^{150}Sm(n,γ) E=th 1986Va08

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

E=th, res. Measured γ, ce.
Others:
1971Gr22. γ-ray data are from thermal neutron capture.
Cross section measurements: 1995To01 (E=25,30 keV); 1993Wi12 (E=3-225 keV); 1986Wi02 (E=4-250 keV); 1974Ei02 (E=0.01 eV-1.2 keV).
The γ-ray energies and cross section data have been measured at Budapest reactor facility with low background conditions during 1999-2003. Detailed reports of this work are available on the following (IAEA and LBNL) websites: www-nds.iaea.org/pgaa/pgaa7/index.html and ie.lbl.gov/pgaadatabase/pgaa.htm. See also IAEA publication 2007ChZX. In this work only 4 secondary and 1 primary γ rays are measured, thus a direct comparison is not possible.
For levels and radiation data, consult ENSDF database (http://www.nndc.bnl.gov/ensdf/) and/or Nuclear Data Sheets 80, 263 (1997).

^{151}Sm Levels

σ_n=100 b *4* (2006MuZX).

E(level)[‡]	J$^\pi$[†]
0.0	5/2$^-$
4.827 *14*	3/2$^-$
65.838 *12*	7/2$^-$
69.715 *12*	5/2$^-$
91.548 *15*	(9/2)$^+$
104.846 *12*	3/2$^-$
167.774 *14*	5/2$^+$
168.423 *14*	(5/2)$^-$
175.406 *25*	(9/2)$^-$
209.028 *22*	(7/2)$^-$
284.979 *24*	1/2$^-$,3/2$^-$
294.87 *5*	9/2$^-$
302.652 *19*	7/2$^-$
306.826 *23*	3/2$^+$
313.878 *19*	(1/2$^-$,3/2$^-$)
315.323 *21*	(3/2$^-$)
323.99 *3*	7/2$^+$
344.957 *23*	3/2$^+$
355.686 *24*	1/2$^+$
358.0?[@]	
395.633 *22*	5/2$^+$
407?[b] *2*	
415.696 *22*	(5/2$^-$,7/2$^-$)
437.5[#] *3*	(5/2$^+$)
445.74 *3*	5/2$^+$
448.63 *4*	(3/2)$^-$
470.44 *3*	(5/2,7/2$^+$)
490.43 *4*	(7/2)$^-$
502.33 *3*	1/2$^+$
504.8?[#] *4*	(5/2$^+$)
521.185 *21*	3/2$^+$
620.56 *5*	(3/2$^-$,5/2,7/2$^+$)
632.07 *3*	(5/2$^+$)
663.05 *3*	3/2$^{(+)}$
663.58 *8*	(5/2$^-$,7/2,9/2$^-$)
673.1[#] *2*	(1/2$^-$,3/2$^-$)
703.28 *4*	3/2$^{(-)}$
712.8?[a]	
721.96 *4*	(1/2$^-$,3/2$^-$)
741.18 *5*	3/2$^{(+)}$
742.0?[#] *2*	(1/2$^-$,3/2$^-$)
754.83 *6*	(5/2$^-$,7/2$^-$)
770.5[#] *2*	(1/2$^-$,3/2$^-$)
774.04 *7*	5/2$^{(+)}$
777.6?[a]	
791.9?[#] *4*	(5/2$^+$)
804.70 *7*	(3/2$^-$,5/2)
821.98 *8*	(3/2$^-$)
822.78 *5*	(3/2$^+$,5/2$^+$)
836.2?[#] *4*	(5/2$^+$)
844.5[#] *2*	(1/2$^-$,3/2$^-$)
850.6?[a]	
869.8[#] *4*	(5/2$^+$)
877.1?[@]	
885[b] *2*	
898.4?[@]	
920.79 *5*	(≤5/2)
937.0?[@]	
951.42 *5*	(3/2$^-$)
953.56 *8*	3/2$^{(+)}$
955.5?[@]	
960.48 *9*	(≤7/2)
964.9?[@]	
1017.31 *5*	1/2,3/2,5/2$^+$
1020.7?[@]	
1077.6?[@]	
1084[b] *2*	
1087.8?[&]	
1115.8?[&]	
1139.9?[&]	
1188[b] *2*	
1193.9?[&]	
1205.7?[&]	
1211[b] *2*	
1220.0?[&]	
1277[b] *2*	
1304[b] *2*	
1345[b] *2*	
1385[b] *2*	
1409[b] *2*	
1439[b] *2*	
(5596.46 *20*)	1/2$^+$[c]

† See 'Adopted Levels'.
‡ From least-squares fit to Eγ's.
# From primary γ seen in average neutron resonance capture. No secondary γ's reported.

Continued on next page (footnotes at end of table)

@ Possible level in average neutron resonance capture and thermal neutron capture but no γ's related to this level reported.

^{150}Sm(n,γ) E=th 1986Va08 (continued)

^{151}Sm Levels (continued)

[&] Possible level from average neutron capture only but no transitions reported (1986Va08).
[a] Possible level from thermal neutron capture only. No γ's reported (1986Va08).
[b] Level based on primary transition seen by 1971Gr22 in thermal neutron capture.
[c] s-wave capture in ^{150}Sm g.s.

γ(^{151}Sm)

Secondary γ's measured with a curved-crystal spectrometer. FWHM=0.008 to 0.29 keV in the range 100 keV to 600 keV. The conversion electrons were measured with magnetic spectrometer.

The following primary transitions have not been seen. 1986Va08 give upper limits on the intensities.

Eγ	Iγ	Eγ	Iγ
4779.5	<0.06	5272.5	<0.03
4791.7	<0.03	5293.8	<0.05
4822.5	<0.04	5301.6	<0.03
4841.7	<0.04	5387.4	<0.04
4878.6	<0.04	5421.1	<0.03
4975.9	<0.03	5428.0	<0.04
5106.0	<0.03	5504.9	<0.03
5126.0	<0.03	5526.8	<0.02
5180.8	<0.03	5530.6	<0.02

E_γ [†]	I_γ [‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [#]	α [f]	Comments
4.8 *1*		4.827	3/2$^-$	0.0	5/2$^-$				
25.71 *1*	0.66 *7*	91.548	(9/2)$^+$	65.838	7/2$^-$				
35.13 *1*	0.039 *4*	104.846	3/2$^-$	69.715	5/2$^-$	M1+E2	0.5 *2*	38 *22*	α(L)=30 *17*; α(M)=7 *4*; α(N+..)=1.7 *10* α(N)=1.5 *9*; α(O)=0.19 *10*; α(P)=0.00163 *20* L2/L1=3.0 *14*, L3/L2=1.7 *5*, L3/M=2.0 *7*.
39.01 *1*	0.004 *1*	104.846	3/2$^-$	65.838	7/2$^-$	[E2]		101.8	α(L)=78.9 *11*; α(M)=18.4 *3*; α(N+..)=4.49 *7* α(N)=4.00 *6*; α(O)=0.488 *7*; α(P)=0.000348 *5*
^{x}46.545 *15*	0.29 *6*								α(L1)exp=7.1 *25*. Unresolved in ce spectrum.
^{x}46.587 *15*	0.29 *6*								α(L3)exp=7.5 *26*. Unresolved in ce spectrum.
^{x}46.819 *15*	0.28 *6*								α(L2)exp=17 *6*, α(L3)exp=13 *5*. Unresolved in ce spectrum.
^{x}54.814 *17*	0.14 *8*								
^{x}55.657 *17*	0.16 *9*								
^{x}56.113 *17*	0.16 *8*								
^{x}56.172 *17*	0.25 *11*								
^{x}56.333 *17*	0.17 *9*								
^{x}56.631 *17*	0.16 *8*								
^{x}57.607 *17*	0.14 *8*								
^{x}58.469 *17*	0.18 *9*								
^{x}60.862 *18*	0.21 *8*								
61.01 *1*	0.010 *3*	65.838	7/2$^-$	4.827	3/2$^-$				
^{x}61.270 *18*	0.15 *7*								
^{x}61.583 *19*	0.14 *7*								

γ(^{151}Sm) (continued)

E$_\gamma$[†]	I$_\gamma$[‡e]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[#]	δ[#]	α[f]	Comments
62.925 *20*	0.28 *10*	167.774	5/2$^+$	104.846	3/2$^-$				
63.58 *1*	0.015 *3*	168.423	(5/2)$^-$	104.846	3/2$^-$				
64.887 *20*	1.7 *4*	69.715	5/2$^-$	4.827	3/2$^-$	M1+E2	1.0 *+10−5*	8.9 *18*	α(K)=4.1 *6*; α(L)=3.7 *18*; α(M)=0.9 *5*; α(N+..)=0.21 *11* α(N)=0.19 *10*; α(O)=0.024 *11*; α(P)=0.00023 *6* α(K)exp=3.7 *9*, α(L1)exp=0.9 *4*, α(L2)exp=1.6 *6*, α(L3)exp=1.0 *4*. δ: adopted value=−0.076 *9* (see adopted γ's) which gives α=6.04.
^{x}65.130 *20*	0.15 *7*								
^{x}65.249 *20*	0.13 *7*								
65.839 *20*	1.8 *4*	65.838	7/2$^-$	0.0	5/2$^-$	M1+E2	0.4 *1*	6.4 *4*	α(K)=4.55 *12*; α(L)=1.5 *4*; α(M)=0.33 *9*; α(N+..)=0.083 *20* α(N)=0.073 *18*; α(O)=0.0097 *22*; α(P)=0.000282 *12* α(K)exp=3.5 *9*, α(L1)exp=0.60 *21*, α(L2)exp=0.62 *22*, α(L3)exp=0.36 *15*. δ: adopted value=−0.22 *2* (see adopted γ's) which gives α=6.02.
65.89 *2*	0.15 *8*	1017.31	1/2,3/2,5/2$^+$	951.42	(3/2$^-$)				
^{x}68.006 *20*	0.12 *6*								
^{x}69.350 *21*	0.13 *8*								
69.710 *20*	0.54 *14*	69.715	5/2$^-$	0.0	5/2$^-$				
70.71 *2*	0.21 *7*	355.686	1/2$^+$	284.979	1/2$^-$,3/2$^-$				
^{x}74.391 *22*	0.13 *6*								
^{x}74.465 *22*	0.12 *6*								
^{x}74.955 *23*	0.11 *5*								
^{x}74.999 *23*	0.09 *5*								
76.223 *23*	0.25 *7*	167.774	5/2$^+$	91.548	(9/2)$^+$				
^{x}81.572 *24*	0.51 *13*								
^{x}81.798 *25*	0.13 *5*								
^{x}83.613 *25*	0.07 *4*								
^{x}85.991 *26*	0.08 *4*								
^{x}89.191 *27*	0.07 *4*								
92.98 *3*	0.05 *2*	395.633	5/2$^+$	302.652	7/2$^-$				
^{x}93.383 *28*	0.11 *4*								
98.01 *3*	0.06 *3*	920.79	(≤5/2)	822.78	(3/2$^+$,5/2$^+$)				
98.06 *3*	0.43 *10*	167.774	5/2$^+$	69.715	5/2$^-$				
98.70 *3*	0.09 *3*	168.423	(5/2)$^-$	69.715	5/2$^-$				
100.02 *3*	2.3 *5*	104.846	3/2$^-$	4.827	3/2$^-$	M1		1.689	α(K)=1.431 *20*; α(L)=0.203 *3*; α(M)=0.0436 *7*; α(N+..)=0.01145 *16* α(N)=0.00988 *14*; α(O)=0.001480 *21*; α(P)=9.13×10^{-5} *13* α(K)exp=1.46 *22*, α(L1)exp=0.39 *16*, α(L3)exp<0.2.
101.93 *3*	1.8 *4*	167.774	5/2$^+$	65.838	7/2$^-$	E1		0.262	α(K)=0.221 *3*; α(L)=0.0323 *5*; α(M)=0.00692 *10*;

