<<量子物理>>

图书基本信息

书名：<<量子物理>>

13位ISBN编号：9787040201994

10位ISBN编号：7040201992

出版时间：2006-12

出版时间：高等教育

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页数：336

前言

The first edition of Quantum Physics was published about thirty years ago. The guide-lines that i set out in the preface to that edition as well as its general approach are ones towhich I still subscribe. I wrote:This book is intended to serve as an introduction to quantum physics. In writing it, Ihave kept several guidelines in mind:1. First, it is helpful for the development of intuition in any new field of study to start with a base of detailed knowledge about simple systems. I have therefore worked out a number of problems in great detail, so that the insight thus obtained can be used for more complex systems.2. Every aspect of quantum mechanics has been helpful in understanding some physical phenomenon. I have laid great stress on applications at every stage of development of the subject. Although no area of quantum mechanics is totally developed,my intention is to bridge the gap between a modem physics course and the moreformal development of quantum mechanics. Thus, many applications are discussed,and I have stressed order-of-magnitude estimates and the importance of numbers.3. In keeping with the level of the book, the mathematical structure has been kept assimple as possible. New concepts, such as operators, and new mathematical toolsnecessarily make their appearance. I have dealt with the former more by analogy thanby precise definition, and I have minimized the use of new tools insofar as possible. There were few changes in the second edition. This, the third edition, is not funda-mentally different in spirit from the first two, but it differs in detail in many ways.The principal changes are the following: (a) The ordering of chapters has been changed. This edition of the book divides more neatly into the basics of quantum mechanics and the most important applications that one would want to cover in a one-semester course versus a series of chapters on more general applications. Because I have tended to build new mate rial on the base of previously discussed material, this change makes the book more useful for a one-semester course. (b) In response to advice from a number of users of the book, I have expanded somewhat the discussion of the general structure of wave mechanics and the more abstract description of quantum mechanics (including the Dirac notation). In keeping with guideline 3 listed above, I have avoided the introduction of a mini-course on linear algebra. This beautiful mathematical development is best treated in a first year graduate course. (c) I did not wish to increase the size of the book and have therefore shortened parts of the text by putting some material on the book's web site [wwW.wiloy.con/college/ gasiorowicz. This material consists of several kinds of supplements:some longer derivations or arguments that are not central to the developmentof a particular subject; examples include the discussion of the derivation of theblackbody radiation formula, as derived by Einstein, and topics in the additionof angular momentum.

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内容概要

《量子物理》是国外大学开设量子力学课程选用较多的几本量子力学教材之一，国内也有几所大学已经选用了其原版书作为主讲教材。
《量子物理》的课程体系结构和我国的量子力学课程体系比较接近，非常适合国内开展双语教学使用。
《量子物理》为第三版，同前两版相比，《量子物理》保持了讲解详细、数学过程尽可能简单、结合一些实际的应用来讲解量子力学的特点，同时根据使用中出现的问题对章节顺序做了相应的调整，对一些具体内容也做了适当的增删，使得本教材更适合一个学期的量子力学课程。
该书共20章，内容包括量子力学简介，波粒二像性、概率波和薛定鄂方程，本征值问题，一维势，波动力学基本体系，量子力学算符，角动量，三维薛定鄂方程和氢原子，算符的矩阵表示，自旋，含时扰动方程I，真实氢原子，多粒子体系，原子和分子,含时扰动方程II，带电粒子和电磁场的相互作用，辐射，辐射相关话题，碰撞理论和量子纠缠态及其意义。
《量子物理》可作为物理类专业量子力学课程的教材，尤其适合开展双语教学的学校，对于有志出国深造的人员也是一本非常优秀的参考书。

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