Chiral EFT and nuclear forces: Are we in trouble?

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During the past two decades, chiral effective field theory has been a popular tool to derive nuclear forces from first principles [1, 2, 3]. Two-, three-, and four-nucleon forces have been calculated up to next-to-next-to-next-to-leading order (N^3LO) and (partially) applied in nuclear few- and many-body systems—with, in general, a good deal of success. But in spite of these achievements, we are still faced with some great challenges. Among them is the issue of a proper renormalization of the two-nucleon potential [4, 5], which is highly controversial in the community. Another issue are the subleading many-body forces, where we are faced with an "explosion" of the number of terms with increasing order that no practitioner can ever apply. I will comment on the current status and will provide hints for how to deal with it.

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