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### KEY=STATISTICAL - LANE ZAVIER

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### STATISTICAL MECHANICS

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### INTERNATIONAL SERIES OF MONOGRAPHS IN NATURAL PHILOSOPHY

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*Elsevier* **Statistical Mechanics** discusses the fundamental concepts involved in understanding the physical properties of matter in bulk on the basis of the dynamical behavior of its microscopic constituents. The book emphasizes the equilibrium states of physical systems. The text first details the statistical basis of thermodynamics, and then proceeds to discussing the elements of ensemble theory. The next two chapters cover the canonical and grand canonical ensemble. Chapter 5 deals with the formulation of quantum statistics, while Chapter 6 talks about the theory of simple gases. Chapters 7 and 8 examine the ideal Bose and Fermi systems. In the next three chapters, the book covers the statistical mechanics of interacting systems, which includes the method of cluster expansions, pseudopotentials, and quantized fields. Chapter 12 discusses the theory of phase transitions, while Chapter 13 discusses fluctuations. The book will be of great use to researchers and practitioners from wide array of disciplines, such as physics, chemistry, and engineering.

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### STATISTICAL MECHANICS

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*Academic Press* **Statistical Mechanics, Fourth Edition**, explores the physical properties of matter based on the dynamic behavior of its microscopic constituents. This valuable textbook introduces the reader to the historical context of the subject before delving deeper into chapters about thermodynamics, ensemble theory, simple gases theory, Ideal Bose and Fermi systems, statistical mechanics of interacting systems, phase transitions, and computer simulations. In the latest revision, the book's authors have updated the content throughout, including new coverage on biophysical applications, updated exercises, and computer simulations. This updated edition will be an indispensable to students and researchers of statistical mechanics, thermodynamics, and physics. Retains the valuable organization and trusted coverage of previous market-leading editions Includes new coverage on biophysical applications and computer simulations Offers Mathematica files for student use and a secure solutions manual for qualified instructors Covers Bose-Einstein condensation in atomic gases, Thermodynamics of the early universe, Computer simulations: Monte Carlo and molecular dynamics, Correlation functions and scattering, Fluctuation-dissipation theorem and the dynamical structure factor, and much more

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### PROBLEMS AND SOLUTIONS ON THERMODYNAMICS AND STATISTICAL MECHANICS

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*World Scientific* **Volume 5.**

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### INTRODUCTORY STATISTICAL MECHANICS

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*Oxford University Press* **This book explains the ideas and techniques of statistical mechanics-the theory of condensed matter-in a simple and progressive way. The text starts with the laws of thermodynamics and simple ideas of quantum mechanics. The conceptual ideas underlying the subject are explained carefully; themathematical ideas are developed in parallel to give a coherent overall view. The text is illustrated with examples not just from solid state physics, but also from recent theories of radiation from black holes and recent data on the background radiation from the Cosmic background explorer. In thissecond edition, slightly more advanced material on statistical mechanics is introduced, material which students should meet in an undergraduate course. As a result the new edition contains three more chapters on phase transitions at an appropriate level for an undergraduate student. There are plentyof problems at the end of each chapter, and brief model answers are provided for odd-numbered problems. From reviews of the first edition: '...Introductory Statistical Mechanics is clear and crisp and takes advantage of the best parts of the many approaches to the subject' Physics Today**

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### STATISTICAL AND THERMAL PHYSICS

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### WITH COMPUTER APPLICATIONS, SECOND EDITION

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*Princeton University Press* **This revised and expanded edition of Statistical and Thermal Physics introduces students to the essential ideas and techniques used in many areas of contemporary physics. Ready-to-run programs help make the many abstract concepts concrete. The text requires only a background in introductory mechanics and some basic ideas of quantum theory, discussing material typically found in undergraduate texts as well as topics such as fluids, critical phenomena, and computational techniques, which serve as a natural bridge to graduate study. --**

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### STATISTICAL MECHANICS

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### AN ADVANCED COURSE WITH PROBLEMS AND SOLUTIONS

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### STATISTICAL MECHANICS IN A NUTSHELL

