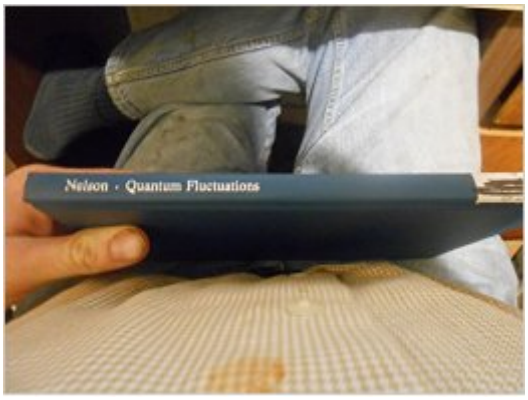
Quantum Fluctuations (Princeton Series In Physics)



Synopsis

Stochastic mechanics is a description of quantum phenomena in classical probabilistic terms. This work contains a detailed account of the kinematics of diffusion processes, including diffusions on curved manifolds which are necessary for the treatment of spin in stochastic mechanics. The dynamical equations of the theory are derived from a variational principle, and interference, the asymptotics of free motion, bound states, statistics, and spin are described in classical terms. In addition to developing the formal mathematical aspects of the theory, the book contains discussion of possible physical causes of quantum fluctuations in terms of an interaction with a background field. The author gives a critical analysis of stochastic mechanics as a candidate for a realistic theory of physical processes, discussing measurement, local causality in the sense of Bell, and the failure of the theory in its present form to satisfy locality.

Book Information

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Customer Reviews

This book is clearly written for mathematicians with an excellent background in the modern theories of measure, probability and stochastic processes. I wonder if the notions of differentiable manifolds, of affine connections, of martingales, ... are mathematical tools absolutely necessary to understand the theory of stochastic mechanics. It seems that the author does not know what to do with the stochastic process attached to any solution of the SchrÃ¶dinger equation and that he sometimes tries to solve artificial problems.

Quantum Fluctuations (Princeton Series in Physics) Quantum Transport in Mesoscopic Systems: Complexity and Statistical Fluctuations (Mesoscopic Physics and Nanotechnology) Quantum Transport in Mesoscopic Systems: Complexity and Statistical Fluctuations. A Maximum Entropy Viewpoint (Mesoscopic Physics and Nanotechnology) Noise Theory and Application to Physics: From Fluctuations to Information (Advanced Texts in Physics) 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) Quantum Thermodynamics: Emergence of Thermodynamic Behavior Within Composite Quantum Systems (Lecture Notes in Physics) Princeton Readings in Islamist Thought: Texts and Contexts from al-Banna to Bin Laden (Princeton Studies in Muslim Politics) The Princeton Field Guide to Dinosaurs: Second Edition (Princeton Field Guides) Spin Fluctuations in Itinerant Electron Magnetism (Springer Series in Solid-State Sciences) The Physics and Philosophy of the Bible: How Relativity, Quantum Physics, Plato, and History Meld with Biblical Theology to Show That God Exists and That ... Live Forever (The Inevitable Truth Book 1) The Solid State: An Introduction to the Physics of Crystals for Students of Physics, Materials Science, and Engineering (Oxford Physics Series) Convex Analysis (Princeton Landmarks in Mathematics and Physics) Towards Solid-State Quantum Repeaters: Ultrafast, Coherent Optical Control and Spin-Photon Entanglement in Charged InAs Quantum Dots (Springer Theses) Quantum Nanoelectronics: An introduction to electronic nanotechnology and quantum computing QUANTUM SELF HYPNOSIS STOP SMOKING NOW: Hypnosis Script & Inductions Included! (Quantum Self Hypnosis Singles Book 2) Quantum Mechanics and Quantum Field Theory: A Mathematical Primer Quantum Computation and Quantum Information: 10th Anniversary Edition Fundamentals of Physics II: Electromagnetism, Optics, and Quantum Mechanics: 2 (The Open Yale Courses Series) The Principles of Quantum Mechanics (International Series of Monographs on Physics) Quantum Computation with Topological Codes: From Qubit to Topological Fault-Tolerance (SpringerBriefs in Mathematical Physics)