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# Theoretical Nuclear Physics Victor F Weisskopf

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Some Mathematical Methods of Physics  
Elements of the Theory of Functions  
Modern Physics  
Set Theory: The Structure of Arithmetic  
Computational Nuclear Physics 1  
Applications of Satellites to Geodesy  
Physics in the Twentieth Century: Selected Essays  
Nuclear Architecture and Dynamics  
Theoretical Nuclear Physics  
The Quantum Physics of Atoms, Solids, and Nuclei: Third Edition  
Structure Of The Nucleus  
Nuclear Sizes and Structure  
Representation Theory of Finite Groups  
Invariant Manifold Theory for Hydrodynamic Transition  
The Joy of Insight: Passions of a Physicist  
A Collection of Problems in Mathematical Physics  
Curvature in Mathematics and Physics  
Theoretical Nuclear Physics. John M. Blatt,... Victor F. Weisskopf,...  
Theoretical nuclear physics  
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Concepts of Particle Physics  
Nuclear Structure  
Reliability Theory and Practice  
Lectures on Nuclear Theory  
Knowledge and Wonder, second edition  
Theoretical Nuclear Physics

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## **LIZETH LEWIS**

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*Some Mathematical Methods of Physics*

Courier Dover Publications

Elucidates basic and well-established concepts of particle physics to those who do not have the sophisticated training in mathematics and physics that is habitually expected of students of this subject.

Elements of the Theory of Functions CRC Press

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

**Modern Physics** OUP Oxford

This book has been designed to honor Lev Nikolaevich Lipatov, as a person and as one of the leading scientists in theoretical high energy physics. The book begins with three articles on Lev as a person, written endearingly by family members, a very close friend and Physics professor, Eugene Levin, and another outstanding scientist, Alfred Mueller. The book further collects 18 articles by several scientists who closely knew and/or collaborated with Lev. With an overarching range over various subfields, the book summarizes parts of Lev's achievements, presents new results which are based upon Lev's work, and paints an outlook on possible future developments. Lev's theoretical work has had an influential impact on phenomenology and experimental high energy physics; befittingly, this collection also includes several articles on these experimental aspects.

Set Theory: The Structure of Arithmetic  
CRC Press

In the 1930s, Victor Weisskopf worked with leading European physicists such as Niels Bohr, Werner Heisenberg, Paul Dirac and Wolfgang Pauli. His memoir recounts in simple language how quantum mechanics revolutionized physics and our understanding of matter. Weisskopf takes us to Los Alamos where he worked on the atom bomb during World War II after fleeing the Nazis, to CERN which he led in the early 1960s, and to MIT's physics department where he taught until his retirement. Weisskopf also recounts his efforts towards nuclear disarmament and tells of his lifelong love of music and passion to understand and explain physics. "[Weisskopf's] memoir provides a bright tile in the mosaic that our descendants will study in seeking to understand his scientific generation... A warm and frequently witty memoir by an extraordinarily gifted thinker and caring human being." — Timothy Ferris, *The New York Times* "Weisskopf's voice comes through clearly in the book ... a voice that has tried to infuse our century with the idealism and humanism that it so often has lacked... The Joy of Insight is much more than Weisskopf's autobiography: It is

a first-hand account of the intellectual and political forces that shaped the 20th century." — *Science* "His account of [Los Alamos], where an isolated, tightly enclosed social world contrasted with the excitement and suspense of unprecedented research and invention, is the best yet written." — *The Atlantic* "The Joy of Insight is an inspiring personal memoir by one of the most thoughtful scientists of our time... [A] stimulating book by and about a passionate physicist." — *Boston Globe* "[Weisskopf] emerges in this autobiography as a man of gentle wisdom and quiet grace, confident in the idea that physics can provide not only 'the joy of insight,' but also a model of how life should be lived." — *The Sciences*  
*Computational Nuclear Physics 1* Courier Corporation  
An uncommonly clear and cogent investigation and correlation of key aspects of theoretical nuclear physics by leading experts: the nucleus, nuclear forces, nuclear spectroscopy, two-, three- and four-body problems, nuclear reactions, beta-decay and nuclear shell structure.  
Applications of Satellites to Geodesy  
Academic Press

Outstanding, wide-ranging material on classification and reduction to canonical form of second-order differential equations; hyperbolic, parabolic, elliptic equations, more. Bibliography.

Physics in the Twentieth Century: Selected Essays MIT Press

This text is formulated on the fundamental idea that much of mathematics, including the classical number systems, can best be based on set theory. Beginning with a discussion of the rudiments of set theory, authors Norman T. Hamilton and Joseph Landin lead readers through a construction of the natural number system, discussing the integers and the rational numbers, and concluding with an in-depth examination of the real numbers. Drawn from lecture notes for a course intended primarily for high school mathematics teachers, this volume was designed to answer the question, "What is a number?" and to provide a foundation for the study of abstract algebra, elementary Euclidean geometry, and analysis. Upon completion of this treatment — which is suitable for high school mathematics teachers and advanced high school students — readers

should be well prepared for introductory courses in abstract algebra and real variables.

