

Pentaquarks in a two-body Bethe-Salpeter equation

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In the past two decades there has been tremendous progress in the theoretical and experimental investigation of multi-quark states, which has expanded our understanding of what a “hadron” is. Experimental evidence suggests that Nature does not only form “conventional” hadrons such as mesons as quark-antiquark states and baryons as three-quark states, but also more exotic combinations such as tetraquarks and pentaquarks. We present results on pentaquark states in QCD obtained with the Bethe-Salpeter formalism in order to describe the observed LHCb states made of light and charm quarks. We solved the two-body equations for the meson-baryon system which couples the relevant channels in the equation. The interaction that binds such meson-baryon molecules is shaped by one-boson exchanges. Solving the equation allows us to determine the masses of the bound states.

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