γ Spectroscopy of Positive Parity Bands ^{156}Gd

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An experiment was realized in september 2007 at Jyväskylä laboratory involving a 27 MeV α beam on a ^{154}Sm thick target. γ spectroscopy was performed using JUROGAM array which was composed by 43 segmented HPGe detector. First aim of this experiment was the search for fingerprints of tetrahedral symmetry in negative parity bands. However the high quantity of triple coincidence events obtained allowed us to manage a more detailled spectroscopy of ^{156}Gd nucleus. Since the negative parity bands have already been discussed in previous work [1], we will present here experimental results concerning positive parity bands. Indeed, ^{156}Gd level scheme was enriched with more than ten new transitions, essentially between the two γ bands. Moreover, our study revealed an additional level in the new band proposed by Sugawara *et al.* [2].

Work is in progress concerning interpretation of new transitions find out in the study and possible spin assignation of level which wasn't determined by Sugawara *et al.* [Suga01] because of lake of statistic.

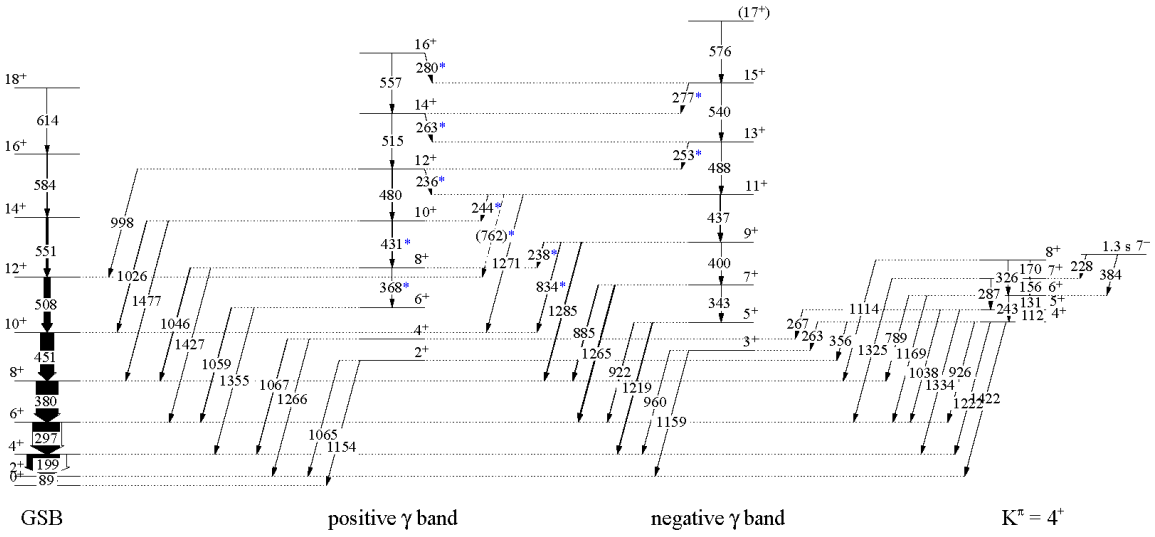

Figure 1: *Partial level scheme of positive parity band in* ^{156}*Gd. New transitions in and between* γ *bands are marked with star.*

[1] Q.T. Doan *et al.*, Acta Phys. Pol. **B 40**, 725 (2009).

[2] M. Sugawara *et al.*, Nucl. Phys. **A 686**, 29-40 (2001).