

Nuclear Physics Author Pandya

Solid State and Nuclear Physics
 Introduction to Nuclear Physics
 Introductory Nuclear Physics
 Understanding Nuclear Physics
 Nuclear Physics
 Basic Concepts of Nuclear Physics
 Introductory Nuclear Physics
 A Text Book on Nuclear Physics for Graduate Students
 Nuclear Physics
 Nuclear Physics
 Heavy Ion Reactions at Low Energies
 Advanced Nuclear Physics
 Nuclear Physics
 Basic Concepts of Nuclear Physics
 Atomic and Nuclear Physics
 From Nucleons to the Atomic Nucleus
 Concepts of Nuclear Physics
 The Physics of Neutrino Interactions
 Introductory Nuclear Physics
 Modern Atomic and Nuclear Physics
 Elements of nuclear physics
 NUCLEAR AND PARTICLE PHYSICS.
 Atomic Physics
 Nuclear Structure Physics
 Nuclear Physics : An Introduction, 2/e
 Basic Concepts in Nuclear and Particle Physics
 Nuclear Physics
 An Introduction to the Engineering Aspects of Nuclear Physics
 Introduction To Nuclear And Particle Physics
 Nuclear Physics
 Nuclear And Particle Physics
 Exotic Nuclear Excitations
 Nuclear Physics
 Introduction To Nuclear And Particle Physics (2nd Edition)
 Introduction to Nuclear and Particle Physics
 Introductory Nuclear Physics
 Fundamentals and Applications of Heavy Ion Collisions
 Nuclear Physics
 Atomic And Nuclear Physics
 An Introduction to Experimental Nuclear Reactions

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Solid State and Nuclear Physics New Age International

Nuclear structure Physics connects to some of our fundamental questions about the creation of universe and its basic constituents. At the same time, precise knowledge on the subject has led to develop many important tools of human kind such as proton therapy, radioactive dating etc. This book contains chapters on some of the crucial and trending research topics in nuclear structure, including the nuclei lying on the extremes of spin, isospin and mass. A better theoretical understanding of these topics is important beyond the confines of the nuclear structure community. Additionally, the book will showcase the applicability and success of the different nuclear effective interaction parameters near the drip line, where hints for level reordering have already been seen, and where one can test the isospin-dependence of the interaction. The book offers comprehensive coverage of the most essential topics, including: • Nuclear Structure of Nuclei at or Near Drip-Lines • Synthesis challenges and properties of Superheavy nuclei • Nuclear Structure and Nuclear models - Ab-initio calculations, cluster models, Shell-model/DSM, RMF, Skyrme • Shell Closure, Magicity and other novel features of nuclei at extremes • Structure of Toroidal, Bubble Nuclei, halo and other exotic nuclei These topics are not only very interesting from theoretical nuclear physics perspective but are also quite complimentary for ongoing nuclear physics experimental program worldwide. It is hoped that the book chapters written by experienced and well known researchers/experts will be helpful for the master students, graduate students and researchers and serve as a standard & up-to-date research reference book on the topics covered.

Introduction to Nuclear Physics MJP Publisher

"The textbook itself is the culmination of the authors' many years of teaching and research in atomic physics, nuclear and particle physics, and modern physics. It is also a crystallization of their intense passion and strong interest in the history of physics and the philosophy of science. Together with the solution manual which presents solutions to many end-of-chapter problems in the textbook, they are a valuable resource to the instructors and students working in the modern atomic field."--Publisher's website.

Introductory Nuclear Physics CRC Press

This book provides a unique approach to understand the Nuclear Physics, especially from the experimental end. The highlight of this book is that special care has been taken to provide more experimental information, considering real experimental data which has been published in several journals. Special experimental focus is given to methodologies involving: offline gamma counting and online particle detection. The book provides information about recent developments in accelerators, overview of the detectors and concise information of associated electronics, data acquisition systems and computers for data analysis.

Understanding Nuclear Physics PHI Learning Pvt. Ltd.