Nuclear Architecture and Dynamics

Courier Corporation

Theoretical Nuclear Physics. John M. Blatt,... Victor F. Weisskopf,... Theoretical nuclear physics by John M. Blatt and Victor F. Weisskopf Theoretical Nuclear Physics Courier Corporation

**Theoretical Nuclear Physics** Springer Science & Business Media

Throughout this book, we discuss some open problems in various branches of science, including mathematics, theoretical physics, astrophysics, geophysics etc. It is of our hope that some of the problems discussed in this book will find their place either in theoretical exploration or further experiments, while some parts of these problems may be found useful for scholarly stimulation. The present book is also intended for young physics and mathematics fellows who will perhaps find the unsolved problems described here are at least worth pondering. If this book provides only a few highlights of plausible solutions, it is merely to keep the fun of readers in

discovering the answers by themselves. Bon voyage!

**The Quantum Physics of Atoms, Solids, and Nuclei: Third Edition**

Courier Dover Publications

Invariant manifold theory serves as a link between dynamical systems theory and turbulence phenomena. This volume consists of research notes by author S. S. Sritharan that develop a theory for the Navier-Stokes equations in bounded and certain unbounded geometries. The main results include spectral theorems and analyticity theorems for semigroups and invariant manifolds. "This monograph contains a lot of useful information, including much that cannot be found in the standard texts on the Navier-Stokes equations," observed MathSciNet, adding "the book is well worth the reader's attention." The treatment is suitable for researchers and graduate students in the areas of chaos and turbulence theory, hydrodynamic stability, dynamical systems, partial differential equations, and control theory. Topics include the governing equations and the functional framework, the linearized operator and its spectral properties, the monodromy

operator and its properties, the nonlinear hydrodynamic semigroup, invariant cone theorem, and invariant manifold theorem. Two helpful appendixes conclude the text. Plunkett Lake Press

In 1912 Victor Franz Hess made the revolutionary discovery that ionizing radiation is incident upon the Earth from outer space. He showed with ground-based and balloon-borne detectors that the intensity of the radiation did not change significantly between day and night. Consequently, the sun could not be regarded as the sources of this radiation and the question of its origin remained unanswered. Today, almost one hundred years later the question of the origin of the cosmic radiation still remains a mystery. Hess' discovery has given an enormous impetus to large areas of science, in particular to physics, and has played a major role in the formation of our current understanding of universal evolution. For example, the development of new fields of research such as elementary particle physics, modern astrophysics and cosmology are direct consequences of this discovery. Over the years the field of cosmic ray research has evolved in various

directions: Firstly, the field of particle physics that was initiated by the discovery of many so-called elementary particles in the cosmic radiation. There is a strong trend from the accelerator physics community to reenter the field of cosmic ray physics, now under the name of astroparticle physics. Secondly, an important branch of cosmic ray physics that has rapidly evolved in conjunction with space exploration concerns the low energy portion of the cosmic ray spectrum. Thirdly, the branch of research that is concerned with the origin, acceleration and propagation of the cosmic radiation represents a great challenge for astrophysics, astronomy and cosmology. Presently very popular fields of research have rapidly evolved, such as high-energy gamma ray and neutrino astronomy. In addition, high-energy neutrino astronomy may soon initiate as a likely spin-off neutrino tomography of the Earth and thus open a unique new branch of geophysical research of the interior of the Earth. Finally, of considerable interest are the biological and medical aspects of the cosmic radiation because of its ionizing character and the inevitable irradiation to

which we are exposed. This book is a reference manual for researchers and students of cosmic ray physics and associated fields and phenomena. It is not intended to be a tutorial. However, the book contains an adequate amount of background materials that its content should be useful to a broad community of scientists and professionals. The present book contains chiefly a data collection in compact form that covers the cosmic radiation in the vicinity of the Earth, in the Earth's atmosphere, at sea level and underground. Included are predominantly experimental but also theoretical data. In addition the book contains related data, definitions and important relations. The aim of this book is to offer the reader in a single volume a readily available comprehensive set of data that will save him the need of frequent time consuming literature searches.

