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Handbook of Quantitative Science and Technology Research Oxford University Press

Stereotactic body radiation therapy (SBRT) has emerged as an important innovative treatment for various primary and metastatic cancers. This book provides a comprehensive and up-to-date account of the physical/technological, biological, and clinical aspects of SBRT. It will serve as a detailed resource for this rapidly developing treatment modality. The organ sites covered include lung, liver, spine, pancreas, prostate, adrenal, head and neck, and female reproductive tract. Retrospective studies and prospective clinical trials on SBRT for various organ sites from around the world are examined, and toxicities and normal tissue constraints are discussed. This book features unique insights from world-renowned experts in SBRT from North America, Asia, and Europe. It will be necessary reading for radiation oncologists, radiation oncology residents and fellows, medical physicists, medical physics residents, medical oncologists, surgical oncologists, and cancer scientists.

Matter Particled University of Chicago Press

This volume contains the proceedings of a workshop held at Drexel University from September 1 to September 3, 1980, under the joint auspices of Drexel University, The University of Tennessee and Vanderbilt University. The workshop dealt with subjects of topical importance to the nuclear physics community: high spin phenomena, heavy ion reactions, transfer reactions, microscopic theories of nuclear structure and the interacting boson model, and miscellaneous topics. This pro ceedings contains all of the invited papers plus short manuscripts expanding on the materials of the invited papers. A total of about 85 participants came to the workshop. The format of the conference was kept informal on purpose, so as to facilitate the discussions. Unfortunately, these discussions, at times intense, could not be included in this volume due to the lack of secretarial help during the meeting. A great deal of current information was exchanged during the conference. However, the full impact of a conference can only be realized when the proceedings have been published and read by par ticipants as well as other colleagues in this field of physics who were not in attendance. We sincerely hope that these proceedings will be useful in this regard.

Anxiety and the Equation **Springer Science & Business Media**

The author shows us that Kramers's remarkable and diverse work makes him at least the equal of such celebrated physicists as Fermi and Landau. He takes us through Kramers's groundbreaking research in such subjects as quantum theory, quantum electrodynamics, statistical mechanics, and solid-state physics.

Hydrodynamic and Hydromagnetic Stability Princeton University Press

Selected articles on quantum chemistry, classical and quantum electrodynamics, path integrals and operator calculus, liquid helium, quantum gravity and computer theory

Origines de la Recherche Scientifique Au Canada Courier Corporation

This handbook offers a state-of-the-art overview of quantitative science and technology research. It focuses on the development and application of indicators derived from data on scientific or scholarly publications and patents. It comprises 34 chapters written by leading specialists in the various sub-domains. These chapters deal with theoretical and methodological issues, illustrate applications, and highlight their policy context and relevance. Authors present a survey of the research topics they address, and show their most recent achievements. The 34 chapters are arranged into 5 parts: Disciplinary Approaches; General Methodology; The Science System; The Technology System; and The Science – Technology Interface. The Editor ' s Introduction provides a further specification of the handbook ' s scope and of the main topics addressed in its chapters. This handbook aims at four distinct groups of readers: – practitioners in the field of science and technology studies; – research students in this field; – scientists, scholars and technicians who are interested in a systematic, thorough analysis of their activities; – policy makers and administrators who wish to be informed about the potentialities and limitations of the various approaches and about their results.

Papers on Physics Springer

This block explores the diffusion equation which is most commonly encountered in discussions of the flow of heat and of molecules moving in liquids, but diffusion equations arise from many different areas of applied mathematics. As well as considering the solutions of diffusion equations in detail, we also discuss the microscopic mechanism underlying the diffusion equation, namely that particles of matter or heat move erratically. This involves a discussion of elementary probability and statistics, which are used to develop a description of random walk processes and of the central limit theorem. These concepts are used to show that if particles follow random walk trajectories, their density obeys the diffusion equation.