This book is aimed at students of B.Sc.(Hons.), M.Sc. and M.Phil. in Physics. It examines the major developments in nuclear and particle physics that have taken place in the past few years. Written according to the UGC curriculum, the book presents the subject comprehensively. Besides, it also reflects new trends in the study of nuclear and particle physics. The book provides an up-to-date view of the field in a compact form. The study of nuclei is placed in its proper relation with the subject of subatomic particles. Relationships with the underlying quark substructure of nucleons and the fundamental interactions between the elementary building blocks of nuclei are emphasized. The text offers a concise-coverage of nuclear and particle physics in a lucid, and uncomplicated manner. Each chapter contains a wide range of worked-out problems. At the end of each chapter a good number of review questions, exercises, short-question answers and objective questions are provided

so that the book may also be useful for UGC-CSIR, NET-SLET and other competitive examinations.

Nuclear Physics Springer Science & Business Media

Nuclear Physics, designed as a textbook for graduate students deals with the size, shape and properties of nuclei, the electric and magnetic moments, the strong nuclear force that binds nucleons, the nuclear structure, various nuclear models -- the shell model, Nilsson's model, the collective model and unified model -- radioactive decays such as the alpha, beta and gamma decays, nuclear and heavy ion reactions and synthesis of transuranic elements. The Strutinsky shell correction, the effect of parity violation in weak interaction, elementary particle interactions with nuclei and the quark structure of the nucleon are also briefly discussed. NEW TO THE SECOND EDITION: * Two Appendices G and H, one on the Evaluation of Matrix Elements and the other on the Evaluation of Transition Probability. The study of static properties of nuclei such as electric quadrupole moment, magnetic dipole moment and the calculation of energy levels involve the evaluation of matrix elements whereas the study of dynamical properties such as the nuclear transition from one state to another by interaction with an external field involves the calculation of transition probability. These appendices will help the students make a quantitative study of both the static and dynamical properties of nuclei. KEY FEATURES: * Problems with Solutions at the end of each chapter * Includes Review Questions

Basic Concepts of Nuclear Physics S. Chand Publishing

the book has been revised to include the postgraduate physics syllabi of Indian Universities in addition to the undergraduate honours syllabi covered in the previous edition. Apart from the new addition made in the existing chapters have been added in this edition to deal with the quantum mechanical theories of atomic and molecular structure.

Introductory Nuclear Physics S. Chand Publishing

The book 'Basic Concepts in Nuclear and Particle Physics' in very simple language, so as to make it understandable to a physics student. In this way, the present textbook is designed to serve the needs of students, who will use this book as an introduction to nuclear physics and go no further.

A Text Book on Nuclear Physics for Graduate Students Rastogi Publications

The present edition of the book is revised as per the UGC syllabus. Questions and problems at the end of each chapter have been up-dated. Many new solved examples are included in this edition. Certain topics have been added so that students from some universities where the syllabus has been modified and upgraded may benefit. Besides being a text book we hope that this benefit students appearing at the IAS, AMIE and other Competitive Examinations.

Nuclear Physics Alpha Science International, Limited

In this edition of the book, only minor changes have been made in some chapters. In the chapter on Nuclear Models (Ch. IX), the discussions on the individual particle model has been shortened to some extent and the relevant reference has been added where the readers can get the details.

Nuclear Physics I K International Pvt Ltd

book provides a clear and concise discussion of basic concepts of nuclear physics to be covered in a one semester course in nuclear physics offered in colleges and universities. This course can be taken by physics and nuclear engineering seniors and graduate students, who have taken one semester of quantum mechanics and a course in math. Methods of physics. This book begins with the general properties of nuclei. In chapters 2 and 3 it discusses the nature of nuclear force as learned from the properties of deuteron and from the two body interactions of (n, n) , (n, p) and (p, p) pairs. In chapter 4 it gives discussion of the nuclear structure in terms of different nuclear models such as shell, collective vibration and rotation, unified and liquid drop. The models are applicable in different mass regions of nuclei. In chapter 5, discussion is given about α and β ray modes of decay of unstable nuclei. Chapter 6 deals with different types of nuclear reactions induced by n, p, d, t, α -particles etc. These reactions are compound nucleus formation, direct reactions, such as stripping,

