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Search for the ^{15}Be ground state ANTHONY KUCHERA, RIDA SHAHID, Davidson College, NATHAN FRANK, HAYDEN KARRICK, Augustana College, MONA COLLABORATION COLLABORATION — The ground state of the unbound nuclide ^{15}Be remains an open question. The MoNA collaboration has performed two experiments to study the structure of ^{15}Be at the NSCL. In a first attempt to populate ^{15}Be , a two-proton removal reaction from a ^{17}C beam was used and decays were searched for in the $^{14}\text{Be}+n$ channel. This led to a non-observation due to a lack of ^{14}Be fragments detected. A follow-up experiment made the first observation of a ^{15}Be state through the use of a neutron-pickup reaction with a ^{14}Be beam impinging on a deuterated plastic target. Because of the observed states relatively high decay energy, the existence of a ^{15}Be state lower in energy decaying sequentially through the first excited state in ^{14}Be resulting in $^{12}\text{Be}+3n$ is possible. A first attempt to search for this state in the two-proton removal data set yielded low statistics and the data did not indicate the presence of a lower state. The neutron-pickup data are now being reanalyzed to search for the ground state in ^{15}Be by simultaneously fitting 2-, 3-, 4-body decay energies. Preliminary results indicate evidence for a state in ^{15}Be decaying by three neutrons that is lower in energy than the previously measured state.

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