1.	Record Nr.	UNINA9910739467103321
	Titolo	Strongly correlated systems : numerical methods / / Adolfo Avella, Ferdinando Mancini, editors
	Pubbl/distr/stampa	Berlin ; ; New York, : Springer, c2013
	ISBN	3-642-35106-9
	Edizione	[1st ed. 2013.]
	Descrizione fisica	1 online resource (349 p.)
	Collana	Springer series in solid-state sciences ; ; v. 176
	Altri autori (Persone)	AvellaAdolfo ManciniFerdinando
	Disciplina	537.6 537.623
	Soggetti	Superconductivity Condensed matter
	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 and index.
	Nota di contenuto	1. Ground State and Finite Temperature Lanczos Method -- 2. The Density Matrix Renormalization Group -- 3. Matrix Product State Algorithms: DMRG, TEBD and Relatives -- 4. Quantum Criticality with the Multi-scale Entanglement Renormalization Ansatz -- 5. The Time-Dependent Density Matrix Renormalization Groupd -- 6. Loop Algorithm -- 7. Stochastic Series Expansion Quantum Monte Carlo -- 8. Variational Monte Carlo and Markov Chanis for Computational Physics -- 9. Coupled Cluster Theories for Strongly Correlated Molecular Systems -- 10. Diagrammatic Monte Carlo and Worm Algorithm Techniques -- 11. Fermionic and Continuous Time Quantum Monte Carlo.
	Sommario/riassunto	This volume presents, for the very first time, an exhaustive collection of those modern numerical methods specifically tailored for the analysis of Strongly Correlated Systems. Many novel materials, with functional properties emerging from macroscopic quantum behaviors at the frontier of modern research in physics, chemistry and material science, belong to this class of systems. Any technique is presented in great detail by its own inventor or by one of the world-wide recognized main contributors. The exposition has a clear pedagogical cut and fully reports on the most relevant case study where the specific technique

showed to be very successful in describing and enlightening the puzzling physics of a particular strongly correlated system. The book is intended for advanced graduate students and post-docs in the field as textbook and/or main reference, but also for other researchers in the field who appreciate consulting a single, but comprehensive, source or wishes to get acquainted, in a as painless as possible way, with the working details of a specific technique.