

Molecular states of $D^* D^* \bar{K}^*$ and $B^* B^* K^*$ natures

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We study the interaction of two D^* and a \bar{K}^* by using the Fixed Center Approximation to the Faddeev equations to search for bound states of the three body system. Since the $D^* D^*$ interaction is attractive and gives a bound state, and so is the case of the $D^* \bar{K}^*$ interaction, where the $J^P = 0^+$ bound state is identified with the $X_0(2900)$, the $D^* D^* \bar{K}^*$ system leads to manifestly exotic bound states with ccs open quarks. We obtain bound states of isospin $I = 1/2$, negative parity and total spin $J = 0, 1, 2$. For $J = 0$ we obtain one state, and for $J = 1, 2$ we obtain two states in each case. The binding energies range from 56 MeV to 151 MeV and the widths from 80 MeV to 100 MeV. Using the analogy of $D^* D^* \bar{K}^*$ system, we also study the three-body system $B^* B^* K^*$ containing the bbc open quarks. We obtain bound states for all the channels considered $J = 0, 1$ and 2 , all of them with $I = 1/2$ and negative parity. I will give a presentation based on Refs. [1]-[2].

[1] N. Ikeno, M. Bayar and E.Oset, Phys. Rev. D 107, 034006 (2023).

[2] M. Bayar, N. Ikeno and L. Roca, Phys. Rev. D 107, 054042 (2023).

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