Contribution ID: **26** Type: **not specified**

Towards the continuum limit of two-baryon interactions from lattice QCD

Wednesday, 10 March 2021 10:40 (30 minutes)

Despite the first two-baryon studies from lattice QCD being performed several decades ago, the parameters describing two-baryon interactions computed from various collaborations are still in tension. The many significant efforts from the community signal the difficulty of the problem at hand. Baryons suffer from a poor signal-to-noise ratio, often times leaving only a small window in which systematic effects have died out but a clear signal remains. To overcome this limitation, several techniques have been utilized in the literature. I will start by giving a summary of the most recent calculations from various groups, emphasizing some of these techniques as well as the different setups used. I will then show our latest results in various two-baryon systems. The first of these calculations are performed at the SU(3)-flavor-symmetric point corresponding to $m_\pi \approx 714$ MeV. Here we find no evidence of a bound state in either two-nucleon isospin channel. The second set of calculations are also performed at the SU(3)-flavor-symmetric point, but with $m_\pi \approx 420$ MeV, and with five values of the lattice spacing. This allows for a continuum limit to be taken, and we find strong dependence on the lattice spacing in the H-dibaryon system. While this analysis can help to explain the tension in the literature, more investigations are needed.

Presenter: HANLON, Andrew (Brookhaven National Laboratory)