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Testing a New System for Charged-Particle Nuclear Reactions[1]
HANNAH GARDINER, JEFFREY BLACKMON, LAURA LINHARDT, KEVIN MACON, MILAN MATOS, CHARLIE RASCO, Louisiana State University, LAGY BABY, YEVEGN KOSHCHIY, GRIGORY ROGACHEV, D. SANTIAGO-GONZALEZ, INGO WIEDENHOVER, Florida State University, DAN BARDAYAN, Oak Ridge National Lab — The Array for Nuclear Astrophysics Studies with Exotic Nuclei (ANASEN) is a charged-particle detector array that is targeted towards reaction studies with radioactive ion beams at FSU and the NSCL primarily to help improve understanding of the nuclear reactions important in stellar explosions. A gas-filled ionization chamber with 10 alternating anode/cathode planes was developed and tested for use with ANASEN to identify the atomic number of recoiling heavy ions by their relative energy loss in passing through the gas. This ionization chamber, in conjunction with high-purity silicon detectors and ASIC electronics, was tested using the 17O(p,alpha)14N reaction at FSU. We report on the performance (efficiency and energy resolution) from this test experiment and on plans for improving the ionization counter detector design.

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