Contribution ID: **189** Type: **Oral report**

Lattice calculation of the $\eta_c\eta_c$ and $J/\psi J/\psi$ scattering length

Tuesday, August 9, 2022 3:45 PM (15 minutes)

We calculate the s-wave scattering length in the 0^+ sector of $\eta_c\eta_c$ and the 2^+ sector of $J/\psi J/\psi$ using three $N_f = 2$ twisted mass gauge ensembles
with the lattice spacing $a = 0.0667, 0.085, 0.098$ fm, respectively.
The scattering lengths are extracted using the conventional L{\"u}scher finite size method. We observe significant discretization effects and therefore perform a continuum extrapolation. Finally, we obtain the results as $a^{0^+}_{\eta_c\eta_c} = -0.104(09)$ fm and $a^{2^+}_{J/\psi J/\psi} = -0.165(16)$ fm, where the errors are statistical errors with the uncertainties of lattice spacing taken into account. Both scattering lengths are negative, indicating that the interaction between the two charmonia are repulsive in nature in both channels being studied.

Primary author: Dr MENG, Yu (Zhengzhou University)

Presenter: Dr MENG, Yu (Zhengzhou University)

Session Classification: Parallel Session I (2)：Hadron and Flavor Physics

Track Classification: 强子物理与味物理