Coulomb excitation

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

E(p)=4.5 MeV, E(d)=4.5 MeV (1960El07), E(α)=15.1 MeV (1968Ve01), 10-13 MeV (1970Ge07), E(^{16}O)=35-40 MeV (1970Ge07), 36, 39 MeV (1966Ec02), 40-49 MeV (1968Ke04), 27 MeV (1967Si03), 35-72 MeV (1976SmZQ,1977SmZO), E(^{32}S)=51-53 MeV (1967Si03), E(^{48}Ti)=130 MeV (2008Fi08), see also 1971Di02 (^{40}Ar beam), 1977SmZO (^{63}Cu beam), 1973ClZF.
Measured: γ, $\gamma\gamma$, B(E2), γ(t).

^{148}Sm Levels

E(level)	J$^{\pi}$[†]	$T_{1/2}$	Comments
0.0	0^+		
550.43	2^+	7.72 ps *32*	B(E2)↑=0.720 *30* (2001Ra27) μ: μ=+0.492 *44* (1987Ba65). Q: Q=−0.77 *34* (1967Si03), −0.97 *27* (1973ClZF). $T_{1/2}$: from the evaluation of 2001Ra27. Adopted B(E2) is evaluated based on the following data: B(E2)=0.89 *10* (1960El07), 0.70 *8* (1966Ec02), 0.79 *8* (1967Si03), 0.65 *5* (1968Ve01), 0.63 *5* (1968Ke04), 0.705 *25* (1970Ge07), 0.725 *25* (1973ClZF, based on B(E2)(^{152}Sm)=3.35), 0.811 *37* (1972LeYB) and $T_{1/2}$=7.33 ps *40* (1971Di02).
1161.94	3^-		B(E3)=0.37 *3* (1968Ke04). B(E3): other: B(E3)=0.39 *4* (1968Ve01) (value given by the authors has been increased by 10% to account for multiexcitation correction as estimated by them).
1180.69	4^+	2.39 ps *24*	$T_{1/2}$: from B(E2)(2^+ to 4^+)=0.43 *4* (1968Ke04). Other: 2.3 ps *6* by DSRM (1971Di02). Measured (2008Fi08) $\sigma(4^+)/\sigma(2^+)$=0.0157 *2*.
1425.93	0^+		
1454.0	2^+	0.36 ps *11*	B(E2)↑=0.060 *14* B(E2): unweighted average of 0.074 *10* and 0.046 *10* (1968Ke04). $T_{1/2}$: from B(E2) and branching 1454g=0.499 *5*.
1461.1	$(1,2^+)$		
1465.7	1^-		B(E1)=0.013 *5* (1968Ve01).
1663.1	2^+	0.25 ps *8*	B(E2)↑=0.03 *1* (1968Ve01) $T_{1/2}$: from B(E2).
1907.55	6^+		

[†] Adopted values.

$\gamma(^{148}Sm)$

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
550.43	100	550.43	2^+	0.0	0^+	
611.51	4.2	1161.94	3^-	550.43	2^+	
[x]615.01	2.5					
630.26	2.5	1180.69	4^+	550.43	2^+	Measured B(E2)(4^+ to 2^+)/B(E2)(2^+ to 0^+)=1.33 *4* (2008Fi08).
726.96	0.18	1907.55	6^+	1180.69	4^+	
875.5	0.25	1425.93	0^+	550.43	2^+	
903.6	0.70	1454.0	2^+	550.43	2^+	
910.7	1.08	1461.1	$(1,2^+)$	550.43	2^+	
915.3	0.71	1465.7	1^-	550.43	2^+	
1112.7	2.4	1663.1	2^+	550.43	2^+	
1454.0	0.78	1454.0	2^+	0.0	0^+	
1461.1	1.91	1461.1	$(1,2^+)$	0.0	0^+	

Continued on next page (footnotes at end of table)

Coulomb excitation (continued)

$\gamma(^{148}Sm)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π
1465.7[#]	≤0.17	1465.7	1^-	0.0	0^+
1663.1	0.22	1663.1	2^+	0.0	0^+

† From 1977SmZO.
‡ Relative intensity from 1977SmZO measured at θ=90° (lab).
# Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

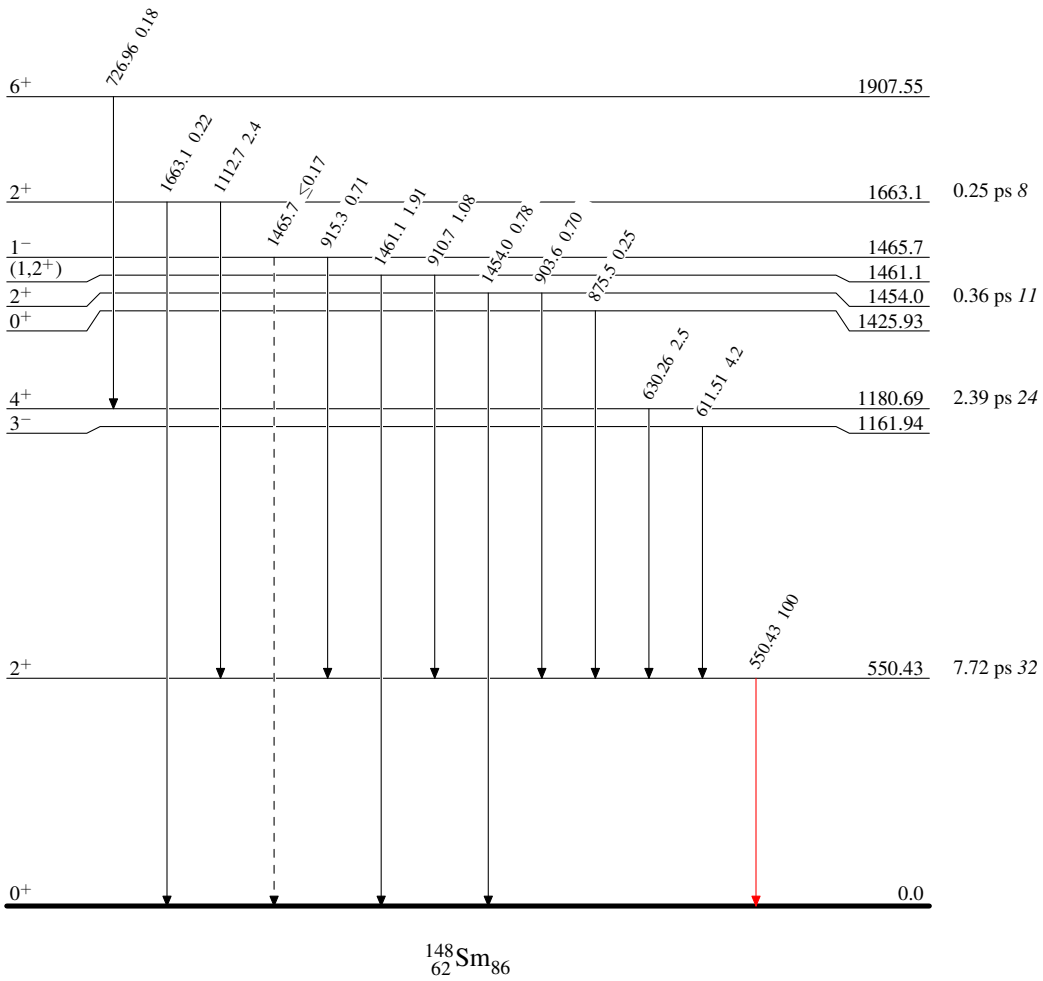
Coulomb excitation

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)



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