Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Reaction Studies with a Gas Jet Target at ReA[1] K.A. CHIPPS, Oak Ridge National Lab, JENSA COLLABORATION — Radioactive ion beams have provided new opportunities for reaction measurements in nuclear astrophysics, reactions, and structure; however, the move to inverse kinematics presented unique difficulties, particularly with regard to targets. The use of standard targets such as hydrogen-rich plastic films can worsen experimental resolution and create problematic backgrounds. A recent development toward addressing this issue is the commissioning of the Jet Experiments in Nuclear Structure and Astrophysics (JENSA) gas jet target. The JENSA system provides a pure, homogeneous, highly localized, dense, and robust gaseous target for radioactive ion beam studies. Charged-particle reactions measurements made with gas jet targets can be cleaner and display better resolution than with traditional targets. With the availability of pure and localized gas jet targets in combination with developments in exotic radioactive ion beams and next-generation detector and spectrometer systems, the range of reaction studies that are experimentally possible is vastly expanded. This talk will focus on the benefits of performing reaction measurements with a gas jet target, including discussion of several example cases using JENSA and future applications with SECAR and SOLARIS.

[1]Research sponsored by the Laboratory Directed Research and Development Program of Oak Ridge National Laboratory, managed by UT-Battelle, LLC, for the U.S. Department of Energy. This work was supported by the U.S. DOE, NNSA, and NSF.

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Date submitted: 09 Jan 2018 Electronic form version 1.4