^{154}Sm(p,3nγ) 1984PrZV

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 114, 1497 (2013)	31-Aug-2013

E=26-35 MeV; measured $\gamma\gamma$, $\gamma\gamma$(t), $\gamma(\theta)$, excit.

1984PrZV suggest that the levels at 148.7 keV (6^+), 192.5 keV (7^+) and 368.8 keV (5^+) are also seen by 1978Vo05 in (n,γ). E=th
work. It seems unlikely that the 148.7-keV level is the same as the one seen by 1978Vo05. For a comment about this, see Adopted Levels
levels. The 192.5-keV level was not proposed by 1978Vo05, and the 43.79γ was placed elsewhere in the level scheme by 1978Vo05. The 368.8-keV level shows two deexciting γ's; 1978Vo05 do list two unplaced γ's of about the same energy. However, considering the density of γ's observed by 1978Vo05 (>2500 γ's with Eγ<600 keV), this energy match cannot be considered proof that these are the same γ's as observed by 1984PrZV, especially since there is a discrepancy in E(level) (368.7790 *9* and 368.72 *3*) as calculated from the precise measurements of 1978Vo05.

^{152}Eu Levels

E(level)	J$^\pi$†	E(level)	J$^\pi$†	E(level)	J$^\pi$†	E(level)	J$^\pi$†
0.0‡	3^-	148.74@	6^+	278.2@	(8^+)	375.4@	(9^+)
89.61‡	4^-	192.53@	7^+	287.16#	(4^+)	468.7#	(6^+)
89.85@	4^+	200.75‡	5^-	332.5‡	6^-	489.0‡	7^-
108.12@	5^+	221.21#	3^+	368.78#	(5^+)		

† From Adopted Levels.
‡ Band(A): (π 5/2[413])(ν 11/2[505]) rotational band.
# Band(B): (π 5/2[532])(ν 11/2[505]) rotational band.
@ Band(C): (π 5/2[413])(ν 3/2[402]+ν 3/2[651]) rotational band.

γ(^{152}Eu)

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	Comments
18.25#		108.12	5^+	89.85	4^+		
40.63@		148.74	6^+	108.12	5^+		
43.79@		192.53	7^+	148.74	6^+		
58.88@		148.74	6^+	89.85	4^+		
65.95#		287.16	(4^+)	221.21	3^+		
81.6		368.78	(5^+)	287.16	(4^+)		
84.41@		192.53	7^+	108.12	5^+		
85.7		278.2	(8^+)	192.53	7^+		
86.41#		287.16	(4^+)	200.75	5^-		
89.86[a] *6*	≤1000[a]	89.61	4^-	0.0	3^-	&	
89.86[a] *6*	≤1000[a]	89.85	4^+	0.0	3^-	&	
97.2		375.4	(9^+)	278.2	(8^+)		
99.9		468.7	(6^+)	368.78	(5^+)		
111.0 *1*	10.6 *7*	200.75	5^-	89.61	4^-	D	A_2=−0.13 *6*, A_4=−0.09 *6*.
131.8 *1*	7.8 *6*	221.21	3^+	89.61	4^-	D	A_2=−0.14 *4*, A_4=−0.00 *5*.
131.8		332.5	6^-	200.75	5^-		
156.5 *3*	3.2 *5*	489.0	7^-	332.5	6^-	D	A_2=−0.17 *18*, A_4=−0.02 *20*.
197.55#		287.16	(4^+)	89.61	4^-		

Continued on next page (footnotes at end of table)

^{154}Sm(p,3nγ) 1984PrZV (continued)

$\gamma(^{152}Eu)$ (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π
221.21#	221.21	3^+	0.0	3^-
279.1	368.78	(5^+)	89.61	4^-
287.16#	287.16	(4^+)	0.0	3^-

† At E(p)=29 MeV.
‡ From $\gamma(\theta)$.
# Eγ quoted from 1978Vo05 (1984PrZV).
@ Eγ quoted from 1978Vo05 (1984PrZV). However, the evaluator is not convinced that the γ's seen here are the same as those seen in (n,γ) E=th (see comment in the levels section of this data set).
& A_2=0.00 *1*, A_4=−0.03 *2*; for the doublet.
a Multiply placed with undivided intensity.