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*Princeton University Press* **Statistical mechanics is one of the most exciting areas of physics today, and it also has applications to subjects as diverse as economics, social behavior, algorithmic theory, and evolutionary biology. Statistical Mechanics in a Nutshell offers the most concise, self-contained introduction to this rapidly developing field. Requiring only a background in elementary calculus and elementary mechanics, this book starts with the basics, introduces the most important developments in classical statistical mechanics over the last thirty years, and guides readers to the very threshold of today's cutting-edge research. Statistical Mechanics in a Nutshell zeroes in on the most relevant and promising advances in the field, including the theory of phase transitions, generalized Brownian motion and stochastic dynamics, the methods underlying Monte Carlo simulations, complex systems--and much, much more. The essential resource on the subject, this book is the most up-to-date and accessible introduction available for graduate students and advanced undergraduates seeking a succinct primer on the core ideas of statistical mechanics. Provides the most concise, self-contained introduction to statistical mechanics Focuses on the most promising advances, not complicated calculations Requires only elementary calculus and elementary mechanics Guides readers from the basics to the threshold of modern research Highlights the broad scope of applications of statistical mechanics**

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### STATISTICAL PHYSICS OF PARTICLES

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*Cambridge University Press* **Statistical physics has its origins in attempts to describe the thermal properties of matter in terms of its constituent particles, and has played a fundamental role in the development of quantum mechanics. Based on lectures taught by Professor Kardar at MIT, this textbook introduces the central concepts and tools of statistical physics. It contains a chapter on probability and related issues such as the central limit theorem and information theory, and covers interacting particles, with an extensive description**

of the van der Waals equation and its derivation by mean field approximation. It also contains an integrated set of problems, with solutions to selected problems at the end of the book and a complete set of solutions is available to lecturers on a password protected website at [www.cambridge.org/9780521873420](http://www.cambridge.org/9780521873420). A companion volume, *Statistical Physics of Fields*, discusses non-mean field aspects of scaling and critical phenomena, through the perspective of renormalization group.

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### EXACTLY SOLVED MODELS IN STATISTICAL MECHANICS

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*Elsevier* Exactly Solved Models in Statistical Mechanics

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### AN INTRODUCTION TO THERMODYNAMICS AND STATISTICAL MECHANICS

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*Cambridge University Press* This introductory textbook for standard undergraduate courses in thermodynamics has been completely rewritten to explore a greater number of topics, more clearly and concisely. Starting with an overview of important quantum behaviours, the book teaches students how to calculate probabilities in order to provide a firm foundation for later chapters. It introduces the ideas of classical thermodynamics and explores them both in general and as they are applied to specific processes and interactions. The remainder of the book deals with statistical mechanics. Each topic ends with a boxed summary of ideas and results, and every chapter contains numerous homework problems, covering a broad range of difficulties. Answers are given to odd-numbered problems, and solutions to even-numbered problems are available to instructors at [www.cambridge.org/9781107694927](http://www.cambridge.org/9781107694927).

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### INTRODUCTION TO STATISTICAL PHYSICS

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*Springer Science & Business Media* This textbook covers the basic principles of statistical physics and thermodynamics. The text is pitched at the level equivalent to first-year graduate studies or advanced undergraduate studies. It presents the subject in a straightforward and lively manner. After reviewing the basic probability theory of classical thermodynamics, the author addresses the standard topics of statistical physics. The text demonstrates their relevance in other scientific fields using clear and explicit examples. Later chapters introduce phase transitions, critical phenomena and non-equilibrium phenomena.

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### A MODERN COURSE IN STATISTICAL PHYSICS

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*Hodder Education* Going beyond traditional textbook topics, 'A Modern Course in Statistical Physics' incorporates contemporary research in a basic course on statistical mechanics. From the universal nature of matter to the latest results in the spectral properties of decay processes, this book emphasizes the theoretical foundations derived from thermodynamics and probability theory underlying all concepts in statistical physics. This completely revised and updated third edition continues the comprehensive coverage of numerous core topics and special applications, allowing professors flexibility in designing individualized courses. The inclusion of advanced topics and extensive references makes this an invaluable resource for researchers as well as students -- a textbook that will be kept on the shelf long after the course is completed.

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### INTRODUCTION TO STATISTICAL PHYSICS

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*CRC Press* Statistical physics is a core component of most undergraduate (and some post-graduate) physics degree courses. It is primarily concerned with the behavior of matter in bulk-from boiling water to the superconductivity of metals. Ultimately, it seeks to uncover the laws governing random processes, such as the snow on your TV screen. This essential new textbook guides the reader quickly and critically through a statistical view of the physical world, including a wide range of physical applications to illustrate the methodology. It moves from basic examples to more advanced topics, such as broken symmetry and the Bose-Einstein equation. To accompany the text, the author, a renowned expert in the field, has written a Solutions Manual/Instructor's Guide, available free of charge to lecturers who adopt this book for their courses. Introduction to Statistical Physics will appeal to students and researchers in physics, applied mathematics and statistics.

