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	Descrizione fisica	1 online resource (xxxii, 779 pages) : digital, PDF file(s)
	Collana	Cambridge monographs on particle physics, nuclear physics, and cosmology ; ; 17
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	Nota di contenuto	Pt. I. General introduction -- Pt. II. QCD gauge theory -- Pt. III. MS scheme for QCD and QED -- Pt. IV. Deep inelastic scatterings at hadron colliders -- Pt. V. Hard processes in e[superscript +]e[superscript -] collisions -- Pt. VI. Summary of QCD tests and [alpha][subscript s] measurements -- Pt. VII. Power corrections in QCD -- Pt. VIII. QCD two-point functions -- Pt. IX. QCD non-perturbative methods -- Pt. X. QCD spectral sum rules -- Pt. XI. Appendices -- App. A. Physical constants and units -- App. B. Weight factors for SU(N)[subscript c] -- App. C. Coordinates and momenta -- App. D. Dirac equation and matrices -- App. E. Feynman rules -- App. F. Feynman integrals -- App. G. Useful formulae for the sum rules.
	Sommario/riassunto	This book provides a pedagogical introduction to the perturbative and non-perturbative aspects of quantum chromodynamics (QCD).

Introducing the basic theory and recent advances in QCD, it also reviews the historical development of the subject, 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.