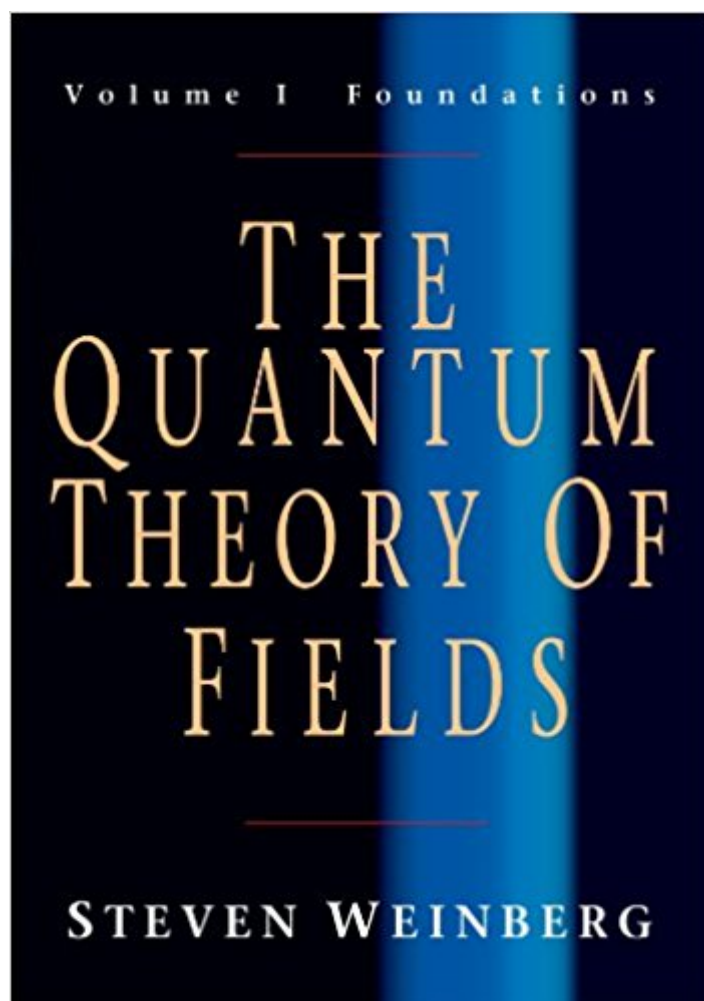


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# The Quantum Theory Of Fields, Volume 1: Foundations



## Synopsis

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. This is a two-volume work. Volume I introduces the foundations of quantum field theory. The development is fresh and logical throughout, with each step carefully motivated by what has gone before, and emphasizing the reasons why such a theory should describe nature. After a brief historical outline, the book begins anew with the principles about which we are most certain, relativity and quantum mechanics, and the properties of particles that follow from these principles. Quantum field theory emerges from this as a natural consequence. The author presents the classic calculations of quantum electrodynamics in a thoroughly modern way, showing the use of path integrals and dimensional regularization. His account of renormalization theory reflects the changes in our view of quantum field theory since the advent of effective field theories. The book's scope extends beyond quantum electrodynamics to elementary particle physics, and nuclear 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. This work will be an invaluable reference for all physicists and mathematicians who use quantum field theory, and it is also appropriate as a textbook for graduate students in this area.

## Book Information

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## Customer Reviews

"The [physics] community will not be disappointed....Volume 1 is six hundred pages of meticulous

exposition of the fundamentals of the subject....In addition to a superb treatment of all the conventional topics there are numerous sections covering areas that are not normally emphasized, such as the subject of field redefinitions, higher-rank tensor fields and an unusually clear and thorough treatment of infrared effects....This latest book reinforces [Weinberg's] high scholarly standards. It provides a unique exposition that will prove invaluable both to new research students as well as to experienced research workers....this will become a classic text on a subject of central importance to a wide area of theoretical physics." Michael B. Green, CERN Courier"...for over 20 years there has been no good modern textbook on [quantum field theory]. For all that time, Steven Weinberg has been promising to write one. That he has finally done it...is cause for celebration among those who try to teach and try to learn the subject. Weinberg's book is for serious students of field theory....[I]t is the first textbook to treat quantum field theory the way it is used by physicists today." Howard Georgi, Science"...provides an impressively lucid and thorough presentation of the subject from this modern viewpoint....Weinberg manages to present difficult topics with richness of meaning and marvellous clarity. Full of valuable insights, his treatise is sure to become a classic..." Nature"...a self-contained, comprehensive introduction to quantum field theory." Book News, Inc."...beautifully produced and meticulously edited...and it is a real bargain in price. If you want to learn quantum field theory, or have already learned it and want to have a definitive reference at hand, purchase this book." O.W. Greenberg, Physics Today"I would recommend it to students who have completed a first course in field theory and hope that many of my colleagues will read it as well. Weinberg leads us to a frontier rich in possibilities. This is an optimistic book, written with much respect for ideas and nature--and for tools." Chris Quigg, Science

Available for the first time in paperback, The Quantum Theory of Fields is a self-contained, comprehensive, and up-to-date introduction to quantum field theory from Nobel Laureate Steven Weinberg. Volume I introduces the foundations of quantum field theory.

As a physics major student, I bought this book for concrete learning. The material is fine, Weinberg's books are master pieces and really helpful. However, the quality of the book is "terrible"! The printer is obviously running out of ink! Ooh man, this is not the first time I get this kind of junk from . Please stop COST DOWN OK? Seriously, the quality is better few years ago.....

This book is a great reference for QFT. My one star rating is entirely because in the Kindle edition very many equations are rendered so small as to be unreadable.

I bought this book for myself for a birthday treat, and I was not disappointed. His approach is refreshing and insightful, the treatment is thorough and satisfyingly complete. I wish I had this book when I was learning the subject.. As others have said, this is not for the first year graduate student. But for the serious student who has picked up some the material already, it is a must have.

I ordered this book for a QFT class I was taking, and Weinberg does a very thorough job explaining concepts clearly and succinctly. Many other books lose me by jumping around too much and assuming a lot of extraneous knowledge, but Weinberg makes few assumptions about what the reader already knows.

This book answers all the "why?" questions all students and experts of quantum field theory have about the subject.

This book is the bible and Weinberg my prophet. All the details that others omit, Weinberg explains (ok, in a intricate notation, but all the info is there).

You can read Weinberg's textbooks with joy and profit knowing a decent amount of mathematics and not much physics. Both "Gravitation and Cosmology" and "The Quantum Theory of Fields:vol I" are very self-contained. The ideas develop beautifully, naturally, and clearly. You might have to re-read but you won't need another reference for the topics that he covers, and you won't be overwhelmed with inessential or improperly motivated material.

Not the easiest to read and use.

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