knock out, pick up reactions, photonuclear reactions, nuclear fission and nuclear fusion etc. Chapter 7 gives a brief discussion of application of nuclear physics to other fields such as bio medical, nuclear energy, industry, crime detection and astrophysics. In chapter 8, I have given conceptual problems related to each chapter. The main feature of this book is that it gives a coherent treatment of each topic of nuclear physics in the proper order. Book Review Basic concepts of nuclear physics written by Jagdish B. Garg, Physics Professor, State University at Albany is a timely book. To my knowledge no other text book on this subject had been published in recent years. This book is written in a clear, concise and orderly fashion. The book begins with a discussion of the discovery of nucleus by Lord Rutherford and then describes all the basic properties of nuclei. In chapters 2 and 3, the author discusses the nucleon-nucleon force determined by properties of deuterons and from interaction of pairs of nucleons. In chapter 4, he discusses nuclear structure as described by shell, collective rotation, vibration, unified and liquid drop models. In chapter 5, he discusses various nuclear modes such as alpha, beta and gamma decay of unstable nuclei. In chapter 6, he discusses nuclear reactions induced by neutrons, protons, deuterons, He 3, He 4 and triton particles, photo nuclear reactions, nuclear fission and fusion. Theoretical treatment of these topics is appropriate for an introductory survey course in nuclear physics. Chapter 7 gives a brief discussion of application of nuclear physics to nuclear energy, to medical field such as diagnostic and treatment of human diseases, application to astro-physics, crime detection and determination of pollution in the environment. The author is internationally known for his extensive research on many topics of nuclear physics. The author should be complimented for a clear and concise discussion of all important topics of nuclear physics. This book is suitable for a one semester survey course in nuclear physics to be given in physics and nuclear engineering departments. I have taught introductory course in nuclear physics at Rensselaer Polytechnic Institute for many years and would have adopted this book if it was then available. I would recommend this book to other professors teaching an introductory survey course on nuclear physics. - Norman Francis, Adjunct Professor at RPI (retired) Fellow of American Nuclear Society

Heavy Ion Reactions at Low Energies Cambridge University Press

Provides detailed methodology of carrying out experiments using accelerated HI beams below 10 MeV/nucleon energies.

Advanced Nuclear Physics Xlibris Corporation

This book attempts to introduce atomic physics at an advanced undergraduate or postgraduate level in nuclear physics. It explains all aspects of the nucleus, its structure, its behavior under various conditions, and its effect on nature and on mankind. Experimental methods of nuclear physics have also been discussed. The book also discusses Nuclear Decay, Gamma-ray Emission, Nuclear Reactions and Applications of Nuclear Physics. A variety of problems and exercises have been included to aid the understanding process.

Nuclear Physics S. Chand Publishing

Nuclear Physics has been occupying continuously an important place in any University course in physics at the graduate and PG levels in India. The main purpose of A Text Book on Nuclear Physics is to give a concise account of the fundamentals of the physics of the nuclei and particles and applications of nuclear energy. Its coverage extends the conventional aspects of the subject, because it has become very evident in recent years that much of the great body of knowledge of nuclei, acquired several decades ago, is highly relevant to other fields such as solid state, modern spectroscopy, chemistry, biological / medical physics and technology of power production. In a book of moderate size it is not possible to give a comprehensive treatment, in depth, of the whole of subatomic physics, for the student community at the degree level. However, I have tried to add my experience of teaching, 4 credit semester courses, on the subject a few years during my tenure (1971 - 2000) to the M.Sc. students at the Department of Physics of the University of Kerala, Kariavattom campus, Thiruvananthapuram. My experience in research in the field of Mossbauer spectroscopy has certainly an impact in the quality of the contents of the book. Further, as an author of four books, I could prepare this book in its own uniqueness for instance providing student friendly features. I have incorporated a good deal of Worked out Examples with solutions at appropriate places and Review Questions including their answers at the end of each Chapter. Outline solutions are deliberately avoided so as to reduce the volume of the book. I have kept the mathematics as simple as possible. I assume knowledge of the basics of special relativity and basic quantum mechanics. The many bibliographic references have been arranged in alphabetical list to enable students as well as faculty, for their academic references. The present book is designed rather to meet the needs of the academic community who wishes to adopt the whole or parts of the book as a text for the prescribed syllabus of any course containing nuclear physics. It is hoped that the book will be of interest to those whose work lies in inter-disciplinary fields, for example health physics, industrial physics, and related fields.