**Structure Of The Nucleus** Courier Corporation

One of the main problems of theoretical physics concerns the unification of gravity with quantum theory. This monograph examines unification by means of the appropriate formulation of quantum gauge

invariance. Suitable for advanced undergraduates and graduate students of physics, the treatment requires a basic knowledge of quantum mechanics. Opening chapters introduce the free quantum fields and prepare the field for the gauge structure, describing the inductive construction of the time-ordered products by causal perturbation theory. The analysis of causal gauge invariance follows, with considerations of massless and massive spin-1 gauge fields. Succeeding chapters explore the construction of spin-2 gauge theories, concluding with an examination of nongeometric general relativity that offers an innovative approach to gravity and cosmology.

### **Nuclear Sizes and Structure**

Theoretical Nuclear Physics. John M. Blatt,... Victor F. Weisskopf,... Theoretical nuclear physics by John M. Blatt and Victor F. Weisskopf Theoretical Nuclear Physics Introduction to concepts of category theory — categories, functors, natural transformations, the Yoneda lemma, limits and colimits, adjunctions, monads — revisits a broad range of mathematical examples from the categorical

perspective. 2016 edition.

### **Representation Theory of Finite Groups**

Courier Corporation Well-known book provides a clear, concise review of complex numbers and their geometric representation; linear functions and circular transformations; sets, sequences, and power series; analytic functions and conformal mapping; and elementary functions. 1952 edition.

### Invariant Manifold Theory for Hydrodynamic Transition

Elsevier Accessible text covers deformation and stress, derivation of equations of finite elasticity, and formulation of infinitesimal elasticity with application to two- and three-dimensional static problems and elastic waves. 1980 edition.

### **The Joy of Insight: Passions of a Physicist**

Courier Corporation Focusing on Gentzen-type proof theory, this volume presents a detailed overview of creative works by author Gaisi Takeuti and other twentieth-century logicians. The text explores applications of proof theory to logic as well as other areas of mathematics. Suitable for advanced undergraduates and graduate students of mathematics, this long-out-of-print

monograph forms a cornerstone for any library in mathematical logic and related topics. The three-part treatment begins with an exploration of first order systems, including a treatment of predicate calculus involving Gentzen's cut-elimination theorem and the theory of natural numbers in terms of Gödel's incompleteness theorem and Gentzen's consistency proof. The second part, which considers second order and finite order systems, covers simple type theory and infinitary logic. The final chapters address consistency problems with an examination of consistency proofs and their applications.

### A Collection of Problems in Mathematical Physics

Elsevier A classic work by two leading physicists and scientific educators endures as an uncommonly clear and cogent investigation and correlation of key aspects of theoretical nuclear physics. It is probably the most widely adopted book on the subject. The authors approach the subject as "the theoretical concepts, methods, and considerations which have been devised in order to interpret the experimental material and to advance our

ability to predict and control nuclear phenomena." The present volume does not pretend to cover all aspects of theoretical nuclear physics. Its coverage is restricted to phenomena involving energies below about 50 Mev, a region sometimes called classical nuclear physics. Topics include studies of the nucleus, nuclear forces, nuclear spectroscopy and two-, three- and four-body problems, as well as explorations of nuclear reactions, beta-decay, and nuclear shell structure. The authors have designed the book for the experimental physicist working in nuclear physics or graduate students who have had at least a one-term course in quantum mechanics and who know the essential concepts and problems of nuclear physics.

*Curvature in Mathematics and Physics*  
Courier Corporation

Well-rounded, thorough treatment introduces basic concepts of mathematical physics involved in the study of linear systems, with emphasis on eigenvalues,

eigenfunctions, and Green's functions. Topics include discrete and continuous systems and approximation methods. 1960 edition.

Theoretical Nuclear Physics. John M. Blatt,... Victor F. Weisskopf,... Courier Corporation

Ice is one of the most abundant and environmentally important materials on Earth, and its unique and intriguing physical properties present fascinating areas of study for a wide variety of researchers. This book is about the physics of ice, by which is meant the properties of the material itself and the ways in which these properties are interpreted in terms of water molecules and crystalline structure. Although ice has a simple crystal structure its hydrogen bonding results in unique properties, which continue to be the subject of active research. In this book the physical principles underlying the properties of ice are carefully developed at a level aimed at pure and applied researchers in the field.

Important topics like current understandings of the electrical, mechanical, and surface properties, and the occurrence of many different crystalline phases are developed in a coherent way for the first time. An extensive reference list and numerous illustrations add to the usefulness and readability of the text.

**Theoretical nuclear physics** Courier Dover Publications

A graduate-level one-volume textbook and reference work on the structure and physics of atomic nuclei. Throughout this book the underlying emphasis is on how a nucleus is constituted through the interaction between the nucleons. The book is structured into three parts: the first part contains a detailed treatment of the two-nucleon force and of basic model-independent nuclear properties the second part discusses the experimental results of nuclear models and their bases in fundamental theory the third part deals in some detail with alpha-decay and fission.