γ(^{151}Sm) (continued)

E_γ [†]	I_γ [‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [#]	α [f]	Comments
									α(N+..)=0.001771 *25*
									α(N)=0.001542 *22*; α(O)=0.000218 *3*; α(P)=1.072×10^{-5} *15*
									α(K)exp<0.96.
102.57 *3*	0.039 *17*	168.423	(5/2)$^-$	65.838	7/2$^-$				
^{x}103.02 *3*	0.041 *14*								
^{x}103.20 *3*	0.07 *4*								
104.85 *3*	3.4 *7*	104.846	3/2$^-$	0.0	5/2$^-$	M1+E2	0.12 *3*	1.482 *22*	α(K)=1.247 *18*; α(L)=0.185 *5*; α(M)=0.0399 *12*; α(N+..)=0.0104 *3* α(N)=0.0090 *3*; α(O)=0.00134 *4*; α(P)=7.93×10^{-5} *12* α(K)exp=1.0 *3*, α(L1)exp<0.14, α(L3)exp<0.14. δ,α: from adopted γ's.
105.49 *3*	0.032 *16*	521.185	3/2$^+$	415.696	(5/2$^-$,7/2$^-$)				
^{x}108.07 *3*	0.047 *21*								
109.57 *3*	0.15 *4*	175.406	(9/2)$^-$	65.838	7/2$^-$				
110.89 *3*	0.10 *3*	632.07	(5/2$^+$)	521.185	3/2$^+$				
^{x}110.92 *3*	0.037 *15*								
113.04 *3*	0.057 *14*	415.696	(5/2$^-$,7/2$^-$)	302.652	7/2$^-$				
^{x}113.37 *3*	0.052 *22*								
^{x}113.48 *3*	0.035 *18*								
^{x}116.50 *3*	0.034 *16*								
119.48 *4*	0.055 *19*	822.78	(3/2$^+$,5/2$^+$)	703.28	3/2$^{(-)}$				
^{x}119.58 *4*	0.028 *17*								
^{x}119.78 *4*	0.049 *22*								
^{x}120.30 *4*	0.032 *15*								
^{x}122.37 *4*	0.052 *18*								
125.49 *4*	0.031 *15*	470.44	(5/2,7/2$^+$)	344.957	3/2$^+$				
125.55 *4*	0.047 *12*	521.185	3/2$^+$	395.633	5/2$^+$				
^{x}127.32 *4*	0.043 *14*								
^{x}127.91 *4*	0.028 *12*								
130.43 *4*	0.032 *9*	445.74	5/2$^+$	315.323	(3/2$^-$)				
134.22 *4*	0.07 *3*	302.652	7/2$^-$	168.423	(5/2)$^-$				
134.88 *4*	0.028 *9*	302.652	7/2$^-$	167.774	5/2$^+$				
^{x}136.02 *4*	0.021 *12*								
^{x}137.59 *4*	0.034 *14*								
138.40 *4*	0.093 *20*	306.826	3/2$^+$	168.423	(5/2)$^-$				
139.04 *4*	0.062 *14*	306.826	3/2$^+$	167.774	5/2$^+$				
139.31 *4*	0.29 *6*	209.028	(7/2)$^-$	69.715	5/2$^-$				
143.19 *4*	0.12 *3*	209.028	(7/2)$^-$	65.838	7/2$^-$				
145.459 *15*	0.030 *6*	313.878	(1/2$^-$,3/2$^-$)	168.423	(5/2)$^-$				
146.45 *5*	0.072 *14*	470.44	(5/2,7/2$^+$)	323.99	7/2$^+$				
^{x}146.50 *4*	0.022 *9*								
146.90 *4*	0.16 *3*	315.323	(3/2$^-$)	168.423	(5/2)$^-$				
^{x}147.16 *4*	0.016 *10*								
147.55 *4*	5.0 *10*	315.323	(3/2$^-$)	167.774	5/2$^+$				Mult.: α(K)exp=0.36 *12*, α(L)exp=0.19 *5*. ce data give

From ENSDF

$^{151}_{62}$Sm$_{89}$-6

γ(^{151}Sm) (continued)

E_γ†	I_γ‡e	E_i(level)	J^π_i	E_f	J^π_f	Mult.#	δ#	αf	Comments
									mult=E2(+M1) with δ>1. However, proposed J^π's of 315.3 and 168.4 levels give E1.
^{x}148.07 *4*	0.020 *9*								
148.59 *5*	0.023 *9*	323.99	7/2$^+$	175.406	(9/2)$^-$				
148.85 *5*	0.018 *9*	953.56	3/2$^{(+)}$	804.70	(3/2$^-$,5/2)				
^{x}155.02 *6*	0.024 *13*								
^{x}155.14 *5*	0.024 *9*								
156.21 *5*	0.047 *10*	323.99	7/2$^+$	167.774	5/2$^+$				
157.37 *5*	0.20 *4*	502.33	1/2$^+$	344.957	3/2$^+$				
^{x}158.07 *5*	0.020 *10*								
^{x}159.30 *5*	0.048 *10*								
162.95 *5*	0.86 *15*	167.774	5/2$^+$	4.827	3/2$^-$				
^{x}163.14 *5*	0.10 *2*								
^{x}163.20 *5*	0.029 *10*								
163.60 *5*	2.2 *4*	168.423	(5/2)$^-$	4.827	3/2$^-$				
165.50 *5*	0.014 *5*	521.185	3/2$^+$	355.686	1/2$^+$				
167.77 *5*	8.1 *14*	167.774	5/2$^+$	0.0	5/2$^-$	E1		0.0677	α(K)=0.0575 *8*; α(L)=0.00805 *12*; α(M)=0.001721 *25*; α(N+..)=0.000444 *7* α(N)=0.000386 *6*; α(O)=5.57×10^{-5} *8*; α(P)=2.98×10^{-6} *5* α(K)exp=0.05 *3*.
168.42 *5*	1.4 *3*	168.423	(5/2)$^-$	0.0	5/2$^-$	M1+E2	+0.15 *10*	0.387	α(K)=0.327 *6*; α(L)=0.0473 *19*; α(M)=0.0102 *5*; α(N+..)=0.00267 *11* α(N)=0.00230 *10*; α(O)=0.000344 *11*; α(P)=2.07×10^{-5} *5* α(K)exp=0.28 *17*. δ: from adopted γ's.
^{x}170.06 *5*	0.014 *9*								
^{x}170.48 *5*	0.017 *6*								
^{x}170.52 *5*	0.016 *6*								
^{x}174.91 *6*	0.017 *7*								
175.41 *5*	0.020 *6*	175.406	(9/2)$^-$	0.0	5/2$^-$				
176.23 *5*	0.020 *5*	521.185	3/2$^+$	344.957	3/2$^+$				
176.54 *5*	0.102 *17*	344.957	3/2$^+$	168.423	(5/2)$^-$				
177.19 *5*	0.44 *7*	344.957	3/2$^+$	167.774	5/2$^+$				
^{x}179.31 *5*	0.018 *10*								
180.13 *5*	0.16 *3*	284.979	1/2$^-$,3/2$^-$	104.846	3/2$^-$				
^{x}182.93 *5*	0.021 *11*								
183.44 *6*	0.034 *6*	632.07	(5/2$^+$)	448.63	(3/2)$^-$				
^{x}185.52 *6*	0.014 *8*								
^{x}185.94 *6*	0.017 *6*								
186.60 *6*	0.12 *2*	395.633	5/2$^+$	209.028	(7/2)$^-$				
187.01 *6*	0.42 *7*	502.33	1/2$^+$	315.323	(3/2$^-$)				
187.90 *6*	0.43 *7*	355.686	1/2$^+$	167.774	5/2$^+$				
188.47 *6*	0.36 *6*	502.33	1/2$^+$	313.878	(1/2$^-$,3/2$^-$)				

^{150}Sm(n,γ) E=th 1986Va08 (continued)

γ(^{151}Sm) (continued)

E$_\gamma$†	I$_\gamma$‡e	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
^{x}189.44 8	0.017 8				
192.61 6	0.19 3	663.05	$3/2^{(+)}$	470.44	$(5/2,7/2^+)$
195.50 6	0.061 10	502.33	$1/2^+$	306.826	$3/2^+$
195.56 6	0.017 9	490.43	$(7/2)^-$	294.87	$9/2^-$
197.81 6	0.020 4	302.652	$7/2^-$	104.846	$3/2^-$
200.78 6	0.019 4	721.96	$(1/2^-,3/2^-)$	521.185	$3/2^+$
201.97 6	1.7 3	306.826	$3/2^+$	104.846	$3/2^-$
^{x}203.00 6	0.019 10				
204.21 6	0.066 10	209.028	$(7/2)^-$	4.827	$3/2^-$
205.87 6	0.026 5	521.185	$3/2^+$	315.323	$(3/2^-)$
^{x}206.02 6	0.016 8				
206.67 6	0.117 18	415.696	$(5/2^-,7/2^-)$	209.028	$(7/2)^-$
207.34 6	0.018 4	521.185	$3/2^+$	313.878	$(1/2^-,3/2^-)$
209.03 6	0.88 14	209.028	$(7/2)^-$	0.0	$5/2^-$
^{x}209.97 6	0.017 7				
^{x}210.12 6	0.021 8				
210.49 6	0.031 5	315.323	$(3/2^-)$	104.846	$3/2^-$
211.11 6	0.019 4	302.652	$7/2^-$	91.548	$(9/2)^+$
^{x}211.80 6	0.015 9				
215.26 6	0.17 3	284.979	$1/2^-,3/2^-$	69.715	$5/2^-$
216.31 10	0.020 15	632.07	$(5/2^+)$	415.696	$(5/2^-,7/2^-)$
217.31 7	0.108 16	663.05	$3/2^{(+)}$	445.74	$5/2^+$
^{x}217.41 7	0.017 7				
^{x}227.03 7	0.029 10				
227.21 7	0.23 4	395.633	$5/2^+$	168.423	$(5/2)^-$
227.85 7	0.039 7	395.633	$5/2^+$	167.774	$5/2^+$
229.02 7	0.084 13	294.87	$9/2^-$	65.838	$7/2^-$
^{x}229.76^{h} 7	0.017 7				
^{x}232.35 7	0.045 23				
232.44 7	0.30 5	323.99	$7/2^+$	91.548	$(9/2)^+$
232.94 7	0.16 3	302.652	$7/2^-$	69.715	$5/2^-$
^{x}233.77 7	0.019 4				
^{x}235.22 10	0.016 7				
236.20 7	0.25 4	521.185	$3/2^+$	284.979	$1/2^-,3/2^-$
236.42 7	0.023 5	632.07	$(5/2^+)$	395.633	$5/2^+$
236.71 7	0.040 10	445.74	$5/2^+$	209.028	$(7/2)^-$
236.81 7	0.41 6	302.652	$7/2^-$	65.838	$7/2^-$
237.11 7	1.02 15	306.826	$3/2^+$	69.715	$5/2^-$
240.11 7	0.40 6	344.957	$3/2^+$	104.846	$3/2^-$
241.04 10	0.015 8	306.826	$3/2^+$	65.838	$7/2^-$
^{x}243.59 7	0.033 11				
244.13 7	0.039 7	313.878	$(1/2^-,3/2^-)$	69.715	$5/2^-$
^{x}244.23 7	0.025 9				
245.61 7	0.101 15	315.323	$(3/2^-)$	69.715	$5/2^-$
247.26 7	0.110 18	415.696	$(5/2^-,7/2^-)$	168.423	$(5/2)^-$
247.37 8	0.022 5	663.05	$3/2^{(+)}$	415.696	$(5/2^-,7/2^-)$
247.91 8	0.087 13	415.696	$(5/2^-,7/2^-)$	167.774	$5/2^+$
^{x}248.75 10	0.014 6				
249.47 8	0.036 6	315.323	$(3/2^-)$	65.838	$7/2^-$
250.83 8	1.5 2	355.686	$1/2^+$	104.846	$3/2^-$
^{x}252.56 10	0.020 7				
254.27 8	0.044 6	323.99	$7/2^+$	69.715	$5/2^-$
254.65 8	0.019 4	703.28	$3/2^{(-)}$	448.63	$(3/2)^-$
^{x}256.24 9	0.016 8				
^{x}257.10 9	0.013 7				
257.52 8	0.044 7	703.28	$3/2^{(-)}$	445.74	$5/2^+$
258.15 8	0.16 3	323.99	$7/2^+$	65.838	$7/2^-$
261.42 8	0.104 14	470.44	$(5/2,7/2^+)$	209.028	$(7/2)^-$
^{x}262.33 8	0.023 6				
264.41 8	0.015 7	754.83	$(5/2^-,7/2^-)$	490.43	$(7/2)^-$
^{x}266.46 11	0.011 5				
267.41 8	0.021 4	663.05	$3/2^{(+)}$	395.633	$5/2^+$
^{x}269.77 8	0.026 5				
270.75 8	0.028 5	741.18	$3/2^{(+)}$	470.44	$(5/2,7/2^+)$
^{x}271.27 8	0.018 5				
^{x}272.40 8	0.018 5				
273.33 8	0.031 5	721.96	$(1/2^-,3/2^-)$	448.63	$(3/2)^-$
275.24 8	0.70 9	344.957	$3/2^+$	69.715	$5/2^-$
275.60 8	0.027 7	620.56	$(3/2^-,5/2,7/2^+)$	344.957	$3/2^+$
276.10 8	0.050 24	1017.31	$1/2,3/2,5/2^+$	741.18	$3/2^{(+)}$
276.35 8	0.019 8	632.07	$(5/2^+)$	355.686	$1/2^+$
277.29 10	0.017 4	445.74	$5/2^+$	168.423	$(5/2)^-$
277.99 10	0.022 9	445.74	$5/2^+$	167.774	$5/2^+$
^{x}278.13 9	0.034 7				
^{x}278.26 8	0.041 7				
280.15 8	4.3 6	284.979	$1/2^-,3/2^-$	4.827	$3/2^-$
280.21 8	0.21 8	448.63	$(3/2)^-$	168.423	$(5/2)^-$
^{x}280.64 10	0.060 14				
280.85 8	0.055 8	448.63	$(3/2)^-$	167.774	$5/2^+$
^{x}283.18 12	0.014 6				
284.97 9	0.032 5	284.979	$1/2^-,3/2^-$	0.0	$5/2^-$
^{x}285.83 9	0.021 5				
290.78 9	0.52 7	395.633	$5/2^+$	104.846	$3/2^-$
^{x}293.45 11	0.016 5				
294.85 9	0.046 7	294.87	$9/2^-$	0.0	$5/2^-$
295.53 12	0.014 7	741.18	$3/2^{(+)}$	445.74	$5/2^+$

