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H-dibaryon spectroscopy using modern lattice methods

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Studies of multi-baryon systems present a formidable challenge to lattice QCD.

The H-dibaryon represents the simplest multi-baryon system and yet in the current lattice calculations at unphysical quark masses no conclusive results can be seen regarding its binding energy.

One of the contributing factors could be the inability to reliably extract the spectrum of states on the lattice.

Using the state-of-art spectroscopy method of distillation, we attempt a detailed lattice calculation of the spectrum of two-baryon states in the H-dibaryon channel.

The calculations are performed at several pion masses of 450 and 1000 MeV.

The method of distillation allows for the construction of a large basis of operators, which is crucial for reliably extracting the spectrum.

A comparison with earlier calculations will also be presented.

Summary

Primary author: Dr JUNNARKAR, Parikshit (Helmholtz-Institute Mainz)

Co-authors: Dr FRANCIS, Anthony (York University); WITTIG, Hartmut; GREEN, Jeremy (Johannes Gutenberg-Universität Mainz); Dr RAE, Thomas (Wuppertal university)

Presenter: Dr JUNNARKAR, Parikshit (Helmholtz-Institute Mainz)

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