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The study of the Three Nucleon Force in full QCD Lattice calculations

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Recent researches in nuclear/astro physics are pointing to the important role of the three baryon force. It suffers, however, huge uncertainties to this date, and the direct determination from QCD is highly desirable. As a first step to obtain the complete information of the three baryon force, we study the effective two nucleon potential in the three nucleon system. The effective potential is extracted from the corresponding effective Bethe-Salpeter(BS) wave function, in which the DoF of a spectator nucleon is integrated out. In this talk, we present the results of the effective potential in triton, and the comparison with the genuine two nucleon potential is given. Calculations are carried out for $m_\pi = 0.57-1.13\text{GeV}$, where the dynamical clover fermion configurations generated by the CP-PACS Collaboration ($N_f=2$) and the PACS-CS Collaboration ($N_f=2+1$) are employed.

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talk

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