

Explicit renormalization of nuclear chiral EFT and non-perturbative effects

Nucleon-nucleon interaction is studied within chiral effective field theory at next-to-leading order in the chiral expansion.

The leading order interaction is resummed non-perturbatively,

whereas the next-to-leading-order terms are taken into account in a perturbative manner.

Explicit renormalizability of such a scheme is analyzed in several important cases. The possibility to absorb the power-counting

breaking terms originating from the integration regions with large momenta is studied for both perturbative and non-perturbative regimes.

A comparison of the schemes with a finite and an infinite cutoff is performed.

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