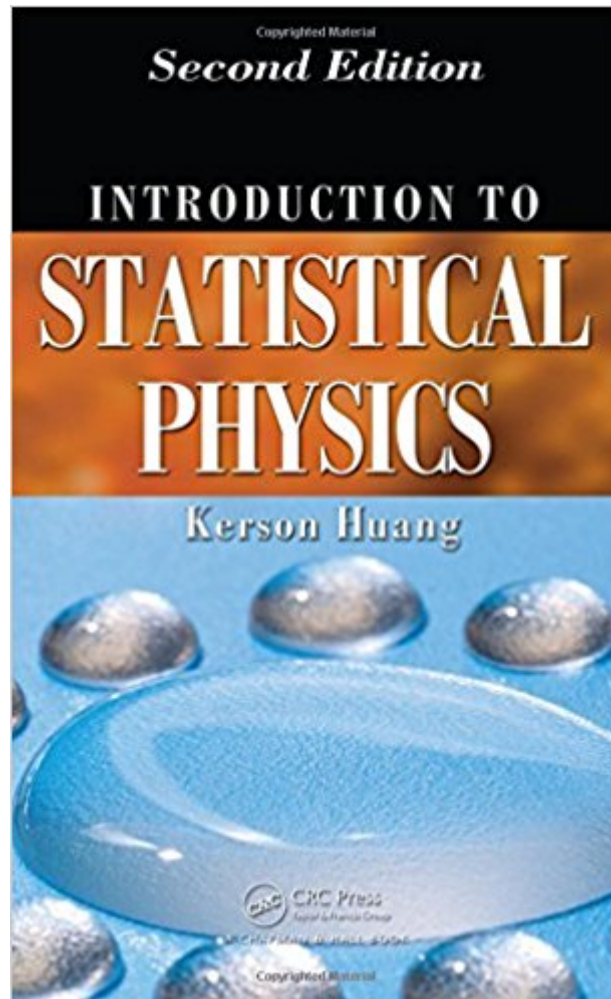


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Introduction To Statistical Physics, Second Edition



Synopsis

Written by a world-renowned theoretical physicist, *Introduction to Statistical Physics, Second Edition* clarifies the properties of matter collectively in terms of the physical laws governing atomic motion. This second edition expands upon the original to include many additional exercises and more pedagogically oriented discussions that fully explain the concepts and applications. The book first covers the classical ensembles of statistical mechanics and stochastic processes, including Brownian motion, probability theory, and the Fokker-Planck and Langevin equations. To illustrate the use of statistical methods beyond the theory of matter, the author discusses entropy in information theory, Brownian motion in the stock market, and the Monte Carlo method in computer simulations. The next several chapters emphasize the difference between quantum mechanics and classical mechanics—the quantum phase. Applications covered include Fermi statistics and semiconductors and Bose statistics and Bose-Einstein condensation. The book concludes with advanced topics, focusing on the Ginsburg-Landau theory of the order parameter and the special kind of quantum order found in superfluidity and superconductivity. Assuming some background knowledge of classical and quantum physics, this textbook thoroughly familiarizes advanced undergraduate students with the different aspects of statistical physics. This updated edition continues to provide the tools needed to understand and work with random processes.

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Kerson Huang is Professor of Physics, Emeritus at MIT. Since retiring from active teaching, Dr. Huang has been engaged in biophysics research.

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