

Frontiers in Gamma Ray Spectroscopy

FIG18

Contribution ID : 47



Spectroscopy of Low Lying states in ^{150}Sm

Content :

Low lying states of ^{150}Sm have been studied through decay spectroscopy of odd-odd ^{150}Pm , populated with $^{150}\text{Nd}(p,n)^{150}\text{Pm}$ reaction at $E_{\text{beam}}=8.0$ MeV using 97% enriched ^{150}Nd target and VENUS array of six Compton suppressed Clover HPGe detectors. Twenty new transitions are placed, five tentative γ -rays are confirmed and ten transitions are found to have altered placements; consequently assigning fourteen new levels to the decay scheme of ^{150}Pm . The β decay end-point energies corresponding to the decay from the $^{150}\text{Pm} \rightarrow ^{150}\text{Sm}$ have been measured by using a β - γ coincidence setup of two thin window Planar HPGe detectors and four Clover HPGe detectors of the VENUS array. A large basis shell model calculation has been performed to understand the low lying yrast structures of ^{150}Pm and ^{150}Sm . A variety of shapes and excitations having different degrees of collectivity are found to coexist in $N=88$ Sm nucleus.

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Session classification : --not yet classified--

Track classification : --not yet classified--

Type : Poster