

《统计力学》

图书基本信息

书名：《统计力学》

13位ISBN编号：9787510044120

10位ISBN编号：751004412X

出版时间：2012-6-1

出版社：世界图书出版公司

作者：帕斯瑞 (R. K. Pathria), Paul D. Beale

页数：718

版权说明：本站所提供下载的PDF图书仅提供预览和简介以及在线试读，请支持正版图书。

更多资源请访问：www.tushu000.com

《统计力学》

内容概要

《统计力学(第3版)》增加了一些有关波色—爱因斯坦凝聚态和超冷原子气体的退化费米行为章节和讲述计算模拟方法和早期宇宙热动力学的两章；也增加了化学和相变平衡，扩充讲述了其与散布、量子场、有限尺寸效应和涨落耗散定理的相互关系。希望这个新的版本一如既往地为一代的学习统计物理的学生提供坚实的基础。每章末增加了注释并附有习题。

《统计力学》

作者简介

作者：（美国）帕斯瑞（R. K. Pathria）（美国）Paul D. Beale

书籍目录

- preface to the third edition
- preface to the second edition
- preface to the first edition
- historical introduction
- 1. the statistical basis of thermodynamics
 - 1.1. the macroscopic and the microscopic states
 - 1.2. contact between statistics and thermodynamics: physical significance of the number (n, v, e)
 - 1.3. further contact between statistics and thermodynamics
 - 1.4. the classical ideal gas
 - 1.5. the entropy of mixing and the gibbs paradox
 - 1.6. the "correct" enumeration of the microstates
- problems
- 2. elements of ensemble theory
 - 2.1. phase space of a classical system
 - 2.2. liouville's theorem and its consequences
 - 2.3. the microcanonical ensemble
 - 2.4. examples
 - 2.5. quantum states and the phase space
- problems
- 3. the canonical ensemble
 - 3.1. equilibrium between a system and a heat reservoir
 - 3.2. a system in the canonical ensemble
 - 3.3. physical significance of the various statistical quantities
- in the canonical ensemble
 - 3.4. alternative expressions for the partition function
 - 3.5. the classical systems
 - 3.6. energy fluctuations in the canonical ensemble: correspondence with the microcanonical ensemble
 - 3.7. two theorems - the "equipartition" and the "virial"
 - 3.8. a system of harmonic oscillators
 - 3.9. the statistics of paramagnetism
 - 3.10. thermodynamics of magnetic systems: negative temperatures
- problems
- 4. the grand canonical ensemble
 - 4.1. equilibrium between a system and a particle-energy reservoir
 - 4.2. a system in the grand canonical ensemble
 - 4.3. physical significance of the various statistical quantities
 - 4.4. examples
 - 4.5. density and energy fluctuations in the grand canonical ensemble: correspondence with other ensembles
 - 4.6. thermodynamic phase diagrams
 - 4.7. phase equilibrium and the clausius-clapeyron equation
- problems

5. formulation of quantum statistics
 - 5.1. quantum-mechanical ensemble theory:the density matrix
 - 5.2. statistics of the various ensembles
 - 5.3. examples
 - 5.4. systems composed of indistinguishable particles
 - 5.5. the density matrix and the partition function of a system of free particles
6. the theory of simple gases
 - 6.1. an ideal gas in a quantum-mechanical microcanonical ensemble
 - 6.2. an ideal gas in other quantum-mechanical ensembles
 - 6.3. statistics of the occupation numbers
 - 6.4. kinetic considerations
 - 6.5. gaseous systems composed of molecules with internal motion
 - 6.6. chemical equilibrium problems
7. ideal bose systems
 - 7.1. thermodynamic behavior of an ideal bose gas
 - 7.2. bose-einstein condensation in ultracold atomic gases
 - 7.3. thermodynamics of the blackbody radiation
 - 7.4. the field of sound waves
 - 7.5. inertial density of the sound field
 - 7.6. elementary excitations in liquid helium ii
8. ideal fermi systems
 - 8.1. thermodynamic behavior of an ideal fermi gas
 - 8.2. magnetic behavior of an ideal fermi gas
 - 8.3. the electron gas in metals
 - 8.4. ultracold atomic fermi gases
 - 8.5. statistical equilibrium of white dwarf stars
 - 8.6. statistical model of the atom
9. thermodynamics of the early universe
 - 9.1. observational evidence of the big bang
 - 9.2. evolution of the temperature of the universe
 - 9.3. relativistic electrons, positrons, and neutrinos
 - 9.4. neutron fraction
 - 9.5. annihilation of the positrons and electrons
 - 9.6. neutrino temperature
 - 9.7. primordial nucleosynthesis
 - 9.8. recombination
 - 9.9. epilogue
10. statistical mechanics of interacting systems:the method of cluster expansions
 - 10.1. cluster expansion for a classical gas
 - 10.2. virial expansion of the equation of state
 - 10.3. evaluation of the virial coefficients

