Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

Benchmarking the Surrogate Ratio Method Using ^{234}U(α,$\alpha' f$)/^{236}U(α,α'f) S.R. LESHER, C.W. BEAUSANG, Univ. of Richmond, J.T. BURKE, L.A. BERNSTEIN, J.A. CHURCH, F.S. DIETRICH, J. ESCHER, B.F. LYLES, K.J. MOODY, E.B. NORMAN, LLNL, H. AI, Yale University, R.M. CLARK, M.A. DELEPLANQUE, P. FALLON, I.Y. LEE, A.O. MACCHIAVELLI, M.A. MCMAHAN, L. PHAIR, E. RODRIGUEZ-VIEITEZ, LBNL — The Surrogate Ratio Method [1] is expected to demonstrate less sensitivity to differences in spin between the neutron-induced and surrogate reactions than the absolute surrogate method. The first ratio method experiment showed that the ^{237}U/^{239}U fission probability ratio was independent of whether the nuclei were formed using neutron-capture or the (d,p) reaction over a wide range of equivalent neutron energy [1]. However, this result had significant (>20%) uncertainty. In order to benchmark the ratio method with greater precision a new experiment was performed at the 88-Inch Cyclotron at LBNL using the Silicon Telescope Array for Reaction Studies (STARS) where the ratio of the ^{234}U(α,α'f) and ^{236}U(α,α'f) probabilities were compared to the known ^{233}U(n,f)/^{235}U(n,f) cross section ratio. This talk will discuss the surrogate ratio method and the preliminary results of our measurement. This work was sponsored by UC-LLNL under Contract No. W-7405-Eng-48 and Grant Nos. DE-FG-05NA25929, DE-FG52-06NA26206, and DE-FG02-05ER41379.
[1] C. Plettner, *et al.*, Phys. Rev. C 71, (2005) 051602(R)

S.R. Lesher
Univ. of Richmond

Date submitted: 29 Jun 2006 Electronic form version 1.4