Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

^{89}Zr(n,γ) from a surrogate reaction approach[1] SHUYA OTA, J.T. BURKE, R.J. CASPERSON, J.E. ESCHER, R.O. HUGHES, J.J. RESSLER, N.D. SCIELZO, I. THOMPSON, LLNL, R.A.E. AUSTIN, St. Mary's Univ., E. MCCLESKEY, M. MCCLESKEY, A. SAASTAMOINEN, TAMU, J. BENSTEAD, Univ. Surrey, T. ROSS, Univ. Kentucky — While recent studies have demonstrated the validity of the surrogate reaction approach for studying fission cross sections of short-lived actinides, its applicability for (n,γ) is still under investigation. We studied the γ-decay of ^{90}Zr produced by ^{91}Zr(p,d) in order to infer the ^{89}Zr(n,γ) cross sections. The experiments were carried out at the K150 Cyclotron facility at Texas A&M University with a 28.5-MeV proton beam. The reaction deuterons were measured at forward angles of 30-60° with the STARS (Silicon Telescope Array for Reaction Studies) array of three segmented Micron S2 silicon detectors. Compound nuclei with energies up to a few MeV above the neutron separation thresholds were populated. The coincident γ-rays were measured with the LiTeR (Livermore Texas Richmond) array of five Compton-suppressed HPGe clovers. We will present results of γ-emission probabilities of ^{89}Zr(n,γ) and some theoretical discussions.

[1]This work was performed under the auspices of the US Department of Energy by Lawrence Livermore National Laboratory under Contract No. DE-AC52-07NA27344. One of the authors, S. O. is supported by JSPS Postdoctoral Fellowship for Research Abroad.

Shuya Ota
LLNL

Date submitted: 30 Jun 2014 Electronic form version 1.4