Abstract Submitted
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Measurement of the $^{18}O(\alpha,n)^{21}$Ne reaction from 2-8 MeV[1] REBECCA TOOMEY, G. SEYMOUR, H. SIMS, Rutgers University, M. FEBBRARO, S. PAIN, Oak Ridge National Laboratory, R. J. DEBOER, S. SHAHINA, University of Notre Dame, K. T. MACON, Louisiana State University — ^{18}O(α,n)^{21}Ne reaction has broad interest across a number of applications for nuclear physics. In nuclear astrophysics, this reaction acts as a competing channel for the production of ^{22}Ne for the neutron source in the weak s-process. In neutrinoless double beta decay, this reaction poses a potential background in water shielded detectors. In addition, for nuclear nonproliferation, it acts as a neutron source in low burnup uranium oxide fuel. There is little existing data for this reaction, with large uncertainties dominating the cross section at higher energies. As such, a high-resolution measurement of the ^{18}O(α,n)^{21}Ne reaction was performed at the University of Notre Dame over the range $E_\alpha = 2 - 8$ MeV to extract partial and total cross sections. 10 ODeSA detectors were used for neutron spectroscopy via the spectrum unfolding technique, and 2 HPGe detectors were also used to detect secondary gamma rays. Preliminary results from this measurement will be shown and compared to existing data.

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