^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02

Compiled (unevaluated) dataset from 2005Am02: Phys Rev C 71, 011302 (2005), and 2003Am01: Phys Lett B553, 197 (2003) and 2008Gu02: Phys Rev C 77, 024314 (2008). Includes 2007Be33: Acta Phys Pol B 38, 1535 (2007) and 2005Gu28: Jour Phys g 31, s1873 (2005).

Compiled by B. Singh (McMaster) March 31, 2003; updated by B. Singh, July 27, 2005.

Updated by S. Geraedts and B. Singh (McMaster) Mar 6, 2008, to include data from 2008Gu02 and numerical conversion coefficients received as email reply on Feb 28, 2008 from one of the authors (C.W. Beausang). Includes 2007Be33: Acta Phys Pol B 38, 1535 (2007) where measured K-conversion coefficients were given for triaxial SD-1 band.

2005Am02 (also 2003Am01): E=203 MeV. Measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma\gamma(\theta)$(DCO) using GAMMASPHERE array consisting of 100 Compton-suppressed Ge detectors. Four triaxial superdeformed structures were found, while data were reported for two such bands in addition to extending normal-deformed structures based on 1/2[411] and 5/2[402] Nilsson orbitals.

2008Gu02: E=203 MeV. Measured Eγ, Iγ, $\gamma\gamma$, γ(ce) coin using Gammasphere array of 101 Compton-suppressed Ge detectors for γ rays and ICE Ball consisting of six mini-orange electron spectrometers for conversion electrons.

Detailed publications for the normal deformed bands and lifetime measurements in SD bands are in progress (as per references 11 and 12 in 2005Am02).

All data are from 2005Am02 unless otherwise stated.

^{167}Lu Levels

E(level)[†]	J$^\pi$	Comments
0.0[‡@]	7/2$^+$	
0+x[a]	(1/2$^+$)	E(level),J$^\pi$: from ENSDF for ^{167}Lu.
19.6+x[&] *5*	3/2$^+$	E(level): from ENSDF for ^{167}Lu. Additional information 1.
38.6+x[c] *11*	5/2$^+$	E(level): from ENSDF for ^{167}Lu. Additional information 2.
122.6+x[b] *10*	5/2$^-$	
140.0[‡#]	(9/2$^+$)	
149.7+x[a] *8*	5/2$^+$	
155.6+x[d] *7*	7/2$^+$	
189.7+x[&] *8*	7/2$^+$	
234.6+x[b] *11*	9/2$^-$	
300.4+x[c] *7*	9/2$^+$	
305.3[‡@]	(11/2$^+$)	
403.7+x[a] *8*	9/2$^+$	
447.6+x[b] *11*	13/2$^-$	
469.9+x[d] *8*	11/2$^+$	
478.9+x[&] *8*	11/2$^+$	
494.2[‡#]	(13/2$^+$)	
664.8+x[c] *8*	13/2$^+$	
704.3[‡@]	(15/2$^+$)	
754.8+x[a] *9*	13/2$^+$	
761.6+x[b] *12*	17/2$^-$	
858.3+x[&] *9*	15/2$^+$	
887.1+x[d] *9*	15/2$^+$	
934.1[‡#]	(17/2$^+$)	
1112.5+x[c] *9*	17/2$^+$	
1172.6+x[b] *12*	21/2$^-$	
1181.2[‡@]	(19/2$^+$)	
1187.9+x[a] *9*	17/2$^+$	
1318.0+x[&] *10*	19/2$^+$	
1377.6+x[d] *10*	19/2$^+$	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 (continued)

^{167}Lu Levels (continued)

