1. Record Nr.	UNISA996466699203316
Titolo	Modern Theories of Many-Particle Systems in Condensed Matter Physics [[electronic resource] /] / edited by Daniel C. Cabra, Andreas Honecker, Pierre Pujol
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2012
ISBN	3-642-10449-5
Edizione	[1st ed. 2012.]
Descrizione fisica	1 online resource (XIII, 368 p. 130 illus.)
Collana	Lecture Notes in Physics, , 0075-8450 ; ; 843
Disciplina	530.41
Soggetti	Superconductivity Superconductors Statistical physics Dynamical systems Magnetism Magnetic materials Quantum computers Spintronics Phase transitions (Statistical physics) Strongly Correlated Systems, Superconductivity Complex Systems Magnetism, Magnetic Materials Quantum Information Technology, Spintronics Phase Transitions and Multiphase Systems Statistical Physics and Dynamical Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Quantum Phase Transitions of Antiferromagnets and the Cuprate Superconductors -- Electronic Liquid Crystal Phases in Strongly Correlated Systems -- Selected Topics in Graphene Physics -- Strong Electronic Correlations: Dynamical Mean-Field Theory and Beyond -- Nonequilibrium Transport and Dephasing in Coulomb-blockaded Quantum Dots -- Many-body Physics From a Quantum Information

Perspective -- Statistical Mechanics of Classical and Quantum Computational Complexity -- Non-perturbative Methods in (1+1) Dimensional Quantum Field Theory.

Sommario/riassunto

Condensed matter systems where interactions are strong are inherently difficult to analyze theoretically. The situation is particularly interesting in low-dimensional systems, where quantum fluctuations play a crucial role. Here, the development of non-perturbative methods and the study of integrable field theory have facilitated the understanding of the behavior of many quasi one- and two-dimensional strongly correlated systems. In view of the same rapid development that has taken place for both experimental and numerical techniques, as well as the emergence of novel testing-grounds such as cold atoms or graphene, the current understanding of strongly correlated condensed matter systems differs quite considerably from standard textbook presentations.   The present volume of lecture notes aims to fill this gap in the literature by providing a collection of authoritative tutorial reviews, covering such topics as quantum phase transitions of antiferromagnets and cuprate-based high-temperature superconductors, electronic liquid crystal phases, graphene physics, dynamical mean field theory applied to strongly correlated systems, transport through quantum dots, quantum information perspectives on many-body physics, frustrated magnetism, statistical mechanics of classical and quantum computational complexity, and integrable methods in statistical field theory.   As both graduate-level text and authoritative reference on this topic, this book will benefit newcomers and more experienced researchers in this field alike.