Abstract Submitted
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The ^{17}O(p,α)^{14}N reaction measured using a novel technique[1] B.H. MOAZEN, Univ. of Tenn., J.C. BLACKMON, ORNL, 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, K.L. JONES, Rutgers, R.L. KOZUB, Tenn. Tech Univ., R.J. LIVESAY, CO School of Mines, C.D. NESARAJA, Univ. of Tenn., ORNL, S.D. PAIN, Rutgers, J.F. SHRINER JR., Tenn. Tech Univ., M.S. SMITH, ORNL, J.S. THOMAS, Rutgers — The ^{17}O(p,α)^{14}N reaction is important for understanding nucleosynthesis in giant stars and in novae. We developed a new approach for measuring (p,α) reactions and applied it to measure the energy and strength of the 183 keV resonance that was recently reported to increase the ^{17}O(p,α)^{14}N reaction rate by a factor of as much as 100. A beam of ^{17}O from the Holifield Radioactive Ion Beam Facility tandem accelerator bombarded hydrogen gas, which filled a scattering chamber at pressures up to 4 Torr. The chamber was connected to the beamline via 4 differential pumping stages. Reaction products were detected in coincidence by a large array of silicon strip detectors, and the vertex of the reaction was determined from the relative kinematics of the two products. Results will be presented as well as plans for measurements with radioactive beams.

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