E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ
1444.3‡#	(21/2+)	3945.6+x[f] 16	35/2+	8115.6+x[c] 21	61/2+
1621.4+x[c] 11	21/2+	4096.4‡#	(41/2+)	8155.0+x[e] 21	61/2+
1670.6+x[b] 13	25/2−	4161.6+x[g] 21	39/2−	8199.9+x? 22	(61/2+)
1687.8+x[a] 10	21/2+	4177.0+x[c] 18	41/2+	8616+x[g] 3	63/2−
1720.2‡@	(23/2+)	4273.6+x[b] 17	41/2−	8917.8+x[f] 24	63/2+
1828.1+x& 13	23/2+	4393.3+x[e] 17	41/2+	8983.6+x[b] 22	65/2−
1926.0+x[d] 11	23/2+	4417.5‡@	(43/2+)	9009.8+x[c] 22	65/2+
2008.0‡#	(25/2+)	4492.6+x[f] 16	39/2+	9081.0+x[e] 23	65/2+
2158.3+x[c] 11	25/2+	4735.5‡#	(45/2+)	9541+x[g] 3	67/2−
2231.8+x[a] 11	25/2+	4784.6+x[g] 23	43/2−	9841+x[f] 3	67/2+
2245.6+x[b] 13	29/2−	4832.2+x[c] 19	45/2+	9941.8+x[c] 24	69/2+
2249.6+x[e] 13	25/2+	4909.6+x[b] 18	45/2−	9963.6+x[b] 25	69/2−
2299.4‡@	(27/2+)	5048.0+x[e] 18	45/2+	10040.0+x[e] 25	69/2+
2369.3+x& 13	27/2+	5093.5‡@	(47/2+)	10521+x[g] 4	71/2−
2477.9+x[d] 12	27/2+	5097.6+x[f] 17	43/2+	10817+x[f] 3	71/2+
2580.6‡#	(29/2+)	5443.1‡#	(49/2+)	10930+x[c] 3	73/2+
2631.6+x[g] 16	27/2−	5455.6+x[g] 25	47/2−	10997+x[b] 3	73/2−
2664.6+x 16	27/2−	5557.3+x[c] 20	49/2+	11056+x[e] 3	73/2+
2666.0+x[c] 12	29/2+	5605.6+x[b] 19	49/2−	11558+x[g] 4	75/2−
2720.4+x[e] 11	29/2+	5749.8+x[e] 19	49/2+	11849+x[f] 3	75/2+
2823.2‡@	(31/2+)	5755.7+x[f] 18	47/2+	11984+x[c] 3	77/2+
2886.6+x[b] 15	33/2−	5833.8‡@	(51/2+)	12132+x[e] 3	77/2+
2910.3+x& 17	31/2+	6171.6+x[g] 27	51/2−	12657+x[g] 4	79/2−
2930.1+x[d] 13	31/2+	6213.3‡#	(53/2+)	12933+x[f] 4	79/2+
3044.1‡#	(33/2+)	6359.5+x[c] 21	53/2+	13104+x[c] 3	81/2+
3088.6+x[g] 15	31/2−	6365.6+x[b] 21	53/2−	13267+x[e] 3	81/2+
3104.9+x[c] 14	33/2+	6466.7+x[f] 19	51/2+	13821+x[g] 4	83/2−
3225.6+x[e] 13	33/2+	6501.5+x[e] 19	53/2+	14082+x[f] 4	83/2+
3285.5‡@	(35/2+)	6934.6+x[g] 29	55/2−	14287+x[c] 3	85/2+
3408.6+x[d] 15	35/2+	7183.6+x[b] 21	57/2−	14459+x[e] 4	85/2+
3532.4‡#	(37/2+)	7213.7+x[c] 21	57/2+	15282+x[f] 4	87/2+
3582.6+x[b] 15	37/2−	7231.8+x[f] 20	55/2+	15530+x[c] 4	89/2+
3593.6+x[g] 18	35/2−	7300.4+x[e] 20	57/2+	15706+x[e] 4	89/2+
3599.8+x[c] 15	37/2+	7745+x[g] 3	59/2−	16821+x[c] 4	93/2+
3786.5+x[e] 16	37/2+	8047.8+x[f] 22	59/2+		
3813.0‡@	(39/2+)	8056.6+x[b] 22	61/2−		

† From least-squares fit to Eγ's, assuming ΔE_γ=1 keV for each γ ray in bands other than the ground-state band.
‡ From 'Adopted Levels, gammas' dataset in ENSDF database for ^{167}Lu.
# Band(A): 7/2[404], α=+1/2.
@ Band(a): 7/2[404], α=−1/2.
& Band(B): 1/2[411], α=−1/2.
[a] Band(b): 1/2[411], α=+1/2.
[b] Band(C): 1/2[541], α=+1/2.
[c] Band(D): 5/2[402], α=+1/2.

