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Spectroscopic studies on proton-rich nucleus ^{175}Pt G. GÜRDAL, M.P. CARPENTER, F.G. KONDEV, R.V.F. JANSSENS, I. AHMAD, T.L. KHOO, T. LAURITSEN, C.J. LISTER, D. SEWERYNIAK, S. ZHU, Argonne National Laboratory, D.J. HARTLEY, U.S. Naval Academy, L.L. RIEDINGER, University of Tennessee — Neutron-deficient nuclei around the $Z = 82$ shell closure are known to exhibit shape coexistence, due to the interplay between the occupation of specific intruder orbitals and core effects. It is challenging to study such nuclei experimentally, since fission dominates and, as a consequence, evaporation residue cross sections are small. The Recoil Decay Tagging (RDT) technique combined with the use of a large gamma-ray array is a powerful tool to study such nuclei. ^{175}Pt was investigated with this approach to clarify the structure of this nucleus and to extend the systematics in this region. Excited states were populated by the $^{94}\text{Mo}(^{84}\text{Sr}, 2pn)$ reaction at beam energies of 380 and 385 MeV provided by ATLAS. Prompt gamma rays were detected by Gammasphere and the recoiling nuclei were identified according to their m/q ratio using the FMA. After m/q identification, the recoiling nuclei were implanted in a 40x40 DSSD, where subsequent charge particle decays were measured. An array of four large-volume Ge detectors and one LEPS detector surrounded the DSSD. The results of this measurement will be presented. This work was supported by the U.S. Department of Energy, Office of Nuclear Physics, under Contract No. DE-AC02-06CH11357.

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