

Investigation of the collective structures at low and medium spins in the N=90 and 91 nuclei ^{158}Er and ^{159}Er

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As part of a general investigation of collective structures, and the coupling of single-particle states to these structures, in nuclei near N=90 we have used the $^{150}\text{Sm}(^{12}\text{C},4n)^{158}\text{Er}$ and $^{150}\text{Sm}(^{13}\text{C},4n)^{159}\text{Er}$ reactions to study the low and medium spin structure of the $^{158,159}\text{Er}$ nuclei. Gamma-gamma coincidences were detected in the 9 escape suppressed clover detectors of the AFRODITE spectrometer at iThemba LABS. DCO ratios and gamma-ray polarization measurements were used to establish the spins and parities of newly observed and previously established rotational bands. The observed bands will be discussed in terms of both traditional quadrupole rotation-vibration models and in terms of recent predictions of octupole correlations in N=90 and neighbouring nuclei. The data we have obtained will be compared with the systematics of the spectroscopy of neighbouring nuclei.