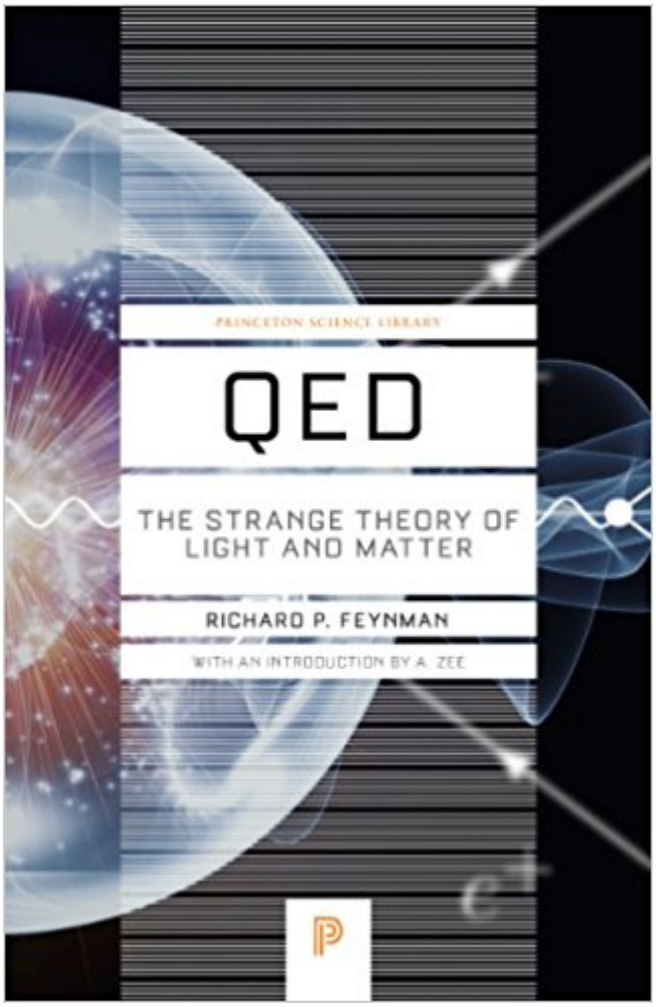
QED: The Strange Theory Of Light And Matter (Princeton Science Library)



Synopsis

Celebrated for his brilliantly quirky insights into the physical world, Nobel laureate Richard Feynman also possessed an extraordinary talent for explaining difficult concepts to the general public. Here Feynman provides a classic and definitive introduction to QED (namely, quantum electrodynamics), that part of quantum field theory describing the interactions of light with charged particles. Using everyday language, spatial concepts, visualizations, and his renowned "Feynman diagrams" instead of advanced mathematics, Feynman clearly and humorously communicates both the substance and spirit of QED to the layperson. A. Zee's introduction places FeynmanÃ¢â ¬â„¢s book and his seminal contribution to QED in historical context and further highlights FeynmanÃ¢â ¬â„¢s uniquely appealing and illuminating style.

Book Information

Series: Princeton Science Library

Paperback: 192 pages

Publisher: Princeton University Press; With a New introduction by A. Zee edition (October 26, 2014)

Language: English

ISBN-10: 0691164096

ISBN-13: 978-0691164090

Product Dimensions: 4.9 x 0.5 x 9 inches

Shipping Weight: 5.6 ounces (View shipping rates and policies)

Average Customer Review: 4.5 out of 5 stars 213 customer reviews

Best Sellers Rank: #21,314 in Books (See Top 100 in Books) #1 inÃ Â Books > Engineering & Transportation > Engineering > Energy Production & Extraction > Nuclear #6 inÃ Â Books > Science & Math > Physics > Waves & Wave Mechanics #13 inÃ Â Books > Science & Math > Physics > Quantum Theory

Customer Reviews

This volume, constituting the printed version of the first of the Alix G. Mautner Memorial Lectures to be given periodically at UCLA, certainly gets this new series off to a flying start. World-renowned for the liveliness and creativity of his physical insights, Caltech physicist Feynman provides another of his tours de force as he clearly explains the arcane workings of quantum electrodynamics, a theory which Feynman himself helped to establish. Starting with such familiar phenomena as the reflection and refraction of light, Feynman goes on to describe in detail the interactions between electrons and light. Although the text requires more concentration to grasp than most science popularizations,

things never get out of hand. A good choice for collections serving informed readers. Thomas E. Margrave, formerly with Physics & Astronomy Dept., Univ. of Montana, MissoulaCopyright 1985 Reed Business Information, Inc. --This text refers to an out of print or unavailable edition of this title.

