Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108,2173 (2007)	1-Oct-2006

Q(β^-)=−7.91×10^3 *syst*; S(n)=9.29×10^3 *5*; S(p)=4.14×10^3 *9*; Q(α)=1.88×10^3 *7* 2012Wa38
Note: Current evaluation has used the following Q record −8010 SY9290 404120 901880 60 2003Au03.
Additional information 1.

^{137}Sm Levels

For superdeformed or highly deformed bands see 2002Si26 and 1999Ha56.

Cross Reference (XREF) Flags

A ^{104}Pd(^{37}Cl,p3nγ) E≈170 MeV

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0[a]	(9/2$^-$)	45 s *1*	A	%ε+%β^+=100 $T_{1/2}$: from 1983AlZO. Other values: 45 s 4 (1986Re11), 44 s 8 (1973WeZK).
209.24[a] *16*	(11/2$^-$)		A	
290.0[d] *8*	7/2$^+$		A	
541.37[a] *16*	(13/2$^-$)		A	
583.0[d] *8*	9/2$^+$		A	
764.66[a] *19*	(15/2$^-$)		A	
890.8[c] *8*	(11/2$^-$)		A	
1160.8[d] *10*	13/2$^+$		A	
1202.79[a] *21*	(17/2$^-$)		A	
1412.9 *8*	(15/2)		A	
1427.5[c] *7*	(15/2$^-$)		A	
1449.03[a] *22*	(19/2$^-$)		A	
1789.6[d] *10*	17/2$^+$		A	
1987.09[a] *24*	(21/2$^-$)		A	
1996.4[@] *5*	(17/2$^+$)		A	
2076.5[c] *12*	(19/2$^-$)		A	
2228.4[&] *3*	(19/2$^+$)		A	
2254.1[a] *3*	(23/2$^-$)		A	
2365.6[d] *14*	21/2$^+$		A	
2375.4[@] *5*	(21/2$^+$)		A	
2406.9[b] *3*	(19/2$^-$)		A	
2439.5[&] *3*	(21/2$^+$)		A	
2510.95[b] *25*	(21/2$^-$)		A	
2587.9[b] *10*	(23/2$^-$)		A	
2647.3[&] *4*	(23/2$^+$)		A	
2713.3[b] *11*	(25/2$^-$)		A	
2789.5[c] *16*	(23/2$^-$)		A	
2826.4[@] *6*	(25/2$^+$)		A	
2872.3[b] *11*	(27/2$^-$)		A	
2880.5[&] *4*	(25/2$^+$)		A	
3009.6[d] *17*	25/2$^+$		A	

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Adopted Levels, Gammas (continued)

^{137}Sm Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
3126.8[b] *11*	(29/2⁻)		A	
3156.9[&] *5*	(27/2⁺)		A	
3364.9[@] *6*	(29/2⁺)	3.1 ps *4*	A	$T_{1/2}$: Deduced by evaluators from the intrinsic transition quadrupole moment qt=4.8 eb 4 (Doppler Shift Attenuation Method (DSAM), 2001Ri20, 2002La09).
3381.5[c] *19*	(27/2⁻)		A	
3408.1[b] *11*	(31/2⁻)		A	
3492.4[&] *5*	(29/2⁺)		A	
3742.6[d] *20*	29/2⁺		A	
3783.9[b] *11*	(33/2⁻)		A	
3817.1[&] *5*	(31/2⁺)		A	
3848.5[c] *21*	(31/2⁻)		A	
3994.0[@] *8*	(33/2⁺)		A	
4183.9[b] *13*	(35/2⁻)		A	
4214.7[&] *8*	(33/2⁺)		A	
4515.5[c] *24*	(35/2⁻)		A	
4537.6[d] *22*	33/2⁺		A	
4569.1[&] *9*	(35/2⁺)		A	
4645.1[b] *13*	(37/2⁻)		A	
4713.7[@] *9*	(37/2⁺)	2.8[#] ps	A	
4974.4[&] *10*	(37/2⁺)		A	
5133.5[b] *15*	(39/2⁻)		A	
5324.2[&] *12*	(39/2⁺)		A	
5338[c] *3*	(39/2⁻)		A	
5360?[d]	(37/2⁺)		A	
5520.0[@] *11*	(41/2⁺)	1.5[#] ps	A	
5655.3[b] *15*	(41/2⁻)		A	
6262[c] *3*	(43/2⁻)		A	
6410.0[@] *12*	(45/2⁺)	0.55[#] ps	A	
7380.0[@] *13*	(49/2⁺)	0.40[#] ps	A	
8425.0[@] *16*	(53/2⁺)	0.27[#] ps	A	
9540.0[@] *19*	(57/2⁺)	0.15[#] ps	A	

