

BOOK REVIEWS

Statistical Mechanics

R. P. Feynman ; W. A. Benjamin, Inc. ; 1972, Pp xiii+354,

Professor Feynman knows how to create the interest in the subjects concerned to every teacher and student. *Statistical Mechanics : A set of lectures* proves it.

The book contains eleven chapters covered within 354 pages. The concepts of statistical physics with many original and profound contributions are summed up in introduction. *Density matrices* and *path integrals* are masterly discussed in chapters 2 and 3 respectively. Chapter 4 contains *Classical system of N particles*. In chapter 5 *order-disorder theory* is discussed and it has been shown how to handle *the Onsager problem*. Chapter 6 covers most mathematical tools including *field quantization* and *Feynman diagrams*.

Chapter 7 contains *Spin algebra* which shows how the interactions give rise to a coupling between the spins of two objects and what happens when such a coupling appears in a lattice full of spins. *The Polaron problem* is reported in chapter 8. Chapter 9 reserves for *electron gas in a metal*. *The superconductivity and superfluidity* are thoroughly discussed in chapters 10 and 11 respectively.

Each chapter contains a concise introduction and many original problems are discussed. It makes clear the lot of unanswered questions of the students. Finally, we can praise W. A. Benjamin, Inc. for adding this book in Frontiers in Physics Series.

P. G.

Wave Mechanics and its applications

By P. Gombas and D. Kisde; Pergamon press pp xii+238.

In modern times quantum Mechanics has got its enormous importance in every branch of science. To understand various phenomena in different branches of science such as nuclear physics, solid state physics, quantum biology a strong background of quantum mechanics is required.

The main aim of the book by P. Gombas and D. Kisdi, which deals with one of the two representations of quantum mechanics, namely, wave mechanics is to assist the readers to acquire such a background.

To give an idea about the advent of quantum mechanics the authors have included in the first part of the book Planck's law, some preliminary discussion

on atom models of Rutherford and Bohr etc. It seems better, had there been some room for experiments of Davisson-Germar and of G. P. Thomson, which established de Broglie's idea of matter waves. It is noteworthy, however, that the famous uncertainty principle is well explained with suitable examples.

In the other part, the authors have shown the detailed computation for solving some important problems in wave mechanics. But one characteristic feature which this text is lacking is that each chapter is not supplemented with exercises at the end.

Apart from these minor shortcomings, the book with clear exposition of many worked out problems will serve as a good text for students at the undergraduate and post-graduate level and also be beneficial to persons engaged in theoretical research work in atomic and nuclear physics.

T. G.

Photon-Hadron Interactions

R. P. Feynman ; W. A. Benjamin, Inc., 1972 ; Pp xvi+277

Photon-Hadron Interactions in Frontiers in Physics Series edited by David Pines is prepared from the lecture notes delivered by Professor R. P. Feynman at Caltech in 1971-72. It can be considered an intermediate step between lecture notes and formal monograph, though it is produced from the lecture notes.

The contents of this book are discussed on advanced topics with the theoretical knowledge of the theory of hadron-hadron interactions assumed. There are nineteen subsections and two appendices which are covered by fifty seven lectures mainly on the VMD, Deep Inelastic Scattering and Parton Model. Most of the lectures with the following headings are based on the articles published in different journals :

Low Energy Photon Reactions, Quark Model of Resonances, Pseudoscalar Meson Photoproduction, *t*-Channel Exchange Phenomena, Vector Mesons and Vector Meson Dominance Hypothesis, Electromagnetic Form Factors, Parton Model, Light Cone Algebra, Parton as Quarks, etc., etc.

First five lectures on general theoretical background are most useful to all who are interested in modern topics of Strong Interactions. Finally, this book itself claims its position in the domain of the workers of the fields of Strong Interactions.

P. K. R.

Statistical Mechanics. by. Donald A. McQuarrie. Donald's book Statistical Mechanics. Addeddate. 2017-09-19 14:02:44. Internet Archive HTML5 Uploader 1.6.3. plus-circle Add Review. comment. Reviews. There are no reviews yet. Be the first one to write a review. 7,311 Views. 10 Favorites. Finding books BookSee | BookSee - Download books for free. Find books. Dynamical Systems and Chaos: Proceedings of the Sitges Conference on Statistical Mechanics, Sitges, Barcelonaspain, September 5-11, 1982 (Lecture Notes in Physics). Sitges Conference on Statistical Mechanics (1982), L. Garrido, L. Garrido. 1.84 Mb. #3. Statistical Mechanics. Dan Styer Department of Physics and Astronomy. Oberlin College Oberlin, Ohio 44074-1088. Although, as a matter of history, statistical mechanics owes its origin to investigations in thermodynamics, it seems eminently worthy of an independent development, both on account of the elegance and simplicity of its principles, and because it yields new results and places old truths in a new light. J. Willard Gibbs Elementary Principles in Statistical Mechanics. Contents. 0 Preface. 1. 1 The Properties of Matter in Bulk 1.1 What is Statistical Mechanics About? . . . 1.2 Outline of Book . . . 1.3 Fluid Statics . . . 1.4 Phase Diagrams . . . You can write a book review and share your experiences. Other readers will always be interested in your opinion of the books you've read. Whether you've loved the book or not, if you give your honest and detailed thoughts then people will find new books that are right for them. Introduction to statistical mechanics. The preceding results can be summarized and put in a more familiar form by replacing $n\omega$ with $h\nu$. The number of modes/unit volume between k and $k + dk$ is. Editorial Reviews. Amazon.com Review. This third edition includes new sections on Bose-Einstein condensation and degenerate Fermi behavior of ultracold atomic gases, and two new chapters on computer simulation methods and the thermodynamics of the early universe. We have also added new sections on chemical and phase equilibrium, and expanded our discussions of correlations and scattering, quantized fields, finite-size effects, and the fluctuation-dissipation theorem. Beale is a theoretical physicist specializing in statistical mechanics, with emphasis on phase transitions and critical phenomena.