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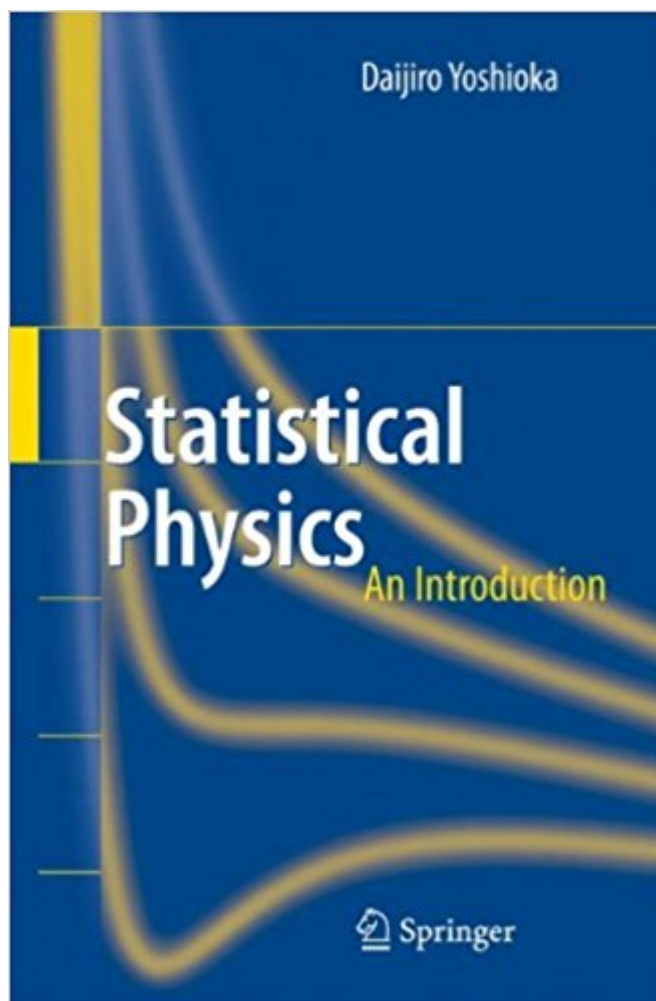
Statistical Physics: An Introduction

Daijiro Yoshioka

Statistical Physics
An Introduction

Springer

Synopsis

This book provides a comprehensive presentation of the basics of statistical physics. The first part explains the essence of statistical physics and how it provides a bridge between microscopic and macroscopic phenomena, allowing one to derive quantities such as entropy. Here the author avoids going into details such as LiouvilleÃ¢ ¬â„¢s theorem or the ergodic theorem, which are difficult for beginners and unnecessary for the actual application of the statistical mechanics. In the second part, statistical mechanics is applied to various systems which, although they look different, share the same mathematical structure. In this way readers can deepen their understanding of statistical physics. The book also features applications to quantum dynamics, thermodynamics, the Ising model and the statistical dynamics of free spins.

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Customer Reviews

From the reviews: "Yoshioka (Univ. of Tokyo) offers an introduction to statistical physics with an emphasis on macroscopic relations. Ã¢â ¬Â¦ Yoshioka writes well, and students will derive a great deal from this text. It might work well as a course supplement of for someone who wants a good introduction to macroscopic studies. Summing Up: Recommended. Upper-division undergraduates." (E. Kincanon, CHOICE, Vol. 44 (10), June, 2007) "The book is intended as a textbook for undergraduate students, and it is divided into three parts. The first part is devoted to general principles, the second part to elementary investigators and the third part to more advanced topics. Ã¢â ¬Â¦ Finally, the appendix summarizes some mathematical facts used in this book." (Christina PapenfuÃƒÅ¸, Zentralblatt MATH, Vol. 1129 (7), 2008) "This accessible text provides a

comprehensive and self-contained introduction to the basics of statistical physics for equilibrium states at a level suitable for beginning undergraduate students with no pre-knowledge of statistical physics. Ã¢â ¬Â| The beginning student will appreciate the clear and lucid presentation of the subjects discussed. At the end of each chapter problems are given. The book may also serve as a useful guide for teachers of statistical physics." (Oliver Rudolph, Mathematical Reviews, Issue 2009 d)

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This book is not good. The chapters are extremely short, and as a result the entire book is weak. There are very few connections between equations. At times, it seems as if Yoshioka pulls the equations (and material) out of thin air. Some of the equations he puts in are also of rare form and, in my experience, nearly useless in learning Statistical Mechanics. I am forced to use this book for a graduate level Statistical Mechanics course, and I find myself running back to my undergraduate text, Daniel Schroeder's 'Thermal Physics' for reference to EVERYTHING that Yoshioka has missed (which is just about everything important for developing a good sense of stat mech). I would heavily NOT recommend this book for anyone, student, teacher, or self learner. There are far better books to use than this one.

Statistical Physics (Student Physics Series) Modern Classical Physics: Optics, Fluids, Plasmas, Elasticity, Relativity, and Statistical Physics Statistical Methods for Data Analysis in Particle Physics (Lecture Notes in Physics) Statistical Physics: Theory of the Condensed State (Course of Theoretical Physics Vol. 9) Fundamentals of Statistical and Thermal Physics (Fundamentals of Physics) Methods of Quantum Field Theory in Statistical Physics (Dover Books on Physics) Analytics: Business Intelligence, Algorithms and Statistical Analysis (Predictive Analytics, Data

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