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Lifetime measurement of the 6.79 MeV state in ^{15}O LEXANNE WEGHORN, University of Wisconsin - La Crosse, BRYCE FRENTZ, ANI APRAHAMIAN, WANPENG TAN, University of Notre Dame, ZARIF RAHMAN, University of Wisconsin - La Crosse, JACK ENRIGHT, University College Cork, KEVIN LEE, CHRISTINA DULAL, MICHAEL WIESCHER, JOACHIM GOERRES, KEVIN HOWARD, SAMUEL HENDERSON, SHANE MOYLAN, BEKA KELMAR, University of Notre Dame — The ^{14}N$(p,\gamma)^{15}$O reaction is one of the time-limiting reactions in stellar evolution and the burning of protons to heavier elements known as the CNO cycle. This rate is in turn dependent on the lifetime of the 6.79 MeV state in ^{15}O. In preparation for a lifetime measurement of the 6.79 MeV state in ^{15}O, targets were prepared by implanting different doses of ^{14}N into tantalum, tungsten, and molybdenum backings at beam energies of 350 keV. The targets were produced, and subsequently studied using the 5 MV Sta. Ana accelerator at the University of Notre Dame Nuclear Science Laboratory. The characteristics of the targets were determined using the 1058 keV resonance in ^{14}N$(p,\gamma)^{15}$O, which also served as a feasibility test for the lifetime measurement. Varying the backing material and implanted dose of the targets will allow the identification of systematic trends in the data. The lifetime measurement will be made in an upcoming experiment using the Doppler-Shift Attenuation Method. There have been several former attempts to measure this lifetime with limited determination of upper limits. Information about the production and the properties of the targets will be presented, as well as preliminary results from the lifetime measurement.

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