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- [Regretting You](#)
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Basic Concepts of Nuclear Physics CRC Press

The general approach and aim of this book is to provide a brief comprehensive study of elementary nuclear physics in a coherent, simple and lucid manner. The book contains eight chapters covering topics which are generally common for undergraduate students. SI systems of units have been used in this book.

Atomic and Nuclear Physics Tata McGraw-Hill Education

This book is meant for those opting for courses where knowledge of applications of nuclear physics is required and also to the people involved in application oriented fields of nuclear physics. This book includes major applications of nuclear physics, such as detector technology, nuclear power, activation analysis, and applications to biology. Students, learning engineering aspects of physics, which is an upcoming course of study in various institutes, will find the book useful.

From Nucleons to the Atomic Nucleus World Scientific Publishing Company Incorporated

This book is based on Valery Zagrebaev's original papers and lecture materials on nuclear physics with heavy ions, which he prepared and extended through many years for the students of nuclear physics specialties. The book outlines the main experimental facts on nuclear reactions involving heavy ions at low energies. It focuses on discussions of nuclear physics processes that are a subject of active, modern research and it gives illustrative explanations of these phenomena in the framework of up-to-date theoretical concepts. This textbook is intended for students in physics who have completed a standard course of quantum mechanics and have basic ideas of nuclear physics processes. It is designed as a kind of lifeboat that, at the end of the course, will allow students to navigate the modern scientific literature and to understand the goals and objectives of current, on-going research.

Concepts of Nuclear Physics Cambridge University Press

A simple and direct introduction to the tools of modern nuclear physics, both experimental and mathematical. Emphasizes physical intuition and illuminating analogies rather than formal mathematics. Topics include particle accelerators, radioactive series, types of nuclear reactions, detection of the neutrino, nuclear isomerism, binding energy of nuclei, fission chain reactions and predictions of the shell model. Each chapter contains problems and illustrative examples. Prerequisites are calculus and elementary vector analysis.

The Physics of Neutrino Interactions Addison Wesley Publishing Company

A comprehensive introduction to neutrino physics with detailed description of neutrinos and their properties.

Introductory Nuclear Physics Pearson Education India

An Introduction to Experimental Nuclear Reactions is a book with a concise and simple approach to the subject of experimental nuclear physics. The subject being very technical, it is dealt with in a lucid way so that the reader can grasp the concept and later gain hands-on experience while doing fieldwork. In this book, theoretical, experimental and instrumentation aspects are covered with an emphasis on accelerator-based techniques, which form the basis for the subject of experimental nuclear physics. Other books on similar topics either concentrate on the physics aspects or are more focussed on the instrumentation and radiation detection techniques while accelerator-related concepts are less explained. One of the main stand-alone features of the book is its to-the-point approach so that the beginner is not lost in the never-ending details. This book discusses the following aspects: Basic introduction to nuclear reactions Two- and three-body kinematics Accelerator-based experimental techniques Basic aspects of the accelerator and accessories Vacuum physics Radiation detector physics and its associated electronics Theoretical modelling and errors This book is mainly intended for students who aspire to pursue a career in experimental nuclear physics research or work in a nuclear accelerator laboratory. Chinmay Basu, PhD, is a researcher in the field of experimental nuclear physics, and his present interests are in the field of low-energy nuclear astrophysics. He is a professor and head of an accelerator facility at the Saha Institute of Nuclear Physics, Kolkata, India.

Modern Atomic and Nuclear Physics S. Chand Publishing

This book "Nuclear Physics" has been written for Physics major students of all Indian universities. The subject matter has been thoroughly revised in accordance with the recent UGC syllabus meant for all Indian universities. In preparing the text, special care has been taken to present the topics in a coherent, simple and straightforward manner. SI units have been used throughout this book. Numerical problems are solved in each chapter wherever necessary for the better understanding of the subject. Exercises including problems have been given at the end of each chapter. Special care has been taken to explain the chapters on theory of relativity and quantum mechanics with illustrations, suitable examples and problems so that the students can understand relativity and quantum mechanics without difficulty.