

Abstract Submitted  
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**Deformed rotational bands in  $^{134}\text{Pr}$**  STEPHEN PADGETT, Florida State University, KRIS STAROSTA, NSCL, Michigan State University, GS2K009 COLLABORATION — Highly deformed bands were first observed in the  $A=130$  nuclei. For example,  $^{132}\text{Ce}$  attains highly deformed prolate shape with the major to minor axis ratio of 3:2. However, in  $^{152}\text{Dy}$  the first super deformed bands were found with an axis ratio of 2:1. Current work investigates the possible observation of highly- and super-deformed bands in  $^{134}\text{Pr}$ , which is an odd-odd neighbor of  $^{132}\text{Ce}$ . The nucleus of interest was studied via the  $^{116}\text{Cd}(^{23}\text{Na}, 5n)$  reaction at beam energy of 115 MeV at the GAMMASPHERE facility. Five high spin bands were identified in  $^{134}\text{Pr}$  from thin target data, while quadrupole moment measurements are being performed for these bands through the DSAM analysis from the backed target data. The DSAM method provides information on nuclear lifetimes by combining average velocity at the moment of decay obtained from Doppler shifted  $\gamma$ -ray energies with modeling of nuclear stopping in the backing. The lifetimes in rotational bands are directly related to the quadrupole moment and nuclear shape and therefore reveal the degree of deformation for the investigated bands.

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