《量子场物理学》

图书基本信息

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前言

This book is intended to provide a general introduction to the physics of quantized fields and many-body physics. It is based on a two-semester sequence of courses taught at the University of Illinois at Urbana-Champaign at various times between 1985 and 1997. The students taking all or part of the sequence had interests ranging from particle and nuclear theory through quantum optics to condensed matter physics experiment. The book does not cover as much ground as some texts. This is because I have tried to concentrate on the basic conceptual issues that many students find difficult. For a computation-method oriented course an instructor would probably wish to suplement this book with a more comprehensive and specialized text such as Peskin and Schroeder An Introduction to Quantum Field Theory， which is intended for particle theorists， or perhaps the venerable Quantum Theory of Many-Particle Systems by Fetter and Walecka. The most natural distribution of the material if the book is used for a two-semster course is as follows： 1st Semester：. Chapters 1-11. 2nd semester： Chapters 12-18. The material in the first 11 chapters is covered using traditional quantum mechanics operator language. This is because the text is intended for people with a wide range of interests. Were I writing for particle-theory students only， I would start with path integrals from chapter one. For a broader readership， it seems useful to maintain continuity with traditional hamiltonian quantum mechanics for as long as one as there is no penalty in ease of comprehension —— and this is the case with the simple field theories discussed in the earlier chapters.

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内容概要

《量子场物理学》is intended to provide a general introduction to the physics of quantized fields and many-body physics. It is based on a two-semester sequence of courses taught at the University of Illinois at Urbana-Champaign at various times between 1985 and 1997. The students taking all or part of the sequence had interests ranging from particle and nuclear theory through quantum optics to condensed matter physics experiment.

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