图书基本信息

- 书名: <<统计物理中的蒙特卡罗方法>>
- 13位ISBN编号:9787506292108
- 10位ISBN编号:7506292106
- 出版时间:2008-5
- 出版时间:世界图书出版公司
- 作者:兰道
- 页数:432
- 版权说明:本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com

前言

Historically physics was first known as 'natural philosophy' and research was carried out by purely theoretical (or philosophical) investigation. True progress was obviously limited by the lack of real knowledge of whether or not a given theory really applied to nature. Eventually experimental investigation became an accepted form of research although it was always limited by the physicist's ability to prepare a sample for study or to devise techniques to probe for the desired properties. With the advent of computers it became possible to carry out simulations of models which were intractable using 'classical' theoretical techniques. In many cases computers have, for the first time in history, enabled physicists not only to invent new models for various aspects of nature but also to solve those same models without substantial simplification. In recent years computer power has increased quite dramatically, with access to computers becoming both easier and more common (e.g. with personal computers and workstations), and computer simulation methods have also been steadily refined. As a result computer simulations have become another way of doing physics research. They provide another perspective; in some cases simulations provide a theoretical basis for understanding experimental results, and in other instances simulations provide 'experimental' data with which theory may be compared. There are numerous situations in which direct comparison between analytical theory and experiment is inconclusive. For example, the theory of phase transitions in condensed matter must begin with the choice of a Hamiltonian, and it is seldom clear to what extent a particular model actually represents a real material on which experiments are done. Since analytical treatments also usually require mathematical approximations whose accuracy is difficult to assess or control, one does not know whether discrepancies between theory and experiment should be attributed to shortcomings of the model, the approximations, or both. The goal of this text is to provide a basic understanding of the methods and philosophy of computer simulations research with an emphasis on problems in statistical thermodynamics as applied to condensed matter physics or materials science.

内容概要

The pace of advances in computer simulations continues unabated. This Second Edition of our 'guide' to Monte Carlo simulations updates some of the references and includes numerous-additions. New text describes algorithmic developments that appeared too late for the first edition or, in some cases, were excluded for fear that the volume would become too thick. Nonetheless, the older work often provides valuable pedagogical information for the student and may also be more readable than more recent, and more compact, papers. An additional advantage is that the reader can easily reproduce some of the older results with only a modest investment of modern computer resources. We have also added a brief new chapter that provides an overview of some areas outside of physics where traditional Monte Carlo methods have made an impact. Lastly, a few misprints have been corrected, and we thank our colleagues for pointing them out.

作者简介

作者:(美国)兰道(David P.Landau & Kurt Binder)

书籍目录

Preface1 Introduction2 Some necessary background3 Simple sampling Monte Carlo methods4 Importance sampling Monte Carlo methods5 More on importance sampling Monte Carlo methods for lattice systems6 Off-lattice models7 Reweighting methods8 Quantum Monte Carlo methods9 Monte Carlo renormalization group methods10 Non-equilibrium and irreversible processes11 Lattice gauge models:a brief introduction12 A brief review of other methods of computer simulation13 Monte Carlo methods outside of physics14 OutlookAppendix:listing of programs mentioned in the textIndex

章节摘录

插图:

编辑推荐

《统计物理中的蒙特卡罗方法(第2版)》由世界图书出版公司北京公司和剑桥大学出版社合作出版。 《统计物理中的蒙特卡罗方法(第2版)》任何部分之文字及图片,未经出版者书面许可,不得用任何方 式抄袭、节录或翻印。

此版本仅限中华人民共和国境内销售,不包括香港、澳门特别行政区及中国台湾。

版权说明

本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com