

Abstract Submitted
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Commissioning of the windowless gas target at ORNL's Holifield Radioactive Ion Beam Facility¹ B.H. MOAZEN, Univ. of Tenn., J.C. BLACKMON, LSU, D.W. BARDAYAN, ORNL, C.P. DOMIZIOLI, Tenn. Tech. Univ., R. FITZGERALD, UNC, U. GREIFE, R.J. LIVESAY, Col. School of Mines, M.S. SMITH, ORNL — Direct measurements of many astrophysically relevant proton-induced reactions using radioactive ion beams require the use of hydrogen targets. The use of solid polypropylene targets is not always advantageous because of the large energy loss in the solid target and the existence of contaminant reactions on the carbon. At the Holifield Radioactive Ion Beam Facility, we have commissioned a windowless hydrogen gas target to be used in conjunction with the Daresbury Recoil Separator. The apparatus is connected to the beamline via 8 differential pumping stages (4 located upstream of the target and 4 downstream) and has a central chamber that can be filled with hydrogen gas at pressures up to 8 Torr, while keeping good vacuum in the beamline. The setup and characterization of the target will be discussed along with its utilization in a number of measurements such as $^{17}\text{F}(p,\gamma)^{18}\text{Ne}$ and $^7\text{Be}(p,\gamma)^8\text{B}$.

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