From ENSDF

$^{151}_{62}$Sm$_{89}$-8

γ(^{151}Sm) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f
^{x}295.99 *9*	0.022 *5*				
297.82 *9*	0.100 *14*	302.652	7/2$^-$	4.827	3/2$^-$
^{x}298.07[h] *10*	0.029 *12*				
301.99 *9*	0.074 *11*	306.826	3/2$^+$	4.827	3/2$^-$
^{x}302.48 *10*	0.025 *15*				
302.61 *9*	0.08 *5*	302.652	7/2$^-$	0.0	5/2$^-$
302.67 *9*	0.18 *3*	470.44	(5/2,7/2$^+$)	167.774	5/2$^+$
^{x}306.33 *9*	0.020 *4*				
306.83 *9*	0.40 *6*	306.826	3/2$^+$	0.0	5/2$^-$
307.38 *9*	0.073 *11*	663.05	3/2$^{(+)}$	355.686	1/2$^+$
307.66 *9*	0.031 *15*	703.28	3/2$^{(-)}$	395.633	5/2$^+$
308.08 *9*	0.049 *8*	632.07	(5/2$^+$)	323.99	7/2$^+$
309.04 *9*	2.6 *4*	313.878	(1/2$^-$,3/2$^-$)	4.827	3/2$^-$
310.50 *9*	0.35 *5*	315.323	(3/2$^-$)	4.827	3/2$^-$
310.85 *9*	0.16 *3*	415.696	(5/2$^-$,7/2$^-$)	104.846	3/2$^-$
^{x}312.34 *10*	0.017 *6*				
313.93 *10*	0.021 *5*	313.878	(1/2$^-$,3/2$^-$)	0.0	5/2$^-$
315.00 *9*	0.025 *4*	490.43	(7/2)$^-$	175.406	(9/2)$^-$
315.34 *9*	0.101 *14*	315.323	(3/2$^-$)	0.0	5/2$^-$
^{x}317.15 *10*	0.087 *12*				
^{x}318.03 *10*	0.033 *6*				
322.02 *10*	0.066 *9*	490.43	(7/2)$^-$	168.423	(5/2)$^-$
323.98 *10*	0.32 *4*	323.99	7/2$^+$	0.0	5/2$^-$
325.24 *10*	0.088 *12*	632.07	(5/2$^+$)	306.826	3/2$^+$
325.91 *10*	0.082 *12*	395.633	5/2$^+$	69.715	5/2$^-$
^{x}327.83 *11*	0.020 *4*				
328.38 *10*	0.07 *4*	960.48	($\leq$7/2)	632.07	(5/2$^+$)
^{x}328.97 *10*	0.088 *13*				
329.79 *10*	0.124 *15*	395.633	5/2$^+$	65.838	7/2$^-$
^{x}330.62 *11*	0.019 *7*				
^{x}331.65 *10*	0.032 *6*				
334.55 *10*	0.110 *14*	502.33	1/2$^+$	167.774	5/2$^+$
^{x}337.38 *11*	0.026 *8*				
340.14 *10*	2.0 *3*	344.957	3/2$^+$	4.827	3/2$^-$
340.86 *11*	0.052 *13*	445.74	5/2$^+$	104.846	3/2$^-$
^{x}341.74 *10*	0.039 *7*				
343.79 *10*	0.032 *5*	448.63	(3/2)$^-$	104.846	3/2$^-$
344.96 *10*	0.17 *3*	344.957	3/2$^+$	0.0	5/2$^-$
345.98 *11*	0.083 *13*	415.696	(5/2$^-$,7/2$^-$)	69.715	5/2$^-$
347.60 *11*	0.16 *2*	703.28	3/2$^{(-)}$	355.686	1/2$^+$
347.73 *11*	0.088 *16*	663.05	3/2$^{(+)}$	315.323	(3/2$^-$)
349.20 *11*	0.32 *5*	663.05	3/2$^{(+)}$	313.878	(1/2$^-$,3/2$^-$)
349.86 *11*	0.46 *7*	415.696	(5/2$^-$,7/2$^-$)	65.838	7/2$^-$

γ(^{151}Sm) (continued)

E_γ †	I_γ ‡e	E_i(level)	J^π_i	E_f	J^π_f
350.85 11	0.64 9	355.686	1/2$^+$	4.827	3/2$^-$
^{x}352.07 12	0.037 19				
352.74 11	0.017 4	521.185	3/2$^+$	168.423	(5/2)$^-$
353.40 11	0.25 3	521.185	3/2$^+$	167.774	5/2$^+$
354.14 11	0.027 6	445.74	5/2$^+$	91.548	(9/2)$^+$
^{x}354.39 12	0.019 7				
356.20 11	0.017 4	663.05	3/2$^{(+)}$	306.826	3/2$^+$
^{x}357.93 12	0.021 7				
358.32 11	0.078 11	774.04	5/2$^{(+)}$	415.696	(5/2$^-$,7/2$^-$)
^{x}358.56 12	0.029 7				
358.99 11	0.021 5	804.70	(3/2$^-$,5/2)	445.74	5/2$^+$
359.21 11	0.018 7	754.83	(5/2$^-$,7/2$^-$)	395.633	5/2$^+$
360.95 11	0.024 6	663.58	(5/2$^-$,7/2,9/2$^-$)	302.652	7/2$^-$
366.28 8	0.17 2	721.96	(1/2$^-$,3/2$^-$)	355.686	1/2$^+$
368.67 11	0.015 4	663.58	(5/2$^-$,7/2,9/2$^-$)	294.87	9/2$^-$
^{x}370.60 12	0.032 8				
^{x}371.05 11	0.014 7				
^{x}374.42 12	0.08 5				
376.04&	0.030 9	445.74	5/2$^+$	69.715	5/2$^-$
376.27 11	0.029 11	821.98	(3/2$^-$)	445.74	5/2$^+$
377.00 15	0.079 11	822.78	(3/2$^+$,5/2$^+$)	445.74	5/2$^+$
^{x}377.76 12	0.051 19				
378.07 11	0.15 2	663.05	3/2$^{(+)}$	284.979	1/2$^-$,3/2$^-$
378.91 12	0.31 4	448.63	(3/2)$^-$	69.715	5/2$^-$
379.92 11	0.21 3	445.74	5/2$^+$	65.838	7/2$^-$
^{x}380.23 12	0.027 6				
382.78&	0.023 7	448.63	(3/2)$^-$	65.838	7/2$^-$
^{x}383.75 13	0.021 6				
^{x}385.41 12	0.070 12				
385.59 12	0.026 8	490.43	(7/2)$^-$	104.846	3/2$^-$
387.89 12	0.029 7	703.28	3/2$^{(-)}$	315.323	(3/2$^-$)
^{x}388.85 12	0.031 6				
^{x}390.34 13	0.043 22				
390.79 12	0.023 5	395.633	5/2$^+$	4.827	3/2$^-$
^{x}391.38 12	0.038 8				
^{x}395.37 12	0.121 17				
395.75 13	0.028 10	395.633	5/2$^+$	0.0	5/2$^-$
396.06 16	0.036 10	741.18	3/2$^{(+)}$	344.957	3/2$^+$
396.47 12	0.030 6	703.28	3/2$^{(-)}$	306.826	3/2$^+$
396.75 17	0.032 10	1017.31	1/2,3/2,5/2$^+$	620.56	(3/2$^-$,5/2,7/2$^+$)
397.45 13	0.020 8	502.33	1/2$^+$	104.846	3/2$^-$
398.87 12	0.029 9	490.43	(7/2)$^-$	91.548	(9/2)$^+$

γ(^{151}Sm) (continued)

