BAND STRUCTURE IN ^{79}Y AND THE QUESTION OF $T = 0$ PAIRING [1]

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Gamma rays in the N=Z+1 nucleus ^{79}Y were identified using the reaction ^{28}Si(^{54}Fe, $p2n$)^{79}Y at a 200 MeV beam energy and an experimental set up consisting of an array of Ge detectors and the Recoil Mass Spectrometer at Oak Ridge National Laboratory. With the help of additional γ-γ coincidence data obtained with Gammasphere, these γ-rays were found to form a strongly-coupled rotational band with rigid-rotor-like behavior. Results of conventional Nilsson-Strutinsky cranked shell model calculations, which predict a deformation of β_2 approximately 0.4, are in excellent agreement with the properties of this band. Similar calculations for the neighboring N=Z and N=$Z+1$ nuclei are also in good agreement with experimental data. This suggests that the presence of the putative T=0 neutron-proton pairing does not significantly affect such simple observables as the moments of inertia of these bands at low spins.

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