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GFMC Calculations of Isospin-Mixing in ^{8}Be[1] ROBERT B. WIRINGA, STEVEN C. PIEPER, MUSLEMA PERVIN, Argonne National Laboratory — ^{8}Be has two 2^+ states at 16.6 and 16.9 MeV excitation that are strongly isospin-mixed. We have performed microscopic Green's function Monte Carlo calculations of the isospin-mixing matrix elements between the T=0 and 1 states using the realistic Argonne v_{18} + Illinois-2 Hamiltonian, which includes strong CSB components and a full electromagnetic interaction. We obtain 80% of the empirically-determined matrix element, with 2/5 of our result coming from the terms beyond Coulomb, confirming an earlier variational study. We have also calculated the mixing between the nearby T=0,1 pairs of 1^+ and 3^+ states. Finally, we have examined the mixing of the T=1 2^+ states with the first T=0 excited 2^+ state at 3.0 MeV, which is the final state for weak decays from either ^{8}Li or ^{8}B. We find this state, which is an important laboratory for testing various aspects of weak interactions, to have extremely small T=1 contamination.

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