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 (continued)

^{167}Lu Levels (continued)

[d] Band(d): 5/2[402], α=−1/2.
[e] Band(E): Triaxial SD-1 band (2003Am01,2005Am02). Population≈8% relative to yrast band. Measured Q(transition)=6.9 *3* (preliminary value,2005Gu28).
[f] Band(F): Wobbling-mode, Triaxial SD-2 band (2003Am01,2005Am02). Population≈2% relative to yrast band.
[g] Band(G): Triaxial SD-3 band (2005Am02). Population≈4% relative to yrast band. Multi-quasiparticle excitation.

γ(^{167}Lu)

All measured conversion coefficients (α(K)exp values) are from 2008Gu02. The numerical values corresponding to figures 6, 7, 9 and 12 in 2008Gu02 were received as email reply on Feb 28, 2008 from one of the authors (C.W. Beausang) of 2008Gu02.

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Mult.[@]	Comments
122.6+x	5/2$^-$	103[c]	19.6+x	3/2$^+$		
140.0	(9/2$^+$)	139.9[‡]	0.0	7/2$^+$		
149.7+x	5/2$^+$	130	19.6+x	3/2$^+$		
155.6+x	7/2$^+$	117	38.6+x	5/2$^+$		
189.7+x	7/2$^+$	170	19.6+x	3/2$^+$		
234.6+x	9/2$^-$	112	122.6+x	5/2$^-$		
300.4+x	9/2$^+$	145	155.6+x	7/2$^+$		
		262	38.6+x	5/2$^+$		
305.3	(11/2$^+$)	165.3[‡]	140.0	(9/2$^+$)		
		305.3[‡]	0.0	7/2$^+$		
403.7+x	9/2$^+$	214	189.7+x	7/2$^+$		
		248	155.6+x	7/2$^+$		
		254	149.7+x	5/2$^+$		
447.6+x	13/2$^-$	213	234.6+x	9/2$^-$		
469.9+x	11/2$^+$	170	300.4+x	9/2$^+$		
		314	155.6+x	7/2$^+$		
478.9+x	11/2$^+$	178	300.4+x	9/2$^+$		
		289	189.7+x	7/2$^+$		
494.2	(13/2$^+$)	188.9[‡]	305.3	(11/2$^+$)		
		354.1[&]	140.0	(9/2$^+$)		α(K)exp=0.024 *3* for a contaminated 356.6γ (2008Gu02), mult=E2.
664.8+x	13/2$^+$	185	478.9+x	11/2$^+$		
		196	469.9+x	11/2$^+$		
		365	300.4+x	9/2$^+$		
704.3	(15/2$^+$)	210.3[‡]	494.2	(13/2$^+$)		
		399.0[&]	305.3	(11/2$^+$)		α(K)exp=0.023 *6* for a contaminated 405.1γ (2008Gu02), mult=E2.
754.8+x	13/2$^+$	276	478.9+x	11/2$^+$		
		285	469.9+x	11/2$^+$		
		351	403.7+x	9/2$^+$		
761.6+x	17/2$^-$	314	447.6+x	13/2$^-$	E2	α(K)exp=0.035 *4*
858.3+x	15/2$^+$	194	664.8+x	13/2$^+$		
		380	478.9+x	11/2$^+$		
		388	469.9+x	11/2$^+$		
887.1+x	15/2$^+$	222	664.8+x	13/2$^+$		
		408	478.9+x	11/2$^+$		
		417	469.9+x	11/2$^+$		
934.1	(17/2$^+$)	230.0[‡]	704.3	(15/2$^+$)		
		439.7	494.2	(13/2$^+$)	E2	α(K)exp=0.022 *3*
1112.5+x	17/2$^+$	225	887.1+x	15/2$^+$		
		254	858.3+x	15/2$^+$		
		448	664.8+x	13/2$^+$		

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 (continued)

$\gamma(^{167}Lu)$ (continued)

