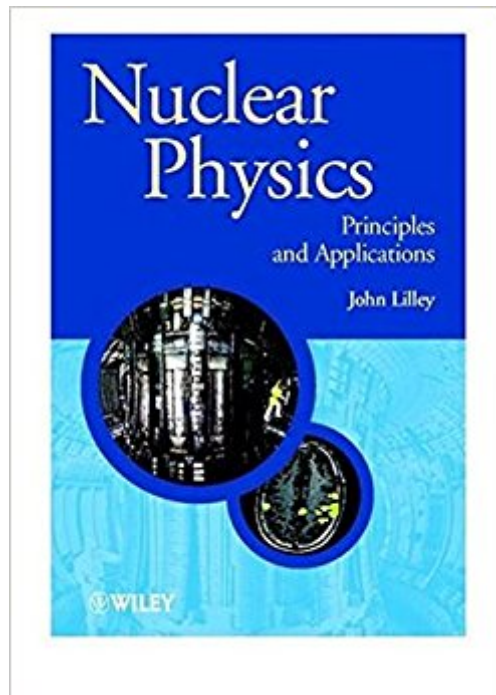




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# Nuclear Physics: Principles And Applications



## Synopsis

This title provides the latest information on nuclear physics. Based on a course entitled Applications of Nuclear Physics. Written from an experimental point of view this text is broadly divided into two parts, firstly a general introduction to Nuclear Physics and secondly its applications. \* Includes chapters on practical examples and problems \* Contains hints to solving problems which are included in the appendix \* Avoids complex and extensive mathematical treatments \* A modern approach to nuclear physics, covering the basic theory, but emphasising the many and important applications

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## Customer Reviews

"...This is a very good book indeed..." (Contemporary Physics Vol. 43, No.3 2002)

Nuclear Physics: Principles and Applications is an introduction to the basic theory and applications of modern nuclear physics. Aimed at students taking a first course in nuclear physics, the text is divided into two broad sections. The first part provides a general introduction to nuclear physics, whilst the latter half focuses on some of the most important and current applications, including nuclear medicine, instrumentation and energy from fission and fusion. Written from an experimental point of view, this text offers the reader many practical examples and problems to help encourage understanding. Although, complex material treatments are avoided, derivations of formulae are given as necessary, but with a minimum mathematical complexity. Carefully written and structured, this book will appeal to science and engineering students who require an understanding of the fundamental principles of nuclear physics and its applications. Nuclear Physics: Principles and

Applications \* is a modern approach to nuclear physics, covering the basic theory and emphasising many of the varied and important applications. \* Has been carefully written and structured, to allow flexibility in use to match a variety of course needs and requirements. \* Includes a variety of examples and problems in each chapter, with hints to solving these included in the appendix. \* Avoids complex and extensive mathematical treatments.

This book is used for an introductory course and it is horrible. No examples are given, the solutions are partial solutions with lots of major steps removed, the problems are not worded well. It is very hard to understand what the book is even asking you to do, and no examples are given. You shouldn't have to use youtube to supplement the text book to solve the first problem asked at the end of a chapter, the book should explain the subject well enough for you to solve the problems. This might seem like a great basic or introductory book if you are a Phd candidate or a professor in the physics department, but it is lacking lot of information for students that are new to the subject. If you use this book for your course please offers some examples of the calculations during the lecture, otherwise the book is useless.

I have been teaching introductory nuclear physics courses for many years and in many places, and his book has one particular property, it gives clear explanations on some complex topics, like nuclear reactions, just to pick one example. The same topic, at this level, in other texts, takes pages and pages or you have to go forward and backward inside the book because the topic is splitted, see for instance Wong's book, which is quite good but for other level and in this particular case Wiong's book is quite confusing and lacking physics details too. Also normally there is a need for a lot of deep math to follow the topics, what makes sometimes physics to be left on the back stage. Here in Lilley's book is the opposite, physics comes first and detailed calculations are left to be taken from other books or from references. It does not compete with Krane's book but it is a complementary one. Another example, on the nuclear reaction chapter, it should be compared with Cottingham chapter 8, then you can see the difference, in Cottingham there is almost nothing (In some how this is the kind of books to be compared with). In my opinion this book fits very well in what should be a reasonable understanding for general students that thake nuclear physics as a complement or that they need it for general background in applied technology, which includes nuclear techniques among other ones. So for general purpose courses on the topic that is more intended to applications I give 5 stars, but for physics students I give 4 stars because in that case I believe the application part is too extensive compared with the more fundamental one, which could

go deeper on topics like nuclear structure, with the same clear vision that the author developed in the rest of the book.

I used this book to prepare an exam corresponding to a 3rd year introductory nuclear physics course. I've received, in general, a really good impression, even though my contact with the text is been limited to the first -"Principles"- part of the book. My valuation, separating good ("+") and bad ("-") impressions is(+)  
Lots of figures illustrating key concepts of the text, almost ever including experimental data plotting.(+)  
Concise explanations.(+)  
Structured treatment of topics.(+)  
Explanations at an undergraduate level. Perfect for a 3rd - 4th year physics student.(+)  
Little knowledge concerning other matters is required, just a few quantum mechanics and special relativity concepts that are anyway explained when needed.(+)  
Author doesn't get lost into exhaustive and unnecessary mathematical developments.(+)  
Supplementary appendices at the end of the book with useful information, also including every known isotope mass excess, half-time (or abundance) and decay mode (if unstable).(+)  
Includes exercises at the end of each chapter, solved in the appendices.(+)  
Author refers to every theory valuating pros and cons of each one, never discarding any of them.(-)  
More other books references while explanations are being developed would be helpful.(-)  
Sometimes is difficult to discern which are the secondary or really important topics.(-)  
If English is not your mother language you should take into account that sometimes a little bit complex sentences are used.

The worst text book i have ever had to use for a class. The examples are not really worked out, the equations are given but not worked out. The problems at the end of each chapter are very hard. DO NOT BUY if you can

I've been using this book as the required textbook for an undergraduate introductory nuclear physics course and I have to say this is one the worst textbooks I've ever had. The organization of the book is very abrupt and absolutely challenging to read. In fact, I've spend more time deciphering Lilley's writing to English instead of trying to understand the actual concept. The book also has more of a story like approach and wordy explanations which is not that desirable since it severely undermines the mathematics necessary for the subject. Moreover, the problems accompany each chapter are so badly worded that you'd never know what they're asking for until you look up the solution at the end. Maybe a good complementary book but not a good main textbook.

Good prep text for getting ready to teach this fall. Discovered this text after watching a Nuclear Engineering course on Itunes University from UC Berkeley. The Itunes course uses this text for some its material and does a good job of explaining key principles.

Convolutd subject and the book isn't very clear lol

this book is not physics, it is a literature book. nothing is explained well. the author says that introductory physics background is enough to understand this book . it is not true !!!!! it is very hard to understand the book if you dont have a background in quantum and modern physics. it doesn't have deep math, but it is not explained well either!!!get away from this book , even if your instructor recommend it!!

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