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5.5 The Anderson model I5.6 The Anderson model II; 5.7 The Coulomb interaction: UHF; 5.8 Expansion in powers of U; 5.9 s-d interaction; 5.10 Case with orbital degeneracy; References and further reading; Further reading; 6 The infrared divergence in metals; 6.1 The Anderson orthogonality theorem; 6.2 Mahan's problem; 6.3 The thermal Green's function; 6.4 Thermal Green's functions in the presence of local potentials; 6.5 The partition function in the s-d problem; 6.6 The Nozieres-de Dominicis solution; 6.7 Calculation of the partition function; 6.8 A scaling approach
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References and further reading9 Recent developments; 9.1 The spin-flip rate; 9.2 The heavy electrons; 9.3 Quantum dots; References and further reading; Appendices; Appendix A: Matrix elements between Slater determinants; Appendix B: Spin function for N-electron systems; Appendix C: Fourier expansion of three-dimensional periodic functions; Appendix D: Proof of eq. (5.29); Appendix E: Relations between Green's functions; Appendix F: Expansion of free energy to order J2; Appendix G: Calculation of g±; Appendix H: Feynman's theorem; Appendix I: Elimination of adjacent pairs
Appendix J: Proof of eq. (6.80)

Sommario/riassunto

Available for the first time in English, this classic text by Jun Kondo describes the Kondo effect thoroughly and intuitively. Its clear and concise treatment makes this book of interest to graduate students and researchers in condensed matter physics. The first half of the book describes the rudiments of the theory of metals at a level that is accessible for undergraduate students. The second half discusses key developments in the Kondo problem, covering topics including magnetic impurities in metals, the resistance minimum phenomenon, infrared divergence in metals and scaling theory, including Wilson's renormalization group treatment and the exact solution by the Bethe ansatz. A new chapter has been added covering advances made since the Japanese edition was published, such as the quantum dot and heavy fermion systems.