

(HL,xn γ) 1999As05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 160, 1 (2019)	21-Oct-2019

Additional information 1.

Measured deep-inelastic reactions to investigate spin production as a function of target and projectile mass.

Reactions studied: $^{154}\text{Sm}+^{176}\text{Yb}$, $E(^{154}\text{Sm})=949$ MeV, two stacked targets 0.5 mg/cm² thick and enriched to 97.8% in ^{176}Yb ; $^{154}\text{Sm}+^{208}\text{Pb}$, $E(^{154}\text{Sm})=1$ GeV, one target 1.0 mg/cm² thick and enriched to 99.95 in ^{208}Pb . Recoiling fragments detected using a specially segmented Si strip detector. γ radiation studied using the Gammasphere array having 55 high-purity Compton-suppressed Ge detectors. Measured particle- $\gamma\gamma\gamma$ coincidences. Report E_γ , E(level), for a range of Yb and Sm nuclides, one of which is ^{155}Sm .

Because of the tentative nature of the level scheme above the 358, 13/2⁺ level, those data are not included in the Adopted Levels, Gammas Data Set.

 ^{155}Sm Levels

E(level) [†]	J π [‡]	Comments
16.5 [#]	5/2 ⁺	E(level): nominal value, from Adopted Values.
76.3 [@]	7/2 ⁺	
152.0 [#]	9/2 ⁺	
250.3 [@]	11/2 ⁺	
358 [#]	13/2 ⁺	
502.3? [@]	(15/2 ⁺)	
635? [#]	(17/2 ⁺)	
835.3? [@]	(19/2 ⁺)	
985? [#]	(21/2 ⁺)	
1251.1? [@]	(23/2 ⁺)	
1408? [#]	(25/2 ⁺)	
1901? [#]	(29/2 ⁺)	
2470? [#]	(33/2 ⁺)	

[†] Computed from the E_γ values.

[‡] Values in parentheses are those from 1999As05. The others are from the Adopted Values.

[#] Band(A): $K^\pi=5/2^+$ band, signature=+1/2 portion. Dominant configuration=5/2[642].

[@] Band(a): $K^\pi=5/2^+$ band, signature=-1/2 portion. Dominant configuration=5/2[642].

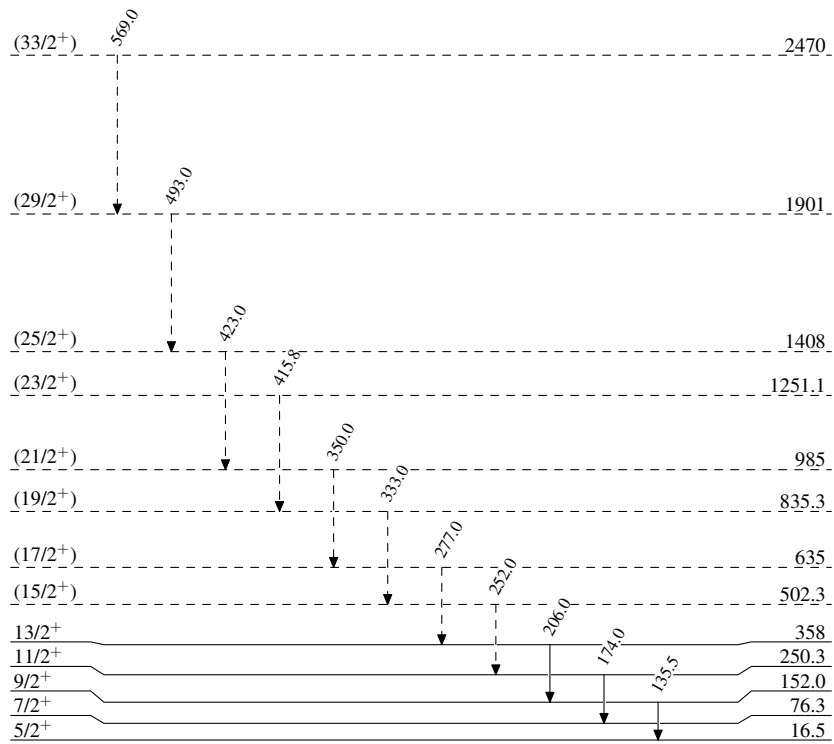
 $\gamma(^{155}\text{Sm})$

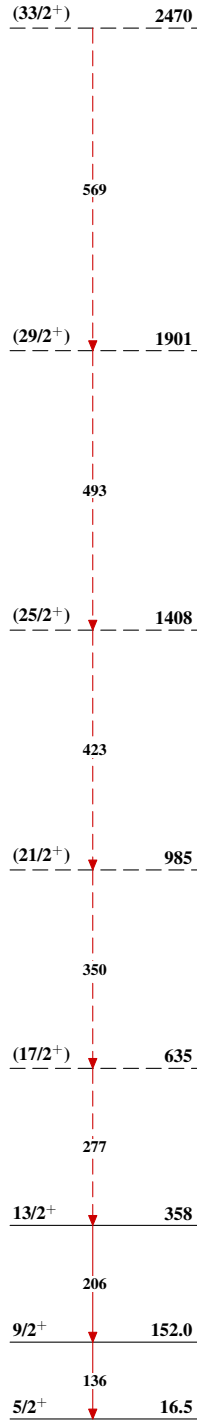
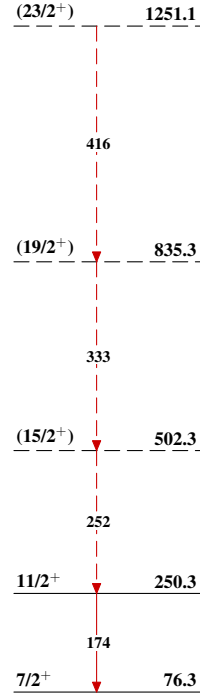
E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
135.5	152.0	9/2 ⁺	16.5	5/2 ⁺	350.0 [†]	985?	(21/2 ⁺)	635?	(17/2 ⁺)
174.0	250.3	11/2 ⁺	76.3	7/2 ⁺	415.8 [†]	1251.1?	(23/2 ⁺)	835.3?	(19/2 ⁺)
206.0	358	13/2 ⁺	152.0	9/2 ⁺	423.0 [†]	1408?	(25/2 ⁺)	985?	(21/2 ⁺)
252.0 [†]	502.3?	(15/2 ⁺)	250.3	11/2 ⁺	493.0 [†]	1901?	(29/2 ⁺)	1408?	(25/2 ⁺)
277.0 [†]	635?	(17/2 ⁺)	358	13/2 ⁺	569.0 [†]	2470?	(33/2 ⁺)	1901?	(29/2 ⁺)
333.0 [†]	835.3?	(19/2 ⁺)	502.3?	(15/2 ⁺)					

[†] Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme----- \blacktriangleright γ Decay (Uncertain) $^{155}_{62}\text{Sm}_{93}$

(HI,xn γ) 1999As05**Band(A): $K^\pi=5/2^+$ band,
signature= $+1/2$ portion****Band(a): $K^\pi=5/2^+$ band,
signature= $-1/2$ portion** $^{155}_{62}\text{Sm}_{93}$