

Abstract Submitted
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Elastic and inelastic scattering of ^{134}Xe beams on C_2D_4 targets measured with GODDESS¹ HARRISON SIMS, JOLIE CIZEWSKI, ALEX LAPAILLEUR, HEATHER GARLAND, DAI XINATION, Rutgers University, STEVEN PAIN, Oak Ridge National Laboratory, MATTHEW HALL, Notre Dame University, GODDESS COLLABORATION — The GODDESS (Gammasphere-ORRUBA: Dual Detector for Experimental Structure Studies) coupling of the ORRUBA charged-particle array with Gammasphere is designed to enable high-resolution particle-gamma measurements in inverse kinematics with radioactive beams. The high resolution and coverage of GODDESS allows for multiple reaction channels to be studied simultaneously. For the stable-beam commissioning of GODDESS, the $^{134}\text{Xe}(d,p\gamma)^{135}\text{Xe}$ reaction was measured using a beam of ^{134}Xe at 8 MeV/A, delivered by the ATLAS facility at Argonne National Laboratory. The beam impinged on an $800\ \mu\text{g}/\text{cm}^2$ C_2D_4 target, and charged particles were detected in the GODDESS silicon array between 15 and 165 degrees. Coincident gamma rays were measured with Gammasphere, with 10% efficiency at 1.3 MeV. In the detectors downstream of the target, elastically- and inelastically-scattered target ions (deuterium and carbon) were detected, populating the ground and low-lying excited states in ^{134}Xe . An overview of GODDESS will be presented, along with the analysis of the downstream data, including the differential scattering cross sections and population of collective states in ^{134}Xe .

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