

Abstract Submitted  
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**Coincident Measurements of  $^{176}\text{Lu}$  Level Structure for Nuclear Astrophysics using ICEBall and GEORGINA** ANTHONY BATTAGLIA, WANPENG TAN, ANI APRAHAMIAN, ROZA AVETISYAN, CLARK CASARELLA, ARMEN GYURJINYAN, SCOTT MARLEY, ANDREW NYSTROM, NANCY PAUL, KEVIN SIEGL, KARL SMITH, MALLORY SMITH, SABRINA STRAUSS, University of Notre Dame — The stellar production of  $^{176}\text{Lu}$  is synthesized via the s-process only. There is a long lived ground state ( $K=7$ ) and short lived isomer ( $K=1$ ), which do not communicate directly, however if there is an indirect communication between these levels it will affect the decay of  $^{176}\text{Lu}$  in astrophysical environments.<sup>1</sup> Recently, new measurements have found several low-lying intermediate states that indirectly communicate to both the ground and isomeric state.<sup>2</sup> Thus, to further investigate the low level structure of  $^{176}\text{Lu}$ , states were populated using a  $^{176}\text{Yb}(p,n)$  reaction with a 7.75 MeV bunched beam provided by the FN Tandem at the University of Notre Dame. Both conversion electrons and gamma-rays were detected in coincidence between the ICEBall array and two single-crystal germanium detectors from the GEORGINA array. The results from this experiment will be discussed. This work was supported by the National Science Foundation under contract number NSF PHY-1068192.

<sup>1</sup>K.T. Lesko et al. Phys. Rev. C, 77, 2850 (1991)

<sup>2</sup>G.D. Dracoulis et al. Phys. Rev. C, 81, 011301 (2010)

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