^{152}Sm(d,3nγ) 1977Le07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

1977Le07: E=18-25 MeV. Measured γ, $\gamma\gamma$, $\gamma(\theta)$, dγ(t).
For levels and radiation data, consult ENSDF database (http://www.nndc.bnl.gov/ensdf/) and/or Nuclear Data Sheets 80, 263 (1997).

^{151}Eu Levels

E(level)	J$^\pi$†	E(level)	J$^\pi$†	E(level)	J$^\pi$†	E(level)	J$^\pi$†
0.0	$5/2^+$	260.5 *2*	$5/2^+$	502.2 *1*	$15/2^-$	957.5 *4*	$19/2^-$
21.542 *3*	$7/2^+$	307.3 *4*	$(5/2)^+$	503.3 *3*	$9/2^+$	1041.1 *3*	$17/2^-$
196.2 *1*	$11/2^-$	307.6 *2*	$(7/2)^+$	511.1 *2*	$(11/2)^+$	1503.6 *6*	$(23/2)^-$
196.4 *4*	$(3/2)^+$	307.8 *1*	$(9/2)^+$	611.5 *2*	$13/2^-$	2118.6 *12*	$(27/2)^-$
243.3 *4*	$7/2^-$	349.9 *1*	$9/2^-$	752.4 *4*	$13/2^+$		

† From 'Adopted Levels'.

γ(^{151}Eu)

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	Comments
21.542 *3*		21.542	$7/2^+$	0.0	$5/2^+$		E$_\gamma$: from 'adopted gammas'.
109.2 *3*	3 *1*	611.5	$13/2^-$	502.2	$15/2^-$	D	For 109.2+110.8+^{19}F line: A_2=−0.18 *7*, A_4=−0.08 *12*.
110.8 *3*	2.0 *6*	307.3	$(5/2)^+$	196.4	$(3/2)^+$	(D)	For 109.2γ+110.8+^{19}F line: A_2=−0.18 *7*, A_4=−0.08 *12*.
153.6 *1*	19 *2*	349.9	$9/2^-$	196.2	$11/2^-$	D+Q	A_2=−0.10 *3*, A_4=−0.05 *5*.
174.7 *1*	55 *3*	196.2	$11/2^-$	21.542	$7/2^+$		
195.8		503.3	$9/2^+$	307.6	$(7/2)^+$		
196.4 *4*	<11	196.4	$(3/2)^+$	0.0	$5/2^+$		Additional information 1.
203.3 *3*	3.0 *5*	511.1	$(11/2)^+$	307.8	$(9/2)^+$		A_2=+0.01 *22*, A_4=+0.36 *36*.
238.9 *3*	5 *1*	260.5	$5/2^+$	21.542	$7/2^+$		
241.3 *3*	3 *1*	752.4	$13/2^+$	511.1	$(11/2)^+$		
243.3 *4*	18 *5*	243.3	$7/2^-$	0.0	$5/2^+$		
260.5 *3*	1.5 *10*	260.5	$5/2^+$	0.0	$5/2^+$		I$_\gamma$: out of total Iγ=2.5 *10*, Iγ=1.0 *1* is assigned (by evaluator) to a 260γ from 503 level, based on results from Coul. ex. For 260.5+261.6, A_2=+0.16 *12*, A_4=+0.05 *18*.
261.6 *3*	3.6 *10*	611.5	$13/2^-$	349.9	$9/2^-$		For 260.5+261.6: A_2=+0.16 *12*, A_4=+0.05 *18*.
286.3 *1*	31 *2*	307.8	$(9/2)^+$	21.542	$7/2^+$	D+Q	A_2=+0.36 *5*, A_4=+0.06 *5*.
305.9 *1*	80 *5*	502.2	$15/2^-$	196.2	$11/2^-$		For 305.9+307.5+307.8: A_2=+0.21 *2*, A_4=−0.06 *3*.
307.5 *3*	<20	307.6	$(7/2)^+$	0.0	$5/2^+$		I$_\gamma$: for 307.5+307.8, Iγ=20 *5*. For 305.9+307.5+307.8: A_2=+0.21 *2*, A_4=−0.06 *3*.
307.8 *3*	<20	307.8	$(9/2)^+$	0.0	$5/2^+$		
415.4 *3*	20 *4*	611.5	$13/2^-$	196.2	$11/2^-$	D+Q	For 415.4$^+$ (d,d′) line: A_2=−0.24 *3*, A_4=+0.13 *4*.
429.6 *2*	11 *2*	1041.1	$17/2^-$	611.5	$13/2^-$	(Q)	A_2=+0.33 *11*, A_4=+0.02 *16*.
445.1 *2*	18 *2*	752.4	$13/2^+$	307.8	$(9/2)^+$	(Q)	A_2=+0.22 *7*, A_4=−0.06 *10*.
455.3 *3*	30 *2*	957.5	$19/2^-$	502.2	$15/2^-$	(Q)	A_2=+0.37 *8*, A_4=−0.04 *6*.
482.0 *10*	4 *1*	503.3	$9/2^+$	21.542	$7/2^+$		
489.8 *3*	28 *3*	511.1	$(11/2)^+$	21.542	$7/2^+$	(Q)	A_2=+0.23 *5*, A_4=−0.08 *7*.
502.9 *5*	13 *2*	503.3	$9/2^+$	0.0	$5/2^+$		A_2=+0.04 *8*, A_4=+0.01 *13*.
546.1 *5*	10 *2*	1503.6	$(23/2)^-$	957.5	$19/2^-$	(Q)	A_2=+0.23 *11*, A_4=−0.13 *16*.
615.0 *10*	2 *1*	2118.6	$(27/2)^-$	1503.6	$(23/2)^-$		

† At 23 MeV.

