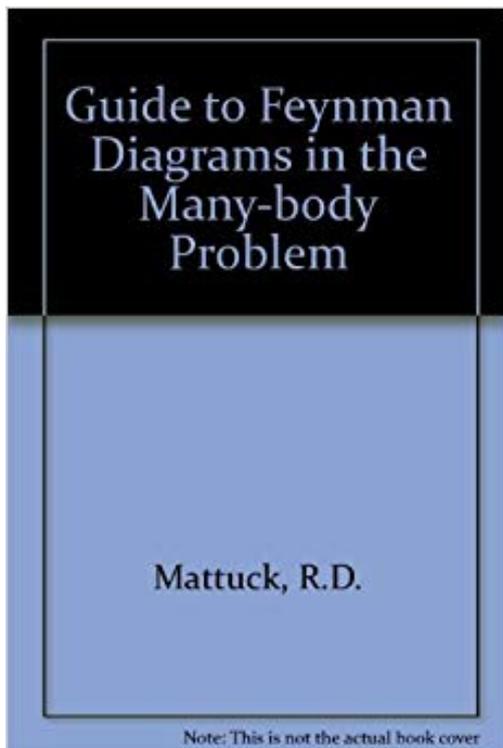


A guide to Feynman diagrams in the many-body problem *by* Richard D Mattuck



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Author: Richard D Mattuck

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Until this book, most treatments of this topic were inaccessible to nonspecialists. A superb introduction to important areas of modern physics, it covers Feynman diagrams, quasi particles, Fermi systems at finite temperature, superconductivity, vacuum amplitude, Dyson's equation, ladder approximation, and much more. "A great delight to read." □ *Physics Today*. 1974 edition.



Reviews of the [A guide to Feynman diagrams in the many-body problem](#) *by* Richard D Mattuck

Dobpota

In physics, the solutions to problems can frequently become obscured by long chains an series of terms and operators found in the formalization. The power of Feynman's technique is that it provides a simplified notation to groom and order those terms and operators, so that errors and

simplifications can be more easily identified.

The author successfully injects some humor into a great introduction to a solution technique for the many body problem. This is a graduate level text, so familiarity with mathematical notation for differentiation, integration and matrix algebra is required as the objectives of the book is to show you how to convert to and from Feynman's pictograms to the traditional formulation.

Doomredeemer

I can hardly add anything to the praise given to this book by other reviewers. Though one should, undoubtedly, get acquainted with more serious books on the subject, I have to confess that I am still unaware of the book that presents the material together with the terms used in the scientific papers.

For example, I greatly admire the book by Abrikosov's et al. (AGD), and I completely agree that after reading it (and Keldysh paper) one is completely prepared to using Green's functions in serious research. But the terms like "rainbow", "bubble", "particle-particle" and "particle-hole" propagatprs, though widely used and simetimes semi-obvious, are not discussed systematically in any of the celebrated AGD, Mahan, Fetter&Walecka, Negele&Orland etc.

Thus, the Mattuck's book appear to be not only funny, useful, and explaining a lot of physics (where its value can be compared with the quantum mechanical parts of the Feynman Lectures on Physics), but it also briges a gap in terminology between the basic text and the scientific slang.

In conclusion, I deeply regret that there is no similar book on Schwingers approach to the many-body physics.

Gnng

I wont take lots of words. I want to say first that it is very good book for self studying so no more requesting and begging here and there for few hints. Very friendly language just like Griffiths. Fun to read and guyslook at the price. Use it for QFT as well as Condensed matter. I am sure that if you buy it you wont regret it and that you wont ever depart it, return it or whatever. Go for it. I am still in doubt.....if I tell you guys about it then who is going to come and ask me about those sneaky questions and all that confusions. Those who want to act as if they know everything and are superior than others then please stay away from my review, go impress someone else.

Ximinon

I've browsed through the customary suggested textbooks on many body physics (Abrikosov et al., Fetter et al., Negele et al., etc) and they are written with a pedagogical intention. However, the student they had in mind was the guy who was always really good in derivations anyway. The beauty of Mattuck's book is that it reminds you where an equation has been first learned. It therefore almost reads like those old gamebooks of yesteryear, where you're constantly looking back through pages. But the flow of argument is definitely there. I'd dare say it does to many body physics what Griffith's has done to Quantum Mechanics. Good starting point before you graduate to the big boys mentioned above.

Ndlaita

satisfactory

Bort

Interesting but beyond my mathematical abilities.

September

First, you do not need to know Advanced Quantum Mechanics, Quantum Field Theory or Solid State Physics to understand this book

Second, it is not a kindergarten book! You can find material on kindergarten, elementary or intermediate level on Many Body Theory in this book.

Third, all exercises are answered at the end of the book which can help to get a hand on solving problems (although there is not enough exercises on each chapter which can be regarded as a problem)

Fourth, it is a clear, to the point, easy to follow and intuitive self study book on Many Body Theory.

Good book!

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[Feynman's Rainbow: A Search For Beauty in Physics and in Life {Unabridged Audio} by Michael Prichard, Leonard Mlodinow](#)

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