

1. Record Nr.	UNINA9910739429203321
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Titolo	A Brief Introduction to Dispersion Relations : With Modern Applications // by José Antonio Oller
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-13582-9
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (142 pages)
Collana	SpringerBriefs in Physics, , 2191-5423
Disciplina	539.754 539.75
Soggetti	Nuclear physics Heavy ions Physics Particles (Nuclear physics) Quantum field theory Nuclear Physics, Heavy Ions, Hadrons Mathematical Methods in Physics Elementary Particles, Quantum Field Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Basics on dispersion relations -- Two-body scattering amplitudes with applications -- Final-state interactions with applications.
Sommario/riassunto	This text offers a brief introduction to the dispersion relations as an approach to calculate S-matrix elements, a formalism that allows one to take advantage of the analytical structure of scattering amplitudes following the basic principles of unitarity and causality. First, the case of two-body scattering is considered and then its contribution to other processes through final-state interactions is discussed. For two-body scattering amplitudes, the general expression for a partial-wave amplitude is derived in the approximation where the crossed channel dynamics is neglected. This is taken as the starting point for many interesting nonperturbative applications, both in the light and heavy quark sector. Subsequently crossed channel dynamics is introduced

within the equations for calculating the partial-wave amplitudes. Some applications based on methods that treat crossed-channel dynamics perturbatively are discussed too. The last part of this introductory treatment is dedicated to the further impact of scattering amplitudes on a variety of processes through final-state interactions. Several possible approaches are discussed such as the Muskhelishvili-Omnès dispersive integral equations and other closed formulae. These different formalisms are then applied in particular to the study of resonances presenting a number of challenging properties. The book ends with a chapter illustrating the use of dispersion relations in the nuclear medium for the evaluation of the energy density in nuclear matter.