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Mult.[@]	Comments
1172.6+x	21/2$^-$	411	761.6+x	17/2$^-$	E2	α(K)exp=0.024 *3*
1181.2	(19/2$^+$)	247.0[‡]	934.1	(17/2$^+$)		
		477.0[‡]	704.3	(15/2$^+$)		
1187.9+x	17/2$^+$	301	887.1+x	15/2$^+$		
		330	858.3+x	15/2$^+$		
		433	754.8+x	13/2$^+$		
1318.0+x	19/2$^+$	205	1112.5+x	17/2$^+$		
		460	858.3+x	15/2$^+$		
1377.6+x	19/2$^+$	190	1187.9+x	17/2$^+$		
		265	1112.5+x	17/2$^+$		
		490	887.1+x	15/2$^+$		
1444.3	(21/2$^+$)	263.6[‡]	1181.2	(19/2$^+$)		
		510.2[‡]	934.1	(17/2$^+$)		
1621.4+x	21/2$^+$	243.6	1377.6+x	19/2$^+$		
		509	1112.5+x	17/2$^+$		
1670.6+x	25/2$^-$	498	1172.6+x	21/2$^-$	E2	α(K)exp=0.0124 *15*
1687.8+x	21/2$^+$	310	1377.6+x	19/2$^+$		
		370	1318.0+x	19/2$^+$		
		500	1187.9+x	17/2$^+$		
1720.2	(23/2$^+$)	276.0[‡]	1444.3	(21/2$^+$)		
		539.0	1181.2	(19/2$^+$)	E2	α(K)exp=0.019 *3*
1828.1+x	23/2$^+$	510	1318.0+x	19/2$^+$		
1926.0+x	23/2$^+$	238	1687.8+x	21/2$^+$		
		305	1621.4+x	21/2$^+$		
		548	1377.6+x	19/2$^+$		
2008.0	(25/2$^+$)	288.3[‡]	1720.2	(23/2$^+$)		
		563.6[‡]	1444.3	(21/2$^+$)		
2158.3+x	25/2$^+$	232	1926.0+x	23/2$^+$		
		537	1621.4+x	21/2$^+$		
2231.8+x	25/2$^+$	306	1926.0+x	23/2$^+$		
		544	1687.8+x	21/2$^+$		
2245.6+x	29/2$^-$	575	1670.6+x	25/2$^-$	E2	α(K)exp=0.0118 *15*
2249.6+x	25/2$^+$	562	1687.8+x	21/2$^+$		
2299.4	(27/2$^+$)	291.2[‡]	2008.0	(25/2$^+$)		
		579.2[‡]	1720.2	(23/2$^+$)	(E2)	α(K)exp=0.0113 *18* Additional information 3.
2369.3+x	27/2$^+$	541	1828.1+x	23/2$^+$		
2477.9+x	27/2$^+$	246	2231.8+x	25/2$^+$		
		319[c]	2158.3+x	25/2$^+$		
		552	1926.0+x	23/2$^+$		
2580.6	(29/2$^+$)	281.0[‡]	2299.4	(27/2$^+$)		
		572.6	2008.0	(25/2$^+$)	(E2)	α(K)exp=0.0113 *18* Additional information 4.
2631.6+x	27/2$^-$	961.0	1670.6+x	25/2$^-$	(M1+E2)	I_γ: %BRANCHING≈60 *5*. Mult.,δ: ΔJ=1 transition; δ=−1.9 *+11−200* or −0.5 *+5−8*.
2664.6+x	27/2$^-$	994	1670.6+x	25/2$^-$		
2666.0+x	29/2$^+$	188	2477.9+x	27/2$^+$		
		508	2158.3+x	25/2$^+$		
2720.4+x	29/2$^+$	242	2477.9+x	27/2$^+$		
		351	2369.3+x	27/2$^+$		
		471	2249.6+x	25/2$^+$		
		489	2231.8+x	25/2$^+$		
		562	2158.3+x	25/2$^+$		

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 (continued)

γ(^{167}Lu) (continued)

