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Phase shift in doubly Charmed H-like dibaryon $\Lambda_c\Lambda_c$ scattering at $M_\pi \approx 303\text{MeV}$

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To explore the possibility of H-like dibaryon $\Lambda_c\Lambda_c(0^+)$, we proceed calculation on lattice. Two Wilson-Clover ensembles are used which were generated by CLQCD collaboration with similar settings that $m_\pi \approx 303\text{MeV}$, $m_D \approx 1.966\text{GeV}$, $m_{D^*} \approx 2.077\text{GeV}$. In this work, finite-volume scattering with single channel Luscher's formula is adopted because the coupling between $\Lambda_c\Lambda_c$ and $\Xi_{cc}N$ is quite small according to our calculation. There is a sign of the CDD zero pole here. By parameterizing the Luscher's scattering matrix, S and D wave phase shift can be given then. However, we find no bound state within a single channel $\Sigma_c\Sigma_c$. Further, the coupling between $\Lambda_c\Lambda_c$ and $\Sigma_c\Sigma_c$ is a little strong.

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