

Frontiers in Gamma Ray Spectroscopy

FIG18



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Investigation of the level structure of ^{78}Se at medium spins

Content :

The level structure of ^{78}Se nucleus has been investigated using alpha beam from the K-130 Cyclotron at VECC, Kolkata. The excited states of the aforesaid $2n$ -channel residual nucleus were populated employing the $^{76}\text{Ge}(\alpha, 2n)$ fusion evaporation reaction. The enriched ^{76}Ge target for this measurement was prepared on mylar backing through centrifuge process. Two such targets were stacked together to increase the yield of the residual nuclei. The deexcited gamma rays from the residual nuclei were measured using the Indian National Gamma Array (INGA) spectrometer. The array was consisting of seven clover Ge detectors and one LEPS during the measurement. Several new gamma transitions have been observed, and subsequently placed in the decay scheme. From preliminary analysis, the level scheme has been observed up to the excitation energy, $E_x \sim 7.0$ MeV and spin, $I \sim 15\hbar$. The new results will be crucial to understand the complex coupling mechanism between octupole correlations and the gamma vibrational modes in this nucleus. The analysis is in progress, and results will be discussed in detail during the meeting.

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