E$_\gamma$[†]	I$_\gamma$[‡e]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
400.74 *12*	0.093 *13*	470.44	(5/2,7/2$^+$)	69.715	5/2$^-$
^{x}401.71 *13*	0.030 *10*				
^{x}402.19 *12*	0.06 *5*				
^{x}403.10 *13*	0.047 *12*				
404.62 *12*	0.56 *7*	470.44	(5/2,7/2$^+$)	65.838	7/2$^-$
^{x}405.20 *12*	0.31 *4*				
406.64 *12*	0.132 *17*	721.96	(1/2$^-$,3/2$^-$)	315.323	(3/2$^-$)
407.08 *12*	0.030 *7*	822.78	(3/2$^+$,5/2$^+$)	415.696	(5/2$^-$,7/2$^-$)
408.07 *20*	0.025 *10*	721.96	(1/2$^-$,3/2$^-$)	313.878	(1/2$^-$,3/2$^-$)
410.87 *12*	0.22 *3*	415.696	(5/2$^-$,7/2$^-$)	4.827	3/2$^-$
411.50 *12*	0.025 *6*	620.56	(3/2$^-$,5/2,7/2$^+$)	209.028	(7/2)$^-$
^{x}413.34 *13*	0.06 *4*				
^{x}414.01 *12*	0.054 *7*				
414.9 *3*	0.025 *12*	721.96	(1/2$^-$,3/2$^-$)	306.826	3/2$^+$
415.72 *12*	0.080 *14*	415.696	(5/2$^-$,7/2$^-$)	0.0	5/2$^-$
418.48 *13*	0.047 *11*	920.79	(≤5/2)	502.33	1/2$^+$
^{x}420.22 *13*	0.07 *3*				
420.73 *13*	0.046 *14*	490.43	(7/2)$^-$	69.715	5/2$^-$
^{x}421.25 *14*	0.033 *8*				
^{x}421.57 *13*	0.035 *9*				
423.04 *13*	0.085 *12*	632.07	(5/2$^+$)	209.028	(7/2)$^-$
424.64 *13*	0.089 *13*	490.43	(7/2)$^-$	65.838	7/2$^-$
^{x}426.63[h] *14*	0.06 *3*				
427.25 *13*	0.041 *8*	741.18	3/2$^{(+)}$	313.878	(1/2$^-$,3/2$^-$)
^{x}429.69 *14*	0.033 *12*				
430.22 *18*	0.024 *11*	951.42	(3/2$^-$)	521.185	3/2$^+$
430.89 *18*	0.020 *10*	754.83	(5/2$^-$,7/2$^-$)	323.99	7/2$^+$
^{x}435.95 *15*	0.07 *4*				
^{x}437.60 *14*	0.039 *16*				
439.47[a] *13*	0.16 *12*	754.83	(5/2$^-$,7/2$^-$)	315.323	(3/2$^-$)
440.94 *13*	0.32 *8*	445.74	5/2$^+$	4.827	3/2$^-$
^{x}442.63 *18*	0.029 *10*				
443.81 *13*	0.87 *12*	448.63	(3/2)$^-$	4.827	3/2$^-$
445.76 *13*	1.14 *14*	445.74	5/2$^+$	0.0	5/2$^-$
^{x}447.50 *14*	0.026 *10*				
^{x}448.16 *14*	0.12 *3*				
448.61 *13*	1.04 *13*	448.63	(3/2)$^-$	0.0	5/2$^-$
^{x}450.23 *14*	0.043 *15*				
451.47 *14*	0.76 *10*	521.185	3/2$^+$	69.715	5/2$^-$
452.16 *13*	0.15 *2*	620.56	(3/2$^-$,5/2,7/2$^+$)	168.423	(5/2)$^-$
^{x}455.76 *15*	0.038 *16*				
^{x}456.5 *3*	0.028 *14*				
^{x}459.35 *16*	0.043 *15*				

$^{151}_{62}$Sm$_{89}$-11

γ(^{151}Sm) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f
459.80[g] 19	0.089[g] 18	754.83	(5/2$^-$,7/2$^-$)	294.87	9/2$^-$
459.80[g] 19	0.089[g] 19	804.70	(3/2$^-$,5/2)	344.957	3/2$^+$
[x]464.02 15	0.087 22				
464.29 14	0.091 19	632.07	(5/2$^+$)	167.774	5/2$^+$
[x]465.0 3	0.041 14				
466.9 3	0.032 15	774.04	5/2$^{(+)}$	306.826	3/2$^+$
470.47 14	0.24 4	470.44	(5/2,7/2$^+$)	0.0	5/2$^-$
[x]470.83 20	0.039 20				
471.33 16	0.042 12	774.04	5/2$^{(+)}$	302.652	7/2$^-$
472.29 14	0.063 18	920.79	(≤5/2)	448.63	(3/2)$^-$
[x]472.96 14	0.11 2				
[x]473.30 19	0.06 2				
[x]475.9 3	0.047 21				
477.2[a] 3	0.046 18	821.98	(3/2$^-$)	344.957	3/2$^+$
477.94 20	0.035 17	822.78	(3/2$^+$,5/2$^+$)	344.957	3/2$^+$
[x]478.52 16	0.049 17				
479.5 3	0.047 18	774.04	5/2$^{(+)}$	294.87	9/2$^-$
[x]481.18 16	0.077 20				
[x]481.40 16	0.09 3				
[x]481.86 20	0.034 16				
[x]483.77 20	0.04 3				
[x]485.26 16	0.070 18				
[x]486.7 3	0.05 3				
490.36 15	0.065 12	490.43	(7/2)$^-$	0.0	5/2$^-$
490.8 3	0.03 2	804.70	(3/2$^-$,5/2)	313.878	(1/2$^-$,3/2$^-$)
494.59 21	0.047 24	663.05	3/2$^{(+)}$	168.423	(5/2)$^-$
495.25 15	0.33 4	663.05	3/2$^{(+)}$	167.774	5/2$^+$
[x]496.50 15	0.15 3				
497.49 15	0.65 8	502.33	1/2$^+$	4.827	3/2$^-$
[x]499.67 16	0.039 20				
[x]504.17 16	0.09 5				
[x]505.04 15	1.10 13				
505.70 15	0.23 11	951.42	(3/2$^-$)	445.74	5/2$^+$
508.3 3	0.10 4	821.98	(3/2$^-$)	313.878	(1/2$^-$,3/2$^-$)
514.79 15	0.25 4	960.48	(≤7/2)	445.74	5/2$^+$
516.36 15	0.52 7	521.185	3/2$^+$	4.827	3/2$^-$
[x]516.92 16	0.05 2				
519.65 15	0.055 13	804.70	(3/2$^-$,5/2)	284.979	1/2$^-$,3/2$^-$
521.21 16	0.085 15	521.185	3/2$^+$	0.0	5/2$^-$
[x]530.14 16	0.054 11				
[x]531.11 17	0.05 2				
534.85 16	0.079 16	703.28	3/2$^{(-)}$	168.423	(5/2)$^-$
535.51 16	0.25 4	703.28	3/2$^{(-)}$	167.774	5/2$^+$

$^{151}_{62}$Sm$_{89}$-12

γ(^{151}Sm) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f
[x]536.26 *17*	0.05 *2*				
536.82 *17*	0.050 *14*	821.98	(3/2$^-$)	284.979	1/2$^-$,3/2$^-$
[x]543.33 *21*	0.033 *16*				
545.93 *22*	0.041 *14*	754.83	(5/2$^-$,7/2$^-$)	209.028	(7/2)$^-$
550.86 *17*	0.122 *18*	620.56	(3/2$^-$,5/2,7/2$^+$)	69.715	5/2$^-$
554.76 *17*	0.110 *19*	620.56	(3/2$^-$,5/2,7/2$^+$)	65.838	7/2$^-$
555.84 *18*	0.07 *2*	951.42	(3/2$^-$)	395.633	5/2$^+$
[x]556.3 *3*	0.08 *5*				
[x]557.33 *17*	0.047 *16*				
558.15[a] *17*	0.13 *2*	663.05	3/2$^{(+)}$	104.846	3/2$^-$
[x]559.7 *3*	0.043 *16*				
562.3 *3*	0.04 *2*	632.07	(5/2$^+$)	69.715	5/2$^-$
565.12[d] *17*	0.24 *3*	774.04	5/2$^{(+)}$	209.028	(7/2)$^-$
565.12[dh] *17*	<0.24	920.79	(≤5/2)	355.686	1/2$^+$
568.55 *17*	0.065 *13*	1017.31	1/2,3/2,5/2$^+$	448.63	(3/2)$^-$
[x]571.90 *19*	0.13 *3*				
[x]575.28 *17*	0.18 *3*				
[x]583.34 *20*	0.06 *4*				
[x]585.1 *3*	0.06 *2*				
[x]588.15 *20*	0.21 *3*				
593.47 *19*	0.067 *15*	663.05	3/2$^{(+)}$	69.715	5/2$^-$
595.71[g] *21*	0.074[g] *17*	804.70	(3/2$^-$,5/2)	209.028	(7/2)$^-$
595.71[g] *19*	0.074[g] *18*	951.42	(3/2$^-$)	355.686	1/2$^+$
597.81 *22*	0.17 *7*	663.58	(5/2$^-$,7/2,9/2$^-$)	65.838	7/2$^-$
[x]598.12 *20*	0.23 *4*				
598.73 *18*	0.16 *3*	774.04	5/2$^{(+)}$	175.406	(9/2)$^-$
[x]599.99 *20*	0.14 *2*				
601.5 *3*	0.09 *3*	1017.31	1/2,3/2,5/2$^+$	415.696	(5/2$^-$,7/2$^-$)
[x]603.01 *20*	0.14 *4*				
[x]603.67[h] *20*	0.21 *4*				
606.56 *18*	0.15 *2*	951.42	(3/2$^-$)	344.957	3/2$^+$
[x]611.9 *3*	0.17 *8*				
[x]612.28 *20*	0.25 *4*				
612.9 *3*	0.13 *4*	821.98	(3/2$^-$)	209.028	(7/2)$^-$
[x]619.5 *3*	0.06 *3*				
620.56 *19*	0.57 *8*	620.56	(3/2$^-$,5/2,7/2$^+$)	0.0	5/2$^-$
[x]629.44 *20*	0.26 *4*				
632.07 *20*	0.21 *3*	632.07	(5/2$^+$)	0.0	5/2$^-$
[x]633.74 *22*	0.16 *3*				
635.83 *20*	0.33 *18*	920.79	(≤5/2)	284.979	1/2$^-$,3/2$^-$
636.32 *19*	0.73 *10*	741.18	3/2$^{(+)}$	104.846	3/2$^-$
636.7 *3*	0.18 *10*	804.70	(3/2$^-$,5/2)	167.774	5/2$^+$

γ(^{151}Sm) (continued)

