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Descrizione fisica	1 online resource (XVIII, 287 p. 59 illus., 18 illus. in color.)
Disciplina	538
Soggetti	Magnetism Magnetic materials Metals Electrochemistry Quantum computers Spintronics Solid state physics Magnetism, Magnetic Materials Metallic Materials Quantum Information Technology, Spintronics Solid State Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Basics of Metallic Magnetism -- Many-Electron Problem -- Mean-Field Theory -- Random-Phase Approximation -- Green Functions at Finite Temperatures -- Spin-Fluctuation Theory in the Ising Model -- Functional Integral Method -- Gaussian Approximation -- Single-Site Gaussian Approximation -- High-Temperature Theory -- Low-Temperature Theory -- Temperature Dependence of Magnetic Characteristics -- Neutron Scattering in Metals -- Short-Range Order Above TC -- Conclusion -- Appendices -- Index.
Sommario/riassunto	This book presents a theoretical framework for magnetism in ferromagnetic metals and alloys at finite temperatures. The objective of the book is twofold. First, it gives a detailed presentation of the

dynamic spin-fluctuation theory that takes into account both local and long-wave spin fluctuations with any frequency. The authors provide a detailed explanation of the fundamental role of quantum spin fluctuations in the mechanism of metallic magnetism and illustrate the theory with concrete examples. The second objective of the book is to give an accurate and self-contained presentation of many-body techniques such as the functional integral method and Green's functions, via a number of worked examples. These computational methods are of great use to solid state physicists working in a range of specialties. The book is intended primarily for researchers, but can also be used as textbook. The introductory chapters offer clear and complete derivations of the fundamentals, which makes the presentation self-contained. The main text is followed by a number of well-organized appendices that contain a detailed presentation of the necessary many-body techniques and computational methods. The book also includes a list of symbols and detailed index. This volume will be of interest to a wide range of physicists interested in magnetism and solid state physics in general, both theoreticians and experimentalists.