Abstract Submitted
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Proportional Counter Calibration and Analysis for ^{12}C+p Resonance Scattering[1] AUSTIN NELSON, GRIGORY ROGACHEV, ETHAN UBERSEDER, JOSH HOOKER, YEVGEN KOSHCHIY, Cyclotron Institute, Texas A&M University — Light exotic nuclei provide a unique opportunity to test the predictions of modern *ab initio* theoretical calculations near the drip line. In *ab initio* approaches, nuclear structure is described starting from bare nucleon-nucleon and three-nucleon interactions. Calculations are very heavy and can only be performed for the lightest nuclei (A<16). Experimental information on the structure of light exotic nuclei is crucial to determine the validity of these calculations and to fix the parameters for the three-nucleon forces. Resonance scattering with rare isotope beams is a very effective tool to study spectroscopy of nuclei near the drip line. A new setup was developed at the Cyclotron Institute for effective resonance scattering measurements. The setup includes ionization chamber, silicon array, and an array of proportional counters. The proportional counter array, consisting of 8 anode wires arranged in a parallel cellular grid, is used for particle identification and to track the positioning of light recoils. The main objective of this project was to test the performance and perform position calibration of this proportional counter array. The test was done using ^{12}C beam. The excitation function for ^{12}C+p elastic scattering was measured and calibration of the proportional counter was performed using known resonances in ^{13}N. The method of calibration, including solid angle calculations, normalization corrections, and position calibration will be presented.

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