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Two-Neutron Decay from the Ground State of ^{26}O[1] HARSHA ATTANAYAKE, PAUL KING, CARL BRUNE, DILUPAMA DIVARATNE, Ohio University, MONA COLLABORATION — The study of ^{26}O is important to understand the behavior and properties of neutron-rich heavy oxygen isotopes. Recent experiments have indicated that ^{24}O is bound and the tests have failed to find bound states of ^{25}O and ^{26}O. Unstable ^{26}O decays to stable ^{24}O by emitting two neutrons (^{26}O$\rightarrow^{24}$O + 2n) rather than decaying via ^{25}O, which is neutron unbound with a *1n* separation energy of 770 keV. An investigation of ^{26}O was conducted at the National Superconducting Cyclotron Laboratory, which possesses the capability to produce rare isotope beams and detect neutrons with an efficiency of about 70% with the MoNA detector. Production of ^{26}O was done by one-proton removal from a ^{27}F beam with an energy of 82 MeV/u impending on a 705 mg/cm^2 Be target. Coincidence of the two neutrons with ^{24}O was measured for four-vector momentum event reconstruction, allowing extraction of the invariant mass of ^{26}O.

[1]MoNA Collaboration and INPP-Ohio University

Harsha Attanayake
Ohio University

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