

Abstract Submitted  
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**Study of the  $^{19}\text{F}(\alpha,\text{p})^{22}\text{Ne}$  reaction with an extended gas target**  
K.Y. CHAE, D.W. BARDAYAN, C.D. NESARAJA, M.S. SMITH, ORNL, S.H. AHN, A. AYRES, A. BEY, K.L. JONES, S.T. PITTMAN, UTK, M.E. HOWARD, P.D. O'MALLEY, Rutgers Univ., R.L. KOZUB, TN Tech. Univ., M. MATOS, B.H. MOAZEN, LSU, W.A. PETERS, ORAU — Because of the astrophysical importance of measuring numerous  $(\alpha,\text{p})$  reactions for explosive nucleosynthesis, we have developed a new approach using heavy ion beams incident on a He target and have measured the  $^4\text{He}(^{19}\text{F},^1\text{H})^{22}\text{Ne}$  reaction as a first demonstration.  $^{19}\text{F}$  beams were produced at the Holifield Radioactive Ion Beam Facility (HRIBF) at Oak Ridge National Laboratory (ORNL) and bombarded a large scattering chamber filled with helium gas. Using a newly built gas recirculator system, a windowless gas target was maintained at a constant He pressure of 9 Torr. Recoiling protons from the reactions were detected by a large area annular silicon strip detector array (SIDAR) which was configured in dE-E telescope mode. We measured the  $^{19}\text{F}(\alpha,\text{p})$  and  $^{19}\text{F}(\alpha,\text{p}')$  excitation functions over the energy range of Ec.m.~1-2.1 MeV. Details of the experimental setup and a status report on the analysis will be presented. \*Oak Ridge National Laboratory is managed by UT-Battelle, LLC, for the U.S. Department of Energy under Contract No. DE-AC05-00OR22725.

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