Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Octupole Deformation in 143-146 Barium N.T. BREWER, W.A. YZAGUIRRE, J.H. HAMILTON, S.H. LIU, A.V. RAMAYYA, J.K. HWANG, C. GOODIN, Vanderbilt Univ., J.O. RASMUSSEN, Lawrence Berkeley Natl. Lab., S.J. ZHU, Vanderbilt Univ. and Tsinghua Univ., Y.X. LUO, Vanderbilt Univ. and Lawrence Berkeley Natl. Lab., G.M. TER-AKOPIAN, A.V. DANIEL, Y. OGANESSIAN, Joint Institute for Nuclear Research — Nuclei produced in the fission of ^{252}Cf at Lawrence Berkeley National Lab and measured using the Gammasphere array continue to give insight into neutron rich nuclei. Using our high statistics data, we have reexamined high-spin states and linking transitions associated with octupole deformation in 143-146 Ba. Quadrupole/octupole-mixed-deformation is characterized by two ΔI=1 rotational level bands which are doublets with opposite parities. This is modeled by the simplex quantum number s= $\pm$1 or s= $\pm$i. In ^{143}Ba, the s= -i levels are extended to $43/2^+$ with a total of six new levels that are discovered along with three new linking transitions consistent with octupole deformation. In ^{144}Ba, two new levels on top of the s= +1 doublet and one new level with 12 new linking transitions are found to give better evidence for an s= -1 doublet band than was previously reported. Six new levels found in ^{145}Ba along with two linking transitions extend the s= +i band up to $41/2^+$. The theoretically explained weakening of E1 transition strength in ^{146}Ba for high-spin states are now re-measured with lower upper limits on the intensities of the E1 transitions.

Nathan Brewer
SPS

Date submitted: 23 Jun 2010 Electronic form version 1.4