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Evolution of Collectivity in 66Zn

Excited high spin states in 66Zn, populated in the fusion evaporation reaction 52Cr(18O, 2p2n), have been studied using in-beam γ -spectroscopic methods. The Indian National Gamma-ray Array (INGA) equipped with fourteen Compton suppressed Hp-Ge clover detectors was used to detect the gamma-rays emitted by the de-exciting nucleus. The 18O beam at 72.5 MeV was supplied by the 15UD Pelletron Accelerator of the Inter University Accelerator Center (IUAC), New Delhi. The level scheme of the 66Zn nucleus, previously studied long back with modest detection systems, has been extended in this work significantly by the addition of eighteen new transitions and ten new levels. The ground state band has been found to crossed by the two quasiparticle band based on vg9/2 orbital at a spin value of 6ħ. The evolution of collectivity in this nucleus has been discussed in the framework of Total Routhian Surface Calculation(TRS) and in comparison with the neighbouring 68Ge(N=36) and 70,72Ge.

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