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CANCELLED: Prediction of a $Z_c(4000) D^* \bar{D}^{*}$ state and relationship to the claimed $Z_c(4025)$

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After discussing the OZI suppression of one light meson exchange in the interaction of with isospin $I = 1$, we study the contribution of the two-pion exchange to the interaction and the exchange of heavy vectors, J/ψ for diagonal transitions and D^* for transitions of to $J/\psi \rho$. We find these latter mechanisms to be weak, but enough to barely bind the system in $J = 2$ with a mass around 4000 MeV, while the effect of the two-pion exchange is a net attraction, though weaker than that from heavy-vector exchange. We discuss this state and try to relate it to the $Z_c(4025)$ state, above the threshold, claimed in an experiment at BES from an enhancement of the distribution close to threshold. Together with the results from a recent reanalysis of the BES experiment showing that it is compatible with a $J = 2$ state below threshold around 3990 MeV, we conclude that the BES experiment could show the existence of the state that we find in our approach.

Summary

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