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### QUANTUM FIELD THEORY AND CONDENSED MATTER

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#### AN INTRODUCTION

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Providing a broad review of many techniques and their application to condensed matter systems, this book begins with a review of thermodynamics and statistical mechanics, before moving onto real and imaginary time path integrals and the link between Euclidean quantum mechanics and statistical mechanics. A detailed study of the Ising, gauge-Ising and XY models is included. The renormalization group is developed and applied to critical phenomena, Fermi liquid theory and the renormalization of field theories. Next, the book explores bosonization and its applications to one-dimensional fermionic systems and the correlation functions of homogeneous and random-bond Ising models. It concludes with Bohm-Pines and Chern-Simons theories applied to the quantum Hall effect. Introducing the reader to a variety of techniques, it opens up vast areas of condensed matter theory for both graduate students and researchers in theoretical, statistical and condensed matter physics.

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#### STATISTICAL MECHANICS

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#### A GUIDE TO PHYSICS PROBLEMS

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#### PART 2: THERMODYNAMICS, STATISTICAL PHYSICS, AND QUANTUM MECHANICS

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*Springer Science & Business Media* This text features 182 challenging problems with detailed solutions, textbook references, clear illustrations, and an easy-to-use layout.

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#### STATISTICAL MECHANICS: THEORY AND MOLECULAR SIMULATION

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*OUP Oxford* Complex systems that bridge the traditional disciplines of physics, chemistry, biology, and materials science can be studied at an unprecedented level of detail using increasingly sophisticated theoretical methodology and high-speed computers. The aim of this book is to prepare burgeoning users and developers to become active participants in this exciting and rapidly advancing research area by uniting for the first time, in one monograph, the basic concepts of equilibrium and time-dependent statistical mechanics with the modern techniques used to solve the complex problems that arise in real-world applications. The book contains a detailed review of classical and quantum mechanics, in-depth discussions of the most commonly used ensembles simultaneously with modern computational techniques such as molecular dynamics and Monte Carlo, and important topics including free-energy calculations, linear-response theory, harmonic baths and the generalized Langevin equation, critical phenomena, and advanced conformational sampling methods. Burgeoning users and developers are thus provided firm grounding to become active participants in this exciting and rapidly advancing research area, while experienced practitioners will find the book to be a useful reference tool for the field.

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#### STATISTICAL PHYSICS OF FIELDS

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*Cambridge University Press* Textbook on statistical field theories for advanced graduate courses in statistical physics.

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#### STATISTICAL MECHANICS: THEORY AND MOLECULAR SIMULATION

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*Oxford University Press* By uniting basic concepts in equilibrium and time-dependent statistical mechanics with modern computational techniques, the book provides a comprehensive view of how theory proceeds from concepts to model construction to practical algorithms.

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## THERMODYNAMICS AND STATISTICAL MECHANICS

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### AN INTEGRATED APPROACH

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*Cambridge University Press* Learn classical thermodynamics alongside statistical mechanics and how macroscopic and microscopic ideas interweave with this fresh approach to the subjects.

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### THERMAL PHYSICS

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## THERMODYNAMICS AND STATISTICAL MECHANICS FOR SCIENTISTS AND ENGINEERS

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*Elsevier* In *Thermal Physics: Thermodynamics and Statistical Mechanics for Scientists and Engineers*, the fundamental laws of thermodynamics are stated precisely as postulates and subsequently connected to historical context and developed mathematically. These laws are applied systematically to topics such as phase equilibria, chemical reactions, external forces, fluid-fluid surfaces and interfaces, and anisotropic crystal-fluid interfaces. Statistical mechanics is presented in the context of information theory to quantify entropy, followed by development of the most important ensembles: microcanonical, canonical, and grand canonical. A unified treatment of ideal classical, Fermi, and Bose gases is presented, including Bose condensation, degenerate Fermi gases, and classical gases with internal structure. Additional topics include paramagnetism, adsorption on dilute sites, point defects in crystals, thermal aspects of intrinsic and extrinsic semiconductors, density matrix formalism, the Ising model, and an introduction to Monte Carlo simulation. Throughout the book, problems are posed and solved to illustrate specific results and problem-solving techniques. Includes applications of interest to physicists, physical chemists, and materials scientists, as well as materials, chemical, and mechanical engineers Suitable as a textbook for advanced undergraduates, graduate students, and practicing researchers Develops content systematically with increasing order of complexity Self-contained, including nine appendices to handle necessary background and technical details

