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statistics of paramagnetism; 3.10 Thermodynamics of magnetic systems: negative temperatures; Problems; Chapter 4. The Grand Canonical Ensemble; 4.1 Equilibrium between a system and a particle-energy reservoir; 4.2 A system in the grand canonical ensemble; 4.3 Physical significance of the various statistical quantities; 4.4 Examples 4.5 Density and energy fluctuations in the grand canonical ensemble: correspondence with other ensembles4.6 Thermodynamic phase diagrams; 4.7 Phase equilibrium and the Clausius-Clapeyron equation; Problems; Chapter 5. Formulation of Quantum Statistics; 5.1 Quantum-mechanical ensemble theory: the density matrix; 5.2 Statistics of the various ensembles; 5.3 Examples; 5.4 Systems composed of indistinguishable particles; 5.5 The density matrix and the partition function of a system of free particles; Problems; Chapter 6. The Theory of Simple Gases

6.1 An ideal gas in a quantum-mechanical microcanonical ensemble6.2 An ideal gas in other quantum-mechanical ensembles; 6.3 Statistics of the occupation numbers; 6.4 Kinetic considerations; 6.5 Gaseous systems composed of molecules with internal motion; 6.6 Chemical equilibrium; Problems; Chapter 7. Ideal Bose Systems; 7.1 Thermodynamic behavior of an ideal Bose gas; 7.2 Bose-Einstein condensation in ultracold atomic gases; 7.3 Thermodynamics of the blackbody radiation; 7.4 The field of sound waves; 7.5 Inertial density of the sound field; 7.6 Elementary excitations in liquid helium II Problems

Sommario/riassunto	This classic text, first published in 1972, is designed for graduate physics courses in statistical mechanics. The second edition, published in 1996, incorporated three comprehensive chapters on phase transitions and critical phenomena. This third edition includes new sections on Bose-Einstein condensation and degenerate Fermi behavior of ultracold atomic gases, and two new chapters on computer simulation methods and the thermodynamics of the early universe. We have also added new sections on chemical and phase equilibrium, and expanded our discussions of correlations and scattering, quant