Continued on next page (footnotes at end of table)

^{152}Sm(d,3nγ) 1977Le07 (continued)

$\gamma(^{151}Eu)$ (continued)

‡ Assigned by the evaluator as implied from $\gamma(\theta)$ data of 1977Le07. The mult=Q indicates ΔJ=2, stretched quadrupole (most likely E2) and mult=D indicates ΔJ=1, D or D+Q.

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Level Scheme

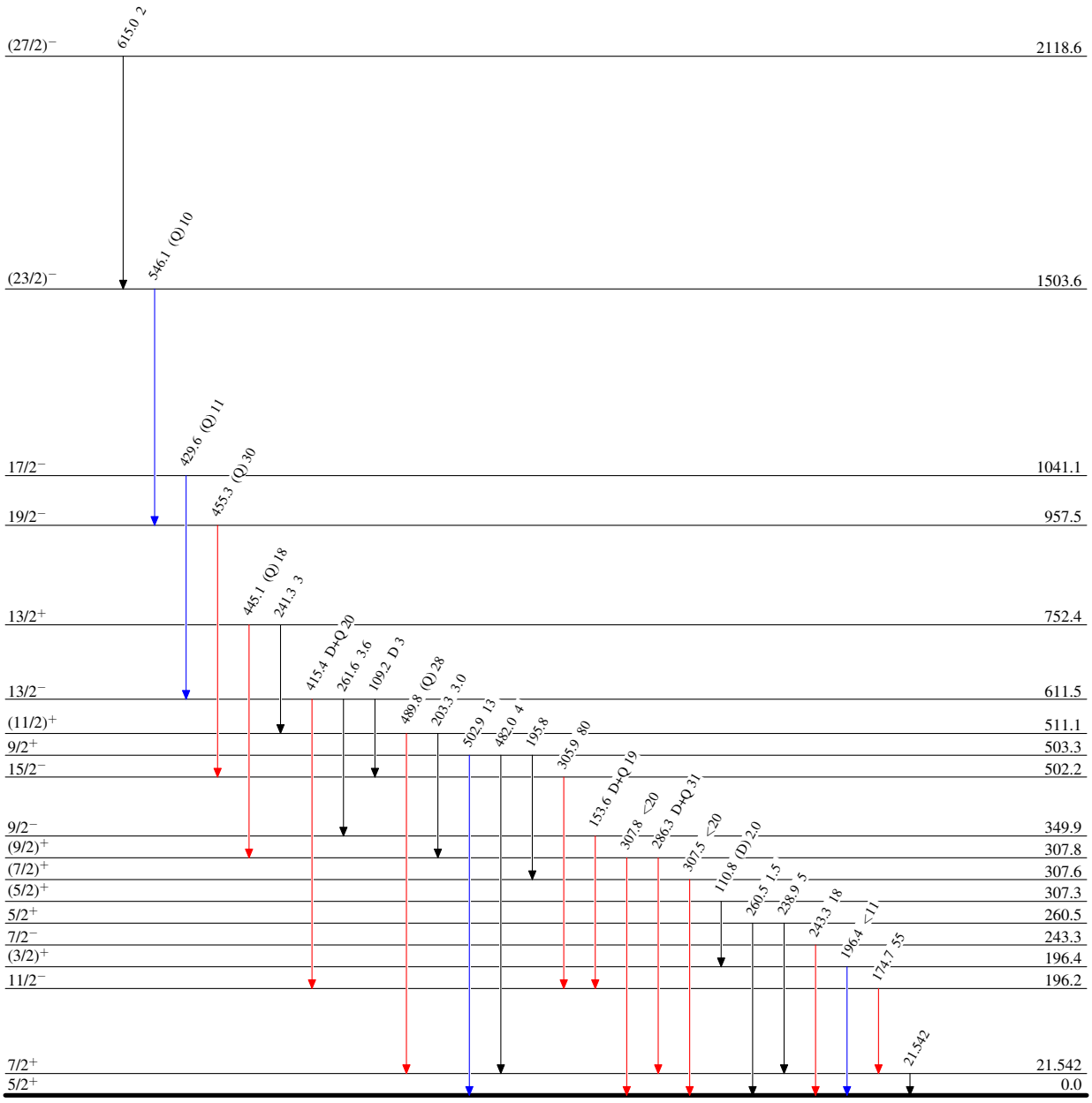
Intensities: Relative I_γ

Legend

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

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

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



$^{151}_{63}Eu_{88}$