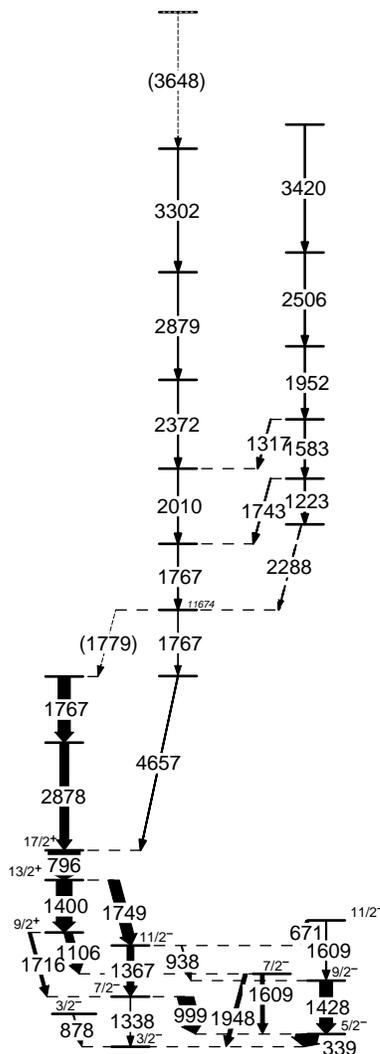


# HIGHLY DEFORMED ROTATIONAL BAND IN $^{59}\text{Ni}$ \*

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High spin states of  $^{59}\text{Ni}$  were populated using the  $^{40}\text{Ca}(^{29}\text{Si}, 2\alpha 2p)$  reaction at a beam energy of 130 MeV. The experiment was performed at the LBL 88-INCH CYCLOTRON using Gammasphere in conjunction with the Microball. A strongly signature split, highly deformed rotational band was established in  $^{59}\text{Ni}$ , see Fig. 1. Tentative connections were also established between this deformed band and the known [1] low-spin transitions in  $^{59}\text{Ni}$ . The  $J^{(2)}$  moment of inertia of this band has a very different slope compared that of the deformed band in the neighboring  $^{58}\text{Ni}$  [2]. More detailed analysis of the spins, parity, and lifetimes of this band, as well as theoretical calculations, are in progress. These will shed light on the configuration of the band, and possibly offer an explanation of the  $J^{(2)}$  moment of inertia.

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2. D. Rudolph et al., submitted to Phys. Rev. Lett.

Fig. 1: Partial level scheme of  $^{59}\text{Ni}$  obtained from the present study (deformed band) and Ref.[1] (low-spin levels).