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Sommario/riassunto

This 2004 book provides a pedagogical introduction to the perturbative and non-perturbative aspects of quantum chromodynamics (QCD). The text introduces the basic theory of QCD and its historical development, covering pre-QCD ideas of strong interactions such as the quark and parton models, the notion of colours and the S-matrix approach. The author then discusses gauge theory, techniques of dimensional regularization and renormalization, deep inelastic scattering and hard processes in hadron collisions, hadron jets and e+e- annihilations. Other topics include power corrections and the technologies of the Shifman-Vainshtein-Zakharov operating product expansion. The final parts of the book are devoted to modern non-perturbative approaches to QCD and the phenomenological aspects of QCD spectral sum rules. The book will be a valuable reference for graduate students and researchers in high-energy particle and nuclear physics, both theoretical and experimental. This book has been reissued as an Open Access publication.