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.[@]	δ	Comments
2823.2	(31/2$^+$)	242.1[‡]		2580.6	(29/2$^+$)			
		523.8[‡]		2299.4	(27/2$^+$)			
2886.6+x	33/2$^-$	641		2245.6+x	29/2$^-$			
2910.3+x	31/2$^+$	541		2369.3+x	27/2$^+$			
2930.1+x	31/2$^+$	264		2666.0+x	29/2$^+$			
		452		2477.9+x	27/2$^+$			
3044.1	(33/2$^+$)	221.1[‡]		2823.2	(31/2$^+$)			
		462.9		2580.6	(29/2$^+$)	E2		α(K)exp=0.0162 *23*
3088.6+x	31/2$^-$	424		2664.6+x	27/2$^-$			
		457		2631.6+x	27/2$^-$			
		843.1		2245.6+x	29/2$^-$			I_γ: %BRANCHING=27 *5*. Mult.,δ: expected to be the same as for 961.0γ from 2631.6+x, (27/2$^-$) level.
3104.9+x	33/2$^+$	175		2930.1+x	31/2$^+$			
		439		2666.0+x	29/2$^+$			
3225.6+x	33/2$^+$	506		2720.4+x	29/2$^+$	E2		α(K)exp=0.0165 *23*
		560		2666.0+x	29/2$^+$			
3285.5	(35/2$^+$)	241.2[‡]		3044.1	(33/2$^+$)			
		462.3[‡]		2823.2	(31/2$^+$)			
3408.6+x	35/2$^+$	304		3104.9+x	33/2$^+$			
		478		2930.1+x	31/2$^+$			
3532.4	(37/2$^+$)	246.6[‡]		3285.5	(35/2$^+$)			
		488.4[&]		3044.1	(33/2$^+$)	E2	[#]	α(K)exp=0.0107 *26* Additional information 5.
3582.6+x	37/2$^-$	696[b]		2886.6+x	33/2$^-$	E2		α(K)exp=0.0076 *9*
3593.6+x	35/2$^-$	505		3088.6+x	31/2$^-$			
3599.8+x	37/2$^+$	191		3408.6+x	35/2$^+$			
		495		3104.9+x	33/2$^+$			
3786.5+x	37/2$^+$	561		3225.6+x	33/2$^+$	E2		α(K)exp=0.0141 *21*
3813.0	(39/2$^+$)	280.7[‡]		3532.4	(37/2$^+$)			
		527.5[‡]		3285.5	(35/2$^+$)			
3945.6+x	35/2$^+$	720		3225.6+x	33/2$^+$			
4096.4	(41/2$^+$)	283.6[‡]		3813.0	(39/2$^+$)			
		563.9		3532.4	(37/2$^+$)	E2		α(K)exp=0.0125 *15*
4161.6+x	39/2$^-$	568		3593.6+x	35/2$^-$	E2		α(K)exp=0.012 *6*
4177.0+x	41/2$^+$	577		3599.8+x	37/2$^+$			
4273.6+x	41/2$^-$	691		3582.6+x	37/2$^-$			
4393.3+x	41/2$^+$	607		3786.5+x	37/2$^+$	E2		α(K)exp=0.0077 *28*
4417.5	(43/2$^+$)	604.5[‡]		3813.0	(39/2$^+$)			
4492.6+x	39/2$^+$	547	100	3945.6+x	35/2$^+$			
		706.1[&]	91 *4*	3786.5+x	37/2$^+$	(E2+M1)	−3.1[#] *+11−34*	
4735.5	(45/2$^+$)	639.1		4096.4	(41/2$^+$)	E2		α(K)exp=0.0070 *15*
4784.6+x	43/2$^-$	623		4161.6+x	39/2$^-$	E2		α(K)exp=0.0094 *23*
4832.2+x	45/2$^+$	655		4177.0+x	41/2$^+$			
4909.6+x	45/2$^-$	636		4273.6+x	41/2$^-$	E2		α(K)exp=0.0094 *13*
5048.0+x	45/2$^+$	654		4393.3+x	41/2$^+$	E2		α(K)exp=0.0084 *29*
5093.5	(47/2$^+$)	676.0[‡]		4417.5	(43/2$^+$)			
5097.6+x	43/2$^+$	605	100	4492.6+x	39/2$^+$			
		704.2	41 *6*	4393.3+x	41/2$^+$			
5443.1	(49/2$^+$)	707.6		4735.5	(45/2$^+$)	E2		α(K)exp=0.0042 *8*
5455.6+x	47/2$^-$	671		4784.6+x	43/2$^-$	E2		α(K)exp=0.0073 *26*

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 (continued)

γ(^{167}Lu) (continued)