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### STATISTICAL PHYSICS OF PARTICLES

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*Cambridge University Press* Statistical physics has its origins in attempts to describe the thermal properties of matter in terms of its constituent particles, and has played a fundamental role in the development of quantum mechanics. Based on lectures taught by Professor Kardar at MIT, this textbook introduces the central concepts and tools of statistical physics. It contains a chapter on probability and related issues such as the central limit theorem and information theory, and covers interacting particles, with an extensive description of the van der Waals equation and its derivation by mean field approximation. It also contains an integrated set of problems, with solutions to selected problems at the end of the book and a complete set of solutions is available to lecturers on a password protected website at [www.cambridge.org/9780521873420](http://www.cambridge.org/9780521873420). A companion volume, *Statistical Physics of Fields*, discusses non-mean field aspects of scaling and critical phenomena, through the perspective of renormalization group.

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### PRINCETON PROBLEMS IN PHYSICS WITH SOLUTIONS

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*Princeton University Press* Aimed at helping the physics student to develop a solid grasp of basic graduate-level material, this book presents worked solutions to a wide range of informative problems. These problems have been culled from the preliminary and general examinations created by the physics department at Princeton University for its graduate program. The authors, all students who have successfully completed the examinations, selected these problems on the basis of usefulness, interest, and originality, and have provided highly detailed solutions to each one. Their book will be a valuable resource not only to other students but to college physics teachers as well. The first four chapters pose problems in the areas of mechanics, electricity and magnetism, quantum mechanics, and thermodynamics and statistical mechanics, thereby serving as a review of material typically covered in undergraduate courses. Later chapters deal with material new to most first-year graduate students, challenging them on such topics as condensed matter, relativity and astrophysics, nuclear physics, elementary particles, and atomic and general physics.

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### THERMODYNAMICS AND STATISTICAL MECHANICS OF SMALL SYSTEMS

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*MDPI* This book is a printed edition of the Special Issue "Thermodynamics and Statistical Mechanics of Small Systems" that was published in *Entropy*

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### SOLVED PROBLEMS IN QUANTUM AND STATISTICAL MECHANICS

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*Springer Science & Business Media* This textbook is the result of many years of teaching quantum and statistical mechanics, drawing on exercises and exam papers used on courses taught by the authors. The subjects of the exercises have been carefully selected to cover all the material which is most needed by students. Each exercise is carefully solved in full details, explaining the theory behind the solution with particular care for those issues that students often find difficult, or which are often neglected in other books on the subject. The exercises in this book never require extensive calculations but tend to be somewhat unusual and force the solver to think about the problem starting from first principles, rather than by analogy with some previously solved exercise.

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### ELEMENTARY STATISTICAL PHYSICS

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*Courier Corporation* Graduate-level text covers properties of the Fermi-Dirac and Bose-Einstein distributions; the interrelated subjects of fluctuations, thermal noise, and Brownian movement; and the thermodynamics of irreversible processes. 1958 edition.

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### CALCULATIONS IN FUNDAMENTAL PHYSICS

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### ELECTRICITY AND MAGNETISM

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*Elsevier* *Calculations in Fundamental Physics, Volume II: Electricity and Magnetism* focuses on the processes, methodologies, and approaches involved in electricity and magnetism. The manuscript first takes a look at current and potential difference, including flow of charge, parallel conductors, ammeters, electromotive force and potential difference, and voltmeters. The book then discusses resistance, networks, power, resistivity and temperature, and electrolysis. Topics include shunts and multipliers, resistors in series, distribution circuits, balanced potentiometers, heating, resistance thermometry, and thermistors. The text explains electrolysis and thermoelectricity, including electroplating, Avogadro's number, and thermoelectric power. The manuscript describes magnetic fields and circuits and inductors. Concerns include straight conductors, series circuits, magnetic moments, stored energy, and mutual inductance. The book also takes a look at electric fields, transients, and direct current generators and motors. The manuscript is a dependable reference for readers wanting to be familiar with electricity and magnetism.

