Abstract Submitted for the SES11 Meeting of The American Physical Society

Octupole correlations in Ba and Ce nuclei N.T. BREWER, W.A. YZAGUIRRE, J.H. HAMILTON, A.V. RAMAYYA, S.H. LIU, C. GOODIN, J.K. HWANG, Vanderbilt University, Y.X. LUO, Vanderbilt and LBNL, J.O. RASMUSSEN, LBNL, S.J. ZHU, Vanderbilt, Tsinghua University, G.M. TER-AKOPIAN, A.V. DANIEL, JINR — γ -rays from the Spontaneous Fission of ²⁵²Cf were measured with Gammasphere and have given great insight into the structure of neutron rich nuclei. We have examined high-spin states and the γ transitions associated with octupole correlations in^{143–146}Ba and ¹⁴⁸Ce. Coexisting quadrupole/octupole deformation is characterized by two $\Delta I = 1$ rotational bands with opposite parities. The states in these two rotational bands are described by a quantum number called simplex with $s^2 = (-1)^A$. In ¹⁴³Ba, the levels are extended to $43/2^+$ with a total of six new levels along with two new transitions. In ¹⁴⁴Ba, we have placed new levels including three E1 transitions and 8 linking transitions to the s = +1 band to give more definitive evidence for the s = -1 band. Six new levels are found in 145 Ba. For 144 Ba and 148 Ce we have, for the first time in even-even isotopes, confirmed the spin/parity of some s = -1 levels using angular correlations.

> N.T. Brewer Vanderbilt University

Date submitted: 24 Aug 2011

Electronic form version 1.4