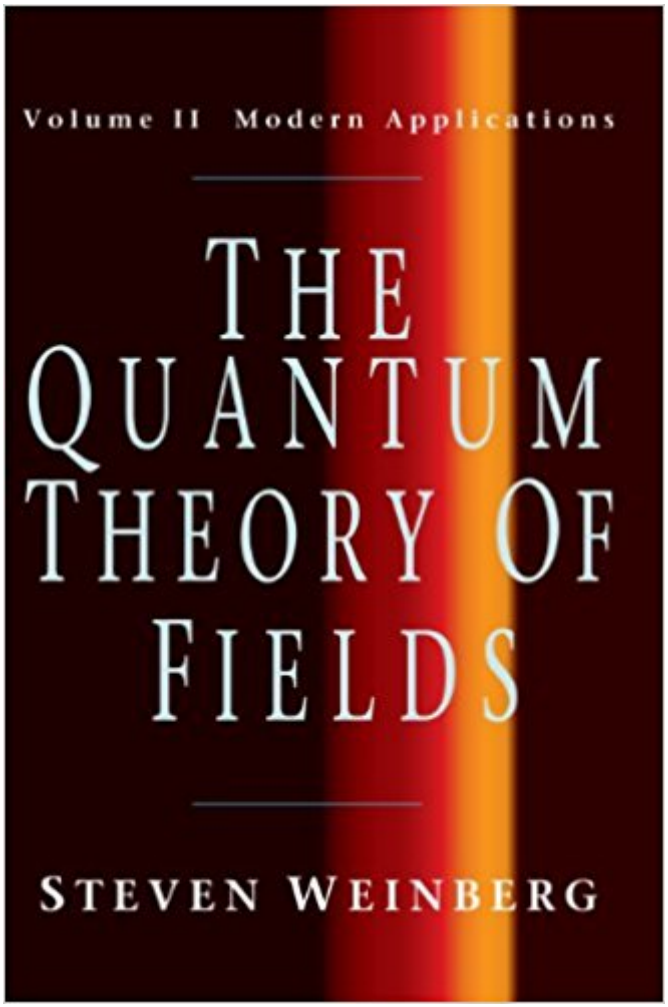
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The Quantum Theory Of Fields, Vol. 2: Modern Applications



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Synopsis

In this second volume of The Quantum Theory of Fields, available for the first time in paperback, Nobel Laureate Steven Weinberg continues his masterly expoistion of quantum theory. Volume 2 provides an up-to-date and self-contained account of the methods of quantum field theory, and how they have led to an understanding of the weak, strong, and electromagnetic interactions of the elementary particles. The presentation of modern mathematical methods is throughout interwoven with accounts of the problems of elementary particle physics and condensed matter physics to which they have been applied. Exercises are included at the end of each chapter.

Book Information

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Customer Reviews

"...a clear presentation of the subject, explaining the underlying concepts in much depth and in an accessible style. I expect that these volumes will become the first source we turn to when trying to answer the challenging questions asked by bright postgraduates when they first encounter quantum field theory." T.C. Sachrajda, Times Higher Education Supplement"The insight and depth of his treatment which singles this book out from others in this field can be largely attributed to Weinberg's authority as an originator of many of the ideas in the book...Experienced researchers and beginning graduate students alike will delight in the gems of wisdom to be found in these pages. This book combines exposition of technical detail with physical insight in a unique manner that confirms the promise of Volume 1 and I have no doubt that these two volumes will rapidly constitute the classic

