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Lattice QCD study of Ξ_{cc} - Ξ_{cc} interactions on the physical point

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The discoveries of exotic hadrons with heavy quark degrees of freedom are stimulating theoretical studies to understand their physical mechanism, and lattice QCD calculations of relevant hadron-hadron interactions are expected to play a crucial role.

In this talk, we present lattice QCD studies of hadron interactions with charm quark degrees of freedom by the HAL QCD method. In particular, we study the Ξ_{cc} - Ξ_{cc} system which is a candidate of a superflavor partner of the exotic tetraquark state, $T_{cc}(3875)$. The calculation is performed with $N_f = 2 + 1$ Wilson-clover fermion at the physical point, $m_{\pi} = 137$ MeV, on the lattice box of $(8.1 \text{fm})^4$, using the configurations generated by HAL QCD Collaboration, "HAL-conf-2023". The comparison with their strange quark counterpart, Ξ - Ξ interactions, will be presented as well.

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