E$_\gamma$[†]	I$_\gamma$[‡e]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
637.4[g] 3	0.06[g] 3	703.28	$3/2^{(-)}$	65.838	$7/2^-$
637.4[g] 3	0.06[g] 3	951.42	$(3/2^-)$	313.878	$(1/2^-,3/2^-)$
[x]640.34 22	0.09 2				
[x]646.6 4	0.09 4				
648.78 19	0.093 19	951.42	$(3/2^-)$	302.652	$7/2^-$
658.16 21	0.14 3	663.05	$3/2^{(+)}$	4.827	$3/2^-$
661.8 3	0.09 3	1017.31	$1/2,3/2,5/2^+$	355.686	$1/2^+$
663.64 23	0.095 25	663.58	$(5/2^-,7/2,9/2^-)$	0.0	$5/2^-$
[x]665.38 22	0.15 3				
669.23 20	0.28 4	774.04	$5/2^{(+)}$	104.846	$3/2^-$
671.43 20	0.70 13	741.18	$3/2^{(+)}$	69.715	$5/2^-$
672.52 23	0.22 4	1017.31	$1/2,3/2,5/2^+$	344.957	$3/2^+$
698.51 22	0.19 3	703.28	$3/2^{(-)}$	4.827	$3/2^-$
699.77 24	0.15 3	804.70	$(3/2^-,5/2)$	104.846	$3/2^-$
703.3 3	0.13 4	703.28	$3/2^{(-)}$	0.0	$5/2^-$
704.29 21	0.34 5	774.04	$5/2^{(+)}$	69.715	$5/2^-$
[x]714.4 3	0.16 3				
717.11[g] 22	0.57[g] 9	721.96	$(1/2^-,3/2^-)$	4.827	$3/2^-$
717.11[g] 21	0.57[g] 9	821.98	$(3/2^-)$	104.846	$3/2^-$
717.90 22	0.73 10	822.78	$(3/2^+,5/2^+)$	104.846	$3/2^-$
[x]725.2 3	0.16 5				
[x]728.1 4	0.11 5				
[x]735.5 3	0.21 7				
736.2 3	0.27 5	741.18	$3/2^{(+)}$	4.827	$3/2^-$
739.0 3	0.15 5	804.70	$(3/2^-,5/2)$	65.838	$7/2^-$
[x]741.8 3	0.21 4				
752.4 3	0.29 14	821.98	$(3/2^-)$	69.715	$5/2^-$
753.0 3	0.20 4	822.78	$(3/2^+,5/2^+)$	69.715	$5/2^-$
[x]756.1 3	0.14 6				
[x]759.4 3	0.13 4				
[x]761.5 3	0.16 4				
[x]769.7 3	0.33 6				
[x]773.0 3	0.20 7				
783.57 23	0.40 6	951.42	$(3/2^-)$	167.774	$5/2^+$
785.2 3	0.19 5	953.56	$3/2^{(+)}$	168.423	$(5/2)^-$
[x]787.4 7	0.17 8				
[x]790.3 3	0.18 5				
792.1 3	0.20 5	960.48	(≤7/2)	168.423	$(5/2)^-$
[x]795.8 3	0.19 7				
[x]807.6 3	0.19 5				
[x]812.6 5	0.14 7				
817.1 3	0.15 7	821.98	$(3/2^-)$	4.827	$3/2^-$
[x]818.8 3	0.45 8				
822.0 6	0.26 10	821.98	$(3/2^-)$	0.0	$5/2^-$
[x]834.8 3	0.23 8				
[x]838.7 4	0.27 7				
[x]843.8 4	0.23 7				
[x]845.9 6	0.42 14				
848.8 3	0.34 7	953.56	$3/2^{(+)}$	104.846	$3/2^-$
[x]853.0 3	0.65 13				
[x]856.3 3	0.30 10				
[x]861.0 6	0.16 10				
[x]876.8 5	0.20 10				
886.0 3	0.30 9	951.42	$(3/2^-)$	65.838	$7/2^-$
[x]891.8 3	0.30 8				
[x]905.4 5	0.27 12				
[x]907.4 5	0.30 10				
[x]910.5 3	0.40 9				
[x]913.3 4	0.34 12				
[x]922.1 3	0.33 10				
948.7 3	0.51 11	953.56	$3/2^{(+)}$	4.827	$3/2^-$
951.3 3	0.70 13	951.42	$(3/2^-)$	0.0	$5/2^-$
[x]993.6 5	0.37 14				
[x]1020.8 7	0.38 18				
[x]1073.1 5	0.6 2				
[x]1110.9 7	0.5 2				
[x]3575[@h] 1	1.2 4				
[x]3676[@h] 1	0.10 3				
[x]3714[@h] 1	1.0 3				
[x]3751[@h] 1	2.5 8				
[x]3939[@h] 1	0.7 2				
[x]3953[@h] 1	0.9 3				
[x]4017[@h] 1	1.1 4				
4157[c] 1	0.64 21	(5596.46)	$1/2^+$	1439	
4187[c] 1	2.9 10	(5596.46)	$1/2^+$	1409	
4211[c] 1	0.43 14	(5596.46)	$1/2^+$	1385	
4251[c] 1	0.66 22	(5596.46)	$1/2^+$	1345	
4292[c] 1	1.6 5	(5596.46)	$1/2^+$	1304	
4319[c] 1	0.45 15	(5596.46)	$1/2^+$	1277	
4386[c] 1	0.46 15	(5596.46)	$1/2^+$	1211	
[x]4399[@h] 1	1.3 4				
4409[c] 1	0.39 13	(5596.46)	$1/2^+$	1188	
[x]4495[@h] 1	0.12 4				
4513[c] 1	0.38 13	(5596.46)	$1/2^+$	1084	

γ(^{151}Sm) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[f]	Comments
4579[c] *1*	1.1 *4*	(5596.46)	1/2$^+$	1017.31	1/2,3/2,5/2$^+$			
[x]4616[@h] *1*	0.40 *13*							
4645[c] *1*	1.9 *6*	(5596.46)	1/2$^+$	951.42	(3/2$^-$)			
4712[c] *1*	0.28 *9*	(5596.46)	1/2$^+$	885				
4752.0 *2*	1.48 *15*	(5596.46)	1/2$^+$	844.5	(1/2$^-$,3/2$^-$)	(E1)	0.00201	α(K)=7.58×10^{-5} *11*; α(L)=9.39×10^{-6} *14*; α(M)=1.99×10^{-6} *3*; α(N+..)=0.00192 *3* α(N)=4.50×10^{-7} *7*; α(O)=6.79×10^{-8} *10*; α(P)=4.40×10^{-9} *7*; α(IPF)=0.00192 *3*
4773.4 *2*	0.66 *7*	(5596.46)	1/2$^+$	821.98	(3/2$^-$)	(E1)	0.00202	α(K)=7.54×10^{-5} *11*; α(L)=9.33×10^{-6} *13*; α(M)=1.97×10^{-6} *3*; α(N+..)=0.00193 *3* α(N)=4.47×10^{-7} *7*; α(O)=6.74×10^{-8} *10*; α(P)=4.38×10^{-9} *7*; α(IPF)=0.00193 *3* This γ feeds 821.98 and/or 822.78 level. Mult(4773γ)=(E1) and adopted J$^\pi$'s for the 822 doublet suggest deexcitation from 821.98 level, although energy agreement favors deexcitation from the 822.78 level.
4826.0 *2*	0.87 *9*	(5596.46)	1/2$^+$	770.5	(1/2$^-$,3/2$^-$)	(E1)	0.00203	α(K)=7.43×10^{-5} *11*; α(L)=9.19×10^{-6} *13*; α(M)=1.94×10^{-6} *3*; α(N+..)=0.00195 *3* α(N)=4.40×10^{-7} *7*; α(O)=6.64×10^{-8} *10*; α(P)=4.31×10^{-9} *6*; α(IPF)=0.00195 *3*
4854.5 *2*	0.62 *6*	(5596.46)	1/2$^+$	742.0?	(1/2$^-$,3/2$^-$)	(E1)	0.00204	α(K)=7.37×10^{-5} *11*; α(L)=9.12×10^{-6} *13*; α(M)=1.93×10^{-6} *3*; α(N+..)=0.00196 *3* α(N)=4.37×10^{-7} *7*; α(O)=6.59×10^{-8} *10*; α(P)=4.28×10^{-9} *6*; α(IPF)=0.00196 *3*
4855.3[h]		(5596.46)	1/2$^+$	741.18	3/2$^{(+)}$			
4874.4 *2*	0.63 *6*	(5596.46)	1/2$^+$	721.96	(1/2$^-$,3/2$^-$)	(E1)	0.00205	α(K)=7.33×10^{-5} *11*; α(L)=9.07×10^{-6} *13*; α(M)=1.92×10^{-6} *3*; α(N+..)=0.00196 *3* α(N)=4.34×10^{-7} *6*; α(O)=6.55×10^{-8} *10*; α(P)=4.26×10^{-9} *6*; α(IPF)=0.00196 *3* Eγ=4879 *1*, Iγ=0.26 *9* (1971Gr22).
4893.0[b] *2*	0.85 *9*	(5596.46)	1/2$^+$	703.28	3/2$^{(-)}$	(E1)	0.00205	α(K)=7.29×10^{-5} *11*; α(L)=9.02×10^{-6} *13*; α(M)=1.91×10^{-6} *3*; α(N+..)=0.00197 *3* α(N)=4.32×10^{-7} *6*; α(O)=6.52×10^{-8} *10*; α(P)=4.23×10^{-9} *6*; α(IPF)=0.00197 *3* Eγ=4897 *1*, Iγ=0.34 *11* (1971Gr22).
4923.4[b] *2*	1.2 *1*	(5596.46)	1/2$^+$	673.1	(1/2$^-$,3/2$^-$)	(E1)	0.00206	α(K)=7.23×10^{-5} *11*; α(L)=8.95×10^{-6} *13*; α(M)=1.89×10^{-6} *3*; α(N+..)=0.00198 *3* α(N)=4.29×10^{-7} *6*; α(O)=6.47×10^{-8} *9*; α(P)=4.20×10^{-9} *6*; α(IPF)=0.00198 *3* Eγ=4928 *1*, Iγ=0.43 *14* (1971Gr22).
4932.3[h]		(5596.46)	1/2$^+$	663.58	(5/2$^-$,7/2,9/2$^-$)			
4933.3 *4*	0.24 *3*	(5596.46)	1/2$^+$	663.05	3/2$^{(+)}$	(M1)	1.75×10^{-3}	α(K)=0.0001065 *15*; α(L)=1.352×10^{-5} *19*; α(M)=2.87×10^{-6} *4*;

γ(^{151}Sm) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[f]	Comments
								α(N+..)=0.001624 23 α(N)=6.51×10^{-7} 10; α(O)=9.83×10^{-8} 14; α(P)=6.39×10^{-9} 9; α(IPF)=0.001623 23
5075.3 2	0.30 3	(5596.46)	1/2$^+$	521.185	3/2$^+$	(M1)	0.00179	α(K)=0.0001009 15; α(L)=1.281×10^{-5} 18; α(M)=2.72×10^{-6} 4; α(N+..)=0.001670 24 α(N)=6.17×10^{-7} 9; α(O)=9.31×10^{-8} 13; α(P)=6.05×10^{-9} 9; α(IPF)=0.001669 24
5094.0 2	0.29 6	(5596.46)	1/2$^+$	502.33	1/2$^+$	(M1)	0.00179	α(K)=0.0001002 14; α(L)=1.272×10^{-5} 18; α(M)=2.70×10^{-6} 4; α(N+..)=0.001676 24 α(N)=6.12×10^{-7} 9; α(O)=9.25×10^{-8} 13; α(P)=6.01×10^{-9} 9; α(IPF)=0.001675 24
5147.3 2	2.2 1	(5596.46)	1/2$^+$	448.63	(3/2)$^-$	(E1)	0.00212	α(K)=6.81×10^{-5} 10; α(L)=8.42×10^{-6} 12; α(M)=1.781×10^{-6} 25; α(N+..)=0.00204 3 α(N)=4.04×10^{-7} 6; α(O)=6.09×10^{-8} 9; α(P)=3.95×10^{-9} 6; α(IPF)=0.00204 3
5190[c] 1	0.11 4	(5596.46)	1/2$^+$	407?				
5240.8[b]	0.33 7	(5596.46)	1/2$^+$	355.686	1/2$^+$	(M1)	0.00183	α(K)=9.51×10^{-5} 14; α(L)=1.205×10^{-5} 17; α(M)=2.56×10^{-6} 4; α(N+..)=0.001719 24 α(N)=5.80×10^{-7} 9; α(O)=8.76×10^{-8} 13; α(P)=5.69×10^{-9} 8; α(IPF)=0.001718 24 Iγ=0.24 8 (1971Gr22).
5251.4[b] 2	0.38 4	(5596.46)	1/2$^+$	344.957	3/2$^+$	(M1)	0.00183	α(K)=9.47×10^{-5} 14; α(L)=1.201×10^{-5} 17; α(M)=2.55×10^{-6} 4; α(N+..)=0.001722 25 α(N)=5.78×10^{-7} 8; α(O)=8.73×10^{-8} 13; α(P)=5.67×10^{-9} 8; α(IPF)=0.001722 25 Iγ=0.31 10 (1971Gr22).
5281.1	5.5 6	(5596.46)	1/2$^+$	315.323	(3/2$^-$)	(E1)	0.00216	α(K)=6.58×10^{-5} 10; α(L)=8.14×10^{-6} 12; α(M)=1.720×10^{-6} 24; α(N+..)=0.00208 3 α(N)=3.90×10^{-7} 6; α(O)=5.88×10^{-8} 9; α(P)=3.82×10^{-9} 6; α(IPF)=0.00208 3
5282.6	0.59 12	(5596.46)	1/2$^+$	313.878	(1/2$^-$,3/2$^-$)	(E1)	0.00216	α(K)=6.58×10^{-5} 10; α(L)=8.13×10^{-6} 12; α(M)=1.720×10^{-6} 24; α(N+..)=0.00208 3 α(N)=3.90×10^{-7} 6; α(O)=5.88×10^{-8} 9; α(P)=3.82×10^{-9} 6; α(IPF)=0.00208 3
5289.9[b] 2	0.44 5	(5596.46)	1/2$^+$	306.826	3/2$^+$	(M1)	0.00184	α(K)=9.34×10^{-5} 13; α(L)=1.184×10^{-5} 17; α(M)=2.51×10^{-6} 4; α(N+..)=0.001734 25 α(N)=5.70×10^{-7} 8; α(O)=8.61×10^{-8} 12; α(P)=5.59×10^{-9} 8; α(IPF)=0.001734 25 Iγ=4.1 14 (1971Gr22).
5310.8[b] 2	4.7 2	(5596.46)	1/2$^+$	284.979	1/2$^-$,3/2$^-$	(E1)	0.00217	α(K)=6.53×10^{-5} 10; α(L)=8.08×10^{-6} 12; α(M)=1.707×10^{-6} 24; α(N+..)=0.00209 3 α(N)=3.87×10^{-7} 6; α(O)=5.84×10^{-8} 9; α(P)=3.79×10^{-9} 6; α(IPF)=0.00209 3 Eγ=5315 1, Iγ=3.4 11 (1971Gr22).
5491.7 2	2.5 2	(5596.46)	1/2$^+$	104.846	3/2$^-$	(E1)	0.00222	α(K)=6.25×10^{-5} 9; α(L)=7.72×10^{-6} 11; α(M)=1.632×10^{-6} 23;

