^{154}Sm(^{3}He,pnγ) 1984Ka35

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

Additional information 1.

E(^{3}He)=22 and 27 MeV. Metallic, self-supporting ^{154}Sm target. A four-parameter γ-γ coincidence experiment was carried out in which the energies of two γ's, the time separation between them, and that between them and the beam burst were measured. At the lower beam energy, contributions from the 4n and p,3n reaction channels were practically avoided. No delayed γ's were observed in ^{155}Eu in this experiment.

^{155}Eu Levels

The level scheme is based on the observed $\gamma\gamma$-coincidence relationships and Iγ information.

E(level)	J$^{\pi}$‡	E(level)	J$^{\pi}$‡	E(level)	J$^{\pi}$‡	E(level)	J$^{\pi}$‡
0.0#	5/2$^+$	245.7&	3/2$^+$	391.4&	7/2$^+$	623.8@	(15/2$^-$)
78.6#	7/2$^+$	254.5@	9/2$^-$	442.9#	13/2$^+$	628.3†&	11/2$^+$
104.3@	5/2$^-$	300.7#	11/2$^+$	486.9@	13/2$^-$	783.0&	13/2$^+$
168.9@	7/2$^-$	307.3&	5/2$^+$	501.9&	9/2$^+$	785.4#	(17/2$^+$)
179.1#	9/2$^+$	356.9@	11/2$^-$	604.5#	(15/2$^+$)		

† Misprinted as 623.8 in 1984Ka35.

‡ From Adopted Values. The J^{π} assignments of 1984Ka35 are based on the assumption that this nuclide is strongly deformed and that well developed rotational bands are a characteristic of its level structure.

Band(A): g.s. band. Configuration=(π 5/2(413)).

@ Band(B): K$^{\pi}$=5/2$^-$ band. Configuration=(π 5/2(532)).

& Band(C): K$^{\pi}$=3/2$^+$ band. Configuration=(π 3/2(411)).

γ(^{155}Eu)

No relative γ-ray intensity values are given by the authors.

E$_{\gamma}$	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$
61.6	307.3	5/2$^+$	245.7	3/2$^+$
64.5	168.9	7/2$^-$	104.3	5/2$^-$
78.6	78.6	7/2$^+$	0.0	5/2$^+$
84.1	391.4	7/2$^+$	307.3	5/2$^+$
85.6	254.5	9/2$^-$	168.9	7/2$^-$
86.1	442.9	13/2$^+$	356.9	11/2$^-$
90.3	168.9	7/2$^-$	78.6	7/2$^+$
100.5	179.1	9/2$^+$	78.6	7/2$^+$
102.4	356.9	11/2$^-$	254.5	9/2$^-$
104.3	104.3	5/2$^-$	0.0	5/2$^+$
109.5	501.9	9/2$^+$	391.4	7/2$^+$
117.6	604.5	(15/2$^+$)	486.9	13/2$^-$
121.5	300.7	11/2$^+$	179.1	9/2$^+$
126.4	628.3	11/2$^+$	501.9	9/2$^+$
129.9	486.9	13/2$^-$	356.9	11/2$^-$
136.9	623.8	(15/2$^-$)	486.9	13/2$^-$
141.4	245.7	3/2$^+$	104.3	5/2$^-$

Continued on next page (footnotes at end of table)

^{154}Sm(^{3}He,pnγ) 1984Ka35 (continued)

γ(^{155}Eu) (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
142.2	442.9	$13/2^+$	300.7	$11/2^+$	
154.7	783.0	$13/2^+$	628.3	$11/2^+$	
161.5	785.4	$(17/2^+)$	623.8	$(15/2^-)$	
[x]169					γ tentatively placed from a 793, $(17/2^-)$ level. However, subsequent studies using the (^{7}Li,α2nγ) reaction place such a gamma elsewhere and provide no support for a level at 793 keV.
169.0	168.9	$7/2^-$	0.0	$5/2^+$	
175.9	254.5	$9/2^-$	78.6	$7/2^+$	
177.8	356.9	$11/2^-$	179.1	$9/2^+$	
179.1	179.1	$9/2^+$	0.0	$5/2^+$	
180.8	623.8	$(15/2^-)$	442.9	$13/2^+$	
186.2	486.9	$13/2^-$	300.7	$11/2^+$	
187.9	356.9	$11/2^-$	168.9	$7/2^-$	
[x]190					See the comment for the 169 γ.
194.5	501.9	$9/2^+$	307.3	$5/2^+$	
222.1	300.7	$11/2^+$	78.6	$7/2^+$	
236.	628.3	$11/2^+$	391.4	$7/2^+$	
245.7	245.7	$3/2^+$	0.0	$5/2^+$	
263.7	442.9	$13/2^+$	179.1	$9/2^+$	
267.1	623.8	$(15/2^-)$	356.9	$11/2^-$	
303.8	604.5	$(15/2^+)$	300.7	$11/2^+$	
342.5	785.4	$(17/2^+)$	442.9	$13/2^+$	