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.[@]	δ	Comments
5557.3+x	49/2$^+$	725		4832.2+x	45/2$^+$			
5605.6+x	49/2$^-$	696[b]		4909.6+x	45/2$^-$	E2		α(K)exp=0.0076 *9*
5749.8+x	49/2$^+$	702		5048.0+x	45/2$^+$	E2		α(K)exp=0.0060 *11*
5755.7+x	47/2$^+$	658	100	5097.6+x	43/2$^+$			
		707.7[&]	39 *4*	5048.0+x	45/2$^+$	(E2+M1)	−5.1[#] *+16−25*	
5833.8	(51/2$^+$)	740.3		5093.5	(47/2$^+$)	E2		α(K)exp=0.0064 *16*
6171.6+x	51/2$^-$	716		5455.6+x	47/2$^-$			
6213.3	(53/2$^+$)	770.2		5443.1	(49/2$^+$)	E2		α(K)exp=0.0045 *6*
6359.5+x	53/2$^+$	802		5557.3+x	49/2$^+$			
6365.6+x	53/2$^-$	760		5605.6+x	49/2$^-$	E2		α(K)exp=0.0062 *7*
6466.7+x	51/2$^+$	711	100	5755.7+x	47/2$^+$			
		716.9[&]	30 *8*	5749.8+x	49/2$^+$	(E2+M1)	−3.9[#] *+27−84*	
6501.5+x	53/2$^+$	751		5749.8+x	49/2$^+$	E2		α(K)exp=0.0068 *16*
6934.6+x	55/2$^-$	763		6171.6+x	51/2$^-$			
7183.6+x	57/2$^-$	818		6365.6+x	53/2$^-$	E2		α(K)exp=0.0045 *9*
7213.7+x	57/2$^+$	854		6359.5+x	53/2$^+$			
7231.8+x	55/2$^+$	730.3	32 *7*	6501.5+x	53/2$^+$			
		765	100	6466.7+x	51/2$^+$			
7300.4+x	57/2$^+$	799		6501.5+x	53/2$^+$	E2		α(K)exp=0.0057 *11*
7745+x	59/2$^-$	810		6934.6+x	55/2$^-$			
8047.8+x	59/2$^+$	816		7231.8+x	55/2$^+$			
8056.6+x	61/2$^-$	873		7183.6+x	57/2$^-$			
8115.6+x	61/2$^+$	815		7300.4+x	57/2$^+$			
		902		7213.7+x	57/2$^+$			
8155.0+x	61/2$^+$	855		7300.4+x	57/2$^+$			
		941		7213.7+x	57/2$^+$			
8616+x	63/2$^-$	871		7745+x	59/2$^-$			
8917.8+x	63/2$^+$	870		8047.8+x	59/2$^+$			
8983.6+x	65/2$^-$	927		8056.6+x	61/2$^-$			
9009.8+x	65/2$^+$	810[c]		8199.9+x?	(61/2$^+$)			
		855		8155.0+x	61/2$^+$			
		894		8115.6+x	61/2$^+$			
9081.0+x	65/2$^+$	881[c]		8199.9+x?	(61/2$^+$)			
		926		8155.0+x	61/2$^+$			
9541+x	67/2$^-$	925		8616+x	63/2$^-$			
9841+x	67/2$^+$	923		8917.8+x	63/2$^+$			
9941.8+x	69/2$^+$	932		9009.8+x	65/2$^+$			
9963.6+x	69/2$^-$	980		8983.6+x	65/2$^-$			
10040.0+x	69/2$^+$	959		9081.0+x	65/2$^+$			
10521+x	71/2$^-$	980		9541+x	67/2$^-$			
10817+x	71/2$^+$	976		9841+x	67/2$^+$			
10930+x	73/2$^+$	988		9941.8+x	69/2$^+$			
10997+x	73/2$^-$	1033		9963.6+x	69/2$^-$			
11056+x	73/2$^+$	1016		10040.0+x	69/2$^+$			
11558+x	75/2$^-$	1037		10521+x	71/2$^-$			
11849+x	75/2$^+$	1032		10817+x	71/2$^+$			
11984+x	77/2$^+$	1054		10930+x	73/2$^+$			
12132+x	77/2$^+$	1076		11056+x	73/2$^+$			
12657+x	79/2$^-$	1099		11558+x	75/2$^-$			
12933+x	79/2$^+$	1084		11849+x	75/2$^+$			
13104+x	81/2$^+$	1120		11984+x	77/2$^+$			
13267+x	81/2$^+$	1135		12132+x	77/2$^+$			
13821+x	83/2$^-$	1164		12657+x	79/2$^-$			
14082+x	83/2$^+$	1149		12933+x	79/2$^+$			
14287+x	85/2$^+$	1183		13104+x	81/2$^+$			

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 (continued)

$\gamma(^{167}Lu)$ (continued)

E_i(level)	J_i^π	E_γ	E_f	J_f^π
14459+x	$85/2^+$	1192	13267+x	$81/2^+$
15282+x	$87/2^+$	1200	14082+x	$83/2^+$
15530+x	$89/2^+$	1243	14287+x	$85/2^+$
15706+x	$89/2^+$	1247	14459+x	$85/2^+$
16821+x	$93/2^+$	1291	15530+x	$89/2^+$