[†] From least-squares fit to Eγ, using ΔE=1 keV for γ rays without uncertainties.

[‡] From rotational structure (band alignment, signature splitting, experimental B(M1)/B(E2) ratios as compared with values in N=75 ^{133}Ce and ^{135}Nd), and γ-ray multipolarities (1989Ma32,1997Ro13).

[#] From Doppler Shift Attenuation Method (DSAM) (1992Re05).

[@] Band(A): Highly deformed(hd) band. Configuration=(ν $i_{13/2}2^+$[660]). Q=4.8 eb 4 (2001Ri20, 2002La09). Q=5.0 eb 7, β_2=0.27 *3* (1992Re05).

[&] Band(B): Configuration=((ν $h_{11/2}$)(π $h_{11/2}$)(π $g_{7/2}$)) band.

[a] Band(C): yrast band. Configuration=(ν $h_{11/2}2^-$[514]).

[b] Band(D): Configuration=((ν $h_{11/2}$)(π $h_{11/2}$)^2) band.

[c] Band(E): Configuration=(ν $h_{9/2}2^-$[530]) band.

[d] Band(F): Configuration=(ν $d_{3/2}2^+$[400]) band.

Adopted Levels, Gammas (continued)

$\gamma(^{137}Sm)$

E_i(level)	J_i^π	E_γ	I_γ[#]	E_f	J_f^π	Mult.[‡]
209.24	(11/2$^-$)	209.3 *2*	100	0.0	(9/2$^-$)	D
290.0	7/2$^+$	290	100	0.0	(9/2$^-$)	D
541.37	(13/2$^-$)	332.1 *2*	90 *13*	209.24	(11/2$^-$)	D
		541.3 *2*	100 *10*	0.0	(9/2$^-$)	Q
583.0	9/2$^+$	293	100 *38*	290.0	7/2$^+$	D
		374	46 *15*	209.24	(11/2$^-$)	D
764.66	(15/2$^-$)	223.4 *2*	27 *3*	541.37	(13/2$^-$)	D
		555.5 *2*	100	209.24	(11/2$^-$)	Q
890.8	(11/2$^-$)	891	100	0.0	(9/2$^-$)	D
1160.8	13/2$^+$	578	100 *25*	583.0	9/2$^+$	Q
1202.79	(17/2$^-$)	438.0 *2*	55 *6*	764.66	(15/2$^-$)	D
		661.2 *2*	100 *10*	541.37	(13/2$^-$)	Q
1412.9	(15/2)	872[†]	100[†]	541.37	(13/2$^-$)	D
1427.5	(15/2$^-$)	537	100	890.8	(11/2$^-$)	Q
		886		541.37	(13/2$^-$)	
1449.03	(19/2$^-$)	246.0 *2*	25 *3*	1202.79	(17/2$^-$)	D
		684.7 *2*	100 *10*	764.66	(15/2$^-$)	Q
1789.6	17/2$^+$	629	100	1160.8	13/2$^+$	Q
1987.09	(21/2$^-$)	537.9 *2*	93 *11*	1449.03	(19/2$^-$)	
