BEYOND BAND TERMINATION IN N=88-90 ERBIUM ISOTOPES

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High-spin terminating bands in heavy nuclei were first identified in nuclei around ${}^{158}_{68}\mathrm{Er}_{90}$; see Refs. [1,2] and references therein. At termination, this nucleus can be considered as a spherical core (${}^{146}_{64}\mathrm{Gd}_{82}$) plus twelve (4 protons and 8 neutrons) aligned valence particles which can generate a maximum spin of around $46\hbar$ at an excitation energy of $\approx$17 MeV, depending on the specific configuration [3]. To produce higher-spin states, particle-hole excitations of the core are required and the question arises as to whether these excitations induce collective deformation or whether the nucleus remains oblate or near-oblate. While clear examples of the special terminating states have been identified in a number of erbium isotopes, almost nothing is known about the specific states lying above band termination in isotopes close to the textbook example of ^{158}Er.

Thus our aim was to observe beyond these special band terminating states, determine how favored they really are, and what modes and configurations are used by these nuclei to excite higher angular momentum values. In this regard, the high-spin structure of ^{156,157,158}Er has been studied using the Gammasphere spectrometer, containing 102 Ge detectors. A 215 MeV ^{48}Ca beam, provided by the 88-Inch Cyclotron accelerator at the Lawrence Berkeley National Laboratory, was used to bombard two stacked thin self-supporting foils of ^{114}Cd, of total thickness 1.1 mg/cm^2. A total of 1.2×10^9 events were collected, for which at least seven Compton-suppressed Ge detectors fired in prompt coincidence. Results for ^{157}Er [4] as well as results from our ongoing analysis of ^{156,158}Er will be presented.

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