

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 132, 1 (2016)	4-Dec-2015

Q(β^-)=2781 6; S(n)=5388 10; S(p)=9803 6; Q(α)=-1772 5 2017Wa10
 S(2n)=12629 10; S(2p)=18972 6 2017Wa10

Additional information 1.

¹⁵⁷Sm Levels

Band assignments from ¹⁵⁷Pm β^- decay datasets are not adopted here because the supporting data are not available.

Cross Reference (XREF) Flags

- A ¹⁵⁷Pm β^- decay
- B ²⁵²Cf SF decay

E(level) ^{†‡}	J π #	T _{1/2}	XREF	Comments
0.0	(3/2 ⁻)	8.03 min 7	AB	% β^- =100 J π : Assigned as the 3/2[521] state in analogy to the isotone ¹⁵⁹ Gd (1990Ja11). T _{1/2} : Weighted average of 480 s 60 (1973Da05, or 8.0 min 10), 480 s 30 (1973Ka23, or 8.0 min 5), 402 s 24 (1986Ma12), and 483 s 2 (1988GrZY,1990An31) is 482 s 4 or 8.03 m 7. Others: 0.5 m 1 (1960Wi10) and 83 s 2 (1972Mo28) which are both probably misassigned nuclides, 8.11 min 13 (1980Ba51) which was replaced by 1990An31 value.
52.393 10	(5/2 ⁻)		AB	J π : From assumed rotational band structure in ¹⁵⁷ Pm β^- decay dataset (1994WiZZ).
125.747 14			A	J π : (7/2 ⁻).
160.586 12			A	J π : (5/2 ⁺).
216.426 @ 14	(7/2 ⁺)		AB	J π : Adopted by 1994WiZZ (¹⁵⁷ Pm β^- decay dataset) and maintained by 2010Hw03 (²⁵² Cf SF decay dataset) based on expected band structure and Nilsson states.
348.637 15			A	J π : (5/2 ⁻).
353.80 4			A	
426.209 21			A	J π : (7/2 ⁻).
490.0 @ 3			B	
571.29 3			A	J π : (3/2).
621.39 4			A	J π : (5/2).
694.28 7			A	J π : (7/2).
838.6 @ 5			B	
1260.7 @ 6			B	
1293.64 9			A	
1362.82 15			A	
1421.84 4			A	J π : (3/2 ⁻).
1466.39 24			A	
1478.05 8			A	J π : (5/2 ⁻).
1674.0 4			A	
1694.48 24			A	
1753.9 @ 6			B	
2314.6 @ 7			B	

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Adopted Levels, Gammas (continued)

^{157}Sm Levels (continued)

† From least-squares fit to γ energies.

‡ The pseudolevels included in the ^{157}Pm β - decay are not included here.

Most of the J^π values (listed here in comments) assigned in the ^{157}Pm β - decay dataset (1994WiZZ, based on expected band structure and Nilsson states) have not been adopted because the supporting data are not available.

@ Band(A): γ cascade based on (7/2⁺).

$\gamma(^{157}\text{Sm})$

See ^{157}Pm β - decay for γ -multipolarity assignments; these (listed in comments) have not been adopted here because the supporting data are not available.

