

Abstract Submitted  
for the HAW09 Meeting of  
The American Physical Society

**Transition Strength Ratios in the Tetrahedral Candidate  $^{156}\text{Dy}$ <sup>1</sup>**

D.J. HARTLEY, USNA, L.L. RIEDINGER, UT, D. CURIEN, J. DUDEK, B. GALL, Strasbourg, J.M. ALLMOND, C.W. BEAUSANG, Richmond, M.P. CARPENTER, C.J. CHIARA, R.V.F. JANSSENS, F.G. KONDEV, T. LAURITSEN, E.A. MCCUTCHAN, I. STEFANESCU, S. ZHU, ANL, P.E. GARRETT, Guelph, W.D. KULP, J.L. WOOD, Georgia Tech, K. MAZUREK, Polish Academy of Sciences, M.A. RILEY, X. WANG, FSU, N. SCHUNCK, C.-H. YU, ORNL, J. SHARPEY-SCHAFFER, iThemba, J. SIMPSON, Daresbury — A new symmetry has been recently proposed where nuclei may stabilize in a tetrahedral (pyramid) shape. One of the consequences of this symmetry is that the transition strength,  $B(E2)$ , of the inband transitions should approach zero in the ideal case. Thus, one signal of this exotic shape would be a rotational band where the inband  $E2$  transitions are extremely weak or nonexistent. Such bands exist in many of the lowest negative-parity bands in the  $N \approx 90$  nuclei, which is also a predicted “magic” region for tetrahedral symmetry. A Gammasphere experiment was performed to measure the  $B(E2)/B(E1)$  ratios of such a negative-parity band in  $^{156}\text{Dy}$ . The results (which are consistent with the theory) will be presented, as well as a discussion of the proposed follow-up experiment to directly measure the  $B(E2)$  rates.

<sup>1</sup>Supported by the NSF (PHY-0554762) and DOE (DE-AC02-06CH11357)

D.J. Hartley  
USNA

Date submitted: 30 Jun 2009

Electronic form version 1.4