1. Record Nr. UNINA9910782328703321 Autore Sadovskii M. V (Mikhail Vissarionovich), <1948-> Titolo Diagrammatics [[electronic resource]]: lectures on selected problems in condensed matter theory / / Michael V. Sadovskii Singapore: Hackensack, NJ.: World Scientific, c2006 Pubbl/distr/stampa **ISBN** 1-281-91942-X 9786611919429 981-277-436-X Descrizione fisica 1 online resource (359 p.) Disciplina 530.4/1 Soggetti Condensed matter Quantum field theory Fevnman diagrams Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references. Nota di contenuto Preface; Contents; 1 Introduction; 1.1 Quasiparticles and Green's functions; 1.2 Diagram technique. Dyson equation; 1.3 Green's functions at finite temperatures; 2 Electron-Electron Interaction; 2.1 Diagram rules; 2.2 Electron gas with Coulomb interaction; 2.3 Polarization operator of free electron gas at T = 0; 2.4 Dielectric function of an electron gas: 2.5 Electron self-energy effective mass and damping of guasiparticles; 2.6 RKKY-oscillations; 2.7 Linear response; 2.8 Microscopic foundations of Landau-Silin theory of Fermi-liquids; 2.9 Interaction of quasiparticles in Fermi-liquid 2.10 Non-Fermi-liquid behavior3 Electron-Phonon Interaction; 3.1 Diagram rules; 3.2 Electron self-energy; 3.3 Migdal theorem; 3.4 Selfenergy and spectrum of phonons; 3.5 Plasma model; 3.6 Phonons and fluctuations; 4 Electrons in Disordered Systems; 4.1 Diagram technique for ""impurity"" scattering; 4.2 Single-electron Green's function; 4.3 Keldysh model; 4.4 Conductivity and two-particle Green's function; 4.5 Bethe-Salpeter equation ""diffuson" and ""Cooperon"; 4.6 Quantum corrections self-consistent theory of localization and Anderson

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Sommario/riassunto

The introduction of quantum field theory methods has led to a kind of "revolution" in condensed matter theory. This resulted in the increased importance of Feynman diagrams or diagram technique. It has now become imperative for professionals in condensed matter theory to have a thorough knowledge of this method. There are many good books that cover the general aspects of diagrammatic methods. At the same time, there has been a rising need for books that describe calculations and methodical "know how" of specific problems for beginners in graduate and postgraduate courses. This unique collection