^{147}Sm(n,γ) E=0.1-10 keV 1970Bu19

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 117, 1 (2014)	1-Oct-2013

Measured γ's following average-resonance neutron capture with Ge(Li) detector as singles and triple coin with the two annihilation γ rays of a split-ring NaI(Tl) detector.

^{148}Sm Levels

E(level)	J$^{\pi}$[†]	Comments
0.0	0^+	
550.5	2^+	J$^{\pi}$: 2^+,5^+.
1162.2	3^-	J$^{\pi}$: 3^-,4^-.
1180.1	4^+	J$^{\pi}$: 3^+,4^+.
1433.5?		J$^{\pi}$: 1^-,6^-, (2^-,5^-).
1453.6	2^+	J$^{\pi}$: 2^+,5^+.
1465?	1^-	
1595.0	5^-	J$^{\pi}$: 3^-,4^-.
1663.4	2^+	J$^{\pi}$: 2^+,5^+.
1732.9	4^+	J$^{\pi}$: 3^+,4^+.
1894.2	4^+	J$^{\pi}$: 3^+,4^+.
1902.9	3^+	J$^{\pi}$: 3^+,4^+.
2031.4?	4^-	J$^{\pi}$: 2^+,3^+,4^+,5^+.
2080.3?		J$^{\pi}$: 2^+,5^+.
2096.1?	6^+	J$^{\pi}$: not 2^+ to 5^+.
2110.7	4^+	J$^{\pi}$: 3^+,4^+.
2146.4	2^+	J$^{\pi}$: 3^+,4^+.
2158.0?		J$^{\pi}$: 2^+,5^+.
2173.4?		J$^{\pi}$: 2^+,5^+.
2194.6?	6^+	J$^{\pi}$: not 2^+ to 5^+.
2208.7?	(1,2^+)	J$^{\pi}$: 2^+,5^+.
2212.7	5^+	J$^{\pi}$: 2^+,5^+.
2227.6	4^+	J$^{\pi}$: 3^+,4^+.
2314.2	2^+	J$^{\pi}$: 2^+,5^+.
2326.8	4^+	J$^{\pi}$: not 3^+,4^+.
2338.6	3^-	J$^{\pi}$: 3^-,4^-.
2389.2	3^+	J$^{\pi}$: 3^+,4^+.
2440.7		J$^{\pi}$: (3^-,4^-).
2489.5	4^+	J$^{\pi}$: 3^+,4^+.
2513.4?	1	J$^{\pi}$: 3^+,4^+.
2524.2	4^+	J$^{\pi}$: 3^+,4^+.
2538.4	3^-	J$^{\pi}$: 2^+,5^+.
2570.3?	$4^{(-)}$	J$^{\pi}$: 3^-,4^-.
2639.4	5^+	J$^{\pi}$: 2^+,5^+.
S(n)+x[#]	2^+,3,4,5^+[‡]	

[†] Adopted values. J$^{\pi}$ assignments based on average-resonance capture data are given in comments.
[‡] Values possible for L=0 and L=1 neutron resonances with J$^{\pi}$(^{147}Sm g.s.)=7/2$^-$ in the energy range 0.1-10 keV.
[#] x=0.1-10 keV, S(n)=8141.37 *28* keV (2012Wa38).

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γ(^{148}Sm)

E_γ[‡#]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]
5502.2 *18*	162 *40*	S(n)+x	2^+,3,4,5^+	2639.4	5^+	(E1)
5572.1 *18*	40 *20*	S(n)+x	2^+,3,4,5^+	2570.3?	$4^{(-)}$	M1
5603.2 *9*	169 *20*	S(n)+x	2^+,3,4,5^+	2538.4	3^-	E1
5616.4 *9*	400 *28*	S(n)+x	2^+,3,4,5^+	2524.2	4^+	E1
5628.2 *5*	376 *38*	S(n)+x	2^+,3,4,5^+	2513.4?	1	E1
5652.1 *7*	369 *37*	S(n)+x	2^+,3,4,5^+	2489.5	4^+	E1
5701.7 *18*	75 *30*	S(n)+x	2^+,3,4,5^+	2440.7		(M1)
5752.4 *9*	367 *55*	S(n)+x	2^+,3,4,5^+	2389.2	3^+	E1
5803.8 *14*	53 *16*	S(n)+x	2^+,3,4,5^+	2338.6	3^-	M1
5814.8[@]	<200	S(n)+x	2^+,3,4,5^+	2326.8	4^+	E1
5827.4 *9*	224 *27*	S(n)+x	2^+,3,4,5^+	2314.2	2^+	E1
5914.0 *4*	436 *35*	S(n)+x	2^+,3,4,5^+	2227.6	4^+	E1
5928.9 *14*	170 *34*	S(n)+x	2^+,3,4,5^+	2212.7	5^+	E1
5932.9 *9*	162 *32*	S(n)+x	2^+,3,4,5^+	2208.7?	$(1,2^+)$	E1
5947.8[a]	<50	S(n)+x	2^+,3,4,5^+	2194.6?	6^+	(M1,E2)
5968.2 *9*	89 *18*	S(n)+x	2^+,3,4,5^+	2173.4?		E1
5983.6 *4*	155 *19*	S(n)+x	2^+,3,4,5^+	2158.0?		E1
5995.2 *4*	512 *31*	S(n)+x	2^+,3,4,5^+	2146.4	2^+	E1
6030.9 *4*	616 *31*	S(n)+x	2^+,3,4,5^+	2110.7	4^+	E1
6046.3[a]	<25	S(n)+x	2^+,3,4,5^+	2096.1?	6^+	(M1,E2)
6061.3 *4*	177 *27*	S(n)+x	2^+,3,4,5^+	2080.3?		E1
6111.0[a] *10*	≤119	S(n)+x	2^+,3,4,5^+	2031.4?	4^-	(M1,E2)
6238.7 *3*	652 *33*	S(n)+x	2^+,3,4,5^+	1902.9	3^+	E1
6247.5 *3*	630 *32*	S(n)+x	2^+,3,4,5^+	1894.2	4^+	E1
6408.7 *3*	737 *37*	S(n)+x	2^+,3,4,5^+	1732.9	4^+	E1
6478.2 *6*	385 *39*	S(n)+x	2^+,3,4,5^+	1663.4	2^+	E1
6547.4 *18*	65 *13*	S(n)+x	2^+,3,4,5^+	1595.0	5^-	M1
6677.3[a]	<7	S(n)+x	2^+,3,4,5^+	1465?	1^-	(E2)
6688.0 *3*	393 *24*	S(n)+x	2^+,3,4,5^+	1453.6	2^+	E1
6708.9 *14*	25 *10*	S(n)+x	2^+,3,4,5^+	1433.5?		E2,M1
6961.5 *3*	1072 *54*	S(n)+x	2^+,3,4,5^+	1180.1	4^+	E1
6980.2 *5*	108 *16*	S(n)+x	2^+,3,4,5^+	1162.2	3^-	M1
7591.1 *3*	841 *42*	S(n)+x	2^+,3,4,5^+	550.5	2^+	E1

