

DEFORMED ROTATIONAL BANDS IN ^{63}Zn AND ^{62}Cu

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High spin states in ^{62}Cu and ^{63}Zn were populated using the $^{40}\text{Ca}(^{29}\text{Si}, \alpha 3p)^{62}\text{Cu}$ and $^{40}\text{Ca}(^{29}\text{Si}, \alpha 2p)^{63}\text{Zn}$ reactions at a beam energy of 130 MeV. The experiment was performed at the LBL 88" cyclotron using the Gammasphere in conjunction with the Microball. A total of about 110 million α -3p and 140 million α -2p gated events were collected from the experiment. Three deformed rotational bands in each of the ^{62}Cu and in ^{63}Zn nuclei were established. Quadrupole moments for these bands have been measured using the fractional shift method. These measurements yield an average quadrupole moment of nearly (1.4 ± 0.2) eb and (2.1 ± 0.3) eb for bands B and C in ^{62}Cu , respectively. Although the connecting transitions for these bands have not been established, all these bands are seen clearly in coincidence with the known low-spin transitions in their respective nuclei. The dynamical moment of inertia, $J^{(2)}$, for band B of ^{62}Cu shows a sharp peak, indicating the occurrence of a sharp band-crossing (see Fig.1). However, the quadrupole moment for this band shows a comparatively smooth behavior. In contrast, the $J^{(2)}$ plots for the remaining bands in ^{62}Cu and in ^{63}Zn show a continuous decrease in their moments of inertia which is indicative of band termination.

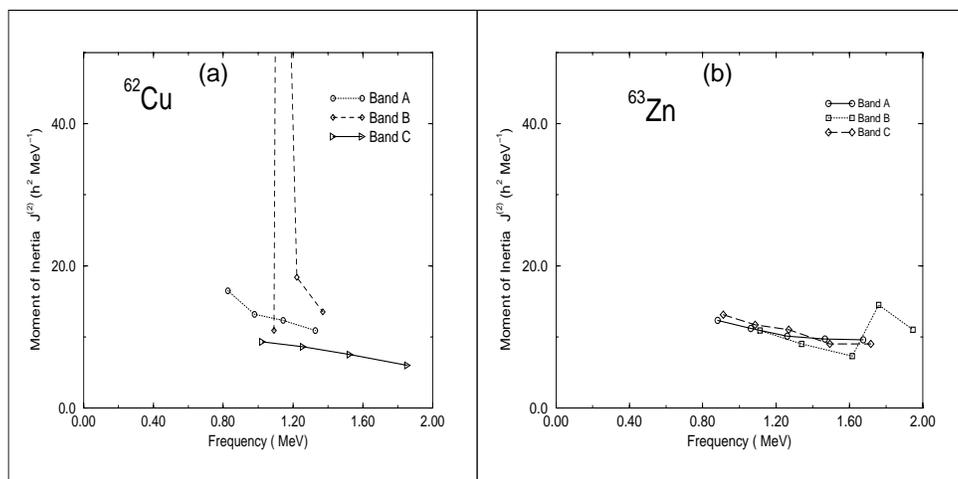


Figure 1: Dynamical moments of inertia for rotational bands in ^{62}Cu and ^{63}Zn .

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