Abstract Submitted
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The first measurements using GODDESS[1] S. D. PAIN, Oak Ridge National Laboratory, A. RATKIEWICZ, T. BAUGHER, Rutgers University, M. FEBBRARO, Oak Ridge National Laboratory, J. A. CIZEWSKI, Rutgers University, GODDESS COLLABORATION — Direct reaction measurements, such as transfer, inelastic scattering, and charge-exchange reactions, are well-established probes of nuclear structure. Measurements are often made in inverse-kinematics, a technique applicable to both stable and radioactive beams, using large-area charged-particle detectors. There are trade-offs between optimizing for charged-particle or gamma-ray detection - especially gamma-ray efficiency and charged-particle angular resolution. GODDESS (Gammasphere ORRUBA: Dual Detectors for Experimental Structure Studies) is a coupling of a $\sim$ 700-channel highly-segmented silicon detector array (based on ORRUBA) with the Gammasphere HPGe array. Gammasphere, has an unusually large internal geometry (14" cavity), allowing a full implementation of a large well-optimized charged-particle array. GODDESS provides charged-particle detection with $\sim 1^\circ$ resolution in polar angle, between 15° and 165° ($\sim$ 80% azimuthal coverage), with a few tens of keV energy resolution. A compact fast ionization chamber is incorporated for measurement of beam-like species at zero degrees. The first campaign of in-beam measurements with GODDESS was conducted July-September 2015. Details of GODDESS and the commissioning experiment will be presented.

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