$^{151}_{62}$Sm$_{89}$-16

γ(^{151}Sm) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[f]	Comments
								α(N+..)=0.00215 *3* α(N)=3.70×10^{-7} *6*; α(O)=5.58×10^{-8} *8*; α(P)=3.63×10^{-9} *5*; α(IPF)=0.00215 *3*
5591.6[b] *2*	2.9 *2*	(5596.46)	1/2$^+$	4.827	3/2$^-$	(E1)	0.00225	α(K)=6.10×10^{-5} *9*; α(L)=7.54×10^{-6} *11*; α(M)=1.594×10^{-6} *23*; α(N+..)=0.00218 *3* α(N)=3.61×10^{-7} *5*; α(O)=5.45×10^{-8} *8*; α(P)=3.54×10^{-9} *5*; α(IPF)=0.00218 *3* Iγ=2.5 *8* (1971Gr22).

† Calibration uncertainty of 0.03% has been added in quadrature. The statistical uncertainties quoted by the authors are in the range of 0.003% to 0.03%.

‡ Per 100 n-captures for secondary γ′s. A systematic error of 12% has been added in quadrature to the values quoted by the authors. For primary γ′s from thermal neutron capture (1971Gr22) intensities are per 100 n-captures.

From ce data. See also ^{151}Sm adopted γ′s. For primary γ′s the multipolarities assignments are from plots of normalized γ intensities versus γ energy (1986Va08).

@ From 1971Gr22 only.

& Energy deduced from level scheme.

a Unresolved from an impurity line.

b Primary γ seen by both 1986Va08 and 1971Gr22; however, Eγ′s in 1971Gr22 disagree by about 5 keV systematically.

c Primary γ reported by 1971Gr22 only.

d Main placement with 774 level as suggested in ^{151}Pm β^- decay. However, a weak component of this line may belong with 921 level.

e Intensity per 100 neutron captures.

f Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

g Multiply placed with undivided intensity.

h Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

$^{151}_{62}$Sm$_{89}$-17

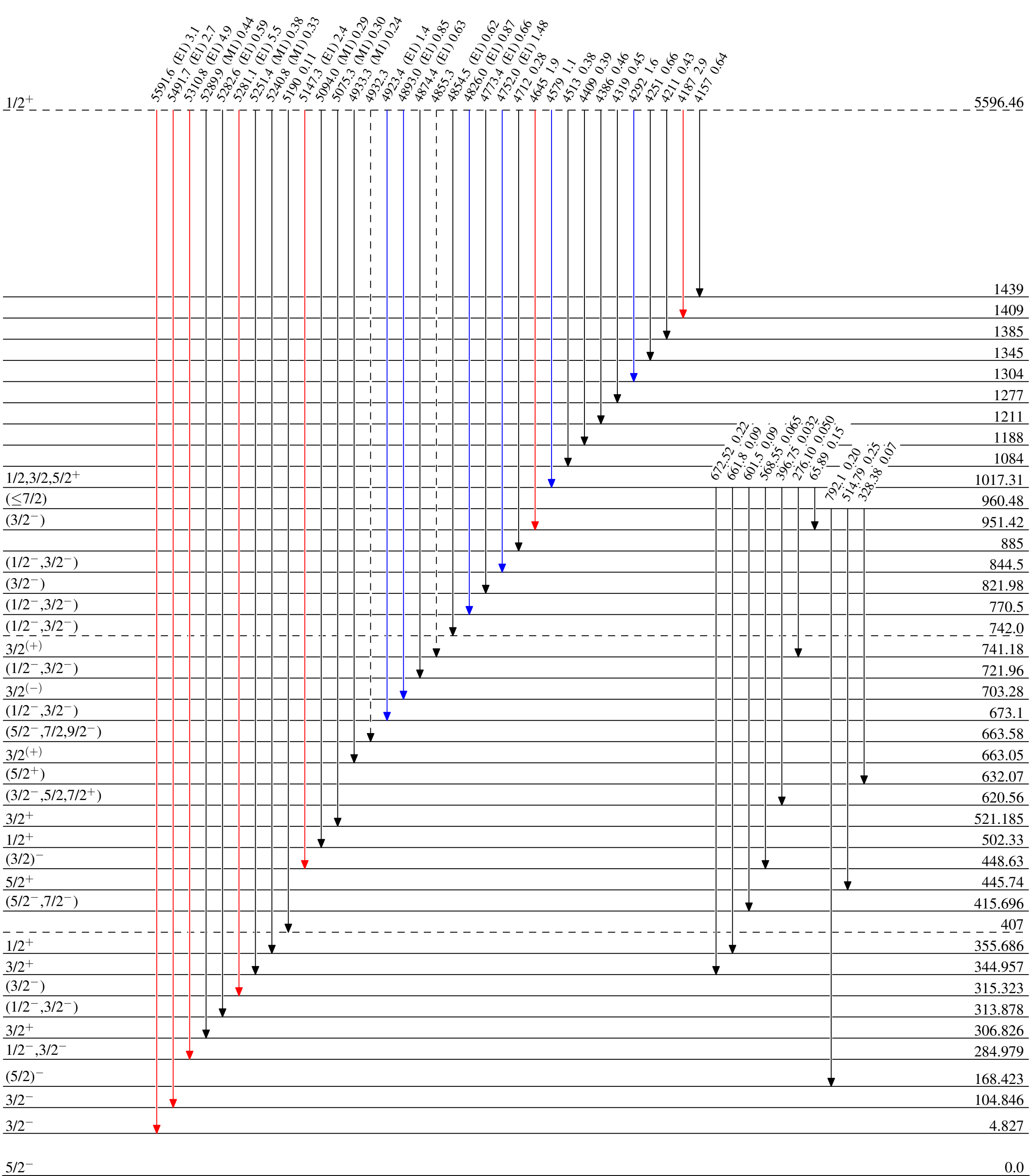
^{150}Sm(n,γ) E=th 1986Va08

Level Scheme

Intensities: Photon intensities per 100 neutron captures

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)



$^{151}_{62}Sm_{89}$

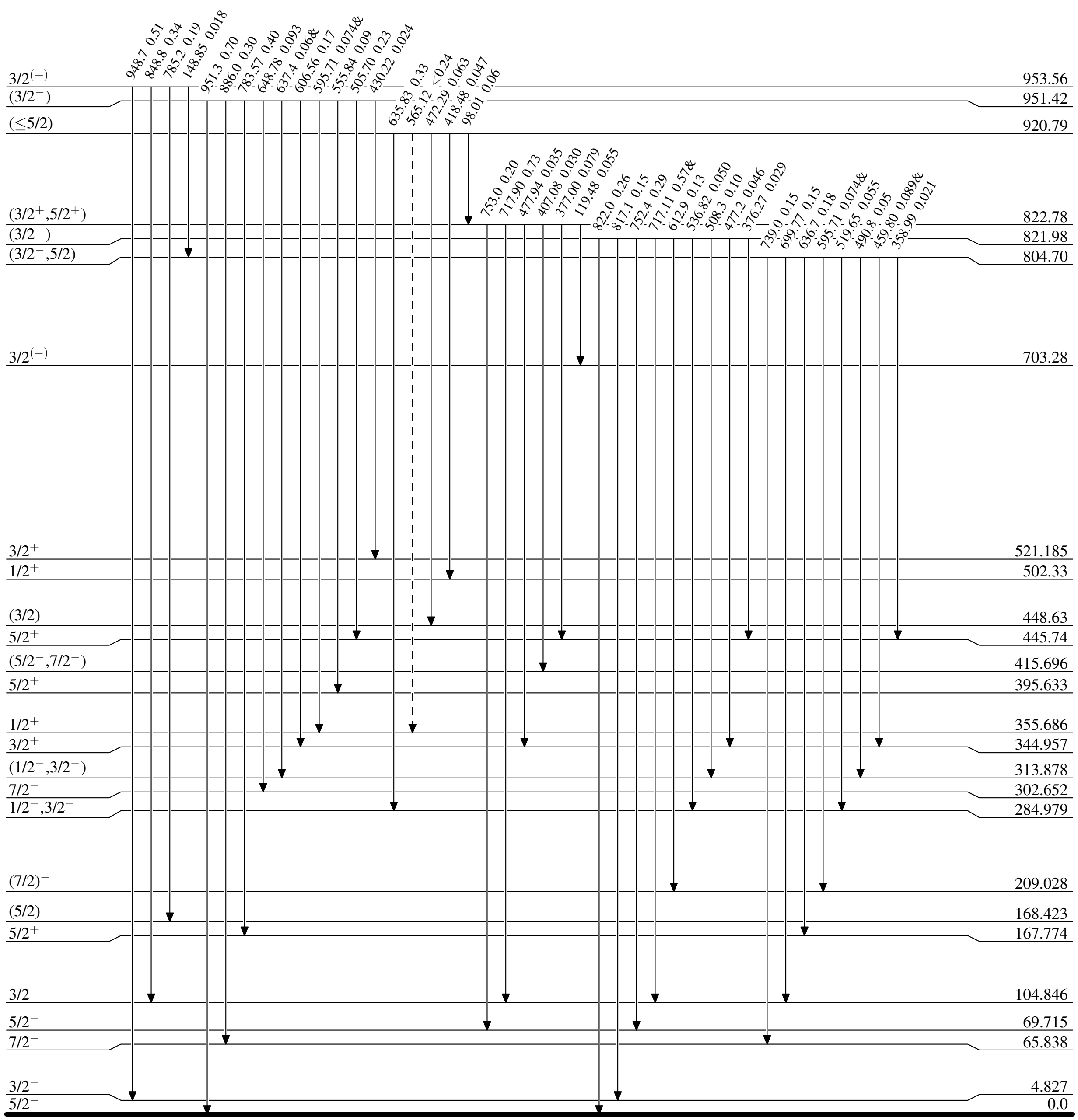
^{150}Sm(n,γ) E=th 1986Va08

Level Scheme (continued)

Intensities: Photon intensities per 100 neutron captures
& Multiply placed: undivided intensity given

