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Light hypernuclei in the frameworkd of J-NCSM and χ EFT

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We study s- and light p-shell Λ hypernuclei from a microscopic level based on the ab initio Jacobi no-core shell model (J-NCSM) in combinations with baryon-baryon interactions derived in the frame work of chiral effective field theory. The employed potentials are softened with similarity renormalization group evolution in order to speed up the convergence of the NCSM calculations. We discuss in details impact of the evolution and of the two phase-equivalent YN potentials on the Λ separation energies in $A = 4 - 8$. Consequently, the possible contribution of chiral YNN forces to these light systems is investigated. We further explore the charge symmetry breaking (CSB) effect in the $A = 7, 8$ isospin multiplets employing the YN interactions that include also the leading CSB potential. Finally, the predictions of the chiral YY potentials for the s-shell $\Lambda\Lambda$ hypernuclei are briefly discussed.

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