Record Nr. UNINA9910449745603321 Autore Walecka John Dirk <1932-> Titolo Electron scattering for nuclear and nucleon structure // John Dirk Walecka [[electronic resource]] Cambridge:,: Cambridge University Press,, 2001 Pubbl/distr/stampa **ISBN** 1-107-12005-5 1-280-42966-6 9786610429660 0-511-17516-7 0-511-01874-6 0-511-15533-6 0-511-30384-X 0-511-53501-5 0-511-05008-9 Descrizione fisica 1 online resource (xiii, 363 pages) : digital, PDF file(s) Collana Cambridge monographs on particle physics, nuclear physics, and cosmology;;16 Disciplina 539.7/2112 Soggetti Electrons - Scattering Nuclear structure Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Title from publisher's bibliographic system (viewed on 05 Oct 2015). Note generali Includes bibliographical references (p. 337-351) and index. Nota di bibliografia Nota di contenuto ; pt. 1. Introduction.; 1. Motivation.; 2. Pictures of the nucleus.; 3. Some optics.; 4. Why electron scattering?; 5. Target response surfaces. ; 6. Why coincidence experiments?; 7. Units and conventions --; pt. 2. General analysis.; 8. Electromagnetic interactions.; 9. Multipole analysis.; 10. Dirac equation.; 11. Covariant analysis.; 12. Excitation of discrete states in (e, e').; 13. Coincidence experiments (e, e'X).; 14. Deep-inelastic scattering from the nucleon.; 15. Polarization in deepinelastic scattering.; 16. Parity violation in inclusive electron scattering --; pt. 3. Quantum electrodynamics.; 17. Basic elements.; 18. Radiative corrections -- ; pt. 4. Selected examples. ; 19. Basic nuclear structure.; 20. Some applications. The scattering of high-energy electrons from nuclear and nucleon Sommario/riassunto

targets provides a microscope for examining the structure of these tiny

objects. The best evidence we have on what nuclei and nucleons actually look like comes from electron scattering. This 2001 book examines the motivation for electron scattering and develops the theoretical analysis of the process. It discusses our current theoretical understanding of the underlying structure of nuclei and nucleons at appropriate levels of resolution and sophistication, and summarizes present experimental electron scattering capabilities. Only a working knowledge of quantum mechanics and special relativity is assumed, making this a suitable textbook for graduate and advanced undergraduate courses. It will also provide a valuable summary and reference for researchers already working in electron scattering and other areas of nuclear/particle physics.