

Abstract Submitted
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Large- N_c Analysis of the Two-Nucleon Neutrinoless Double Beta Decay and Isospin-Breaking Contact Terms THOMAS RICHARDSON, MATTHIAS SCHINDLER, Univ of South Carolina, SAORI PASTORE, Washington University in St. Louis, ROXANNE SPRINGER, Duke University — Nuclear matrix elements (NMEs) are an essential ingredient for experimental searches for neutrinoless double beta decay. It was shown by Cirigliano et al. that a $nn \rightarrow ppe^-e^-$ contact term is required at leading order for the light Majorana exchange mechanism in the context of chiral effective field theory (ChEFT). An estimate for the corresponding low energy coefficient was obtained through its relation to charge independence breaking two-nucleon interactions. Here, the combined large- N_c , where N_c is the number of quark colors, and ChEFT framework is used to establish theoretical constraints for undetermined low energy coefficients and to justify the assumptions that underpin the estimate of this contact term. Additionally, a large- N_c hierarchy of isospin-breaking two-nucleon interactions is elucidated that agrees with phenomenological analyses.

Thomas Richardson
Univ of South Carolina

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