Nuclear physics is the field of physics that studies atomic nuclei and their constituents and interactions. Other forms of nuclear matter are also studied. Nuclear physics should not be confused with atomic physics, which studies the atom as a whole, including its electrons. Discoveries in nuclear physics have led to applications in many fields. This includes nuclear power, nuclear weapons, nuclear medicine and magnetic resonance imaging, industrial and agricultural isotopes, ion implantation in materials engineering, and radiocarbon dating in geology and archaeology. Such applications are studied in the field of nuclear engineering.

In the present book, twelve typical literatures about Nuclear Physics published on international authoritative journals were selected to introduce the worldwide newest progress, which contains reviews or original researches on nuclear power, nuclear weapons, nuclear medicine, magnetic resonance imaging, etc. We hope this book can demonstrate advances in nuclear physics as well as give references to the researchers, students and other related people.

Components of the Book:

- **Chapter 1**  
  Automation system for neutron activation analysis at the reactor IBR-2, Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research, Dubna, Russia

- **Chapter 2**  
  Nuclear power in the 21st century: Challenges and possibilities

- **Chapter 3**  
  Prospective of nuclear magnetic moment measurements by photofission reactions at ELI-NP

- **Chapter 4**  
  Highlights lecture EANM 2015: the search for nuclear medicine’s superheroes

- **Chapter 5**  
  Case study of medical evacuation before and after the Fukushima Daiichi nuclear power plant accident in the great east Japan earthquake

- **Chapter 6**  
  Robust vulnerability analysis of nuclear facilities subject to external hazards

- **Chapter 7**  
  Using systems thinking to design actionable futures: a nuclear weapons example

- **Chapter 8**  
  Long-term stability of cellulose acetate butyrate thin films for nuclear certified reference materials

- **Chapter 9**  
  Prostate cancer arising in ectopic prostatic tissue within the left seminal vesicle: a rare case diagnosed with multi-parametric magnetic resonance imaging and magnetic resonance imaging-transrectal ultrasound fusion biopsy

- **Chapter 10**  
  In vitro labelling and detection of mesenchymal stromal cells: a comparison between magnetic resonance imaging of iron-labelled cells and magnetic resonance spectroscopy of fluorine-labelled cells

- **Chapter 11**  
  The contribution of Medical Physics to Nuclear Medicine: looking back - a physicist’s perspective

- **Chapter 12**  
  Nuclear contamination sources in surface air of Finnish Lapland in 1965–2011 studied by means of 137Cs, 90Sr, and total beta activity

**Readership:** Students, academics teachers and other people attending or interested in nuclear physics.
Advanced nuclear physics. 1. First Edition, 2009 ISBN 978 93 80168 92 0 © All rights reserved. Published by: Global Media 1819, Bhagirath Palace, Chandni Chowk, Delhi-110 006 Email: globalmedia@dkpd.com. 2. Table of Contents. 1. Introduction. 2. Chapter 1 - Modern Nuclear Physics. 3. Chapter 2 - Radioactive Decay & Exponential Decay. 4. Chapter 3 - Nuclear Fusion. 5. Chapter 4 - Nuclear Fission. 6. Chapter 5 - Nuclear Reactor Physics. 7. Chapter 6 - Nuclear Power. Advances in Nuclear Physics book. Read reviews from world's largest community for readers. In the present volume and in the preceding one we have stretched... Goodreads helps you keep track of books you want to read. Start by marking “Advances in Nuclear Physics” as Want to Read: Want to Read saving… Want to Read. Currently Reading. Read. Other editions. Enlarge cover. Statistical Physics: Including Applications to Condensed Matter (Advanced Texts in Physics). Stochastic Optimal Control: The Discrete-Time Case (Optimization and Neural Computation Series). Subgroup Growth. This volume contains three review articles written by some of the foremost experts in the world and pertaining to three different problems of great current interest for nuclear physics. One article deals with the origin of spin in the quark model for neutrons and protons, as measured with beams of electrons and muons.