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### QUANTUM MECHANICS

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### THEORY AND APPLICATIONS

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*Springer Science & Business Media* An understanding of quantum mechanics is vital to all students of physics, chemistry and electrical engineering, but requires a lot of mathematical concepts, the details of which are given with great clarity in this book. Various concepts have been derived from first principles, so it can also be used for self-study. The chapters on the JWKB approximation, time-independent perturbation theory and effects of magnetic field stand out for their clarity and easy-to-understand mathematics. Two complete chapters on the linear harmonic oscillator provide a very detailed discussion of one of the most fundamental problems in quantum mechanics. Operator algebra is used to show the ease with which one can calculate the harmonic oscillator wave functions and study the evolution of the coherent state. Similarly, three chapters on angular momentum give a detailed account of this important problem. Perhaps the most attractive feature of the book is the excellent balance between theory and applications and the large number of applications in such diverse areas as astrophysics, nuclear physics, atomic and molecular spectroscopy, solid-state physics, and quantum well structures.

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## THERMODYNAMICS AND AN INTRODUCTION TO THERMOSTATISTICS

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*John Wiley & Sons* The only text to cover both thermodynamic and statistical mechanics--allowing students to fully master thermodynamics at the macroscopic level. Presents essential ideas on critical phenomena developed over the last decade in simple, qualitative terms. This new edition maintains the simple structure of the first and puts new emphasis on pedagogical considerations. Thermostatistics is incorporated into the text without eclipsing macroscopic thermodynamics, and is integrated into the conceptual framework of physical theory.

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## PROBLEMS AND SOLUTIONS ON ATOMIC, NUCLEAR AND PARTICLE PHYSICS

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*World Scientific Publishing Company* This book, part of the seven-volume series Major American Universities PhD Qualifying Questions and Solutions contains detailed solutions to 483 questions/problems on atomic, molecular, nuclear and particle physics, as well as experimental methodology. The problems are of a standard appropriate to advanced undergraduate and graduate syllabi, and blend together two objectives – understanding of physical principles and practical application. The volume is an invaluable supplement to textbooks.

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## BMAT AND UKCAT UNCOVERED

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### A GUIDE TO MEDICAL SCHOOL ENTRANCE EXAMS

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*John Wiley & Sons* Contains over one thousand practice questions - worked examples, quick tests, 2 full BMAT-style sample test papers, and 2 full UKCAT-style sample test papers. With the use of admissions tests becoming an increasingly more common part of the selection process for entrance to medical school, BMAT and UKCAT Uncovered is a comprehensive yet accessible guide to the two main tests used by UK medical schools. Written by recent Cambridge graduates, the authors' experience lies in taking these exams themselves and teaching students how to pass them. They combine key strategies for tackling the specific skills tested by the BioMedical Admissions Test and the UK Clinical Aptitude Test, along with practice questions and tests, with worked answers, in the style of the BMAT and UKCAT exams. The simple, informal teaching style, highlighting key practice areas, with the minimal use of jargon, means BMAT and UKCAT Uncovered is an essential tool for all medical school applicants.

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## STATISTICAL MECHANICS

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### AN INTRODUCTORY GRADUATE COURSE

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*Springer Nature* In a comprehensive treatment of Statistical Mechanics from thermodynamics through the renormalization group, this book serves as the core text for a full-year graduate course in statistical mechanics at either the Masters or Ph.D. level. Each chapter contains numerous exercises, and several chapters treat special topics which can be used as the basis for student projects. The concept of scaling is introduced early and used extensively throughout the text. At the heart of the book is an extensive treatment of mean field theory, from the simplest decoupling approach, through the density matrix formalism, to self-consistent classical and quantum field theory as well as exact solutions on the Cayley tree. Proceeding beyond mean field theory, the book discusses exact mappings involving Potts models, percolation, self-avoiding walks and quenched randomness, connecting various athermal and thermal models. Computational methods such as series expansions and Monte Carlo simulations are discussed, along with exact solutions to the 1D quantum and 2D classical Ising models. The renormalization group formalism is developed, starting from real-space RG and proceeding through a detailed treatment of Wilson's epsilon expansion. Finally the subject of Kosterlitz-Thouless systems is introduced from a historical perspective and then treated by methods due to Anderson, Kosterlitz, Thouless and Young. Altogether, this comprehensive, up-to-date, and engaging text offers an ideal package for advanced undergraduate or graduate courses or for use in self study.

