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Alpha decay of ^{257}Rf * J. QIAN, A. HEINZ, R. WINKLER, J. VINSON, Yale University, A.B. GAMSWORTHY, University of Surrey, R.V.F. JANSSENS, D. PETERSON, D. SEWERYNIAK, B. BACK, M.P. CARPENTER, G. SAVARD, A.A. HECHT, C.L. JIANG, T.L. KHOO, F.G. KONDEV, T. LAURITSEN, C.J. LISTER, A. ROBINSON, X. WANG, S. ZHU, Argonne National Laboratory, M. ASAI, Japan Atomic Energy Agency — In this work, we studied ^{257}Rf by using the Fragment Mass Analyzer(FMA) at Argonne National Laboratory. In addition to α - α correlations, the FMA measures the Mass/charge (A/Q) ratio of residues which helps to identify the origin of weak alpha lines. A 233 MeV ^{50}Ti beam with an average intensity of 115 pA impinged on a rotating ^{208}Pb target wheel. The recoil positions at the FMA focal plane - which allow the measurement of the A/Q ratio - were detected with a Parallel Grid Avalanche Counter (PGAC) and subsequently implanted in a Double-sided Silicon Strip Detector (DSSD). Recoils are identified by their energy deposition inside the DSSD as well as their time-of-flight between the PGAC and the DSSD. Position and time of implant events and subsequent alpha decays were measured and correlated. The details of the data will be presented. These data can test model predictions concerning the next proton shell closure and the structure of heavy nuclei in the absence of a liquid-drop fission barrier. This work was supported by the U.S.Department of Energy, Office of Nuclear Physics, under contract No. W-31-109-ENG-38 and DE- FG02-91ER-40609, and Nexia Solutions Ltd.

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