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Recent results from gamma ray studies of rare earth nuclei

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Recent theoretical work has suggested that some nuclei in the rare earth region might exhibit tetrahedral deformations. Several nuclei have been studied at iThemba LABS, resulting in evidence against the possibility of low-lying tetrahedrally deformed bands. In a continued study of the region, further gamma-ray spectroscopy experiments have been performed at iThemba LABS, populating low lying states of nuclei in the $(Z,N)=(70,90)$ region. We present some of the results obtained for ¹⁵⁶Er, ¹⁶⁰Er and ¹⁵⁸Dy, particularly referencing the negative parity bands, and their relative structure in relation to the other nuclei in the region. Calculations of the theoretically predicted observables, such as the quadrupole deformation and the in-band transition rates and branching ratios will be discussed.

**Level (Hons, MSc,
 PhD, other)?**

PhD

**Consider for a student
 award (Yes / No)?**

Yes

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

Yes

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