		784.4 *2*	100 *11*	1202.79	(17/2$^-$)	Q
1996.4	(17/2$^+$)	569[†]	67[†] *2*	1427.5	(15/2$^-$)	D
		584[†]	21[†] *2*	1412.9	(15/2)	D
		1231.5 *5*	100 *17*	764.66	(15/2$^-$)	D
2076.5	(19/2$^-$)	649	100	1427.5	(15/2$^-$)	Q
2228.4	(19/2$^+$)	1025.6 *2*	100	1202.79	(17/2$^-$)	(D)
2254.1	(23/2$^-$)	267.0 *5*	<19	1987.09	(21/2$^-$)	D
		805.1 *2*	100 *15*	1449.03	(19/2$^-$)	Q
2365.6	21/2$^+$	576	100	1789.6	17/2$^+$	Q
2375.4	(21/2$^+$)	379.0 *2*	100 *19*	1996.4	(17/2$^+$)	Q
		586[†]	20.0[†] *6*	1789.6	17/2$^+$	Q
2406.9	(19/2$^-$)	958.1 *2*	100	1449.03	(19/2$^-$)	
2439.5	(21/2$^+$)	211.0 *2*	<611	2228.4	(19/2$^+$)	D
		990.5 *2*	100 *18*	1449.03	(19/2$^-$)	D
2510.95	(21/2$^-$)	104.2 *2*		2406.9	(19/2$^-$)	D
		523.8 *2*	100 *11*	1987.09	(21/2$^-$)	D
		1062.0 *5*	<36	1449.03	(19/2$^-$)	
		1308.0 *2*	98 *16*	1202.79	(17/2$^-$)	Q
2587.9	(23/2$^-$)	77 *1*		2510.95	(21/2$^-$)	
		1139 *5*	100	1449.03	(19/2$^-$)	Q
2647.3	(23/2$^+$)	208.0 *5*	<100	2439.5	(21/2$^+$)	D
		419.0 *5*	<3	2228.4	(19/2$^+$)	
2713.3	(25/2$^-$)	125.4 *2*	100	2587.9	(23/2$^-$)	D
2789.5	(23/2$^-$)	713	100 *40*	2076.5	(19/2$^-$)	Q
2826.4	(25/2$^+$)	451.0 *2*	100	2375.4	(21/2$^+$)	Q
2872.3	(27/2$^-$)	159.0 *2*	100 *12*	2713.3	(25/2$^-$)	D
		284.1 *5*	<15	2587.9	(23/2$^-$)	
2880.5	(25/2$^+$)	233.2 *2*	100 *12*	2647.3	(23/2$^+$)	D
		440.7 *5*	18 *4*	2439.5	(21/2$^+$)	
3009.6	25/2$^+$	644	100	2365.6	21/2$^+$	Q
3126.8	(29/2$^-$)	254.4 *2*	100 *12*	2872.3	(27/2$^-$)	D
		413.8 *5*	10.0 *15*	2713.3	(25/2$^-$)	
3156.9	(27/2$^+$)	276.4 *2*	100 *17*	2880.5	(25/2$^+$)	D
		509.5 *5*	<21	2647.3	(23/2$^+$)	
3364.9	(29/2$^+$)	538.5 *2*	100	2826.4	(25/2$^+$)	Q

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Adopted Levels, Gammas (continued)

γ(^{137}Sm) (continued)