Frontiers of Fundamental Physics and Physics Education Research Springer Science & Business Media

This concise primer introduces the non-specialist reader to the physics of solar energetic particles (SEP) and systematically reviews the evidence for the two main mechanisms which lead to the so-called impulsive and gradual SEP events. More specifically, the timing of the onsets, the longitude distributions, the high-energy spectral shapes, the correlations with other solar phenomena (e.g. coronal mass ejections), as well as the all-important elemental and isotopic abundances of SEPs are investigated. Impulsive SEP events are related to magnetic reconnection in solar flares and jets. The concept of shock acceleration by scattering on self-amplified Alfv é n waves is introduced, as is the evidence of reacceleration of

impulsive-SEP material in the seed population accessed by the shocks in gradual events. The text then develops processes of transport of ions out to an observer. Finally, a new technique to determine the source plasma temperature in both impulsive and gradual events is demonstrated. Last but not least the role of SEP events as a radiation hazard in space is mentioned and a short discussion of the nature of the main particle telescope designs that have contributed to most of the SEP measurements is given.

Solar Energetic Particles World Scientific

In a knowledge-based society, research into fundamental physics plays a vital role not only in the enhancement of human knowledge but also in the development of new technology that affects everyday life.The international symposium series Frontiers of Fundamental Physics (FFP) regularly brings together eminent scholars and researchers working in various areas in physics to exchange expertise, ideas, results, and new research perspectives. The twelfth such symposium, FFP12, took place at the University of Udine, Italy, and covered diverse fields of research: astrophysics, high energy physics and particle physics, theoretical physics, gravitation and cosmology, condensed matter physics, statistical physics, computational physics, and mathematical physics. Importantly, it also devoted a great deal of attention to physics education research, teacher training in modern physics, and popularization of physics. The high scientific level of FFP12 was guaranteed by the careful selection made by scientific coordinators from among 250 submissions from 28 countries across the world. During the three days of the conference, nine general talks were delivered in plenary sessions, 29 invited talks were given in specific topic areas, and 59 oral presentations were made. This book presents a selection of the best contributions at FFP12 with the aim of acquainting readers with the most important recent advances in fundamental physics and in physics education and teacher development.

A Course in Theoretical Physics Springer Science & Business Media

A man and his equation: the anxiety-plagued nineteenth-century physicist who contributed significantly to our understanding of the second law of thermodynamics. Ludwig Boltzmann's grave in Vienna's Central Cemetery bears a cryptic epitaph: S = k log W. This equation was Boltzmann's great discovery, and it contributed significantly to our understanding of the second law of thermodynamics. In Anxiety and the Equation, Eric Johnson tells the story of a man and his equation: the anxiety-plagued nineteenth-century physicist who did his most important work as he struggled with mental illness. Johnson explains that “ S ” in Boltzmann's equation refers to entropy, and that entropy is the central quantity in the second law of thermodynamics. The second law is always on, running in the background of our lives, providing a way to differentiate between past and future. We know that the future will be a state of higher entropy than the past, and we have Boltzmann to thank for discovering the equation that underlies that fundamental trend. Johnson, accessibly and engagingly, reassembles Boltzmann's equation from its various components and presents episodes from Boltzmann's life—beginning at the end, with “ Boltzmann Kills Himself ” and “ Boltzmann Is Buried (Not Once, But Twice). ” Johnson explains the second law in simple terms, introduces key concepts through thought experiments, and explores Boltzmann's work. He argues that Boltzmann, diagnosed by his contemporaries as neurasthenic, suffered from an anxiety disorder. He was, says Johnson, a man of reason who suffered from irrational concerns about his work, worrying especially about opposition from the scientific establishment of the day. Johnson's clear and concise explanations will acquaint the nonspecialist reader with such seemingly esoteric concepts as microstates, macrostates, fluctuations, the distribution of energy, log functions, and equilibrium. He describes Boltzmann's relationships with other scientists, including Max Planck and Henri Poincar é , and, finally, imagines “ an alternative ending, ” in which Boltzmann lived on and died of natural causes.

Master of Modern Physics Oxford University Press

From the first great experimental scientist: the classic text, first published in Latin in 1600. Summarizes then-current knowledge of magnetism and electricity, offering insights into the origins of modern science.

