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Three-nucleon bound state calculations using the "three-dimensional" formalism

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Collaboration

Abstract content

An overview of the, so called, “three dimensional” formalism will be presented with an emphasis on three nucleon bound state calculations. In this approach calculations are performed without the partial wave decomposition (PWD) of operators - instead the three dimensional degrees of freedom of the nucleons are used. The ability to avoid PWD has possible applications in situations where a large amount of partial waves needs to be used in order to achieve convergence. These situations include scattering calculations at higher energies and bound state calculations with the Coulomb interaction. Details on the improved implementation of three-nucleon forces in the calculations will be given. Additionally results that use the 3/2 isospin component will be presented.

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