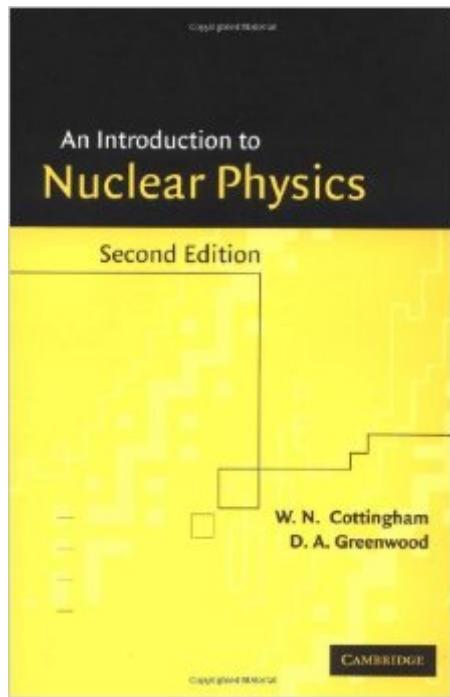


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An Introduction To Nuclear Physics



Synopsis

This introduction to nuclear physics provides an excellent basis for a core undergraduate course in this area. The authors show how simple models can provide an understanding of the properties of nuclei, both in their ground and excited states, and of the nature of nuclear reactions. They include chapters on nuclear fission, its application in nuclear power reactors, the role of nuclear physics in energy production and nucleosynthesis in stars. This new edition contains several additional topics: muon-catalyzed fusion, the nuclear and neutrino physics of supernovae, neutrino mass and neutrino oscillations, and the biological effects of radiation. A knowledge of basic quantum mechanics and special relativity is assumed. Each chapter ends with a set of problems accompanied by outline solutions.

Book Information

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Customer Reviews

The book is well written but it is not for learning nuclear physics. There is nothing inside except a nice list of topics with a very superficial view of them. So it is like a good syllabus but does not contain any real pieces of useful stuff for newcomers to the topic. I found quite good for general approaches when no details at all are needed (like tales or just a narrative about nuclear matter). Also, if you want to do the end chapter problems you have to go for the more conventional books, so again, it is just a nice syllabus. Not to mention that there is no insight at all on how experimental work is related with nuclear physics, even the scattering cross section is highly theoretical and far from reality. So, it is not bad but not useful for practical purposes, it is a good guide but not recommended as a study book on the subject, like Krane's, just to mention one.

I found Cottingham-Greenwood an excellent text to introduce any physics student to the field of nuclear physics. This text is best suited to senior undergraduates with a one-semester course in quantum mechanics. The authors have selected fifteen topics (check 'LOOK INSIDE!'), covering fundamental as well as applied aspects of nuclear physics. Each chapter is supplemented with 5-11 exercises. Beware that this is not an encyclopedic text with detailed derivations. The advantage of this approach is that one can focus on ideas, leaving the algebra as back-of-the-envelope exercises or discussions with the instructor. All that extra writing is saved in size: excellent format, good paper quality and easy-to-read fonts. Excellent introductory text, or supplement to a more thorough and advanced textbook.

I found this book to be very readable and an excellent introduction to the field. I agree with previous reviews that derivations are lacking, because this book is a more qualitative introduction to the subject, which was especially important for me as I took nuclear physics my second semester in undergraduate physics. Krane's standard text will serve as a better reference book and provides more detailed mathematics, but it would also take a person much longer to read Krane's book, and Krane's book is appropriately more expensive. I also highly doubt that a one-semester undergraduate course could cover all of Krane's text, whereas this book can be covered in one semester. I highly recommend this book to new students of nuclear physics without a background in quantum mechanics.

Book came in on time and everything went fine. It's cheaper than at school. So, awesome!

There is nothing to learn from this book. It has only pieces of trivial results without deriving. Specially, theoretically interested students should be careful of buying this book.

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