Record Nr. UNINA9910786132103321 Autore Fradkin Eduardo Titolo Field theories of condensed matter physics / / Eduardo Fradkin, University of Illinois at Urbana-Champaign [[electronic resource]] Cambridge:,: Cambridge University Press,, 2013 Pubbl/distr/stampa **ISBN** 1-107-23327-5 1-107-30105-X 1-107-25358-6 1-107-31388-0 1-107-30613-2 1-107-30833-X 1-299-40885-0 1-107-31168-3 1-139-01550-8 Edizione [Second edition.] Descrizione fisica 1 online resource (xvi, 838 pages) : digital, PDF file(s) Disciplina 537.6/23 Soggetti High temperature superconductivity Hubbard model Antiferromagnetism Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Title from publisher's bibliographic system (viewed on 05 Oct 2015). Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Machine generated contents note: 1. Introduction; 2. The Hubbard model; 3. The magnetic instability of the Fermi system; 4. The renormalization group and scaling; 5. One-dimensional quantum antiferromagnets; 6. The Luttinger liquid; 7. Sigma models and topological terms; 8. Spin liquid states; 9. Gauge theory, dimer models, and topological phases; 10. Chiral spin states and anyons; 11. Anyon superconductivity; 12. Topology and quantum Hall effect; 13. The fractional quantum Hall effect; 14. Topological fluids; 15. Physics at the edge; 16. Topological insulators; 17. Quantum entanglement; References: Index.

Sommario/riassunto

Presenting the physics of the most challenging problems in condensed

matter using the conceptual framework of quantum field theory, this

book is of great interest to physicists in condensed matter and high energy and string theorists, as well as mathematicians. Revised and updated, this second edition features new chapters on the renormalization group, the Luttinger liquid, gauge theory, topological fluids, topological insulators and quantum entanglement. The book begins with the basic concepts and tools, developing them gradually to bring readers to the issues currently faced at the frontiers of research, such as topological phases of matter, quantum and classical critical phenomena, quantum Hall effects and superconductors. Other topics covered include one-dimensional strongly correlated systems, quantum ordered and disordered phases, topological structures in condensed matter and in field theory and fractional statistics.