"Physics Nobelist Feynman simply cannot help being original. In this quirky, fascinating book, he explains to laymen the quantum theory of light, a theory to which he made decisive contributions."--The New Yorker "Feynman's lectures must have been marvelous and they have been turned into an equally entrancing book, a vivid introduction to QED which is leavened and enlivened by his wit. Anyone with a curiosity about physics today should buy it, not only to get to grips with the deepest meaning of quantum theory but to possess a slice of history."--Pedro Waloschek, NaturePraise for Princeton's original edition: "Feynman simply cannot help being original. In this quirky, fascinating book, he explains to laymen the quantum theory of light."--New YorkerPraise for Princeton's original edition:"[A]nother tour de force by the acknowledged master of clear explanation in physics."--John Roche, Times Literary SupplementPraise for Princeton's original edition:"Feynman's lectures must have been marvellous and they have been turned into an equally entrancing book, a vivid introduction to QED which is leavened and enlivened by his wit. Anyone with a curiosity about physics today should buy it, not only to get to grips with the deepest meaning of quantum theory but to possess a slice of history."--Pedro Waloschek, NaturePraise for Princeton's original edition: "In four conversational and breezy chapters. . . . Feynman, who himself gave the theory its most useful and powerful form, undertakes without one equation to explain QED to the generality of readers."--Philip Morrison, Scientific American"Using clear language, many visuals, and his own Feynman diagrams, the author presents a clear introduction to the quantum theory of the inter-action of light with matter, without mathematics but with humor."--Physics Teacher

In the introduction, it is suggested that you slowly reread paragraphs to be sure you understand them. Good advice; QED is not something intuitively easy to understand, even though the explanations are presented with a minimum number of formulas and scientific jargon.Another reivewer pointed out that this book is good because it is short. I agree; even if you don't understand it all on the first read, it isn't a major commitment to read it a second or third time.A good teacher makes you feel smart and confident enough in your newly acquired knowledge to share it with others. Even though I couldn't pass even a basic test on QED, I did learn several interesting things about light that I can explain in casual conversation and even demonstrate. Share what you've

learned with your children. This is interesting enough that you might inspire him or her to become a physicist.

A superb book for those interested in quantum physics; definitely NOT for those who have little or no background in relativity or quantum concepts. These were edited versions of lectures that Richard Feynman gave to those who had some physics background, but were not familiar with the way that very small matter differs in behavior from the physics of large object (biggers than an atom). I have read the book several times during the last 15 years, and am always amazed by Dr. Feynman's discoveries, for which he won the Nobel prize.

This book makes QED understandable. It provides in-depth explanations of several electron-photon interactions, and makes it seem easy. There is no serious math, so don't expect to be able to see equations to explain the various phenomena, although Feynman hints at the math. However, this is a great first book to understand the processes behind QED. I found it a quick read, although it pays to reread some sections, to be sure you gain a full understanding.

In this age of new discoveries in fundamental physics he is sorely missed. The book is compelling not because he is a great explainer but because he seems to fundamentally understand more clearly. So he has no fear in describing the limits of theories or knowledge - many popularizers are not true scientists and it is tricky for them to tell the difference between their own limits and the actual limits of the theories. - to reveal that there is *no* physical intuition at the quantum level - just laws. And we want those laws to be as elegant and simple and true to experiment as possible.

I was recommended this book by a good friend of mine who actually worked with Feynman as well as Feynman's sister, also a brilliant scientist. It's short, terse, and brilliantly clear. Feynman must have tried to explain quantum mechanics to an awful lot of people over his career - he certainly got very good at it. Then, he wrote it down in this book. All the analogies are perfect and clear, all the explanations are pithy but understandable. Feynman isn't trying to dazzle you with his knowledge - he's trying to move knowledge from his brain to yours, and he succeeds.

This is truly an amazing book. Richard Feynman won the Nobel Prize, and this book is the transcript of a series of lecture he gave at Cornell University. What makes it a real joy to read is that the lectures were designed to explain the amazing theory of Quantum Electrodynamics to non-physics

majors. He is speaking to folks who do not have much, if any, math background. When he does get into some math, he apologizes and explains what the reader needs to know.If you'd like to understand what this man did that resulted in the Nobel Prize, then read this book. I'm not saying it is a light read, but it is readable by folks other that graduate level physics majors.

Feyman was one of the greatest scientific minds of all times. Contrary to Stephen Hawking, who claims in his books that quantum physics is complicated and only a few can understand, for Feynman is not only simple but fun and anyone can access such knowledge. This book is a revelation about the world of subatomic particles, accessible to all. Highly recommended.

This is an example of Richard Feynman at his most engaging and informative. Drawn from a series of lectures, QED stands as an excellent introduction to the basic concepts of quantum electrodynamics for the lay audience. Feynman brings this at-times daunting area of physics into everyday experience for the non-researcher in a manner that is both enlightening and witty. For those who only know Feynman from his memoir, "Surely You're Joking, Mr. Feynman," this book is a real treat.

Light-Matter Interactions on a Molecular Scale: Plasmonics, Photonic Materials and Sub-Wavelength Resolution (NATO Science ... Security Series B: Physics and Biophysics)