Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Quantum Monte Carlo calculation of partial muon capture rates GARRETT KING, SAORI PASTORE, MARIA PIARULLI, Washington University, St. Louis — Searches for neutrinoless-double beta ($0\nu\beta\beta$) decay rates are crucial in addressing questions within fundamental symmetries and neutrino physics. The rates of these decays depend not only on unknown parameters associated with neutrinos, but also on nuclear properties. In order to reliably extract information about the neutrino, one needs an accurate treatment of the complex many-body dynamics of the nucleus. Recently, quantum Monte Carlo calculations of Gamow-Teller matrix elements using the Norfolk potential, a high-quality local chiral interaction containing two- and three-body forces, and its set of consistent one- and two-body axial current operators provided model validation at low momentum transfer. $0\nu\beta\beta$ decays take place at momentum transfers on the order of 100 MeV and require both vector and axial current operators. Muon capture, a process in the same momentum transfer regime, has readily available experimental data to validate both axial and vector electroweak current operators. In this work, we present the results of *ab initio* calculations of muon capture in $A \leq 12$ nuclei using variational and Green's Function Monte Carlo wave functions.

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Date submitted: 05 Jan 2021 Electronic form version 1.4