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Description of the $X(4260)$ and $X(4360)$ mesons as a $\rho D \bar{D}$ system

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X(4260) and X(4360) mesons

Summary

We investigate $\rho D \bar{D}$ three body system using the fixed center approximation to the Faddeev equations. The study is made assuming scattering of a ρ or a $\bar{D}$ on a $D\bar{D}$ cluster, which is known to generate the $X(3700)$ or a ρD cluster, which

has been shown to generate the $D_1(2420)$. In the case of the $\rho - X(3700)$ scattering we find a state with mass around 4320 MeV and width is about 25 MeV for the total three body isospin-1. Considering the $\bar{D} - D_1(2420)$ scattering we obtain a state with mass around 4256 MeV and width is similar to that of the $\rho - X(3700)$ state for the $I = 1$ case. For the case of the $I = 0$ we find a state with mass around 4241 MeV and width is about 20 MeV. In all cases we find bound states and for $I = 1$ case the states could be associated with $X(4260)$ and $X(4360)$ mesons.

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