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In Situ Calibration for Proton Particle Telescope COLLIN STILLMAN, STEPHEN PADALINO, DANAE POLSIN, MEGAN RUSS, MICHAEL KRIEGER, MOLLIE BIENSTOCK, DREW ELLISON, ANGELA SIMONE, SUNY Geneseo, MARK YULY, KEITH MANN, TYLER REYNOLDS, Houghton College, CRAIG SANGSTER, Laboratory for Laser Energetics — Neutrons produced via the 3H(2H,n)4He reaction at the Ohio University Accelerator Lab were used to activate a graphite sample via the ^{12}C(n,2n)^{11}C reaction in an attempt to measure the (n,2n) reaction cross section. Before striking the graphite, the neutrons struck a thin polyethylene foil and elastically scattered protons in to a surface barrier detector telescope. The recoiling protons were used to determine the energy and number of neutrons which struck the ^{12}C activation sample. To verify that the particle telescope's predicted response function for 15 to 27 MeV protons was correct a calibration of the detector telescope was performed in air on the SUNY Geneseo tandem Pelletron accelerator. High energy protons were created via the ^{2}H(^{3}He, p)^{4}He reaction by bombarding a deuterated polyethylene target with 4.5 MeV ^{3}He ions. The high-energy protons then pass through a Kapton window from vacuum into air where they were detected by the particle telescope. The dependence of the detector response on various proton energies was then investigated for various detector geometries. This data was extremely useful when performing the graphite activation experiment at the Ohio University accelerator lab. Funded in part by a grant from the DOE through the Laboratory for Laser Energetics.

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