

Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Upgrade to the Cryogenic Hydrogen Gas Target Monitoring System¹ MICHAEL SLATER², ROBERT TRIBBLE, Cyclotron Institute, Texas A&M — The cryogenic hydrogen gas target at Texas A&M is a vital component for creating a secondary radioactive beam that is then used in experiments in the Momentum Achromat Recoil Spectrometer (MARS). A stable beam from the K500 superconducting cyclotron enters the gas cell and some incident particles are transmuted by a nuclear reaction into a radioactive beam, which are separated from the primary beam and used in MARS experiments. The pressure in the target chamber is monitored so that a predictable isotope production rate can be assured. A “black box” received the analog pressure data and sent RS232 serial data through an outdated serial connection to an outdated Visual Basic 6 (VB6) program, which plotted the chamber pressure continuously. The black box has been upgraded to an Arduino UNO microcontroller [Atmel Inc.], which can receive the pressure data and output via USB to a computer. It has been programmed to also accept temperature data for future upgrade. A new computer program, with updated capabilities, has been written in Python. The software can send email alerts, create audible alarms through the Arduino, and plot pressure and temperature. The program has been designed to better fit the needs of the users.

¹Funded by DOE and NSF-REU Program

²REU student at the Texas A&M Cyclotron Institute. Home Institution: Colorado School of Mines

Michael Slater
Cyclotron Institute

Date submitted: 31 Jul 2013

Electronic form version 1.4