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First results of baryon interaction from lattice QCD with physical masses (2) – $S=-3$ and $S=-4$ sectors ($\Xi\Xi$, $\Xi\Sigma$, $\Xi\Lambda$ - $\Xi\Sigma$ channels) –

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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 who are quite stable, hyperons decay quickly so that the direct scattering experiments are difficult. As a result, phenomenological determination of hyperon potentials involves large uncertainty. In this talk, we present our preliminary lattice QCD results on the determination of hyperon potentials in $\Xi\Xi$, $\Xi\Sigma$, and $\Xi\Lambda$ - $\Xi\Sigma$ channels based on the HAL QCD method by using a 2+1 flavor gauge configuration near the physical point generated by K computer.

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