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# Instantaneous Bethe–Salpeter Approach to Pseudoscalar Mesons

Light pseudoscalar mesons (i.e., pions and kaons) play a twofold rôle: they may be regarded as bound states of fundamental degrees of freedom of QCD and as the (pseudo-) Goldstone bosons of the spontaneously broken chiral symmetry of QCD. We combine these two aspects in a single novel approach relying on the Bethe–Salpeter formalism in instantaneous approximation: the form of the pseudoscalar-meson Bethe–Salpeter wave functions dictated by chiral symmetry is inserted into the Bethe–Salpeter equation for bound states of vanishing mass, in order to deduce analytically the underlying interactions. In this way, we manage to derive exact Bethe–Salpeter solutions for pseudoscalar mesons, in the sense of establishing a rigorous relationship between the relevant interactions and the Bethe–Salpeter amplitudes characterizing the bound states.

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