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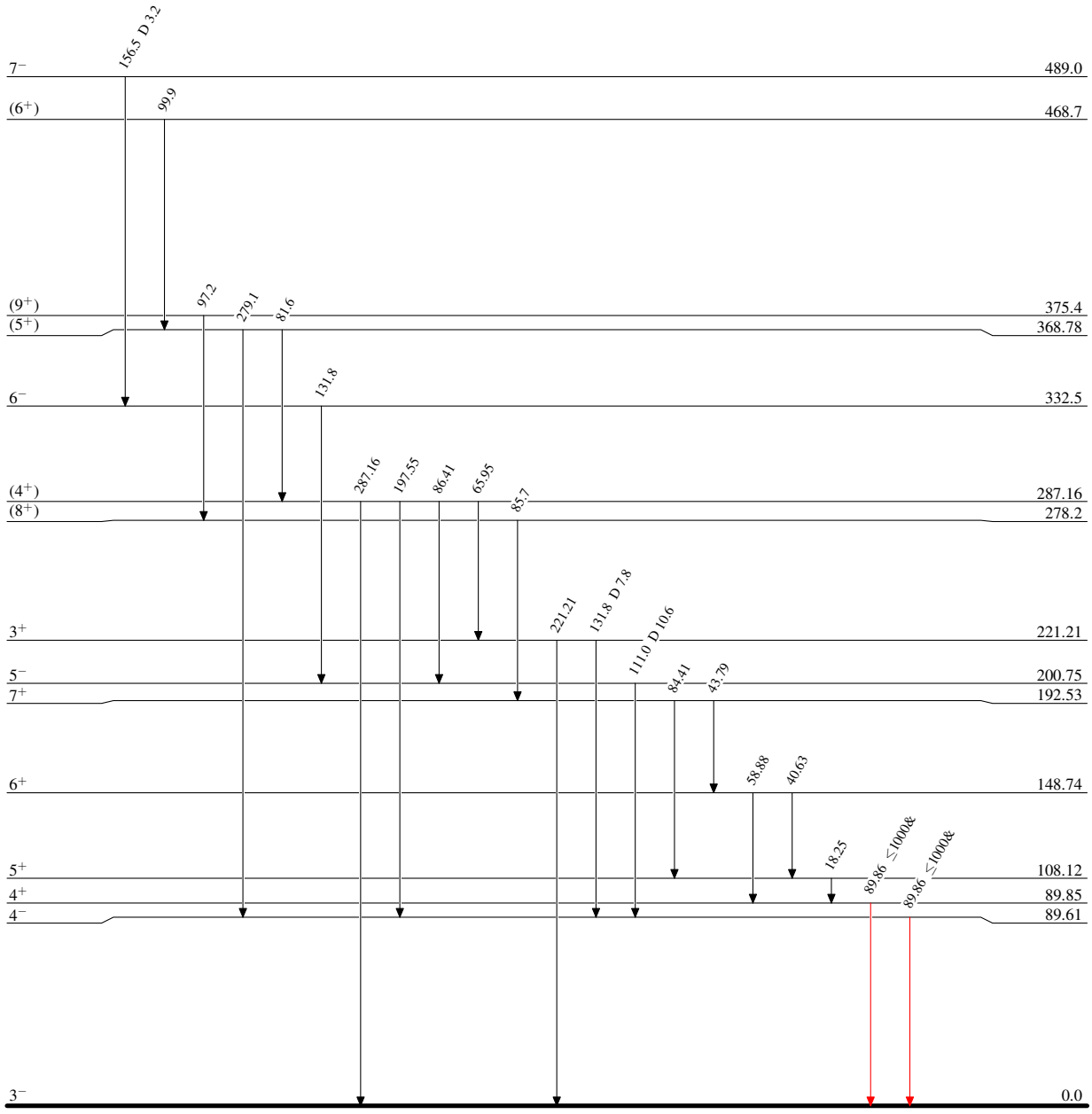
Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{152}_{63}Eu_{89}$

