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Lattice QCD input for baryon-baryon scattering and interactions in effective field theory

Wednesday, 15 September 2021 13:00 (5 minutes)

Our understanding of the physics of baryonic systems containing strangeness is limited by the scarcity of experimental data. Aiming at alleviating this deficit is Lattice QCD (LQCD), a numerical approach to solve the complex dynamics of strongly interacting systems of hadrons and nuclei. I will present the results obtained by the NPLQCD collaboration for two octet-baryon systems, with strangeness ranging from 0 to -4, at two sets of quark masses that are heavier than those in nature. In particular, I will present their binding energies and scattering parameters, as well as the low-energy coefficients appearing in the effective field theory Lagrangian describing the interaction of two non-relativistic octet baryons. The findings point to interesting symmetries observed in hypernuclear forces as predicted in the limit of QCD with a large number of colors.

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