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4n contributions in populating unbound ^{10}He from ^{14}Be MICHAEL JONES, ZACH KOHLEY, JESSE SNYDER, THOMAS BAUMANN, JENNA SMITH, ARTEMIS SPYROU, MICHAEL THOENNESSEN, NSCL/MSU, MONA COLLABORATION — The ground state resonance of ^{10}He was recently measured from the decay energy of the 3-body system ^{8}He+n+n, and found to be at E=1.6(25) MeV with Γ = 1.8(4) MeV. The possibility of contributions from the emission of 4 neutrons has been considered, and higher order 4 and 5-body decay energy spectra were examined. Results show that it is necessary to account for 4n emission in the 2p2n removal reaction ^{14}Be(-2p2n)^{10}He. Detailed Monte Carlo simulations were performed to simulate the emission of 2 non-resonant neutrons followed by the 2n decay of ^{10}He. Using GEANT4 and MENATE_R, the efficiency, resolution and acceptances of MoNA (Modular Neutron Array) were incorporated into the simulations. The inclusion of 4n emission allows the simultaneous fitting of the 2 and 3-body decay spectra while reproducing the experimentally observed 4 and 5-body spectra in addition to reproducing the observed multiplicity distribution.

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