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Unearthed: Measuring the Beam-Induced 13C(d,n)14N Background in Underground Nuclear Astrophysics Experiments E. TEMANSON, University of Wisconsin - La Crosse, M. FEBBRARO, S.D. PAIN, M.E. BANNISTER, C.C. HAVENER, K.A. CHIPS, Oak Ridge National Labratory, C.C. UMMEL, D. WALTER, F. CORRADO, J. CIZEWSKI, Rutgers University, W.A. PETERS, University of Tennessee, S. JONES , Tennessee Tech — Slow neutron capture or the s-process is a nucleosynthesis process that is responsible for roughly half the atomic nuclei heavier than iron. In the s-process a nucleus undergoes a series of neutron captures and the unstable isotopes beta decay to stability. The majority of neutrons for the s-process are supplied by the 13C(α,n)16O reaction, thus making the cross section one of recent interest. One complication in the study of this reaction arises from potential deuterium contamination in intense helium beams, as most analyzing magnets cannot separate the two constituents. The deuterium contamination is not negligible because at low energies (250keV and below) the cross section of 13C(d,n) is six orders of magnitude higher than that of 13C(α,n). To address this issue, a measurement of the partial 13C(d,n) cross section was performed at Oak Ridge National Laboratory's Multicharged Ion Research Facility to allow accelerator experiments to determine deuterium contamination live. The setup and preliminary results will be presented.

Eli Temanson
University of Wisconsin - La Crosse

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