

Abstract Submitted
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The missing three-nucleon forces: Where are they? RUPRECHT MACHLEIDT, University of Idaho — In recent years, there has been substantial progress in the derivation of nuclear forces from chiral effective field theory. Accurate two-nucleon forces (2NF) have been constructed up to next-to-next-to-next-to-leading order (N3LO) and applied with a fair amount of success. However, chiral three-nucleon forces (3NF) have been used only at N2LO, improving some microscopic predictions, but leaving also several issues, like the “ A_y puzzle”, unresolved. Thus, the 3NF at N3LO is needed for essentially two reasons: for consistency with the 2NF and to (hopefully) improve some critical predictions. I will summarize the current status of the derivation of the 3NF at N3LO and discuss the expectations of their impact on ab initio calculations.

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