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Ab-inito calculation of ^{4}He+n s-wave scattering within baryonic effective field theory at next to leading order

In this work, we investigate elastic neutron scattering on ^{4}He within the context of baryonic effective field theory, specifically focusing on the $J^\pi = \frac{1}{2}^+$ channel. By employing the stochastic variational method, we solve the 5-body problem without making any prior assumptions about system clusterization. Our calculated scattering length and effective range exhibit excellent agreement with experimental observations.

Primary authors: Prof. BAZAK, Betzalel (Hebrew University of Jerusalem); Dr SCHAFER, Martin (Nuclear Physics Institute of the Czech Academy of Sciences); BAGNAROL, Mirko (Hebrew University of Jerusalem); Prof. BARNEA, Nir (Hebrew University of Jerusalem)

Presenter: BAGNAROL, Mirko (Hebrew University of Jerusalem)

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