1. Record Nr. UNINA9910139592203321 Autore Scherer Stefan Titolo A primer for chiral perturbation theory / / Stefan Scherer, Matthias R. Schindler Heidelberg;; New York,: Springer, 2012 Pubbl/distr/stampa **ISBN** 9783642192548 3642192548 Edizione [1st ed. 2012.] Descrizione fisica 1 online resource (IX, 338 p. 35 illus.) Collana Lecture notes in physics, , 0075-8450 ; ; v. 830 Altri autori (Persone) SchindlerMatthias R. <1977-> Disciplina 530 Soggetti Quantum chromodynamics Quantum field theory 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 Quantum Chromodynamics and Chiral Symmetry -- Spontaneous Symmetry Breaking and the Goldstone Theorem -- Chiral Perturbation Theory for Mesons -- Chiral Perturbation Theory for Bryons --Applications and Outlook -- Pauli and Dirac Matrices -- Functionals and Local Functional Derivatives -- Solutions to Exercises -- Index. Sommario/riassunto Chiral Perturbation Theory, as effective field theory, is a commonly accepted and well established working tool, approximating quantum chromodynamics at energies well below typical hadron masses. This volume, based on a number of lectures and supplemented with additional material, provides a pedagogical introduction for graduate students and newcomers entering the field from related areas of nuclear and particle physics. Starting with the the Lagrangian of the strong interactions and general symmetry principles, the basic concepts of Chiral Perturbation Theory in the mesonic and baryonic sectors are developed. The application of these concepts is then illustrated with a number of examples. A large number of exercises (81, with complete solutions) are included to familiarize the reader with

helpful calculational techniques.