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## Statistical Mechanics for Beginners: A Textbook for Undergraduates

By Lucien Gilles Benguigui

World Scientific Publishing Co Pte Ltd. Paperback. Book Condition: new. BRAND NEW, Statistical Mechanics for Beginners: A Textbook for Undergraduates, Lucien Gilles Benguigui, This textbook is for undergraduate students on a basic course in Statistical Mechanics. The prerequisite is thermodynamics. It begins with a study of three situations - the closed system and the systems in thermal contact with a reservoir - in order to formulate the important fundamentals: entropy from Boltzmann formula, partition function and grand partition function. Through the presentation of quantum statistics, Bose statistics and Fermi-Dirac statistics are established, including as a special case the classical situation of Maxwell-Boltzmann statistics. A series of examples ensue it: the harmonic oscillator, the polymer chain, the two level system, bosons (photons, phonons, and the Bose-Einstein condensation) and fermions (electrons in metals and in semiconductors). A compact historical note on influential scientists forms the concluding chapter. The unique presentation starts off with the principles, elucidating the well-developed theory, and only thereafter the application of theory. Calculations on the main steps are detailed, leaving behind minimal gap. The author emphasizes with theory the link between the macroscopic world (thermodynamics) and the microscopic world.



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