

Abstract Submitted
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Application of the E-Gamma Over Spin (E-GOS) Method to Rare Earth Region Nuclei D.A. MEYER, K.R. DUDZIAK, Rhodes College — The E-GOS (E-Gamma Over Spin) Method [1] provides a purely empirical way to determine the structure of a nucleus as a function of its angular momentum. Investigation of structure as a function of angular momentum complements existing comparisons of structural evolution as a function of nucleon number. No initial assumptions about a nuclide's structure are necessary in the E-GOS Method. Ratios of the experimental energies of gamma ray transitions between two levels divided by the spin of the originating levels can be calculated and plotted versus the spin of the originating levels. In this work, we plotted E-GOS curves using the data for the yrast bands of nuclei from $Z = 52$ to $Z = 78$. We then compare the E-GOS curves to the ideal limits of a perfect harmonic vibrator and an axially symmetric rotor. Known structural changes in this well-studied region are clearly observed in the E-GOS curves.

[1] P. H. Regan, *et al.*, Phys. Rev. Lett. 90, 152502 (2003).

D. A. Meyer
Rhodes College

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