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Benchmarking the Surrogate Ratio Method Using the α,α'f) reaction S.R. LESHER, L.A. BERNSTEIN, J.T. BURKE, D.L. BLEUEL, F.S. DIETRICH, J.E. ESCHER, B.F. GOLDBLUM, K.J. MOODY, E.B. NORMAN, N.D. SCIELZO, LLNL, H. AI, Yale Univ., C.W. BEAUSAND, Univ. of Richmond, R.M. CLARK, P. FALLON, J. GIBELIN, I.Y. LEE, A.O. MACCHIAVELLI, M.A. MCMAHAN, L. PHAIR, E. RODRIGUEZ-VIEITEZ, M. WIEDEKING, LBNL — The Surrogate Ratio Method is a technique that can be used to obtain neutron induced reaction cross sections on unstable nuclei. Using the 88-Inch Cyclotron at LBNL and the Silicon Telescope Array for Reaction Studies (STARS), ^{234}U and ^{236}U were excited via inelastic α particle scattering. Fission events from the decay of these nuclei were detected in coincidence with the alpha particles. The ratio of their fission probabilities was compared to the known ^{233}U(n,f) / ^{235}U(n,f) cross-section ratio and found to agree over an excitation energy range of 7 – 25 MeV. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory in part under Contract W-7405-Eng-48 and in part under Contract DE-AC52-07NA27344 and Grant Nos. DE-FG52-06NA26206 and DE-FG02-05ER41379. This work was also supported by the Director, Office of Science, Office of Nuclear Physics of the U.S. Department of Energy under Contract No. DE-AC02-05CH11231.

Shelly Lesher
Lawrence Livermore National Lab

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