Abstract Submitted
for the DNP07 Meeting of
The American Physical Society

The ^{17}O(p,α)^{14}N reaction measured using a novel technique 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, J.F. SHRINER JR., Tenn. Tech Univ., M.S. SMITH, ORNL, J.S. THOMAS, Rutgers — We developed a new approach for measuring (p,α) reactions and applied it to measure the energy and strength of the 183 keV resonance in ^{17}O(p,α)^{14}N that was recently reported to significantly increase the reaction rate in novae. A beam of ^{17}O from the Holifield Radioactive Ion Beam Facility [ORNL] tandem accelerator bombarded hydrogen gas, which filled a differentially pumped scattering chamber at pressures up to 4 Torr. Reaction products were detected in coincidence and the vertex of the reaction was determined from the relative kinematics of the two products. Nova simulations show the new ^{17}O(p,α)^{14}N reaction rate significantly decreases ^{18}F production in low mass ONeMg nova but affects more energetic novae less. Results and astrophysical implications will be presented as well as comments regarding my past CEU participation. ORNL is managed by UT-Battelle for the US DOE.

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Date submitted: 02 Jul 2007 Electronic form version 1.4