Indirect Searches for New Physics World Scientific

The third volume collecting the significant papers of the astrophysicist and Nobel laureate. The papers are grouped into four sections: dynamical friction and Brownian motion; statistical problems in astonomy; the statistical theory of turbulence; and hydromagnetic problems in astrophysics. Includes a brief foreword by mathematician Norman R. Lebovitz. Not indexed. Annotation copyrighted by Book News, Inc., Portland, OR

Stereotactic Body Radiation Therapy American Mathematical Soc.

The Nobel Laureate's monumental study surveys hydrodynamic and hydromagnetic stability as a branch of experimental physics, surveying thermal instability of a layer of fluid heated from below, Benard problem, more.

Essays in Physics MIT Press

A Comprehensive Course in Analysis by Poincar é Prize winner Barry Simon is a five-volume set that can serve as a graduate-level analysis textbook with a lot of additional bonus information, including hundreds of problems and numerous notes that extend the text and provide important historical background. Depth and breadth of exposition make this set a valuable reference source for almost all areas of classical analysis. Part 1 is devoted to real analysis. From one point of view, it presents the infinitesimal calculus of the twentieth century with the ultimate integral calculus (measure theory) and the ultimate differential calculus (distribution theory). From another, it shows the triumph of abstract spaces: topological spaces, Banach and Hilbert spaces, measure spaces, Riesz spaces, Polish spaces, locally convex spaces, Fr é chet spaces, Schwartz space, and spaces. Finally it is the study of big techniques, including the Fourier series and transform, dual spaces, the Baire category, fixed point theorems, probability ideas, and Hausdorff dimension. Applications include the constructions of nowhere differentiable functions, Brownian motion, space-filling curves, solutions of the moment problem, Haar measure, and equilibrium measures in potential theory.

A Selection of Pioneering Research Papers of the Journal of the Asiatic Society on Geology and Physics CRC Press

CD ROM contains a snapshot of the full distribution of source code, documentation and supporting materials located at the Magic Software Inc. website. --Inside cover.

Scientific Papers of the National Research Institute of Physics, Academia Sinica McGill-Queen's Press - MQUP

Random Walks and Diffusion

The Large Hadron Collider John Wiley & Sons

Each of this book's 32 essays discusses a chosen topic, at a level that is generally within that of a four-year degree course in Physics. The essays supplement (indeed sometimes correct) treatments usually given, or supplies reasoning that tends to fall through the cracks. The author uses his life long experience of tutorial teaching at Oxford to know what topics often need such discussion, for clarification, or for avoidance of common confusions. The book contains accounts of even-standard topics, accounts that offer an unusual emphasis, or a fresh insight, or more than customary rigour, or a cross-link to apparently unrelated material. The student (and their teachers) who really wants to understand physics will find this book indispensable. Often the outcome of tutorial discussion has been an understanding that lies a little to the side of what is presented in standard texts. Such understanding is presented here in the essays. The topics covered are diverse and have something useful to say across most areas of a physics degree.

Surface Research National Academies Press

The teaching of engineering and a change in liberal arts curricula, both stimulated by industrial growth, encouraged the creation of specialized courses in the sciences. By the 1890s, Gingras argues, trained researchers had begun to appear in Canadian universities. The technological demands of the First World War and the founding, in 1916, of the National Research Council of Canada (NRC) accelerated the growth of scientific research. The Transactions of the Royal Society of Canada could no longer publish everything submitted to it because of the disproportionately large number of research papers from the fields of science. In response, the NRC created the Canadian Journal of Research, a journal specifically dedicated to the publication of scientific research. By 1930, a stable, national system of scientific research was in place in Canada. Following the dramatic increase in the national importance of their disciplines, scientists faced the problem of social identity. Gingras demonstrates that in the case of physics this took the form of a conflict between those who promoted a professional orientation, necessary to compete successfully with engineers in the labour market, and those, mainly in the universities, who were concerned with problems of the discipline such as publication, internal management, and awards. Physics and the Rise of Scientific Research in Canada is the first book

to provide a general analysis of the origins of scientific research in Canadian universities. Gingras proposes a sociological model of the formation of scientific disciplines, distinguishing the profession from the discipline, two notions often confused by historians and sociologists of science.

