



Contribution ID: 266

Type: Talk

Lattice QCD study of $\Xi_{cc}^- - \Xi_{cc}^-$ interactions on the physical point

Monday, 29 July 2024 15:55 (20 minutes)

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 $\Xi_{cc}^- - \Xi_{cc}^-$ 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, $\Xi - \Xi$ interactions, will be presented as well.

Primary author: DOI, Takumi (RIKEN)

Co-authors: LYU, YAN (RIKEN iTHMES); MURAKAMI, Kotaro (Tokyo Institute of Technology); ZHANG, Liang (RIKEN iTHEMS; SINAP, CAS)

Presenter: DOI, Takumi (RIKEN)

Session Classification: Hadronic and nuclear spectrum and interactions

Track Classification: Hadronic and Nuclear Spectrum and Interactions