- 10.4. general remarks on cluster expansions
- 10.5. exact treatment of the second virial coefficient
- 10.6. cluster expansion for a quantum-mechanical system
- 10.7. correlations and scattering problems
- 11. statistical mechanics of interacting systems: the method of quantized fields
 - 11.1. the formalism of second quantization
 - 11.2. low-temperature behavior of an imperfect bose gas
 - 11.3. low-lying states of an imperfect bose gas
 - 11.4. energy spectrum of a bose liquid
 - 11.5. states with quantized circulation
 - 11.6. quantized vortex rings and the breakdown of superfluidity
 - 11.7. low-lying states of an imperfect fermi gas
 - 11.8. energy spectrum of a fermi liquid: landau's phenomenological theory
 - 11.9. condensation in fermi systems problems
- 12. phase transitions: criticality, universality, and scaling
 - 12.1. general remarks on the problem of condensation
 - 12.2. condensation of a van der waals gas
 - 12.3. a dynamical model of phase transitions
 - 12.4. the lattice gas and the binary alloy
 - 12.5. ising model in the zeroth approximation
 - 12.6. ising model in the first approximation
 - 12.7. the critical exponents
 - 12.8. thermodynamic inequalities
 - 12.9. landau's phenomenological theory
 - 12.10. scaling hypothesis for thermodynamic functions
 - 12.11. the role of correlations and fluctuations
 - 12.12. the critical exponents ν and η
 - 12.13. a final look at the mean field theory problems
- 13. phase transitions: exact (or almost exact) results for various models
 - 13.1. one-dimensional fluid models
 - 13.2. the ising model in one dimension
 - 13.3. the n-vector models in one dimension
 - 13.4. the ising model in two dimensions
 - 13.5. the spherical model in arbitrary dimensions
 - 13.6. the ideal bose gas in arbitrary dimensions
 - 13.7. other models problems
- 14. phase transitions: the renormalization group approach
 - 14.1. the conceptual basis of scaling
 - 14.2. some simple examples of renormalization
 - 14.3. the renormalization group: general formulation
 - 14.4. applications of the renormalization group

- 14.5. finite-size scaling problems
- 15. fluctuations and nonequilibrium statistical mechanics
 - 15.1. equilibrium thermodynamic fluctuations
 - 15.2. the einstein-smoluchowski theory of the brownian motion
 - 15.3. the langevin theory of the brownian motion
 - 15.4. approach to equilibrium: the fokker-planck equation
 - 15.5. spectral analysis of fluctuations: the wiener-khintchine theorem
 - 15.6. the fluctuation-dissipation theorem
 - 15.7. the onsager relationsproblems
- 16. computer simulations
 - 16.1. introduction and statistics
 - 16.2. monte carlo simulations
 - 16.3. molecular dynamics
 - 16.5. computer simulation caveatsproblems
- appendices
 - a. influence of boundary conditions on the distribution of quantum states
 - b. certain mathematical functions
 - c. "volume" and "surface area" of an n-dimensional sphere of radius r
 - d. on bose-einstein functions e. on fermi-dirac functions
 - f. a rigorous analysis of the ideal bose gas and the onset of bose-einstein condensation
 - g. on watson functions
 - h. thermodynamic relationships
 - i. pseudorandom numbers
- bibliography
- index

版权页： 插图：

《统计力学》

编辑推荐

《统计力学(第3版)》初版于1972年，其内容涵盖了统计力学的标准内容，叙述清晰详细，深受读者欢迎。第2版对第1版的内容作了补充和删改，重写了关于相变理论的部分，增加了临界现象的重正化群理论的内容。

《统计力学》

精彩短评

- 1、书当然写的非常好，据说在美国很受推崇，我想美国群众的眼睛也应该是雪亮的吧。印刷质量也不错。只是我这本的装帧有些问题，书皮比正常情况下要短，把里面的书页露出来2mm，不过懒得换了。我想这也许只是偶然，因为印刷和纸张都还算好。价格偏贵，但有700多页，打印会很厚，又或分成两本，不太方便。
- 2、很好，是正版图书，印刷质量不错。
- 3、在很多网站上看到推荐，看了一下也可以，不过和之前的一版相比，价格涨了30元，但是还是比从国外买便宜。
- 4、帕斯瑞的这本统计力学不敢说是很棒，但是的确很好
- 5、这本统计力学是本学科最经典的书了，就是好厚啊，不知多久能读完。
- 6、大陆的书真的很便宜，这本是统计力学的经典教材了，希望以后大陆的出版社能拿到更多的外文书版权
- 7、原版太贵，舍尔求其次买了这本。
- 8、not bad
- 9、是一本很好的书，对于学习统计的人是个很好的选择!

《统计力学》

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：www.tushu000.com