[†] Multipolarity was derived from analysis of $I\gamma/E\gamma^5$.
[‡] Measured at E(n)=thermal.
[#] Existence of γ′s: 5947.8, 6046.3, 6111.0, 6677.3 is questionable.
[@] From 1972SmZY, possible doublet.
[&] Relative intensity.
[a] Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Relative I_γ

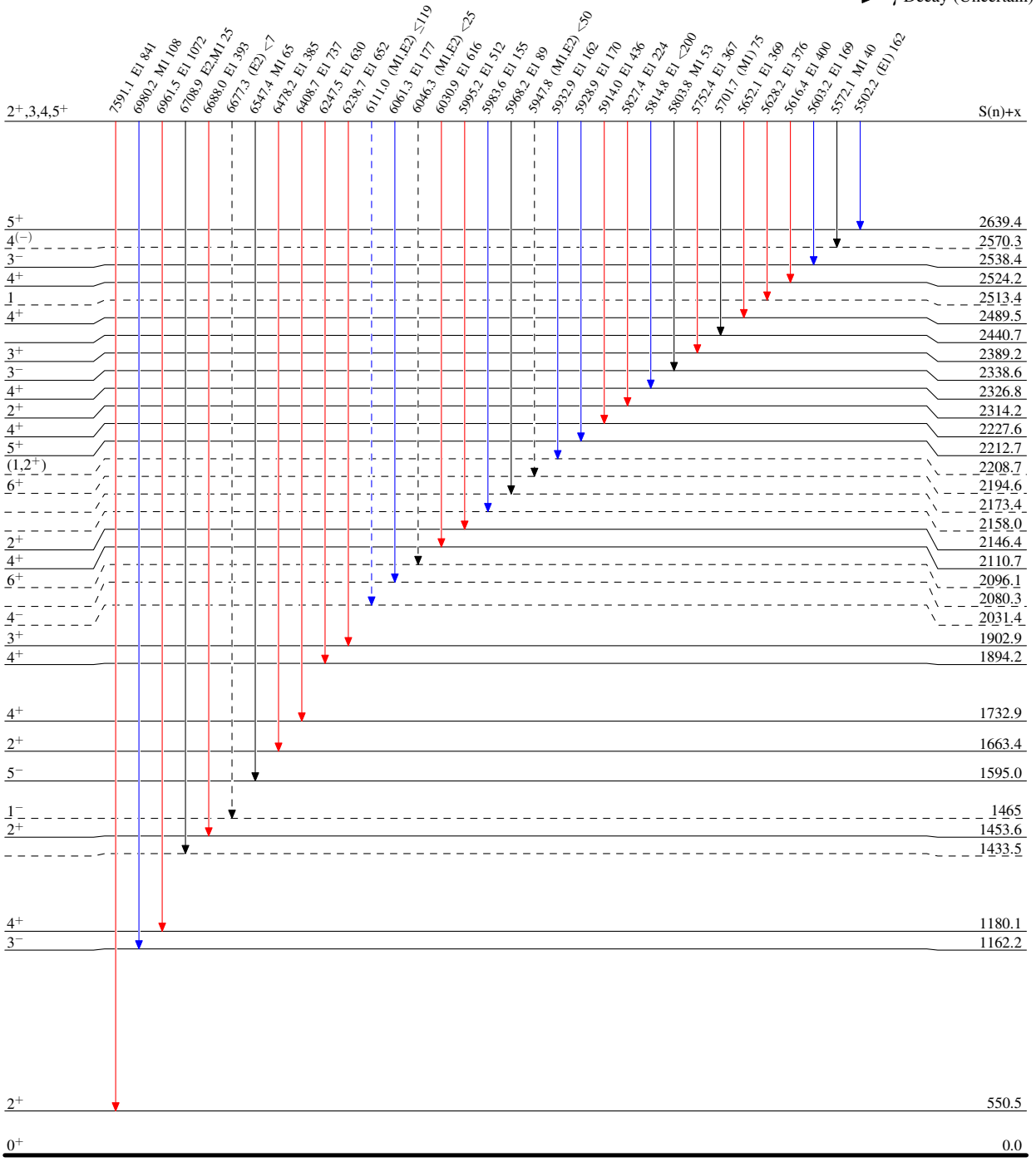
Legend

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

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

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

γ Decay (Uncertain)



$^{148}_{62}Sm_{86}$