Abstract Submitted
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Probing Nucleosynthesis in Novae: ^{22}Na(p,γ)^{23}Mg A.L. SALLASKA, D.W. STORM, A. GARCIA, T.A.D. BROWN, K.A. SNOVER, C. WREDE, K. DERYCKX, University of Washington, C. RUIZ, D.F. OTTEWELL, D.A. HUTCHEON, C. VOCKENHUBER, TRIUMF, J.A. CAGGIANO, PNNL, L. BUCHMANN, TRIUMF — Orbiting gamma ray telescopes have yet to observe the elusive ^{22}Na isotope. More sensitive observatories are planned, and present uncertainties in the dominant destructive reaction, ^{22}Na(p,γ), suggest new measurements in the proton energy range of 150 to 300 keV are needed to clarify the predictions of the amount of ^{22}Na expected in a nova explosion. In particular, a state in ^{23}Mg reported by Jenkins et al. [1] implies a possible resonance at E_p = 198 keV, which could be significant. We are in the process of measuring the ^{22}Na(p,γ) reaction rate directly by using protons from the UW tandem on a specially designed beamline, which includes rastering and cold vacuum protection of the ^{22}Na implanted targets, fabricated at TRIUMF. Utilizing two 100% Ge detectors with anticoincidence shields to reduce cosmic backgrounds, measurements have been performed on known resonances of ^{22}Na, as well as on the proposed new resonance. Preliminary results will be presented, which indicate the dominant contribution to the reaction rate in the region of interest to novae is not the new resonance at E_p = 198 keV and is, instead, the resonance at E_p = 214 keV.
[1] Jenkins *et al.*, PRL **92** (2004) 031101

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