

Abstract Submitted
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Particle γ /fission studies of Uranium nuclei via (p,x) reactions

R.O. HUGHES, University of Richmond, T.J. ROSS, C.W. BEAUSANG, J.T. BURKE, N.D. SCIELZO, J.M. ALLMOND, M.S. BASUNIA, C.M. CAMPBELL, R.J. CASPERSON, H.L. CRAWFORD, J. MUNSON, L. PHAIR, J.J. RESSLER, STARS-LIBERACE COLLABORATION — An experiment was conducted at the 88-Inch Cyclotron at Lawrence Berkeley National Laboratory to study the structure and measure $(n,\gamma)/(n,\text{fission})$ cross-sections (via surrogate reactions) of Uranium isotopes. A 28 MeV proton beam incident on ^{236}U and ^{238}U targets populated states in Uranium isotopes via (p,p'), (p,d) and (p,t) reactions. The STARS array was used for detection of the outgoing light ions for exit channel nucleus tagging (as well as nuclear excitation energy information), and included a detector at backward angles for fission events. Coincident γ rays were detected using the 6 Clover detectors of the LIBERACE array and both p- γ and p-fission events were collected. The data provide a number of results including internal surrogate ratio measurements of $(n\gamma)/(n,\text{fission})$ cross-sections, and detailed structure information for nuclear levels from the ground state to well above the neutron evaporation thresholds across a range of Uranium isotopes. Preliminary results will be presented. This work is supported in part by the U.S. Department of energy via grant numbers DE-FG02-05 ER41379 & DE-FG52-06 NA26206(University of Richmond), DE-AC52 07NA27344(LLNL) and DE-AC02 05CH11231(LBNL).

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