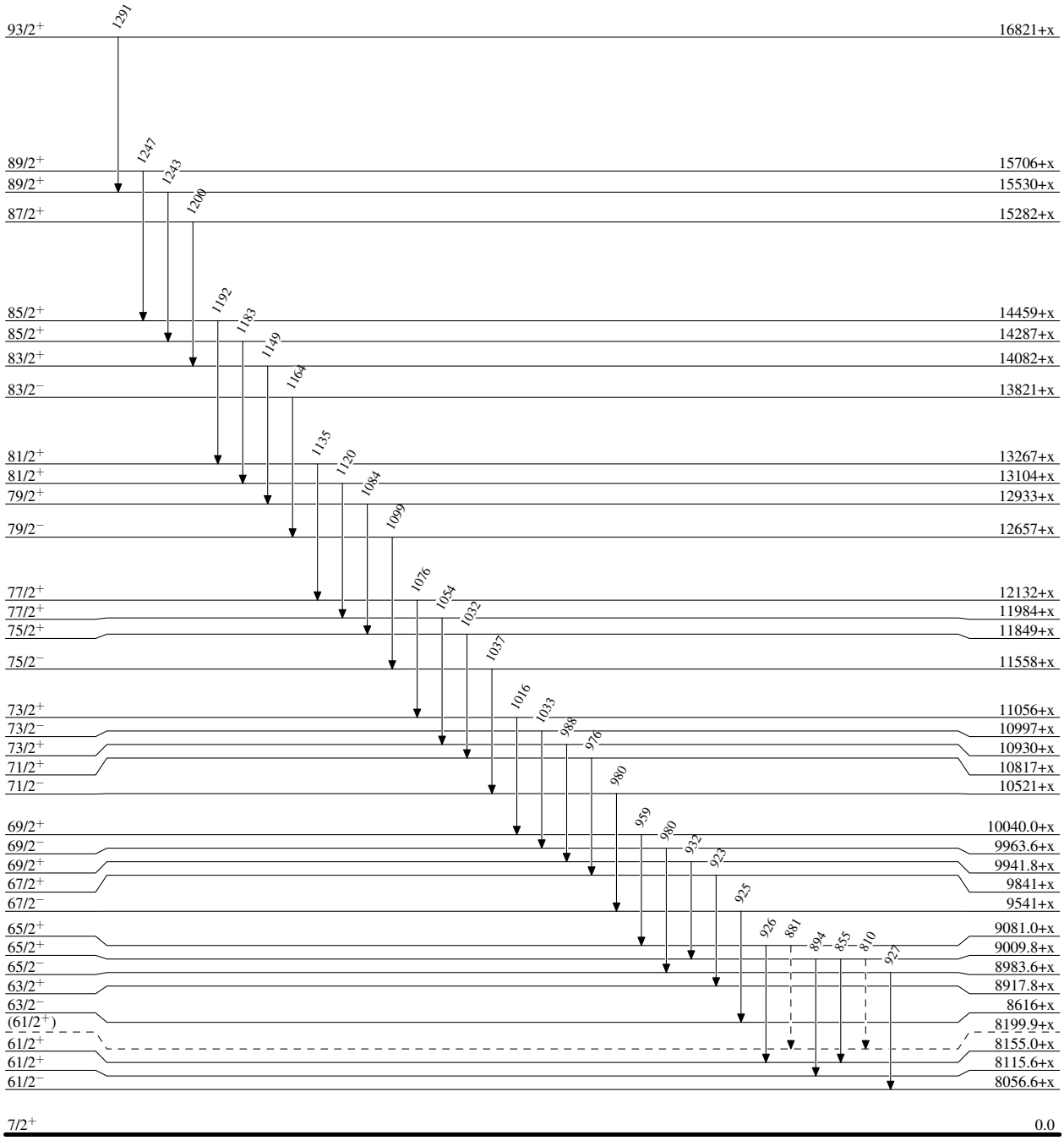
† From 2003Am01.
‡ From 'Adopted Levels, gammas' dataset in ENSDF database for ^{167}Lu.
# Lower values of −0.26 *16* for 706.1γ, −0.07 *7* for 707.7γ, and −0.35 *65* for 716.9γ are possible but not likely in comparison to similar transitions (of known mixing ratios) in ^{163}Lu SD bands.
@ From ce data of 2008Gu02.
& Contaminated transition in ce spectrum (2008Gu02).
a The γ ray listed with ground-state band by 2008Gu02, but the compilers cannot find any such transition in the ENSDF database for ^{167}Lu or in the paper 1990Yu01: Nucl Phys A 511, 157 (1990), where g.s. band is studied in detail.
b Multiply placed.
c Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

