

1. Record Nr.	UNINA9910300379403321
Autore	Kamal Anwar
Titolo	Particle Physics // by Anwar Kamal
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2014
ISBN	3-642-38661-X
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (XXII, 529 p. 275 illus.)
Collana	Graduate Texts in Physics, , 1868-4513
Disciplina	539.7
Soggetti	Elementary particles (Physics) Quantum field theory Nuclear physics Heavy ions Elementary Particles, Quantum Field Theory Nuclear Physics, Heavy Ions, Hadrons Particle and Nuclear Physics
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 and index.
Nota di contenuto	Nuclear Radiation Detectors -- High Energy Accelerators -- Elementary Particles -- Conservation Laws and Invariance Principles -- Strong Interactions -- Electromagnetic Interactions -- Weak Interactions (Charmed Quark) -- Electroweak Interactions.
Sommario/riassunto	This textbook teaches particle physics very didactically. It supports learning and teaching with numerous worked examples, questions and problems with answers. Numerous tables and diagrams lead to a better understanding of the explanations. The content of the book covers all important topics of particle physics: Elementary particles are classified from the point of view of the four fundamental interactions. The nomenclature used in particle physics is explained. The discoveries and properties of known elementary particles and resonances are given. The particles considered are positrons, muon, pions, anti-protons, strange particles, neutrino and hadrons. The conservation laws governing the interactions of elementary particles are given. The concepts of parity, spin, charge conjugation, time reversal and gauge invariance are explained. The quark theory is introduced to explain the

hadron structure and strong interactions. The solar neutrino problem is considered. Weak interactions are classified into various types, and the selection rules are stated. Non-conservation of parity and the universality of the weak interactions are discussed. Neutral and charged currents, discovery of W and Z bosons and the early universe form important topics of the electroweak interactions. The principles of high energy accelerators including colliders are elaborately explained. Additionally, in the book detectors used in nuclear and particle physics are described. This book is on the upper undergraduate level.

---