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## Preliminary Lattice QCD Study of $nn \rightarrow ppee$ Matrix Elements for Neutrinoless Double-Beta Decay

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Experimental searches for neutrinoless double-beta decay aim to determine whether the neutrinos are Dirac or Majorana fermions. Interpreting double-beta half-lives or experimental exclusions in terms of neutrino physics requires knowledge of the nuclear matrix elements, which are currently estimated from various nuclear models and carry a large model uncertainty. This talk will present preliminary results from a first-principles lattice QCD calculation of the short-distance (from a heavy intermediate Majorana neutrino) and long-distance (from a light Majorana neutrino) nuclear matrix elements for the simple  $nn \rightarrow ppee$  transition at an artificially heavy quark mass, where the dineutron is a bound state. Such results can provide input for nuclear EFTs that can be extrapolated to nuclei of interest to reduce model uncertainties.

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