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Soggetti	Elementary particles (Physics) Quantum field theory Quantum computers Spintronics Quantum physics Nuclear physics Heavy ions Nuclear fusion Elementary Particles, Quantum Field Theory Quantum Information Technology, Spintronics Quantum Physics Nuclear Physics, Heavy Ions, Hadrons Nuclear Fusion
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Nota di contenuto	Electromagnetic interactions of nucleons and nuclei at low energy and momentum transfer -- Electro-excitation of nucleon resonances and meson production -- Present electron and photon scattering experiments up to GeV energies -- Partons and QCD: Hadron structure and basics of the standard model -- Electroweak reactions in the non-perturbative regime of QCD -- Polarized structure functions and the

spin of the proton -- Small ? physics -- Nucleon structure functions -- The standard electroweak theory and its experimental tests -- First results from HERA -- Seminars.

Sommario/riassunto

This is a comprehensive overview of the information yielded by electroweak probes about the nuclear- and subnuclear-scale structure of matter. Lepton-induced processes from low energy through to the highest energies are considered. The first three lectures review electromagneticprocesses in hadrons; others cover the properties of partons, the behaviour of the constituents of the hadron, muon and neutrino scattering etc. An introduction to electroweak theory including the status of precision tests and data analyses is given along with a report on the first results from HERA. The lecturers have endeavoured to achieve a balance between scientific and didactic aspects thus making the book accessible also to students of nuclear and particle physics.