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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.

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