Abstract Submitted
for the APR14 Meeting of
The American Physical Society

**Validation of (d,p$\gamma$) as a Surrogate for (n,$\gamma$)** A. RATKIEWICZ, J.A. CIZEWSKI, A. ADEKOLA, S. BURCHER, M.E. HOWARD, B. MANNING, S.L. RICE, C. SHAND, Rutgers University, J.T. BURKE, R.J. CASPERSON, N.D. SCIELZO, LLNL, R.A.E. AUSTIN, St. Mary's University, N. FOTIADES, LANL, R.O. HUGHES, T.J. ROSS, Richmond University, M. MCCLESKEY, TAMU, S.D. PAIN, ORNL, W.A. PETERS, ORAU — The abundance pattern of nuclei produced in the stellar r-process may be impacted by the rates at which participating exotic nuclei capture neutrons at late times in the process. These neutron capture rates are difficult or impossible to measure directly; therefore a surrogate method to constrain them must be identified. The low-energy (d,p) transfer reaction is a promising candidate for a surrogate, as it shares many characteristics (such as low angular momentum transfer) with the neutron capture reaction. We report on a campaign to validate (d,p$\gamma$) as a surrogate for (n,$\gamma$) using $^{95}$Mo as a target and focusing on excitations in $^{96}$Mo near the neutron separation energy. We will present preliminary results from completed measurements and plans to extend the campaign to an inverse kinematics measurement of $^{95}$Mo(d,p$\gamma$) with techniques being developed for radioactive ion beams. This work was supported in part by the U.S. DOE and the NSF.

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Date submitted: 10 Jan 2014 Electronic form version 1.4