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Investigation of multi-quark systems

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Abstract

In this study, an attempt has been made to study Tetraquark and Pentaquark systems. We introduce the Pentaquark system as a meson-baryon system and Tetraquark as a diquark-antidiquark system. A diquark consists of two quarks. The interaction potential between these particles is considered as a combination of two color charge potentials and the confinement potential is regarded as harmonic and linear sentences. We solve the Schrodinger equation by considering the effects of spin-spin, isospin-isospin and spin-isospin; then we obtain the mass of the diquark and the heavy tetraquarks with charm quarks and bottom. These calculations are calculated using the approach of diquark - antidiquark within the framework of the non-relativistic quark model. In the following, we calculate the mass of the pentaquark systems in the same way.

Keywords: Shrodinger equation, di quark, tetraquark, pentaquark.

For full article, refer to the Persian section