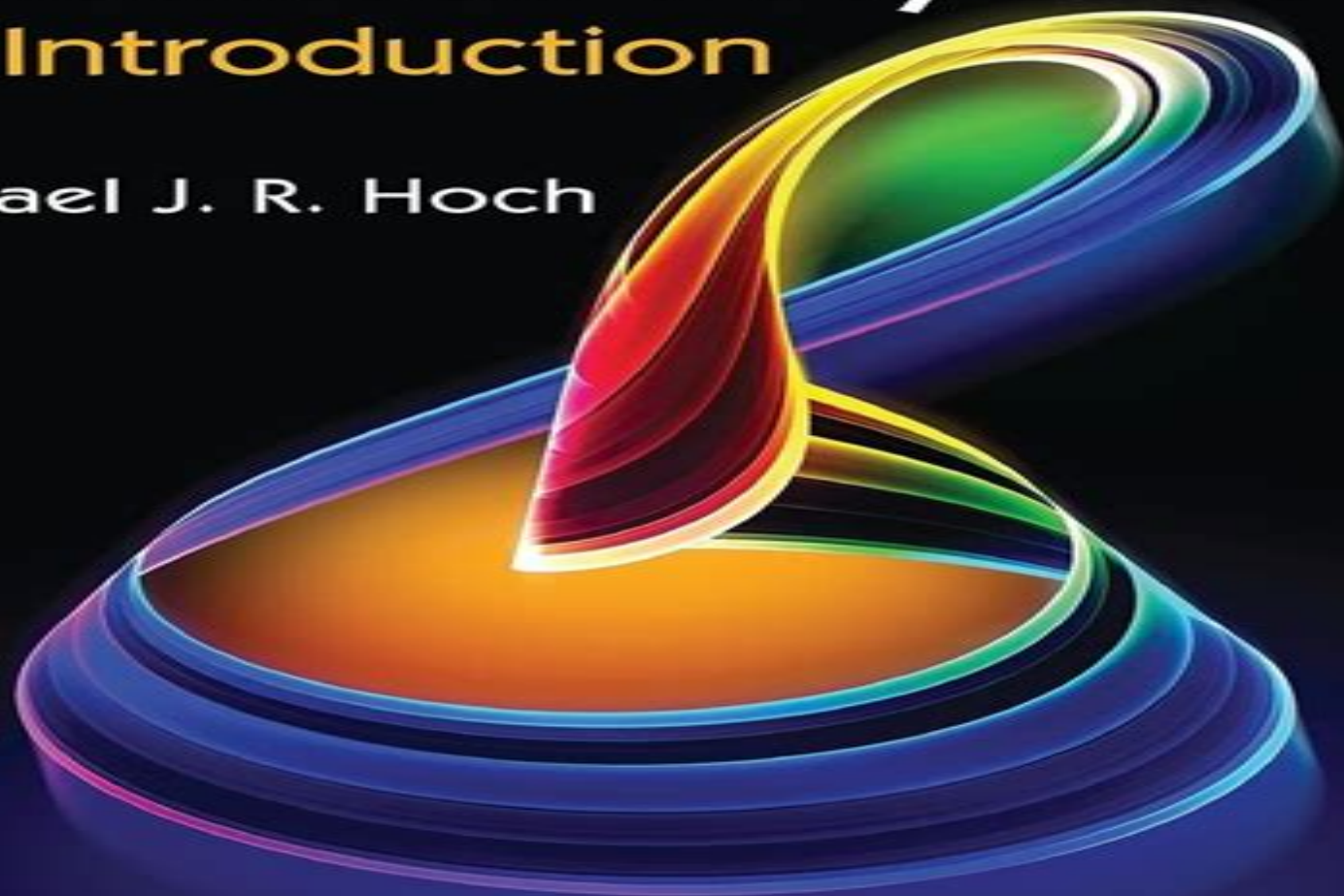


Statistical and Thermal Physics

An Introduction

Michael J. R. Hoch



CRC Press
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Statistical And Thermal Physics An Introduction

Harvey Gould, Jan Tobochnik



Statistical And Thermal Physics An Introduction:

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to gases condensed matter and phase transitions and critical phenomena are dealt with in detail Initial chapters in Part II present the elements of probability theory and establish the thermodynamic equivalence of the three statistical ensembles that are used in determining probabilities The canonical and the grand canonical distributions are obtained and discussed Chapters 12-15 are concerned with quantum distributions By making use of the grand canonical distribution the Fermi-Dirac and Bose-Einstein quantum distribution functions are derived and then used to explain the properties of ideal Fermi and Bose gases The Planck distribution is introduced and applied to photons in radiation and to phonons in solids The last five chapters cover a variety of topics the ideal gas revisited nonideal systems the density matrix reactions and irreversible thermodynamics A flowchart is provided to assist instructors on planning a course Key Features Fully updated throughout with new content on exciting topics including black hole thermodynamics Heisenberg antiferromagnetic chains entropy and information theory renewable and nonrenewable energy sources and the mean field theory of antiferromagnetic systems Additional problem exercises with solutions provide further learning opportunities Suitable for advanced undergraduate students in physics or applied physics Michael J R Hoch spent many years as a visiting scientist at the National High Magnetic Field Laboratory at Florida State University USA Prior to this he was a professor of physics and the director of the Condensed Matter Physics Research Unit at the University of the Witwatersrand Johannesburg where he is currently professor emeritus in the School of Physics

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Table of Contents Statistical And Thermal Physics An Introduction

1. Understanding the eBook Statistical And Thermal Physics An Introduction
 - The Rise of Digital Reading Statistical And Thermal Physics An Introduction
 - Advantages of eBooks Over Traditional Books
2. Identifying Statistical And Thermal Physics An Introduction
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Statistical And Thermal Physics An Introduction
 - User-Friendly Interface
4. Exploring eBook Recommendations from Statistical And Thermal Physics An Introduction
 - Personalized Recommendations
 - Statistical And Thermal Physics An Introduction User Reviews and Ratings
 - Statistical And Thermal Physics An Introduction and Bestseller Lists
5. Accessing Statistical And Thermal Physics An Introduction Free and Paid eBooks
 - Statistical And Thermal Physics An Introduction Public Domain eBooks
 - Statistical And Thermal Physics An Introduction eBook Subscription Services
 - Statistical And Thermal Physics An Introduction Budget-Friendly Options

6. Navigating Statistical And Thermal Physics An Introduction eBook Formats
 - ePub, PDF, MOBI, and More
 - Statistical And Thermal Physics An Introduction Compatibility with Devices
 - Statistical And Thermal Physics An Introduction Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Statistical And Thermal Physics An Introduction
 - Highlighting and Note-Taking Statistical And Thermal Physics An Introduction
 - Interactive Elements Statistical And Thermal Physics An Introduction
8. Staying Engaged with Statistical And Thermal Physics An Introduction
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Statistical And Thermal Physics An Introduction
9. Balancing eBooks and Physical Books Statistical And Thermal Physics An Introduction
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Statistical And Thermal Physics An Introduction
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Statistical And Thermal Physics An Introduction
 - Setting Reading Goals Statistical And Thermal Physics An Introduction
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Statistical And Thermal Physics An Introduction
 - Fact-Checking eBook Content of Statistical And Thermal Physics An Introduction
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements

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