

Abstract Submitted  
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**Systematics in the structure of low-lying, non-yrast band-head configurations of strongly deformed nuclei** GABRIELA POPA, Ohio University — Strongly deformed nuclei show interesting patterns in the energy spectrum above around 1 MeV. An empirical investigation of the trends in the properties of the non-yrast  $K^\pi = 2_\gamma^+$  and  $K^\pi = 0_2^+$  bandhead configurations in nuclei that are related to one another through the addition or removal of alpha-particle-like structures, reveals their complex and changing behavior in contrast to the smooth behavior of the yrast states. A systematic application of the pseudo-SU(3) model for such a sequence of deformed nuclei from the rare earth region leads to an accurate and unified description of not only yrast, but non-yrast collective bands. The onset of deformation as manifested through the position of the excited bandheads in the spectra is understood and interpreted by using a realistic model Hamiltonian in conjunction with a microscopic distribution of the eigenstates across allowed proton and neutron strong- coupled SU(3) configurations.

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