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Baryon interactions from lattice QCD with physical masses – Overview and $S = 0, -4$ sectors –

Friday 29 July 2016 14:00 (20 minutes)

The lattice QCD determination of baryon interactions corresponds to connecting a missing link between particle physics and nuclear and astrophysics. While previous studies are limited to the calculations with unphysically heavy quark masses, we are performing the first calculation employing the (almost) physical quark masses ($m(\pi) = 146$ MeV) on a huge lattice volume of $(8\text{fm})^4$, where the interactions are extracted from Nambu-Bethe-Salpeter (NBS) correlators by the time-dependent HAL QCD method. In this talk, we first give an overview on this project. We then present the latest numerical results for two-nucleon forces (strangeness $S = 0$) and two-Xi forces ($S = -4$).

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