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ	E_f	J_f^π	Comments
52.393	(5/2 ⁻)	52.395 11	100	0.0	(3/2 ⁻)	Mult.: (M1,E2).
125.747		73.361 11	100 3	52.393	(5/2 ⁻)	Mult.: (M1,E2).
		125.73 4	30 3	0.0	(3/2 ⁻)	Mult.: (E2).
160.586		108.191 9	7.6 2	52.393	(5/2 ⁻)	Mult.: (E1).
		160.61 3	100	0.0	(3/2 ⁻)	Mult.: (E1).
216.426	(7/2 ⁺)	55.837 17	7.5 3	160.586		Mult.: (M1,E2).
		90.77 10	2.3 8	125.747		Mult.: (E1).
		164.036 12	100 3	52.393	(5/2 ⁻)	Mult.: (E1).
348.637		132.22 3	14.4 6	216.426	(7/2 ⁺)	Mult.: (E1).
		188.052 16	100 3	160.586		Mult.: (E1).
		222.98 5	5.6 4	125.747		Mult.: (M1,E2).
		296.242 25	19.2 5	52.393	(5/2 ⁻)	Mult.: (M1,E2).
		348.56 4	17.5 6	0.0	(3/2 ⁻)	Mult.: (M1,E2).
353.80		137.39 4	100	216.426	(7/2 ⁺)	
426.209		72.50 9		353.80		
		209.79 3	60 3	216.426	(7/2 ⁺)	Mult.: (E1).
		265.619 24	100 3	160.586		Mult.: (E1).
		300.47 12	23 3	125.747		Mult.: (M1,E2).
		426.06 11	29 3	0.0	(3/2 ⁻)	Mult.: (E2).
490.0		273.6 [‡] 3	100	216.426	(7/2 ⁺)	
571.29		518.86 4	58 2	52.393	(5/2 ⁻)	
		571.27 4	100 3	0.0	(3/2 ⁻)	
621.39		495.66 7	83 6	125.747		
		568.72 [#] 10	<82 [#]	52.393	(5/2 ⁻)	
		621.55 7	100 6	0.0	(3/2 ⁻)	
694.28		568.72 [#] 10	<150 [#]	125.747		
		641.81 11	100 11	52.393	(5/2 ⁻)	
838.6		348.6 [‡] 3	100	490.0		
1260.7		422.1 [‡] 3	100	838.6		
1293.64		722.35 10		571.29		
		1132.8 3		160.586		
		1241.36 18	100	52.393	(5/2 ⁻)	
1362.82		1146.4 3		216.426	(7/2 ⁺)	
		1202.22 16	100	160.586		
1421.84		727.85 23	10.3 22	694.28		
		800.50 8	46.3 22	621.39		
		850.50 5	100 4	571.29		
		1067.5 4		353.80		
		1073.24 10	46 3	348.637		
		1261.43 17	28 3	160.586		

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Adopted Levels, Gammas (continued) $\gamma(^{157}\text{Sm})$ (continued)

$E_i(\text{level})$	E_γ^\dagger	I_γ	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ	E_f	J_f^π
1421.84	1295.45 19	25 3	125.747		1478.05		1477.8 4	23 5	0.0	(3/2 ⁻)
	1369.73 15	42 4	52.393	(5/2 ⁻)	1674.0		1052.4 4	100 25	621.39	
	1421.94 22	19.8 22	0.0	(3/2 ⁻)			1622.0 5	83 25	52.393	(5/2 ⁻)
1466.39	1117.75 24	100	348.637		1694.48		1533.7 3	100 17	160.586	
1478.05	783.80 8	100 7	694.28				1694.8 4	78 17	0.0	(3/2 ⁻)
	856.72 15	46 5	621.39		1753.9		493.2 [‡] 3	100	1260.7	
	906.49 17	41 5	571.29		2314.6		560.7 [‡] 3	100	1753.9	
	1317.59 25	36 5	160.586							

† From ^{157}Pm β^- decay, except where noted.

