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3.4 The Quasi-phonon Contribution to the Heat Conductivity and Sound Absorption in Amorphous Solids at Moderately Low Temperatures; 3.5 Beyond the Quasi-phonon Approximation; 4 Magnetic Properties of Amorphous Metals; 4.1 Review of Experimental Results; 4.2 Thermodynamic Properties of Amorphous Ferromagnets Near the Curie Point; 4.3 The Spectrum of Quasi-Magnon Excitations in Amorphous Ferromagnets; 4.4 Low-temperature Magnetic Behavior of Amorphous Ferromagnets; 4.5 Beyond the Quasi-Magnon Approach: Computer Simulations; 4.6 The Thermodynamics of Amorphous Ferrimagnets; 4.7 Itinerant Magnetism and Itinerant Spin-glass Behavior in Amorphous Alloys; 5 Superconductivity of Glassy Metals; 5.1 The Eliashberg Equations for Amorphous Metals; 5.2 The Electron-phonon Coupling Constant and the Superconducting Transition Temperature for Simple Amorphous Metals; 5.3 Superconducting Properties of Binary Alloys of Simple Amorphous Metals; 6 Conclusions; Appendices; Appendix A: Calculation of the Free Energy of Amorphous Metals; Appendix B: Calculation of the Free Energy of Amorphous Ferromagnets; Appendix C: Derivation of the Eliashberg Equation for Amorphous Metals; Appendix D: Simplification of the Eliashberg Equation; References; Index

Sommario/riassunto

The discovery of bulk metallic glasses has led to a large increase in the industrial importance of amorphous metals, and this is expected to continue. This book is the first to describe the theoretical physics of amorphous metals, including the important theoretical development of the last 20 years. The renowned authors stress the universal aspects in their description of the phonon or magnon low-energy excitations in the amorphous metals, e.g. concerning the remarkable consequences of the properties of these excitations for the thermodynamics at low and intermediate temperatures. Tunneling
