

Spectra of Free Diquark in the Bethe-Salpeter Approach

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Abstract: In this work, we employ the Bethe-Salpeter (B-S) equation to investigate the spectra of free diquarks and their B-S wave functions. We find that the B-S approach can be consistently applied to study the diquarks with two heavy quarks or one heavy and one light quarks, but for two light-quark systems, the results are not reliable. There are a few free parameters in the whole scenario which can only be fixed phenomenologically. Thus, to determine them, one has to study baryons which are composed of quarks and diquarks.

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Key words: Bethe-Salpeter equation, diquark, spectra

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