

Abstract Submitted
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Nonperturbative renormalization of the chiral nucleon-nucleon interaction up to next-to-next-to-leading order¹ RUPRECHT MACHLEIDT, Univ of Idaho — We study the nonperturbative renormalization of the nucleon-nucleon (NN) interaction at next-to-leading order (NLO) and next-to-next-to-leading order (NNLO) of chiral effective field theory. A systematic variation of the cutoff parameter is performed for values below the chiral symmetry breaking scale of about 1 GeV. The accuracy of the predictions is determined by calculating the χ^2 for the reproduction of the NN data for energy intervals below pion-production threshold. At NLO, NN data are described well up to about 100 MeV laboratory energy and, at NNLO, up to about 200 MeV—with, essentially, cutoff independence for cutoffs between about 450 and 850 MeV.

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Ruprecht Machleidt
Univ of Idaho

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