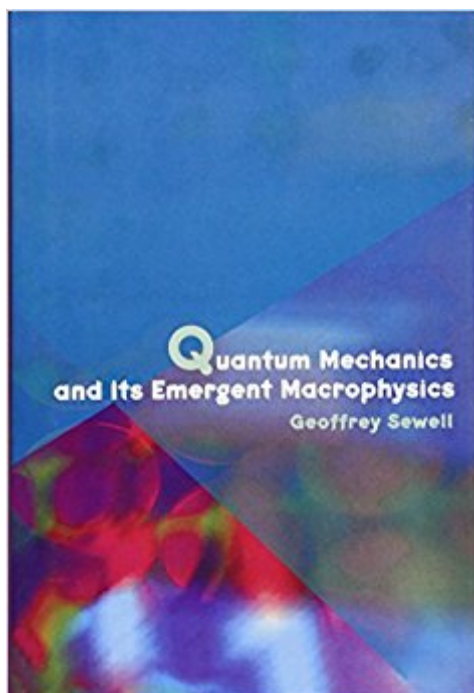


The book was found

Quantum Mechanics And Its Emergent Macrophysics



Synopsis

The quantum theory of macroscopic systems is a vast, ever-developing area of science that serves to relate the properties of complex physical objects to those of their constituent particles. Its essential challenge is that of finding the conceptual structures needed for the description of the various states of organization of many-particle quantum systems. In this book, Geoffrey Sewell provides a new approach to the subject, based on a "macrostatistical mechanics," which contrasts sharply with the standard microscopic treatments of many-body problems. Sewell begins by presenting the operator algebraic framework for the theory. He then undertakes a macrostatistical treatment of both equilibrium and nonequilibrium thermodynamics, which yields a major new characterization of a complete set of thermodynamic variables and a nonlinear generalization of the Onsager theory. The remainder of the book focuses on ordered and chaotic structures that arise in some key areas of condensed matter physics. This includes a general derivation of superconductive electrodynamics from the assumptions of off-diagonal long-range order, gauge covariance, and thermodynamic stability, which avoids the enormous complications of the microscopic treatments. Sewell also unveils a theoretical framework for phase transitions far from thermal equilibrium. Throughout, the mathematics is kept clear without sacrificing rigor. Representing a coherent approach to the vast problem of the emergence of macroscopic phenomena from quantum mechanics, this well-written book is addressed to physicists, mathematicians, and other scientists interested in quantum theory, statistical physics, thermodynamics, and general questions of order and chaos.

Book Information

Hardcover: 304 pages

Publisher: Princeton University Press (August 18, 2002)

Language: English

ISBN-10: 0691058326

ISBN-13: 978-0691058320

Product Dimensions: 6.1 x 0.8 x 9.2 inches

Shipping Weight: 1.3 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #840,679 in Books (See Top 100 in Books) #21 in [Books > Engineering & Transportation > Engineering > Aerospace > Gas Dynamics](#) #130 in [Books > Science & Math > Physics > Nuclear Physics > Particle Physics](#) #286 in [Books > Science & Math > Physics >](#)

Customer Reviews

"A clear, well-paced and compact exposition which, through a nice intertwining of physics and mathematics, leaves the reader with a rather complete grasp of the beautiful theoretical construction that goes from the algebraic quantum mechanical framework to thermodynamics, phase transitions and dynamical phase transitions. . . . It offers a road map to a number of central problems in mathematical statistical mechanics. It offers paved access to fascinating physics and mathematics."--Roberto Fernandez, *Mathematical Reviews*

"Sewell's book begins with a self-contained introduction to algebraic quantum theory (especially of infinite systems); and this, together with the fact that Sewell always develops only as much mathematics as he needs for his physics, means that his 300 page book provides a masterly overview of his field."--Jeremy Butterfield, *Philosophy of Science*

"A beautifully written book: the physics is well described, the mathematics is precise, and the exposition is concise. Sewell achieves his stated purpose---namely, to offer a panorama of the current state of the problem of how macroscopic phenomena can be interpreted from the laws and structures of microphysics."--Gerard G. Emch, *University of Florida*

[Download to continue reading...](#)

Quantum Mechanics and Its Emergent Macrophysics
Advanced Molecular Quantum Mechanics: An Introduction to Relativistic Quantum Mechanics and the Quantum Theory of Radiation (Studies in Chemical Physics)
First Aid (Emergent Reader) (Learning Center: Emergent Readers)
The Wonders of the Colorado Desert (Southern California), Vol. 1 of 2: Its Rivers and Its Mountains, Its Canyons and Its Springs, Its Life and Its ...
Journey Made Down the Overflow of the Colo
Quantum Mechanics: Re-engineering Your Life With Quantum Mechanics & Affirmations
The Emergent Multiverse: Quantum Theory according to the Everett Interpretation
Quantum Ontology: A Guide to the Metaphysics of Quantum Mechanics
The Quantum Mechanics Solver: How to Apply Quantum Theory to Modern Physics
Symbolism, Its Origins and Its Consequences (Art, Literature and Music in Symbolism, Its Origins and Its)
Quantum Nanoelectronics: An introduction to electronic nanotechnology and quantum computing
Quantum Runes: How to Create Your Perfect Reality Using Quantum Physics and Teutonic Rune Magic (Creating Magick with The Universal Laws of Attraction Book 1)
Covariant Loop Quantum Gravity: An Elementary Introduction to Quantum Gravity and Spinfoam Theory (Cambridge Monographs on Mathematical Physics)
Introduction to

Topological Quantum Matter & Quantum Computation Delirious, A Quantum Novel (Quantum Series Book 6) Quantum Thermodynamics: Emergence of Thermodynamic Behavior Within Composite Quantum Systems (Lecture Notes in Physics) Quantum Space (Quantum Series Book 1) Quantum Incident (Quantum Series Book 0) Family Emergent/Urgent and Ambulatory Care: The Pocket NP Emergent Commercial Trends and Aviation Safety Pediatric Emergent/Urgent and Ambulatory Care: The Pocket NP

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)