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## Explicit renormalization of the nucleon-nucleon interaction in chiral EFT and non-perturbative effects.

Nucleon-nucleon interaction

is studied within chiral effective field theory with a finite cutoff 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 proven in certain important cases.

In particular, it is verified whether the power-counting breaking terms originating from the integration regions with large momenta can be absorbed by the renormalization of the low energy constants.

The importance of non-perturbative effects is analyzed in detail.

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