E_i(level)	J_i^π	E_γ	I_γ[#]	E_f	J_f^π	Mult.[‡]
3381.5	(27/2$^-$)	592	100	2789.5	(23/2$^-$)	Q
3408.1	(31/2$^-$)	281.4 *2*	100 *11*	3126.8	(29/2$^-$)	D
		536.0[@] *5*	<18	2872.3	(27/2$^-$)	
3492.4	(29/2$^+$)	335.7 *2*	100 *17*	3156.9	(27/2$^+$)	D
		612.0 *5*	25 *3*	2880.5	(25/2$^+$)	
3742.6	29/2$^+$	733	100	3009.6	25/2$^+$	Q
3783.9	(33/2$^-$)	375.8 *2*	100 *13*	3408.1	(31/2$^-$)	D
		657.0 *5*	28 *5*	3126.8	(29/2$^-$)	
3817.1	(31/2$^+$)	324.9 *2*	100 *10*	3492.4	(29/2$^+$)	D
		659.0 *5*	<42	3156.9	(27/2$^+$)	
3848.5	(31/2$^-$)	467	100	3381.5	(27/2$^-$)	Q
3994.0	(33/2$^+$)	629.1 *5*	100	3364.9	(29/2$^+$)	Q
4183.9	(35/2$^-$)	400 *1*	100 *10*	3783.9	(33/2$^-$)	D
		776 *1*	<56	3408.1	(31/2$^-$)	
4214.7	(33/2$^+$)	398 *1*	<100	3817.1	(31/2$^+$)	D
		722 *1*	<100	3492.4	(29/2$^+$)	
4515.5	(35/2$^-$)	667	100	3848.5	(31/2$^-$)	Q
4537.6	33/2$^+$	795	100	3742.6	29/2$^+$	Q
4569.1	(35/2$^+$)	354 *1*	<100	4214.7	(33/2$^+$)	
		752 *1*	<100	3817.1	(31/2$^+$)	
4645.1	(37/2$^-$)	461 *1*	100 *10*	4183.9	(35/2$^-$)	
		861 *1*	<68	3783.9	(33/2$^-$)	
4713.7	(37/2$^+$)	719.7 *5*	100	3994.0	(33/2$^+$)	
4974.4	(37/2$^+$)	405 *1*	<100	4569.1	(35/2$^+$)	
		760 *1*	<100	4214.7	(33/2$^+$)	
5133.5	(39/2$^-$)	488 *1*	<100	4645.1	(37/2$^-$)	
		950 *1*	<100	4183.9	(35/2$^-$)	
5324.2	(39/2$^+$)	350 *1*	<100	4974.4	(37/2$^+$)	
		755 *1*	<100	4569.1	(35/2$^+$)	
5338	(39/2$^-$)	822	100	4515.5	(35/2$^-$)	
5360?	(37/2$^+$)	822[@]	100	4537.6	33/2$^+$	
5520.0	(41/2$^+$)	806.3 *5*	100	4713.7	(37/2$^+$)	(Q)
5655.3	(41/2$^-$)	522[@] *1*	<100	5133.5	(39/2$^-$)	
		1010[@] *1*	<100	4645.1	(37/2$^-$)	
6262	(43/2$^-$)	924	100	5338	(39/2$^-$)	
6410.0	(45/2$^+$)	890.0 *5*	100	5520.0	(41/2$^+$)	
7380.0	(49/2$^+$)	970.0 *5*	100	6410.0	(45/2$^+$)	
8425.0	(53/2$^+$)	1045 *1*	100	7380.0	(49/2$^+$)	
9540.0	(57/2$^+$)	1115 *1*	100	8425.0	(53/2$^+$)	

[†] From 1997Ro13.
[‡] From DCO ratios in ^{104}Pd(^{37}Cl,p3nγ) (1989Ma32, 1997Ro13).
[#] From 1989Ma32, unless otherwise specified.
[@] Placement of transition in the level scheme is uncertain.

