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3.2 Fermi-Dirac Distribution Function and Chemical Potential3.3 Electronic Specific Heat in Metals and Thermodynamic Functions; 3.4 Thermionic Emission from Metals; Appendix A. Outline of Statistical Physics and Thermodynamic Relations; A.1 Microcanonical Ensemble and Thermodynamic Quantities; A.2 Canonical Ensemble and Thermodynamic Quantities; A.3 Grand Canonical Ensemble and Thermodynamic Quantities; Appendix B. Fermi-Dirac and Bose-Einstein Statistics for Independent Particles; B.1 Fermi-Dirac Statistics of Noninteracting Fermions; B.2 Bose-Einstein Statistics for Noninteracting Bosons
Appendix C. Modified Fermi-Dirac Statistics in a Model of Correlation EffectsFurther Reading; 4 The One-Electron Approximation and Beyond; 4.1 Introductory Remarks on the Many-Electron Problem; 4.2 The Hartree Equations; 4.3 Identical Particles and Determinantal Wavefunctions; 4.4 Matrix Elements Between Determinantal States; 4.5 The Hartree-Fock Equations; 4.5.1 Variational Approach and Hartree-Fock Equations; 4.5.2 Ground-State Energy, Ionization Energies, and Transition Energies; 4.5.3 Hartree-Fock Equations and Transition Energies in Closed-Shell Systems
4.5.4 Hartree-Fock-Slater and Hartree-Fock-Roothaan Approximations

Sommario/riassunto

Solid State Physics is a textbook for students of physics, material science, chemistry, and engineering. It is the state-of-the-art presentation of the theoretical foundations and application of the quantum structure of matter and materials. This second edition provides timely coverage of the most important scientific breakthroughs of the last decade (especially in low-dimensional systems and quantum transport). It helps build readers' understanding of the newest advances in condensed matter physics with rigorous yet clear mathematics. Examples are an integral part of the text