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Few nucleons scattering in pionless effective field theory

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We present a comprehensive theoretical study of low-energy few nucleon scattering for systems with A≤4. To this end, we utilize pionless effective field theory, which we employ at next-to-leading order. Our results indicate that the theory provides accurate predictions for the low-energy scattering parameters in all studied channels. These predictions match the best experimental evaluations and theoretical calculations available. Additionally, we confirm the recent finding that a four-body force is required at the next-to-leading order, which is only present in a single spin-isospin channel for nuclear systems.

Primary author: SCHÄFER, Martin (Nuclear Physics Institute of the Czech Academy of Sciences, 25068 Rez, Czech Republic)

Co-author: BAZAK, Betzalel (The Hebrew University of Jerusalem)

Presenters: BAZAK, Betzalel (The Hebrew University of Jerusalem); SCHÄFER, Martin (Nuclear Physics Institute of the Czech Academy of Sciences, 25068 Rez, Czech Republic)

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