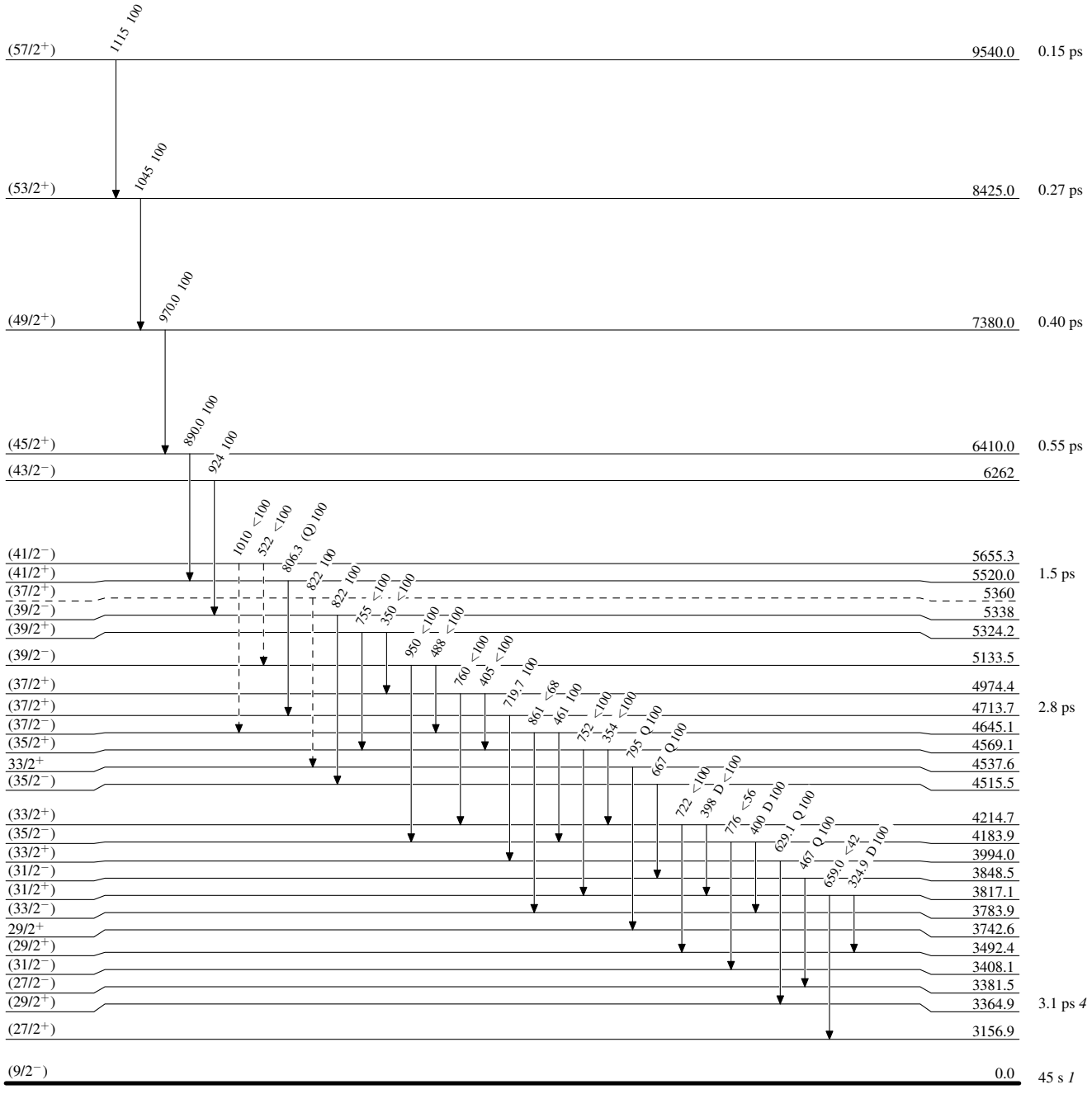
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{137}_{62}Sm_{75}$