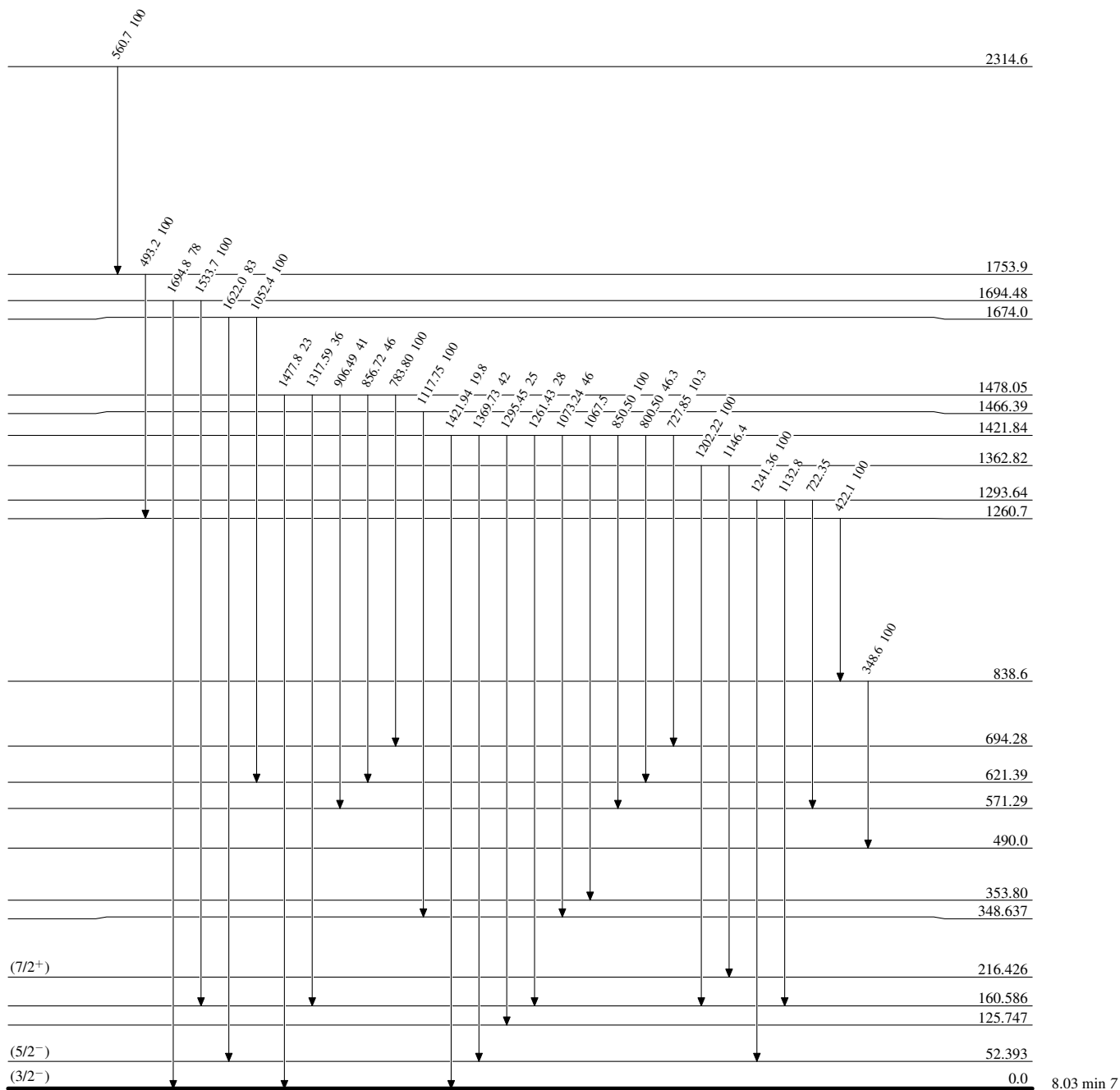
‡ From ^{252}Cf SF decay.

Multiply placed with undivided intensity.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