treatment of this important subject." CERN Courier"It is a majestic exposition. The two volumes are structured in a logical way. Everything is explained with incisive clarity. Weinberg always goes to the heart of any arguments and includes many things that cannot be found elsewhere in the literature....I find it hard to imagine a better treatment of quantum field theory than Weinberg's. All serious users of the subject will want to have these two volumes on their shelves." John C. Taylor, Nature"...Steven Weinberg is one of our most gifted makers of theoretical tools as well as a virtuoso in their use...The Quantum Theory of Fields is a splendid book, with abundant useful references to the original literature. It is a very interesting read from cover to cover, for the wholeness Weinberg's personal perspective gives to quantum field theory and particle physics...Weinberg leads us to a frontier rich with possibilities." Science"Weinberg's Modern Applications goes to the boundaries of our present understanding of the field theory. It is unmatched by any other book on quantum field theory for its depth, generality and definitive character, and it will be an essential reference for serious students and researchers in elementary particle physics." Physics Today"The book is at once fascinating and challenging, because of its advanced and mathematical level. Physics professors and college physics majors, both undergraduate and graduate, will get the most use out of it....I recommend Weinberg's volume II highly for physics devotees everywhere." Brian I. Baker, Science Books & Films"As reference works these volumes are an absolutely essential addition to the bookshelf of any practicing field theorist. They provide a treasure trove of information and bibliography....a must buy for every university physics library." Paul H. Frampton, American Scientist

In "The Quantum Theory of Fields" Nobel Laureate Steven Weinberg combines his exceptional physical insight with his gift for clear exposition to provide a self-contained, comprehensive, and up-to-date introduction to quantum field theory. The development is fresh and logical, with each step carefully motivated by what has gone before. The presentation of modern mathematical methods is throughout interwoven with accounts of applications in both elementary particle and condensed matter physics . It contains much original material, and is peppered with examples and insights drawn from the author's experience as a leader of elementary particle research. Problems are included at the end of each chapter.

Excellent book!

without peer

Very Good!

Before Weinberg's books, a typical graduate student in theoretical physics would study the standard textbooks (e.g. Itzykson-Zuber, Peskin-Schroeder) to pass QFT courses. When confronted with actual research problems, he would discover that all he has learned is how to do calculations in perturbation theory, that he is unfamiliar with a host of ideas and techniques that are widely used in the present-day research literature and that he has to resort to original papers and reviews to learn them.Weinberg's three-volume set drastically changed this situation, giving the most authoritative and complete presentation of QFT to appear in a textbook. Although it is not suitable for beginning graduate students, it is invaluable for covering all these topics that are typically omitted in QFT courses and for providing valuable insight missing from other textbooks.The highlight of the set is Volume 2, which includes most topics where Weinberg has made his own invaluable contributions. In his inimitable style, Weinberg guides us through the great developments in QFT from the 1960's to the 1980's, including most topics that are essential for a working knowledge of modern QFT. The presentation is crystal clear throughout and every topic is presented in as much detail as it deserves. In particular, the chapters on spontaneously broken symmetries are simply masterpieces, the treatment of anomalies is the most complete ever, while the chapter on extended objects is a thorough overview of an ever-expanding subject. This book is a must for everyone working on theoretical physics.

This book has some of the most exquisite expositions on the theoretical aspects of quantum field theory that you are ever likely to run into, i.e. Weinberg's name is literally stamped on every page for brilliance. There are topics treated here that are not likely to be found anywhere else, for instance Batalin-Vilkovisky Quantization. Weinberg's treatment of the proof of renormalizability is compact and yet very readable. And his chapter on anomalies is simply speaking the authortiative treatment. This book is a must have for anyone interested in the more theoretical aspects of Field Theory. Though I would recommed a few months with Peskin & Schroeder, and volume 1 of Weinberg to get the full flavour of Weinberg's treatment.

I have found this text extremely useful as a guide to the essentials of modern renormalization theory, as well as modern quantization techniques for Non-abelian gauge theories. The chapter on extended field configurations is nice, though it is meant as an overview and guide to the literature. What I like most about this volume is the discussion of experimental or phenomenological issues

that complements many of the discussions. He has a broad base of knowledge in particle physics, as well as field theory. If you don't have volume 1, get that first.

This is another gem of a book by Weinberg. The discussion is fairly modern at places (for instance nice discussion of BRST, BV Formalism, RG and Anomalies), but could have been more modern and compact in certain other places (like chiral lagrangians, standard model etc.). However, even those parts are a pleasure to read. It is just that some other aspects could have been discussed (as I hope he does in the third volume), such as SUSY, especially QFT dualities. Anyway, an excellent book!

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