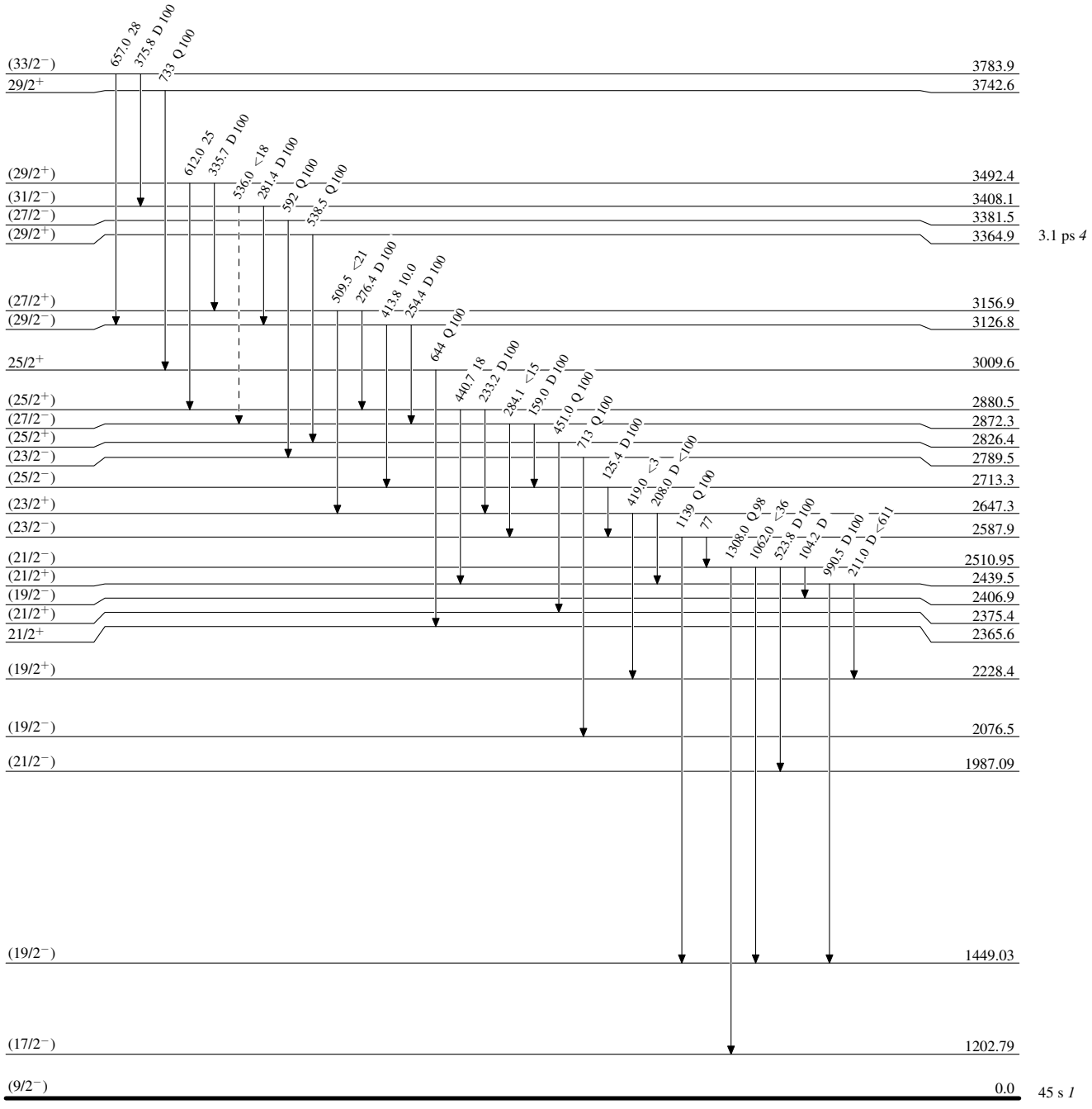
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

