

Abstract Submitted  
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**Measurement of the  $^{19}\text{F}(\alpha,n)$  Cross Section for Nuclear Safeguards Science**<sup>1</sup> C.S. REINGOLD, J.A. CIZEWSKI, S. BURCHER, B. MANNING, Rutgers University, W.A. PETERS, Joint Institute for Heavy Ion Research, R.R.C. CLEMENT, U.S.A.F., M.S. SMITH, Oak Ridge National Laboratory, D.W. BARDAYAN, E. STECH, W.P. TAN, University of Notre Dame, M. MADURGA, University of Tennessee, S. ILYUSHKIN, Colorado School of Mines, S. THOMPSON, Idaho National Laboratory, VANDLE COLLABORATION — A precise measurement of the  $^{19}\text{F}(\alpha,n)$  cross section will improve Non Destructive Assays (NDA) of  $\text{UF}_6$  and other actinide-fluoride samples via neutron detection techniques. The cross section will be determined with two complementary approaches. We have already bombarded a  $\text{LaF}_3$  target with a pulsed  $^4\text{He}$  beam from the Notre Dame FN tandem accelerator; next, we will send a fluorine beam from the ORNL tandem through a pure helium gas target. The neutron spectra from both of these reactions will be measured using the Versatile Array of Neutron Detectors at Low Energy (VANDLE), and coincident  $\gamma$  rays with a HPGe detector. We report here on data taken with VANDLE and a HPGe detector on a  $\text{LaF}_3$  target. This poster outlines the motivation for this experiment, explains the stages of this experiment, and presents both of our experimental setups and preliminary data.

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