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{151}_{62}Sm_{89}$

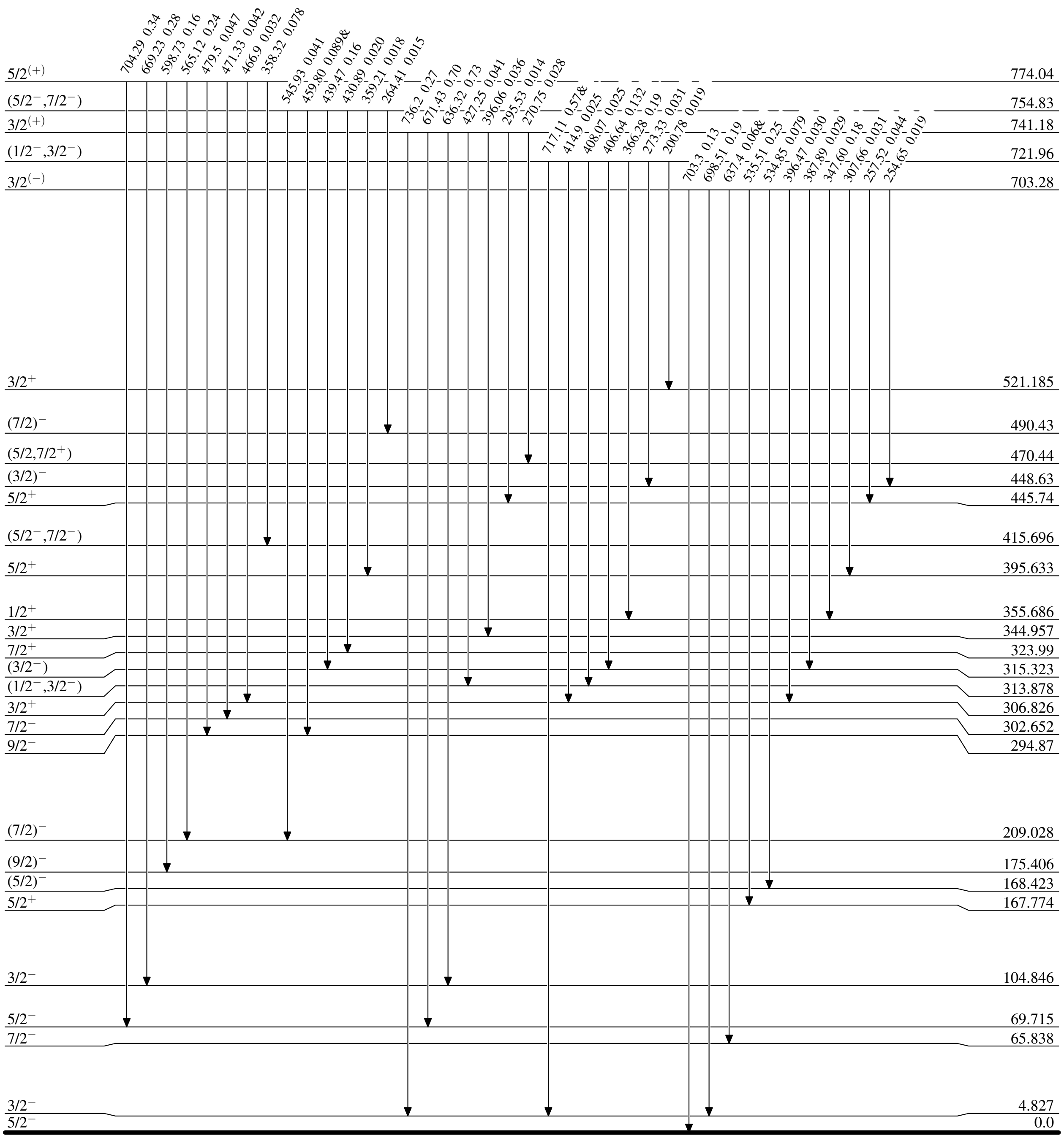
^{150}Sm(n,γ) E=th 1986Va08

Level Scheme (continued)

Intensities: Photon intensities per 100 neutron captures
& Multiply placed: undivided intensity given

Legend

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

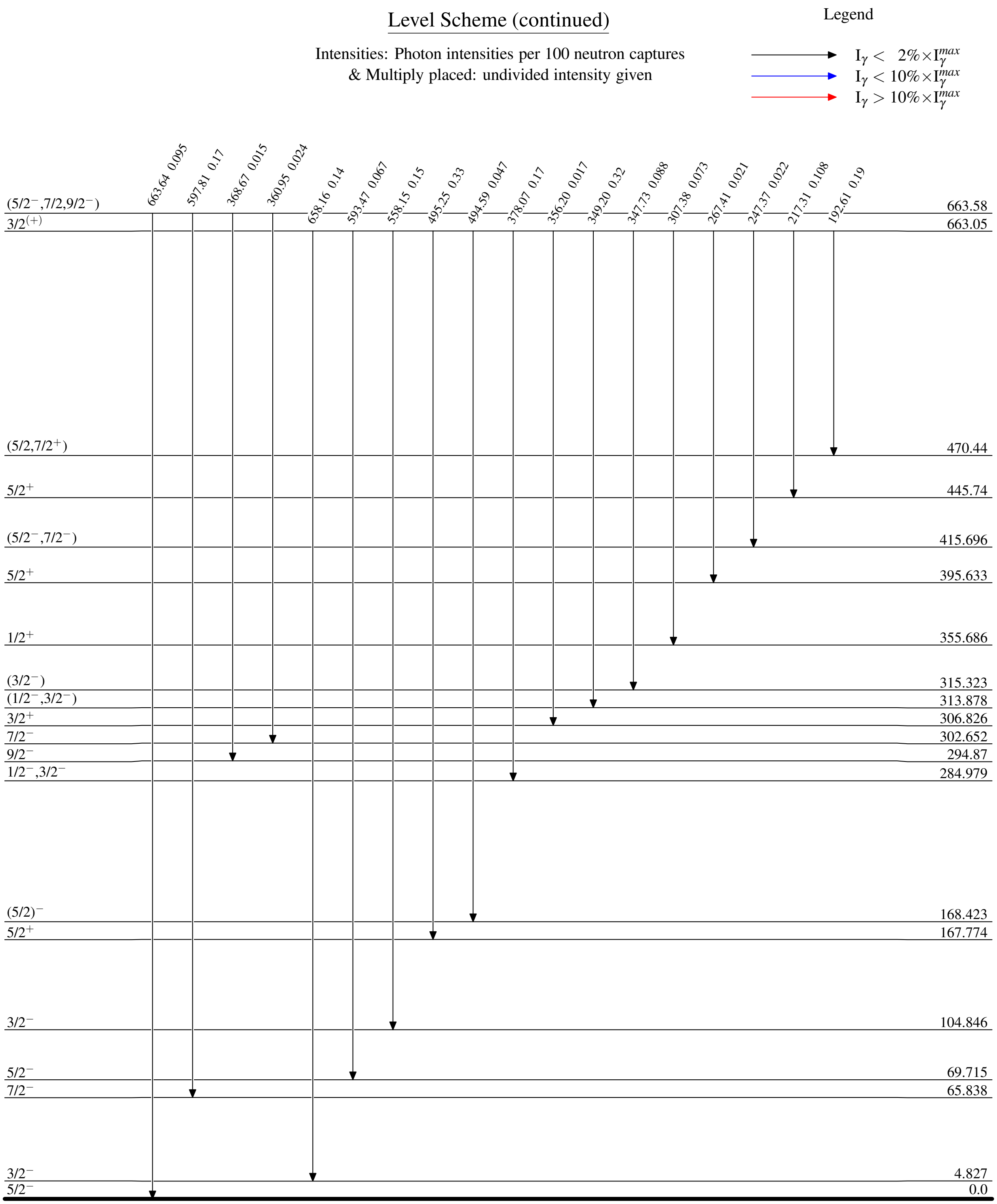


$^{151}_{62}Sm_{89}$

^{150}Sm(n,γ) E=th 1986Va08

Level Scheme (continued)

Intensities: Photon intensities per 100 neutron captures
& Multiply placed: undivided intensity given



$^{151}_{62}Sm_{89}$

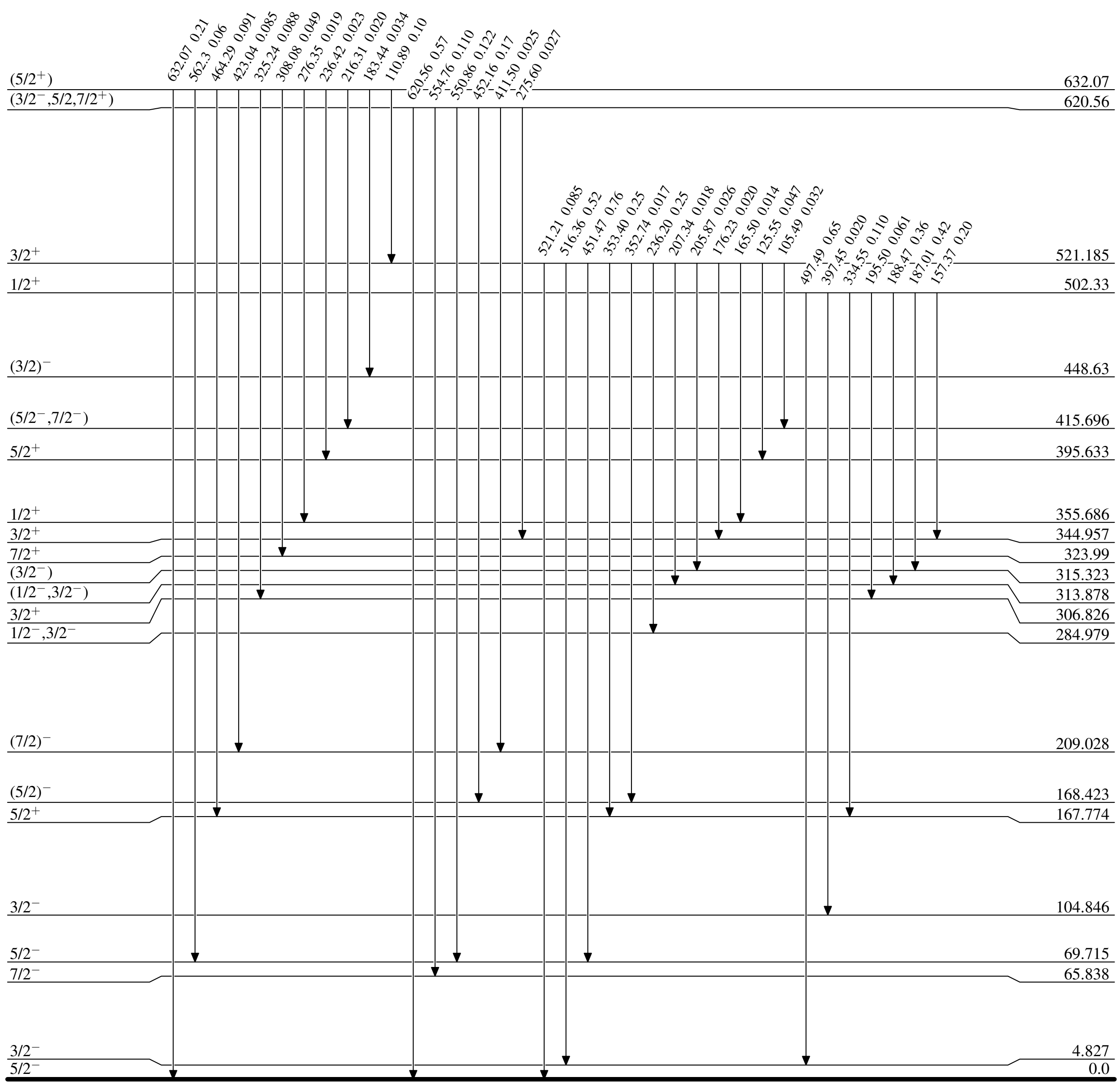
^{150}Sm(n,γ) E=th 1986Va08

Level Scheme (continued)

Intensities: Photon intensities per 100 neutron captures
& Multiply placed: undivided intensity given

