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Descrizione fisica	1 online resource (xiv, 400 pages) : digital, PDF file(s)
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	A brief review of quantum mechanics -- Single-particle states -- Second quantization -- The electron gas -- A brief review of statistical mechanics -- Real-time Green's and correlation functions -- Applications of real-time Green's functions -- Imaginary-time Green's and correlation functions -- Diagrammatic techniques -- Electron gas : a diagrammatic approach -- Phonons, photons, and electrons -- Superconductivity -- Nonequilibrium Green's function -- Appendix A : Second quantized form of operators -- Appendix B : Completing the proof of Dzyaloshinski's rules -- Appendix C : Lattice vibrations in three dimensions -- Appendix D : Electron-phonon interaction in polar crystals.
Sommario/riassunto	A concise introduction to Feynman diagram techniques, this book

shows how they can be applied to the analysis of complex many-particle systems, and offers a review of the essential elements of quantum mechanics, solid state physics and statistical mechanics. Alongside a detailed account of the method of second quantization, the book covers topics such as Green's and correlation functions, diagrammatic techniques and superconductivity, and contains several case studies. Some background knowledge in quantum mechanics, solid state physics and mathematical methods of physics is assumed. Detailed derivations of formulas and in-depth examples and chapter exercises from various areas of condensed matter physics make this a valuable resource for both researchers and advanced undergraduate students in condensed matter theory, many-body physics and electrical engineering. Solutions to exercises are available online.