Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Effects on ^{18}F production in novae from changes in the ^{17}O(p,α)^{14}N rate B.H. MOAZEN, Univ. of Tenn, J.C. BLACKMON, D.W. BARDAYAN, ORNL, K.Y. CHAE, Univ. of Tenn., K. CHIPPS, CO School of Mines, C.P. DOMIZIOLI, Tenn. Tech. Univ., R. FITZGERALD, UNC, U. GREIFE, CO School of Mines, W.R. HIX, ORNL, K.L. JONES, Univ. of Tenn., R.L. KOZUB, Tenn. Tech. Univ., E.J. LINGERFELT, Univ. of Tenn., R.J. LIVESAY, CO School of Mines, C.D. NESARAJA, ORNL, S.D. PAIN, Rutgers, L.F. ROBERTS, ORNL, UCSC, J.F. SHRINER JR., Tenn. Tech Univ., M.S. SMITH, ORNL, J.S. THOMAS, Rutgers — The properties of a resonance at 183 keV are important for understanding the ^{17}O(p,α)^{14}N and ^{17}O(p,γ)^{18}F reaction rates at nova temperatures and was recently reported to significantly increase the (p,α) reaction rate. A method involving the bombardment of a hydrogen filled target chamber was recently developed at ORNL for measuring the strength and energy of (p, α) resonances and was applied to measure this resonance in ^{17}O(p,α)^{14}N. The strength of the resonance was confirmed and post-processing nova nucleosynthesis simulations show the new ^{17}O(p,α)^{14}N reaction rate significantly decreases ^{18}F production in low mass ONeMg novae but has little effect on more energetic novae [Moazen et. al. Phys. Rev. C 75 065801 (2007)]. Results and astrophysical implications will be presented as well as future plans to measure ^{18}F(p,α)^{15}O with this technique. ORNL is managed by UT Battelle for the US DOE

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Date submitted: 11 Jan 2008 Electronic form version 1.4