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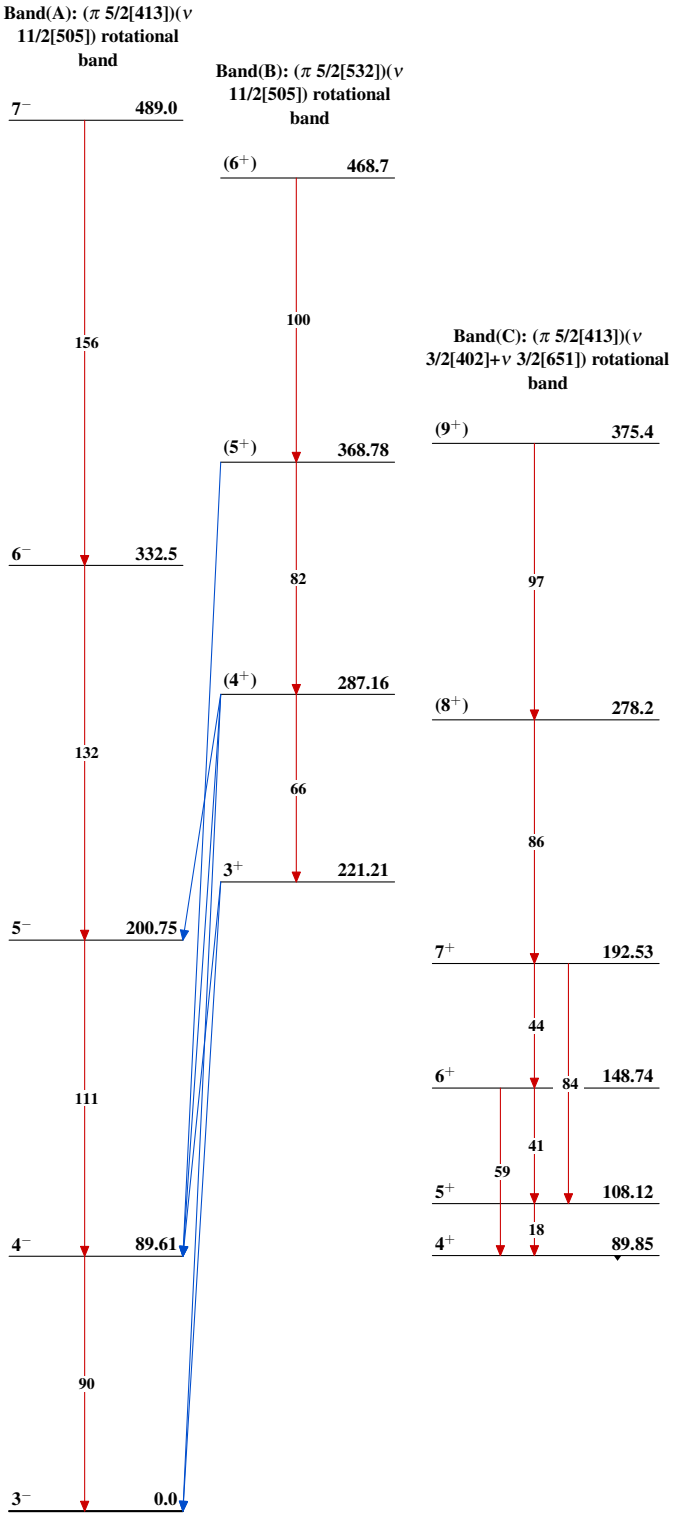

$^{152}_{63}Eu_{89}$