Abstract Submitted
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Quantum Monte Carlo calculations of electromagnetic transitions in low-lying states of ^{8}Be[1] SAORI PASTORE, University of South Carolina, ROBERT WIRINGA, Argonne National Laboratory, ROCCO SCHIAVILLA, Old Dominion University and Jefferson Laboratory, STEVEN PIEPER, Argonne National Laboratory — We present quantum Monte Carlo calculations of electromagnetic transitions in low-lying states of ^{8}Be. The Hamiltonian utilized to generate nuclear wave functions includes the Argonne-v18 two-nucleon and the Illinois-7 three-nucleon interactions. The M1 transition operator accounts for two-body contributions of one- and two-pion range, as well as contact terms, derived from chiral effective field theory. We find that two-body corrections are significant and always bring the theory in a better agreement with the experimental data. We also present E2 transition calculations, evaluated in impulse approximation, with emphasis on transitions involving the resonant excited states at ~ 3 MeV and ~ 11 MeV.

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