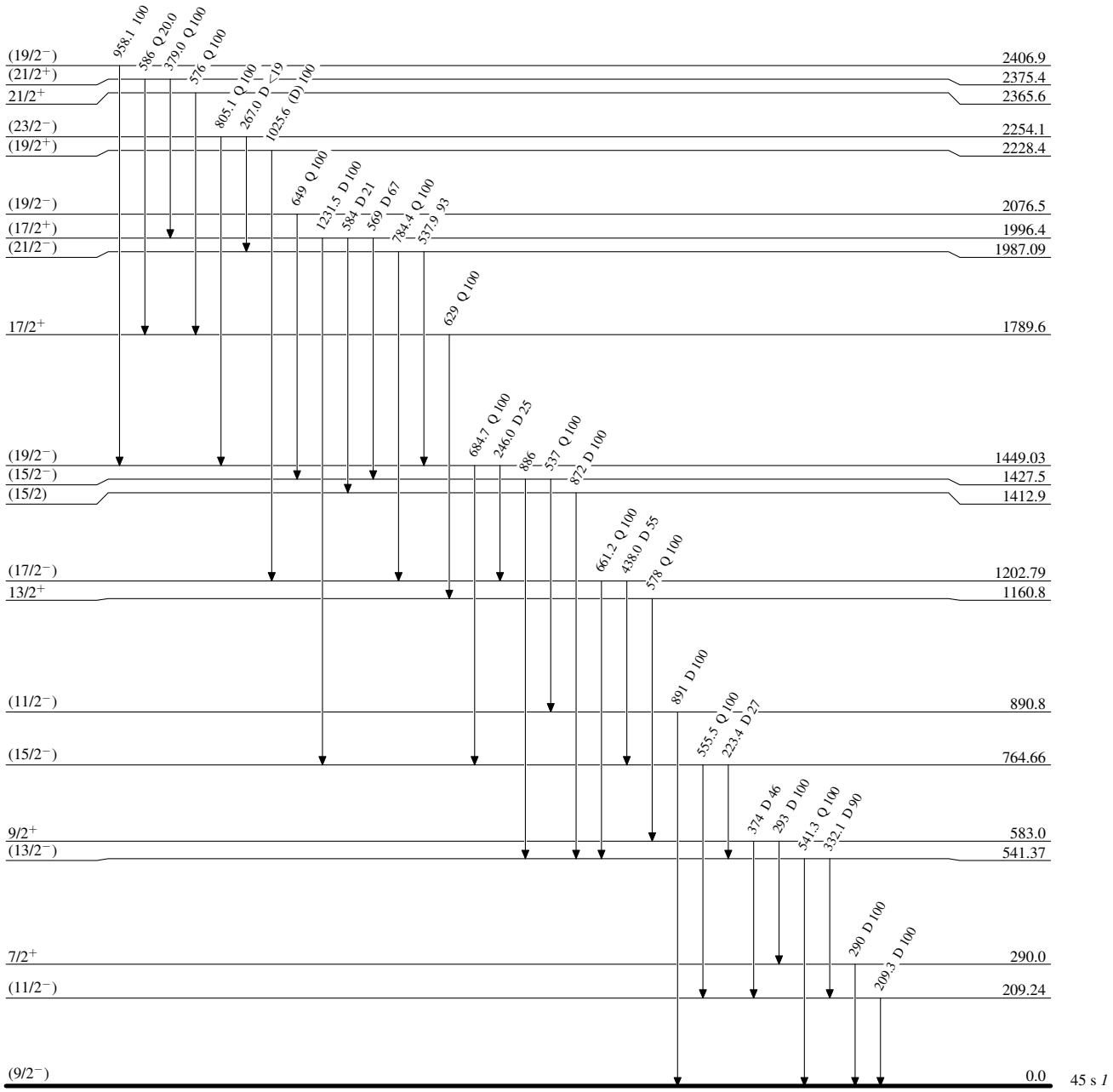


$^{137}_{62}Sm_{75}$

Adopted Levels, Gammas

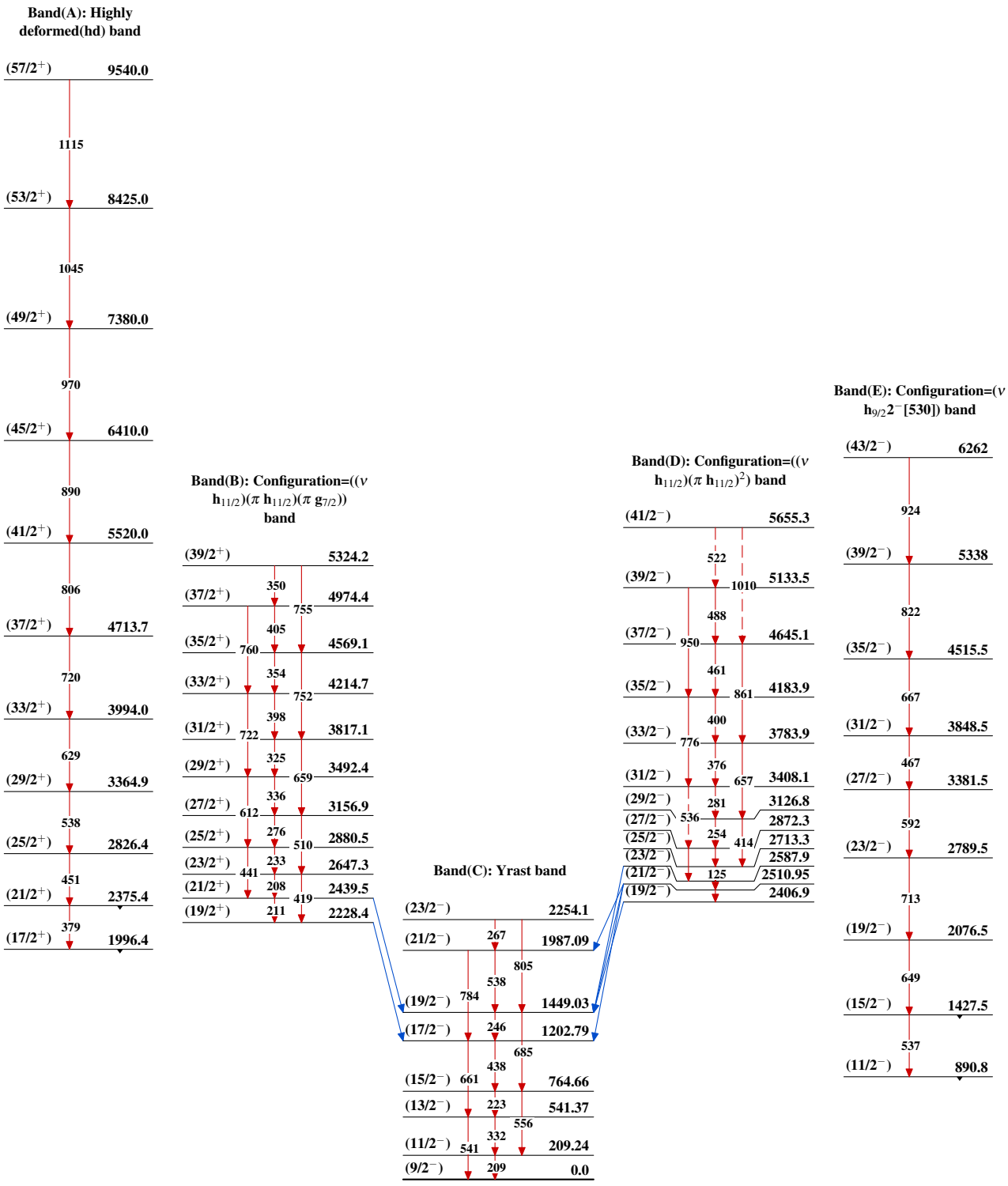
Level Scheme (continued)

Intensities: Relative photon branching from each level



