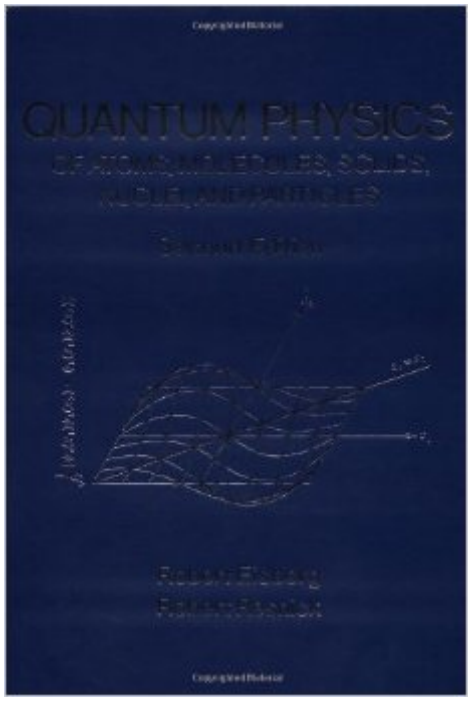
Quantum Physics Of Atoms, Molecules, Solids, Nuclei, And Particles



Synopsis

A revision of a successful junior/senior level text, this introduction to elementary quantum mechanics clearly explains the properties of the most important quantum systems. Emphasizes the applications of theory, and contains new material on particle physics, electron-positron annihilation in solids and the Mossbauer effect. Includes new appendices on such topics as crystallography, Fourier Integral Description of a Wave Group, and Time-Independent Perturbation Theory.

Book Information

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Customer Reviews

This book is an excellent introduction to Quantum Physics. This book gives the non-expert reader an insight into the tremendous explanatory power of quantum mechanics. It describes why and how Quantum Mechanics was developed, and it is primarily concerned with the understanding of concepts and ideas, rather than focusing on mathematical techniques. For this reason it might appear a little verbose to some readers.The first five chapters gives the reader a good insight into the history of Quantum Physics and to why classical mechanics was insufficient. Chapter 6 is an excellent overview of how to solve the Schroedinger Equation in a few specific cases, at the same time as the reader is given a very good "feeling" for how Quantum Mechanics works. The remainder of the chapters focuses on specific situations, applications and phenomena’s.There are plenty of books that use less mathematics, but I do not believe they give a good understanding of the topic. There are also plenty of books that uses a lot more complex mathematics, but they are not for beginners. I recommend this book as an introduction to Quantum Physics for undergraduate physics students, engineers, science professionals, and mathematically literate others.

I disagree with the reviewer who said that this book has too much commentary. That reviewer also said that he liked Griffiths better. Well it sounds to me like that reviewer was put in the same position as I was by having to use this book for a introductory QM course rather than the type of course it is suited for--a first course in modern physics or what some people refer to as quantum *physics* rather than mechanics.I agree, Griffiths is much better for intro QM because that is what it was meant for. But who would use Griffiths for a modern physics course?Aside from the fact that Eisberg and Resnick should not be used for a intro QM course, it is an excellent text that, in my opinion, is the best place to learn modern physics prior to undertaking a full-fledged undergraduate QM course. It does not have a treatment of special relativity, as most modern texts have, but I would still reccomend professors use this text for a modern physics course even if they have to introduce relativity via handouts and notes--it's just that good. The selection of problems is excellent and there are answers to selected problems in the back.This text is also an excellent place to study for the GRE physics subject test in that the material in this book is probably the single most important material to know for the test besides classical mechanics and classical electromagnetism. There are very few typos also.From the standpoint of a modern physics text, this is by far nothing close to being too verbose. It strikes a perfect balance between mathematical formalism and plain english explanations--which is a far cry from many modern texts that want to explain everything with words and leave the mathematics totally behind (take a look at Krane for instance!).

Books on Physics) Six Ideas That Shaped Physics: Unit Q - Particles Behaves Like Waves Electron Spectrometry of Atoms using Synchrotron Radiation (Cambridge Monographs on Atomic, Molecular and Chemical Physics) The Physics and Philosophy of the Bible: How Relativity, Quantum Physics, Plato, and History Meld with Biblical Theology to Show That God Exists and That ... Live Forever (The Inevitable Truth Book 1) The Friction and Lubrication of Solids (The International Series of Monographs on Physics) (v. 1) Introduction to the Physics of Electrons in Solids The Solid State: An Introduction to the Physics of Crystals for Students of Physics, Materials Science, and Engineering (Oxford Physics Series)