

1. Record Nr.	UNISA996418445903316
Autore	Cline James M. <1960->
Titolo	Advanced concepts in quantum field theory : with exercises / / James M. Cline
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
ISBN	3-030-56168-2
Descrizione fisica	1 online resource (x, 153 pages) : illustrations
Collana	SpringerBriefs in Physics, , 2191-5431
Disciplina	530.143
Soggetti	Quantum field theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- The Loop Expansion -- The Feynman Rules -- Evaluation of diagrams; regularization -- Renormalization -- Other regulators -- The Quantum Effective Action -- Fermions -- The Axial Anomaly -- Abelian Gauge Theories: QED -- Applications of QED -- Nonabelian gauge theories -- Nonperturbative aspects of SU(N) gauge theory -- Homeworks.
Sommario/riassunto	This book comprises the second half of a quantum field theory (QFT) course for graduate students. It gives a concise introduction to advanced concepts that are important for research in elementary particle theory. Topics include the path integral, loop expansion, Feynman rules, various regularization methods, renormalization, running couplings and the renormalization group, fixed points and asymptotic freedom, effective action, Coleman-Weinberg effective potential, fermions, the axial anomaly, QED, gauge fixing, nonabelian gauge theories, unitarity, optical theorem, Slavnov-Taylor identities, beta function of Yang-Mills theory, a heuristic derivation of asymptotic freedom, instantons in SU(N) gauge theory, theta vacua and the strong CP problem. Exercises are included and are intended for advanced graduate students or postdocs seeking to deepen their understanding of QFT.