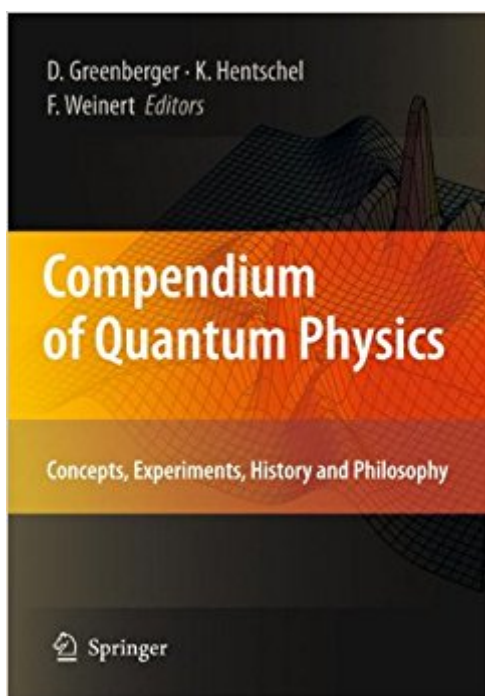


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# Compendium Of Quantum Physics: Concepts, Experiments, History And Philosophy



## Synopsis

With contributions by leading quantum physicists, philosophers and historians, this comprehensive A-to-Z of quantum physics provides a lucid understanding of key concepts of quantum theory and experiment. It covers technical and interpretational aspects alike, and includes both traditional and new concepts, making it an indispensable resource for concise, up-to-date information about the many facets of quantum physics.

## Book Information

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## Customer Reviews

“From Aharonov-Bohm effect through to zero point energy, this is a useful compendium of about 250 concepts, experimental facts, theoretical proposals, history, interpretations and philosophy. It covers a big field and can be well recommended.” (K.-E. Hellwig, zbMATH 1318.81001, 2015) “This is a wonderful book to dip into. It begins with the Aharonov-Bohm effect, runs through the Born Rule and the Copenhagen Interpretation before ending with Zero-point Energy. Kaiser on Feynman Diagrams nicely brings all those elements together, as does Lyre on Gauge Symmetry. A book everyone interested in the history and philosophy of quantum physics should have on their desk or even at their bedside. It should be on hand electronically via your library’s online access.” (Steven French, Metascience, June, 2011) “This work is a collection of 185 articles written by 90 researchers in physics, philosophy, and history. Each article aims to include a clear definition of the term, a history

of the terminology, and a small list of references. This is a useful compendium for persons involved in interdisciplinary work. Summing Up: Recommended. Upper-division undergraduate through professional collections. (E. Kincanon, Choice, Vol. 47 (6), February, 2010) "In diesem voluminösen Band behandeln Experten der experimentellen, theoretischen und mathematischen Physik ... Die einzelnen Artikel sind im Allgemeinen sehr instruktiv geschrieben ... Besonders die Autoren aus der Physik haben sich große Mühe gegeben, ihre Themen zugleich präzise und verständlich zusammenzufassen. ... Ein seiner ausführender Artikel aus erster Hand widmet sich dem inzwischen fast drei Jahrzehnte andauernden Quanten-Hall-Effekt. ... Insgesamt darf man freilich das vorliegende Kompendium der Quantenphysik, gerade wegen seiner interdisziplinären Zusammensetzung, als eine sehr nützliche Bereicherung der quantentheoretischen Literatur empfehlen." (Helmut Rechenberg, in: Physik Journal, April/2010, Vol. 9, Issue 4, S. 56 f.)

With contributions by many of today's leading quantum physicists, philosophers and historians, including three Nobel laureates, this comprehensive A to Z of quantum physics provides a lucid understanding of the key concepts of quantum theory and experiment. It covers technical and interpretational aspects alike, and includes both traditional topics and newer areas such as quantum information and its relatives. The central concepts that have shaped contemporary understanding of the quantum world are clearly defined, with illustrations where helpful, and discussed at a level suitable for undergraduate and graduate students of physics, history of science, and philosophy of physics. All articles share three main aims: (1) to provide a clear definition and understanding of the term concerned; (2) where possible, to trace the historical origins of the concept; and (3) to provide a small but optimal selection of references to the most relevant literature, including pertinent historical studies. Also discussed are the often contentious philosophical implications derived from quantum theory and its associated experimental findings. This compendium will be an indispensable resource for all those seeking concise up-to-date information about the many facets of quantum physics.

This Springer book is exactly what it says it is a compilation of 185 articles of the quantum mechanical world. A few articles can be understood by the laymen but most are directed at the physics community. Summaries of the researcher contributors are given in the back of the book along with their head shots. A great book to have for your quantum library.

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