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Baryon interactions from lattice QCD with physical masses – S=-3 sector: XiSigma & XiLambda-XiSigma –

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Nucleon-Nucleon interaction plays an essential role in nuclear physics. In the same way, hyperon-hyperon interactions should play an important role in hyper nuclear physics. However, unlike the nucleons which are quite stable, hyperons decay quickly so that the direct scattering experiments are difficult. As a result, phenomenological determination of hyperon potentials involves large uncertainly. In this talk, by using the gauge configurations at the (almost) physical point (m(pi)=146 MeV) on a huge spatial lattice (8fm)^4, we present our latest result on the hyperon-hyperon potentials for S=-3 sector (XiSigma & XiSigma-XiLambda) from the Nambu-Bethe-Salpeter wave functions based on the HAL QCD method.

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