Abstract Submitted
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A High-Precision Determination of the Astrophysical Rate for Production of ^{9}Be[1] C.W. ARNOLD, T.B. CLEGG, H.J. KARWOWSKI, G.C. RICH, J.R. TOMPKINS, UNC Chapel Hill, TUNL, C.R. HOWELL, Duke, TUNL — New cross section measurements of the astrophysically important ^{9}Be(γ,n) reaction have been made from 1.5 to 5.18 MeV. The measurements were made using the nearly monoenergetic circularly polarized γ-ray beam at Triangle Universities Nuclear Laboratory's High Intensity γ-ray Source. Measurements over narrow resonances employed beams with energy spread dE/E $\leq$ 1%. The energy-dependent absolute efficiency of the neutron counter used in this work was measured to $\pm$ 3% accuracy. New resonance parameters for the 4 lowest lying states in ^{9}Be were determined. A new reaction rate for $\alpha + \alpha + n$ has been determined to better than $\pm$ 5%. The present rate is $\sim$ 25% larger than two widely accepted rates [1-2] in the temperature range important for r-process nucleosynthesis. The implications of this new rate on r-process and nuclear abundance predictions will be discussed.

[1] C. Angulo *et al.* Nuc. Phys. A 656 (1999) 3-183.
[2] K. Sumiyoshi *et al.* Nuc. Phys A 709 (2002) 467-486.

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