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## FUNDAMENTALS OF STATISTICAL AND THERMAL PHYSICS

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*McGraw-Hill Science, Engineering & Mathematics* This book is devoted to a discussion of some of the basic physical concepts and methods useful in the description of situations involving systems which consist of very many particulars. It attempts, in particular, to introduce the reader to the disciplines of thermodynamics, statistical mechanics, and kinetic theory from a unified and modern point of view. The presentation emphasizes the essential unity of the subject matter and develops physical insight by stressing the microscopic content of the theory.

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## STATISTICAL PHYSICS

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*Pergamon* A lucid presentation of statistical physics and thermodynamics which develops from the general principles to give a large number of applications of the theory.

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## QUANTUM FLUCTUATIONS OF SPACETIME

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*World Scientific* Three key aspects of quantum gravity are considered in this book: phenomenology, potential experimental aspects and foundational theory. The phenomenology is the treatment of metric quantum fluctuations as torsional curves that deviate from classical expectations. This leads to possible experimental configurations that may detect such fluctuations. Most of these proposed experiments are quantum optical measurements of subtle quantum gravity effects in the interaction of photons and atoms. The foundational discussions attempt to find a substratum to string theories, which are motivated by the phenomenological treatment. Quantum gravity is not the quantization of general relativity, but is instead the embedding of quantum theory and gravitation into a more fundamental field theoretic framework.

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## AN INTRODUCTORY COURSE OF STATISTICAL MECHANICS

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*Alpha Science International Limited* An Introductory Course of Statistical Mechanics introduces the subject to readers without any prior knowledge of the subject. In most textbooks, Statistical Mechanics appears to be a branch of Condensed Matter Physics. This book has a different perspective. It gives great importance to relativistic systems, thus paving the way for various applications of Statistical Mechanics, from nuclear reactions to Astrophysics and Cosmology. Non-relativistic systems and their applications to Condensed Matter Physics are not abandoned either: there are discussions on gases, liquids and magnetic systems. The book ends with one chapter on Phase Transitions and one on Boltzmann equation. Overall, the book presents Statistical Mechanics from a broader perspective encompassing many branches of Physics.

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## STATISTICAL DATA ANALYSIS

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*Oxford University Press* This book is a guide to the practical application of statistics to data analysis in the physical sciences. It is primarily addressed at students and professionals who need to draw quantitative conclusions from experimental data. Although most of the examples are taken from particle physics, the material is presented in a sufficiently general way as to be useful to people from most branches of the physical sciences. The first part of the book describes the basic tools of data analysis: concepts of probability and random variables, Monte Carlo techniques, statistical tests, and methods of parameter estimation. The last three chapters then develop more advanced statistical ideas, focusing on interval estimation, characteristic functions, and correcting distributions for the effects of measurement errors (unfolding).

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## THERMODYNAMICS AND STATISTICAL MECHANICS

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*Springer Science & Business Media* From the reviews: "This book excels by its variety of modern examples in solid state physics, magnetism, elementary particle physics [...] I can recommend it strongly as a valuable source, especially to those who are teaching basic

statistical physics at our universities." Physicalia

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**STATISTICAL MECHANICS**

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**ENTROPY, ORDER PARAMETERS, AND COMPLEXITY**

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*Oxford University Press* Sethna distills the core ideas of statistical mechanics to make room for new advances important to information theory, complexity, and modern biology. He explores everything from chaos through to life at the end of the universe.

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**FOUNDATIONS OF STATISTICAL MECHANICS**

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**A DEDUCTIVE TREATMENT**

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*Elsevier International Series of Monographs in Natural Philosophy, Volume 22: Foundations of Statistical Mechanics: A Deductive Treatment* presents the main approaches to the basic problems of statistical mechanics. This book examines the theory that provides explicit recognition to the limitations on one's powers of observation. Organized into six chapters, this volume begins with an overview of the main physical assumptions and their idealization in the form of postulates. This text then examines the consequences of these postulates that culminate in a derivation of the fundamental formula for calculating probabilities in terms of dynamic quantities. Other chapters provide a careful analysis of the significant notion of entropy, which shows the links between thermodynamics and statistical mechanics and also between communication theory and statistical mechanics. The final chapter deals with the thermodynamic concept of entropy. This book is intended to be suitable for students of theoretical physics. Probability theorists, statisticians, and philosophers will also find this book useful.