The Art of Scientific Writing World Scientific
People are used to seeing " fake physics " in science fiction – concepts like faster-than-light travel, antigravity and time travel to name a few. The fiction label ought to be a giveaway, but some SF writers – especially those with a background in professional science – are so adept at " technobabble " that it can be difficult to work out what is fake and what is real. To confuse matters further, Isaac Asimov ' s 1948 piece about the fictitious time-travelling substance thiotimoline was written, not as a short story, but in the form of a spoof research paper. The boundaries between fact and fiction can also be blurred by physicists themselves - sometimes unintentionally, sometimes with tongue-in-cheek, sometimes to satirize perceived weaknesses in research practices. Examples range from hoaxes aimed at exposing poor editorial standards in academic publications, through " thought experiments " that sound like the plot of a sci-fi movie to April Fools ' jokes. Even the latter may carry a serious message, whether about the sociology of science or poking fun at legitimate but far-out scientific hypotheses. This entertaining book is a joyous romp exploring the whole spectrum of fake physics – from science to fiction and back again.

Contemporary Research Topics in Nuclear Physics World Scientific
Some of the most active practitioners in the field of integrable systems have been asked to describe what they think of as the problems and results which seem to be most interesting and important now and are likely to influence future directions. The papers in this collection, representing their authors' responses, offer a broad panorama of the subject as it enters the 1990's. Contents:The Main Soliton Theorem (I Cherednik)Functional Bethe Ansatz (E K Sklyanin)Integrability in Models of Two-Dimensional Turbulence (Y Murometz & S Razboynick)Solitons, Numerical Chaos and Cellular Automata (M J Ablowitz et al.)The Unstable Nonlinear Schr ö dinger Equation (T Yajima & M Wadati)Classification of Integrable Equations (R K Dodd)List of All Integrable Hamiltonian Systems of General Type with Two Degrees of Freedom (A T Fomenko)Finite-Dimensional Soliton Systems (S N M Ruijsenaars)Relativistic Analogs of Basic Integrable Systems (J Gibbons & B A Kupershmidt)Liouville Generating Functions for Isospectral Flows in Loop Algebras (M R Adams et al.)A Loop Algebra Decomposition for Korteweg-de Vries Equations (R J Schilling)Energy Dependent Spectral Problems: Their Hamiltonian Structures and Miura Maps (A P Fordy)Commuting Differential Operators Over Integrable Hierarchies (F Guil)Lie Superalgebra Structure on Eigenfunctions, and Jets of the Resolvent's Kernal Near the Derivative and the Bott Cocycle (A O Radul)Super Miura Transformations, Super Schwarzian Derivatives and Super Hill Operators (P Mathieu) Readership: Mathematicians and physicists. keywords:

Selected Papers, Volume 3 CRC Press
This is the first book to discuss the search for new physics in charged leptons, neutrons, and quarks in one coherent volume. The area of indirect searches for new physics is highly topical; though no new physics particles have yet been observed directly at the Large Hadron Collider at CERN, the methods described in this book will provide researchers with the necessary tools to keep searching for new physics. It describes the lines of research that attempt to identify quantum effects of new physics particles in low-energy experiments, in addition to detailing the mathematical basis and theoretical and phenomenological methods involved in the searches, whilst making a clear distinction between model-dependent and model-independent methods employed to make predictions. This book will be a valuable guide for graduate students and early-career researchers in particle and high energy physics who wish to learn about the techniques used in modern predictions of new physics effects at low energies, whilst also serving as a reference for researchers at other levels. Key features: • Takes an accessible, pedagogical approach suitable for graduate students and those seeking an overview of this new and fast-growing field • Illustrates common theoretical trends seen in different subfields of particle physics • Valuable both for researchers in the phenomenology of elementary particles and for experimentalists