[x] γ ray not placed in level scheme.

Legend

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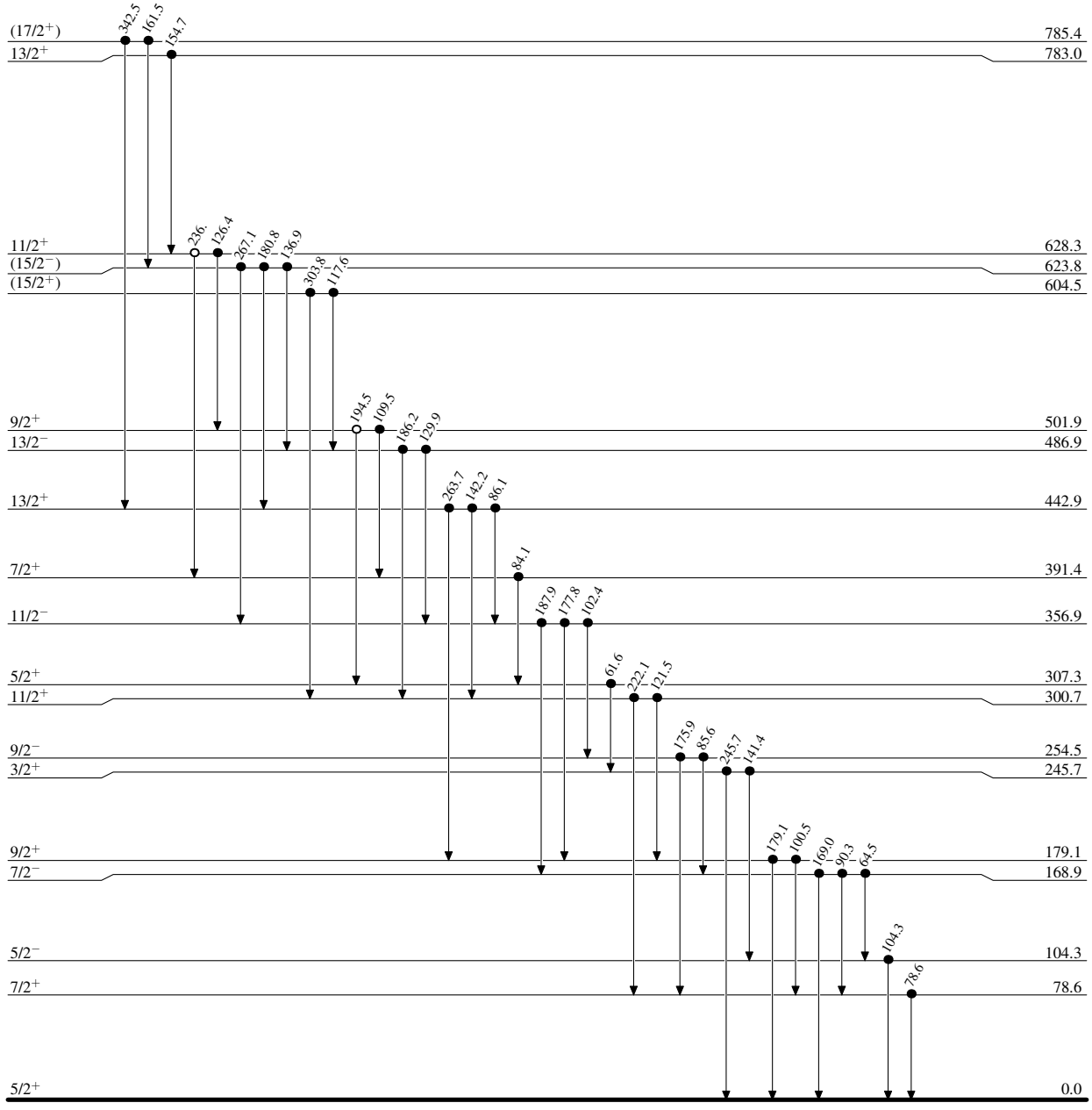
