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Introduction to modern statistical physics: a set of lectures

By Zaitsev, R.O.

Editorial URSS, 2008. soft. Book Condition: New.

Encuadernación: rústica The aim of this book is to add certain new topics to the material of the famous textbook "Statistical physics" by L. D. Landau and E. M. Lifshitz. High-temperature corrections to the thermodynamic potential are calculated by employing ring diagrams and also by expanding in powers of the gas parameter. The universality hypothesis gives a possibility to calculate critical exponents in the framework of perturbation theory. Summation of the most strongly diverging diagrams yields parquet equations. Solving these equations, the singular specific heat and magnetic susceptibility are determined in the $(4-\epsilon)$ -dimensional space. The gradient-invariant microscopic equations which describe a superconducting state are derived. Using these equations, the Ginsburg--Landau equations together with the microscopic boundary conditions are obtained. The critical magnetic field of forming superconducting nuclei is calculated. The tunneling effects between two superconductors (the Josephson effect) and also between a superconductor and a normal metal are studied. The microscopic description of the Meissner effect, calculation of the spin susceptibility in a superconductor (the Knight shift) are given. The book is intended for researchers, graduate and undergraduate students studying the theory of condensed matter. Rogdai Olegovich Zaitsev was born in Moscow in...



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Reviews

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