## Frontiers in Gamma Ray Spectroscopy FIG18



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## Systematics of Band Termination at High-Spin in N~90 Nuclei: How Robust and Pure Are These Special States?

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## Content :

The light rare-earth nuclei near N = 90, are textbook examples (Refs. 1-10) of the evolution of nuclear structure with excitation energy and angular momentum. They display a variety of different phenomena, such as, multiple backbends, dramatic prolate

to oblate shape changes associated with band termination plus a spectacular return to collectivity extending discrete gamma-ray spectroscopy into the so-called ``ultrahighspin

regime`` (I = 50-70).

Band termination represents a clear manifestation of mesoscopic physics, since the underlying finite-particle basis of the nuclear angular momentum generation is revealed. In 158Er, terminating states at values Ip = 40+, 43-, 46+ , 48-, and 49-, have

been observed, Other neighbouring nuclei have also been found to exhibit similar fully

aligned states providing stringent tests of nuclear models since the wavefunctions for

these special states are extremely pure.

The present work has been triggered by a comprehensive high-spin analysis of data from Gammasphere on 157Ho90 which showed remarkable similarities to the known band termination states in 158Er90. A systematic analysis of favoured band terminations

in neighboring nuclei has subsequently been carried out and will be discussed.

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