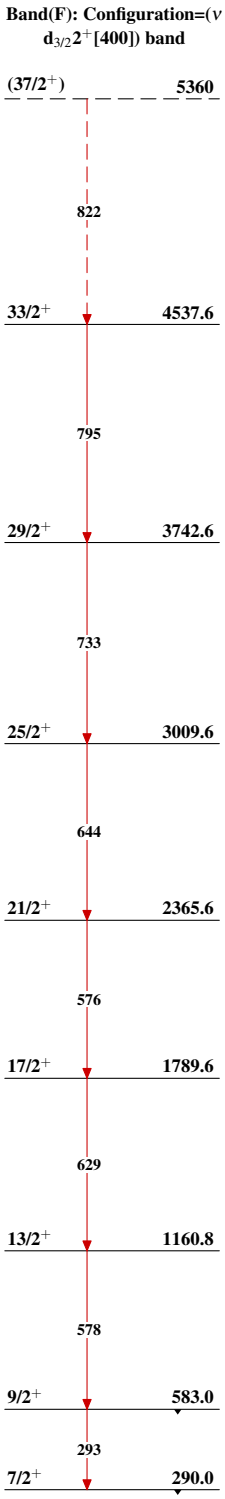
$^{137}_{62}Sm_{75}$

Adopted Levels, Gammas



$^{137}_{62}Sm_{75}$

Adopted Levels, Gammas (continued)



$^{137}_{62}Sm_{75}$