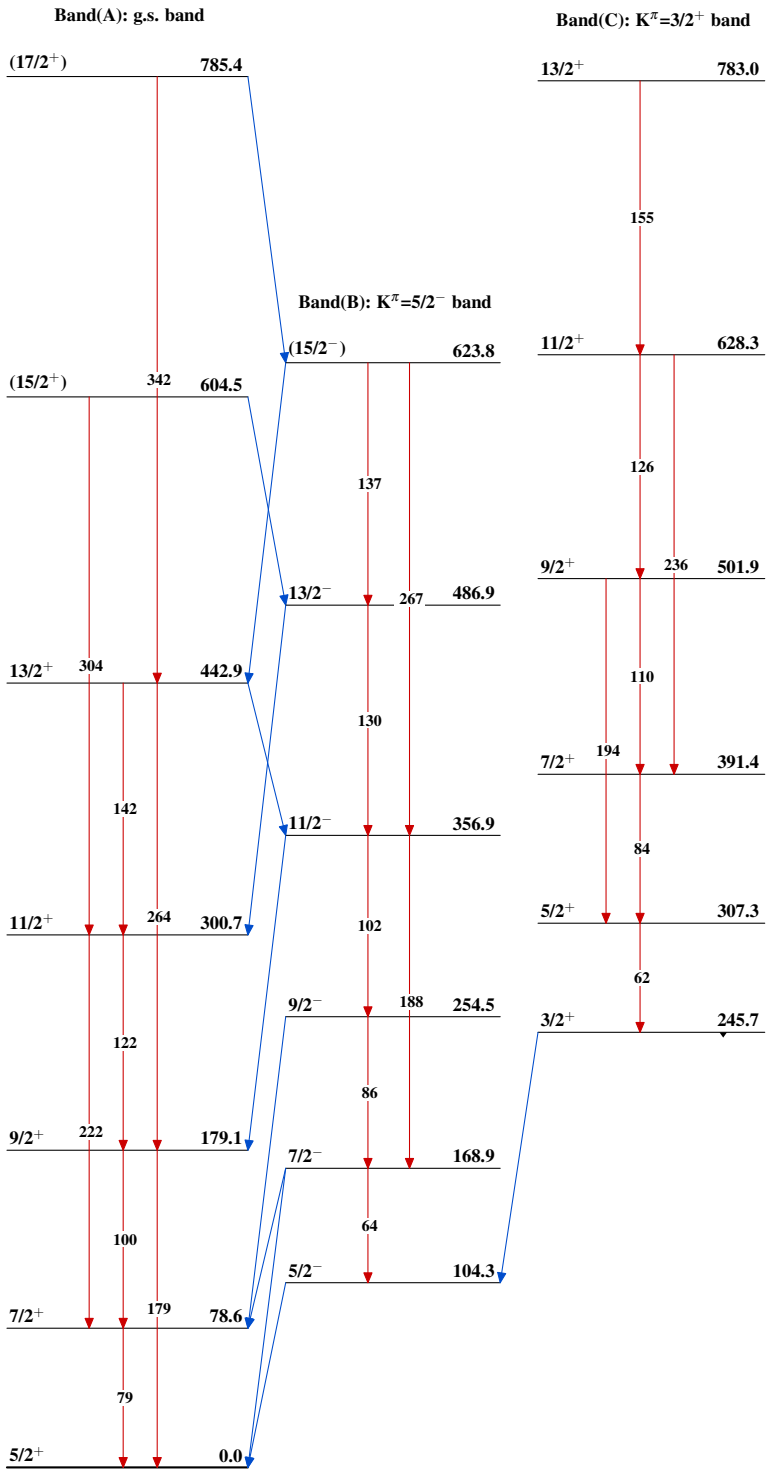
Level Scheme

● Coincidence
○ Coincidence (Uncertain)



$^{155}_{63}Eu_{92}$

^{154}Sm(^{3}He,pnγ) 1984Ka35



$^{155}_{63}Eu_{92}$