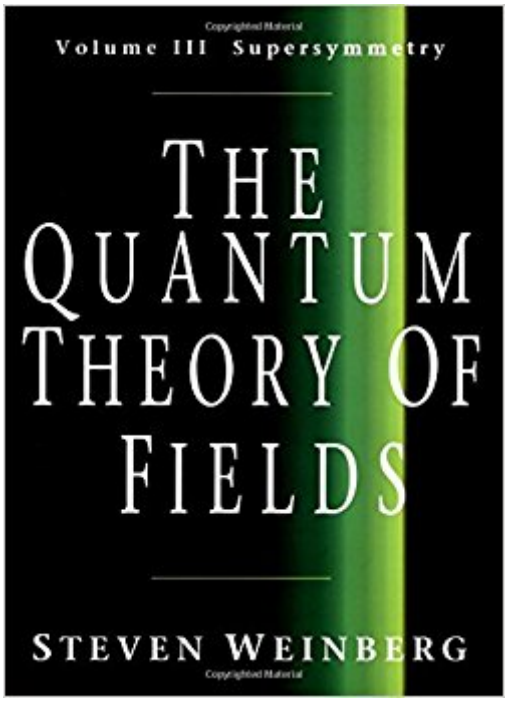
The Quantum Theory Of Fields: Volume 3, Supersymmetry



Synopsis

Nobel Laureate Steven Weinberg continues his masterly exposition of quantum field theory. This third volume of The Quantum Theory of Fields presents a self-contained, up-to-date and comprehensive introduction to supersymmetry, a highly active area of theoretical physics that is likely to be at the center of future progress in the physics of elementary particles and gravitation. The text introduces and explains a broad range of topics, including supersymmetric algebras, supersymmetric field theories, extended supersymmetry, supergraphs, nonperturbative results, theories of supersymmetry in higher dimensions, and supergravity. A thorough review is given of the phenomenological implications of supersymmetry, including theories of both gauge and gravitationally-mediated supersymmetry breaking. Also provided is an introduction to mathematical techniques, based on holomorphy and duality, that have proved so fruitful in recent developments. This book contains much material not found in other books on supersymmetry, some of it published here for the first time. Problems are included.

Book Information

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Customer Reviews

"Another landmark work...Weinberg builds up the necessary formal apparatus clearly and systematically, carefully motivating and stating the assumptions at each stage and delimiting the scope of each one...Weinberg is a master theoretical physicist, and this book is a model work of theoretical physics." Physics Today"Nobel Laureate Steven Weinberg presents a self-contained, up-to-date and comprehensive introduction to supersymmetry in the third volume of The Quantum Theory of Fields...The book surely will be an invaluable reference work for all physicists and for

mathematicians working with supersymmetric theories." American Scientist"Weinberg’s style of presentation is as clear and meticulous as in his previous works. Physics comes first, and formalism is shaped to serve it...an enormous amount of literature is digested and made manageable...it is a tribute to this trilogy that it leaves one hoping it will evolve into a tetralogy." Journal of General Relativity and Gravitation"Steven Weinberg, one of the greatest theoreticians in the past 50 years, has written a magisterial, no-holds-barred account of the theory in all its glory...a definitive text for succeeding generations." New Scientist"Don’t hesitate: buy this book. It will stand the test of time." Mathematical Reviews

In this third volume of The Quantum Theory of Fields, available for the first time in paperback, Nobel Laureate Steven Weinberg continues his masterly exposition of quantum field theory. This volume presents a self-contained and comprehensive introduction to supersymmetry, a highly active area of theoretical physics. Along with mathematical formalism, a thorough review is given of the phenomenological implications of supersymmetry. The book contains much material not found in other books on supersymmetry, including previously unpublished results.

satisfactory

Excellent book

Finding good introductions to supersymmetry can be difficult. Most introductions concentrate on N=1 supersymmetry in four dimensions, and there the superfield forumlation can be useful. However, when you go to N=2 supersymmetry (e.g. when considering theories in five or more dimensions), component fields can be better. Many times it’s a matter of taste. For those cases, you have to go to review articles. Anyway, Weinberg concentrates on N=1 4D supersymmetry and supergravity using the superfield formalism. However, he ventures into the N=2 strong-weak coupling results of Seiberg and Witten, which are now a fundamental part of (supersymmetric) field theory. The text is, as the previous volumes are, a fantastic resource for learning the subject, and as a reference (for things like gravity- and gauge-mediated supersymmetry breaking, as well as the minimal supersymmetric standard model, which are open areas of reserach). As for all modern areas of research, the body of knowledge is stacked higher every year; but the topics covered here stand as solid fundamentals of supersymmetry. For more advanced topics, one is forced to go to the recent literature.

If the two first volumes of "The Quantum Theory of Fields" were considered masterpieces in a modern and original presentation of the basics of quantum field theory and its penetration in the recent development of particle physics, with the machinery of spontaneously broken gauge theories, the new volume embraces the wide subject of supersymmetry in Weinberg's typical style, which always means a self-contained treatment of the subject, from its foundations and motivations, to its most recent application as a possible scenario for new physics beyond the Standard Model.A complete review is published in CERN Courier, May 2000

The whole current production run of this book has a defect. A glue is bleeding through on the inside of the hard cover fold, front and back. This does not seem to affect the structural quality of the book and is not visible from the outside. If you need this book and get it with this defect, don't bother trying to exchange it.

Great book, contains a lot of material, will be useful to many as a reference on supersymmetry for years to come. Highly Recommended!

Magick with The Universal Laws of Attraction Book 1) Delirious, A Quantum Novel (Quantum Series Book 6) Quantum Thermodynamics: Emergence of Thermodynamic Behavior Within Composite Quantum Systems (Lecture Notes in Physics)