

Abstract Submitted
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Probing Nucleosynthesis in Novae: $^{22}\text{Na}(p,\gamma)^{23}\text{Mg}$ 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.A. HUTCHEON, L. BUCHMANN, D.F. OTTEWELL, C. VOCKENHUBER, TRIUMF, J.A. CAGGIANO, PNNL — 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, $^{22}\text{Na}(p,\gamma)$, 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 [1] implies a possible resonance at $E_p = 198$ keV which could be significant. We are in the process of measuring the $^{22}\text{Na}(p,\gamma)$ 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. A multitude of target tests have been performed with stable ^{23}Na , focusing on sodium stability with respect to sputtering and heating caused by our high intensity beam. Utilizing two 100% Ge detectors with anticoincidence shields to reduce cosmic backgrounds, preliminary measurements have been performed on known resonances of ^{22}Na , as well as on the proposed new resonance. Results will be presented. [1] Jenkins *et al.*, PRL **92** (2004) 031101

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