Legend

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

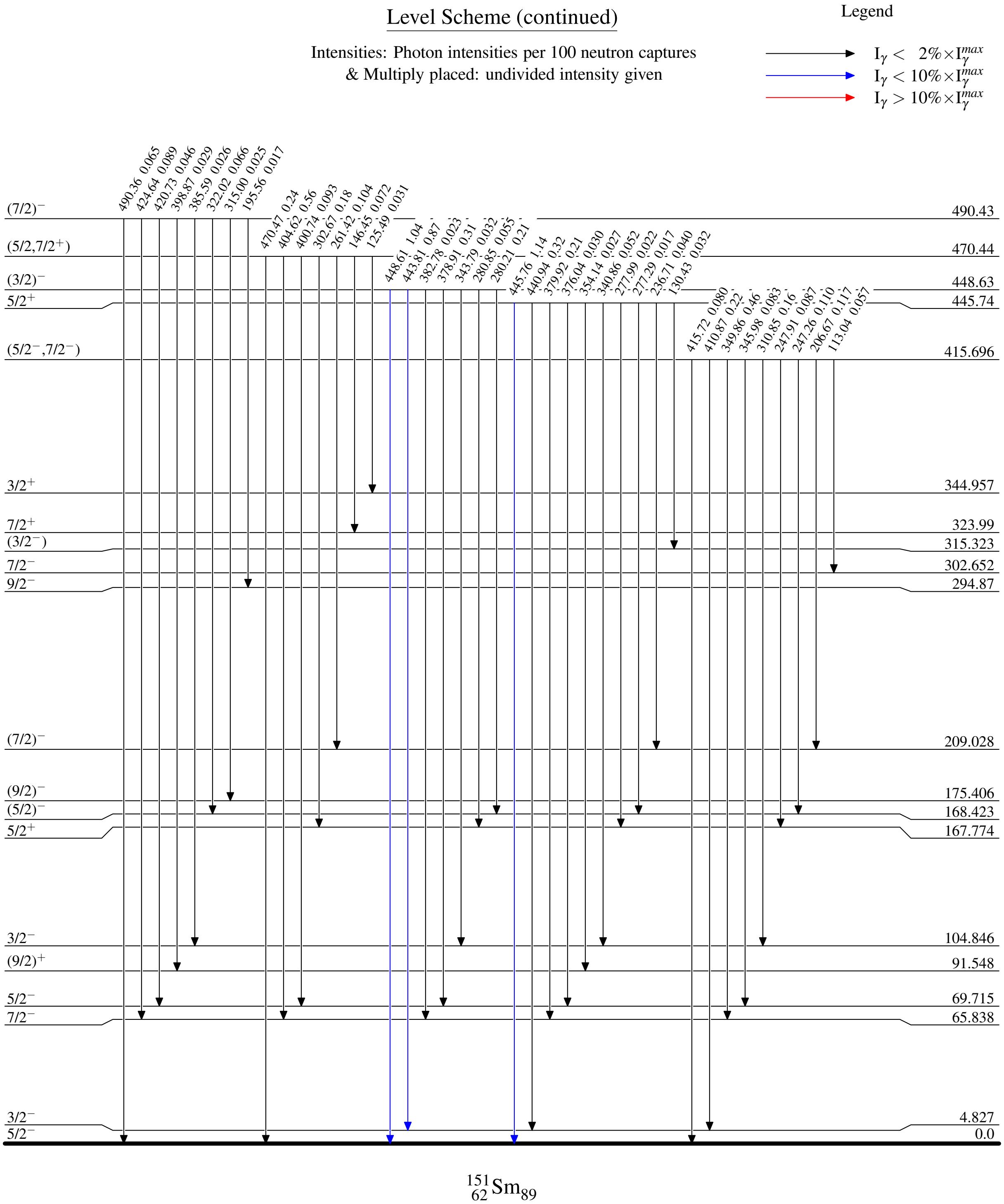


$^{151}_{62}Sm_{89}$

^{150}Sm(n,γ) E=th 1986Va08

Level Scheme (continued)

Intensities: Photon intensities per 100 neutron captures
& Multiply placed: undivided intensity given



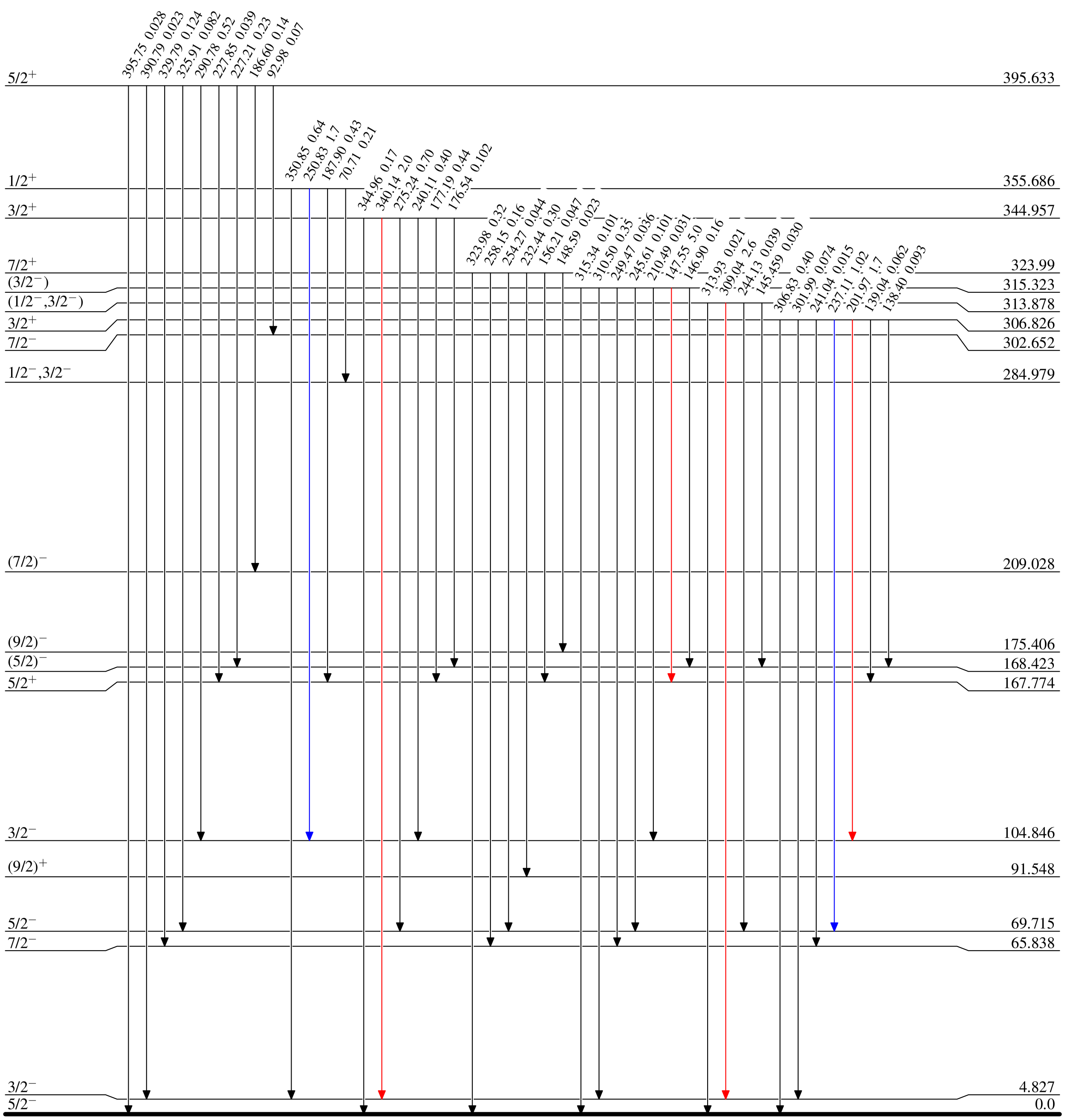
^{150}Sm(n,γ) E=th 1986Va08

Level Scheme (continued)

Intensities: Photon intensities per 100 neutron captures
& Multiply placed: undivided intensity given

Legend

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



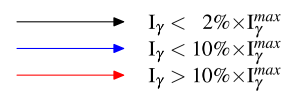
$^{151}_{62}Sm_{89}$

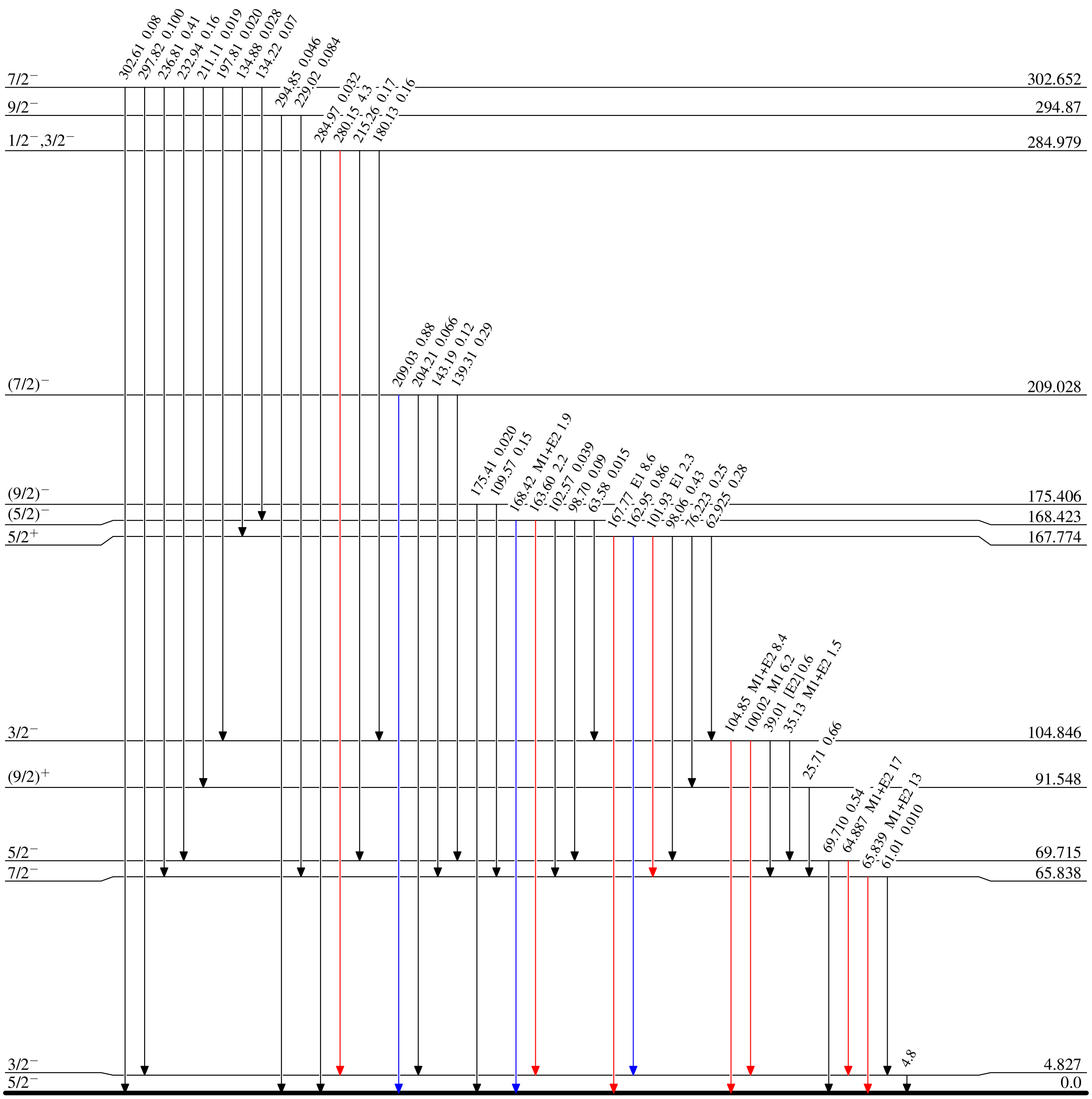
^{150}Sm(n,γ) E=th 1986Va08

Level Scheme (continued)

Intensities: Photon intensities per 100 neutron captures
& Multiply placed: undivided intensity given

Legend





$^{151}_{62}Sm_{89}$