be valuable for physicists, chemists and biologists.

Sasol Encyclopaedia of Science and Technology Dec 30 2019 The SASOL Encyclopaedia of science and technology is the ideal comprehensive reference source for Secondary school learners and Higher education and training (HET) students.

Nuclear Principles in Engineering Dec 10 2020 Nuclear engineering plays an important role in various industrial, health care, and energy processes. Modern physics has generated its fundamental

principles. A growing number of students and practicing engineers need updated material to access the technical language and content of nuclear principles. "Nuclear Principles in Engineering, Second Edition" is written for students, engineers, physicians and scientists who need up-to-date information in basic nuclear concepts and calculation methods using numerous examples and illustrative computer application areas. This new edition features a modern graphical interpretation of the phenomena described in the book fused with the results from research and new applications of nuclear engineering, including but not limited to nuclear engineering, power engineering, homeland security, health physics, radiation treatment and imaging, radiation shielding systems, aerospace and propulsion engineering, and power production propulsion.

Report of NRL Progress Jan 29 2020

The Millikan Oil Drop Experiment May 27 2022

Static Fields and Potentials Sep 30 2022 Static Fields and Potentials describes two of the fundamental interactions in nature: gravity and electromagnetism. The book introduces the associated fields, potentials, and energies and explains the relationship among them. It shows how these interactions manifest themselves in different ways, from the formation of stars to the operation of thund

The Nature of Science Jul 29 2022 An alphabetically arranged handbook contains essays on two hundred key principles, from Kepler's laws of planetary motion and Mendel's laws of genetics, to lesser-known laws that explain everything from black holes to sunflower patterns.

Critical Appraisal of Physical Science as a Human Enterprise Jun 03 2020 It is generally believed that doing science means accumulating empirical data with no or little reference to the interpretation of the data based on the scientist's theoretical framework or presuppositions. Holton (1969a) has deplored the widely accepted myth (experimenticism) according to which progress in science is presented as the inexorable result of the pursuit of logically sound conclusions from unambiguous experimental data. Surprisingly, some of the leading scientists themselves (Millikan is a good example) have contributed to perpetuate the myth with respect to modern science being essentially empirical, that is carefully tested experimental facts (free of a priori conceptions), leading to inductive generalizations. Based on the existing knowledge in a field of research a scientist formulates the guiding assumptions (Laudan et al. , 1988), presuppositions (Holton, 1978, 1998) and "hard core" (Lakatos, 1970) of the research program that constitutes the imperative of presuppositions, which is not abandoned in the face of anomalous data. Laudan and his group consider the following paraphrase of Kant by Lakatos as an important guideline: philosophy of science without history of science is empty. Starting in the 1960s, this "historical school" has attempted to redraw and replace the positivist or logical empiricist image of science that dominated for the first half of the twentieth century. Among other aspects, one that looms large in these studies is that of "guiding assumptions" and has considerable implications for the main thesis of this monograph (Chapter 2).

Illustrated Encyclopedia of Applied and Engineering Physics, Three-Volume Set Aug 25 2019

This resource provides a single, concise reference containing terms and expressions used in the study, practice, and application of physical sciences. The reader will be able to identify quickly critical information about professional jargon, important people, and events. The encyclopedia gives self-contained definitions with essentials regarding the meaning of technical terms and their usage, as well as about important people within various fields of physics and engineering, with highlights of technical and practical aspects related to cross-functional integration. It will be indispensable for anyone working on applications in biomedicine, materials science, chemical engineering, electrical engineering, mechanical engineering, geology, astronomy, and energy. It also includes handy tables and chronological timelines organized by subject area and giving an overview on the historical development of ideas and discovery.

Modern Physics for Scientists and Engineers Oct 27 2019 MODERN PHYSICS presents the latest discoveries in physics, and offers a contemporary and comprehensive approach with a strong emphasis on applications. In order to illustrate the process behind scientific advances and give

students a historical perspective, the authors discuss the experiments that led to key discoveries covered in the text. A flexible organization allows you to select and teach topics in your preferred sequence without compromising your student's learning experience. A sound theoretical foundation in quantum theory is included to help physics majors succeed in their upper division courses. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Comprehensive Physics XII Jul 25 2019