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Omega-Omega interaction on the Lattice MASANORI YAMADA, University of Tsukuba, HALQCD COLLABORATION — We report our results of central potential between two Omega baryons from 2+1 flavor full Lattice QCD simulation. In the past studies, there is a possibility that some decouplet baryons have a bound state. However, almost all decuplet baryons are unstable due to decays via the strong interaction. An exception is the Omega decuplte baryon, which is stable against the strong decays, so its interaction is suitable to be investigated. It is, however, still difficult to investigate the Omega-Omega interaction experimentally due to its short-life time via weak decays. Therefore, the lattice QCD study for the Omega-Omega interaction is necessary and important. We present results obtained by the extension of the HAL QCD method to the system of two decuplet baryons. Our numerical results are obtained from 2+1 flavor full QCD gauge configurations at $L \sim 2.9$fm $m_\pi \sim 701$ MeV and $m_\Omega \sim 1966$ MeV, generated by the PACS-CS Collaboration. We find that the Omega-Omega interaction is strong attractive, but it's not strong enough to make a bound state at out simulation set up.

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