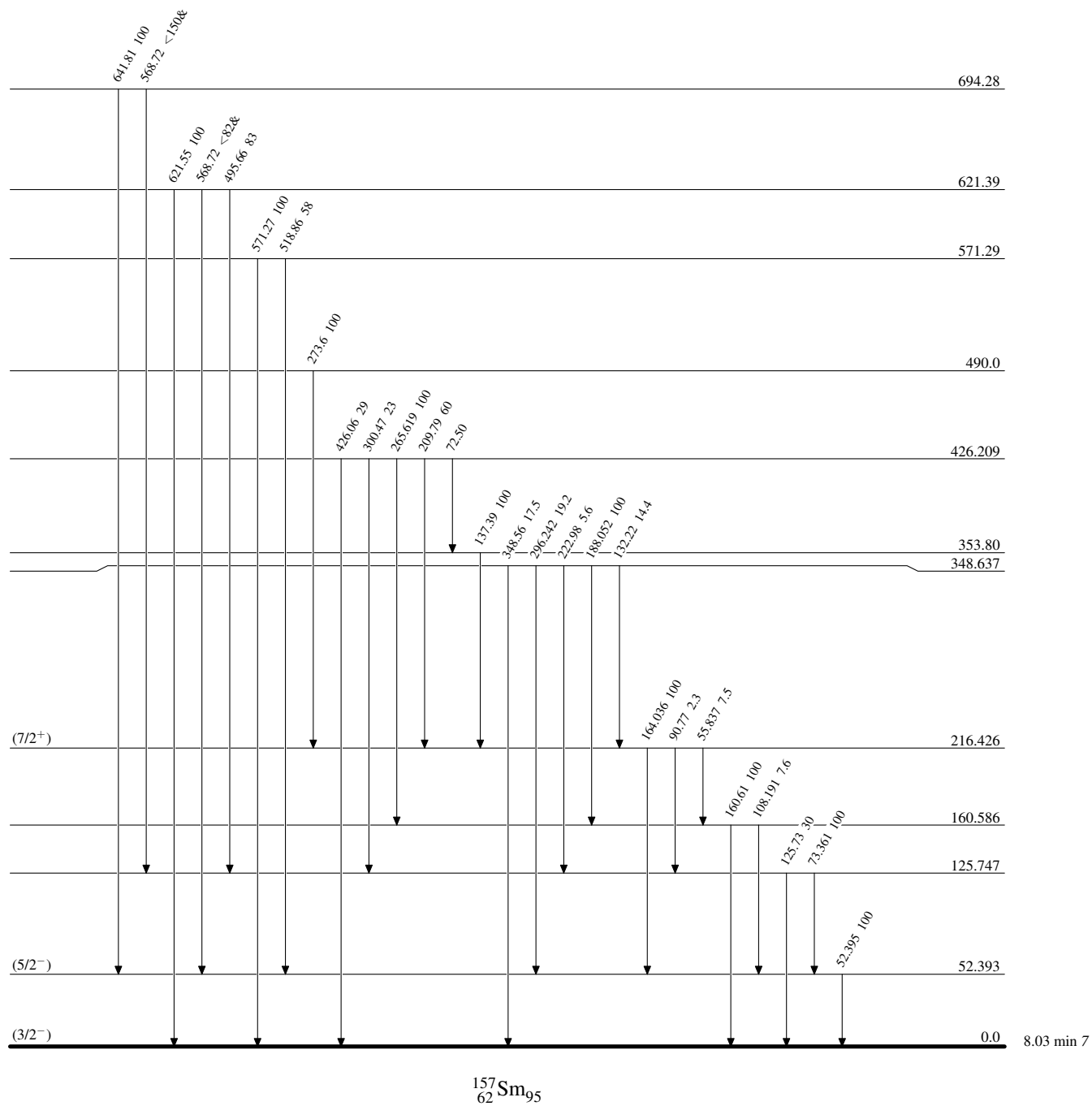


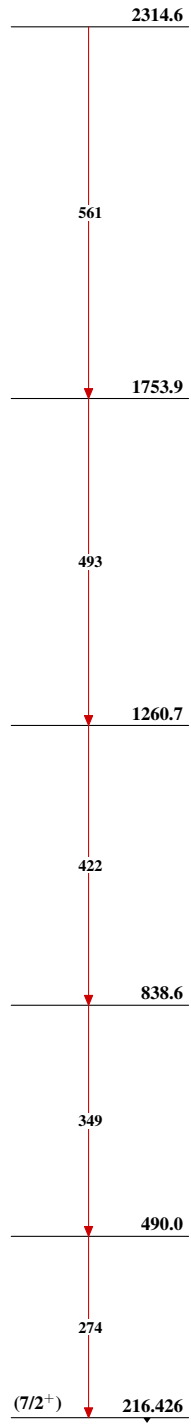
$^{157}_{62}\text{Sm}_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas**Band(A): γ cascade
based on $(7/2^+)$**  $^{157}_{62}\text{Sm}_{95}$