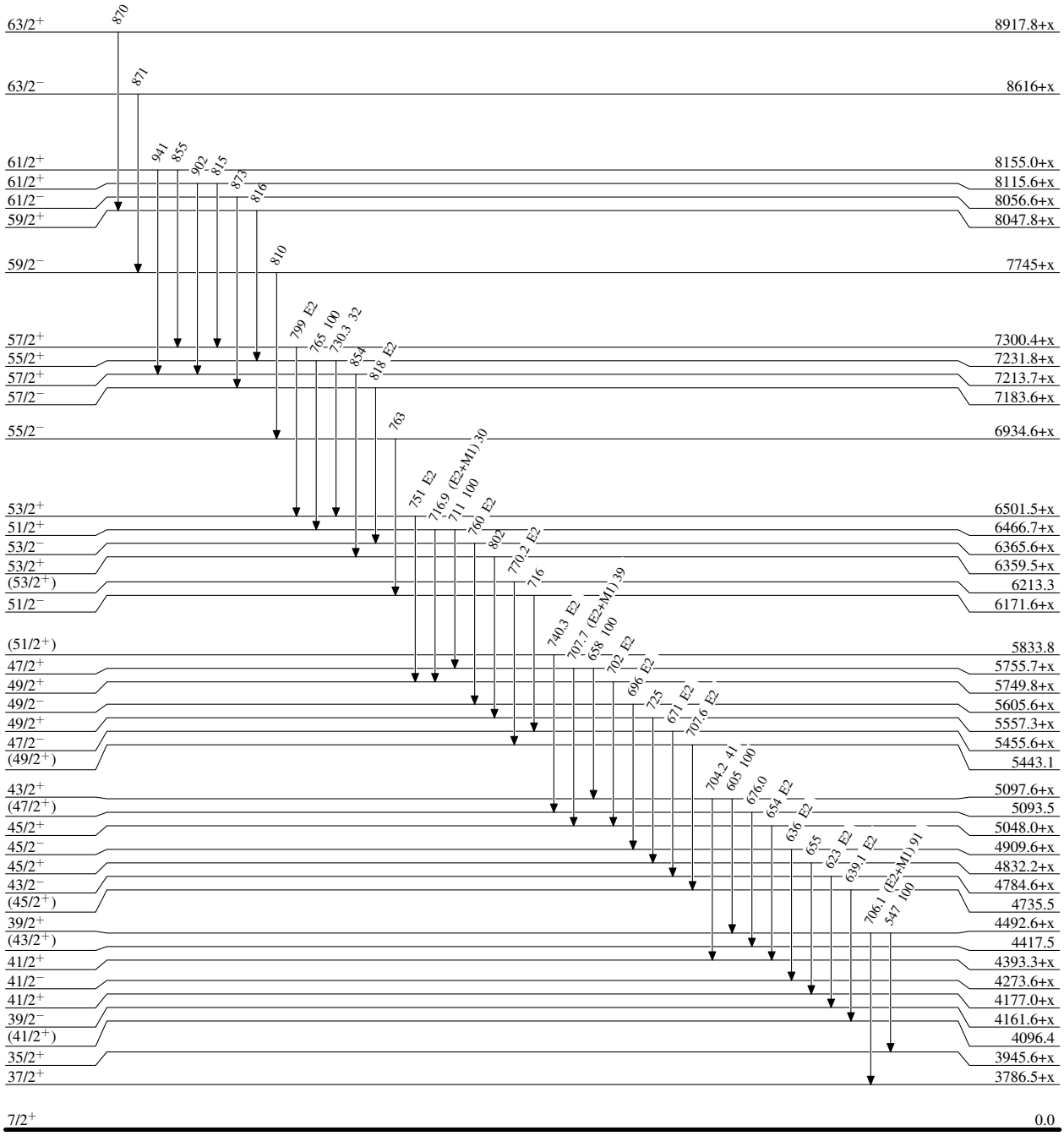


$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02

Level Scheme (continued)

Intensities: Relative photon branching from each level

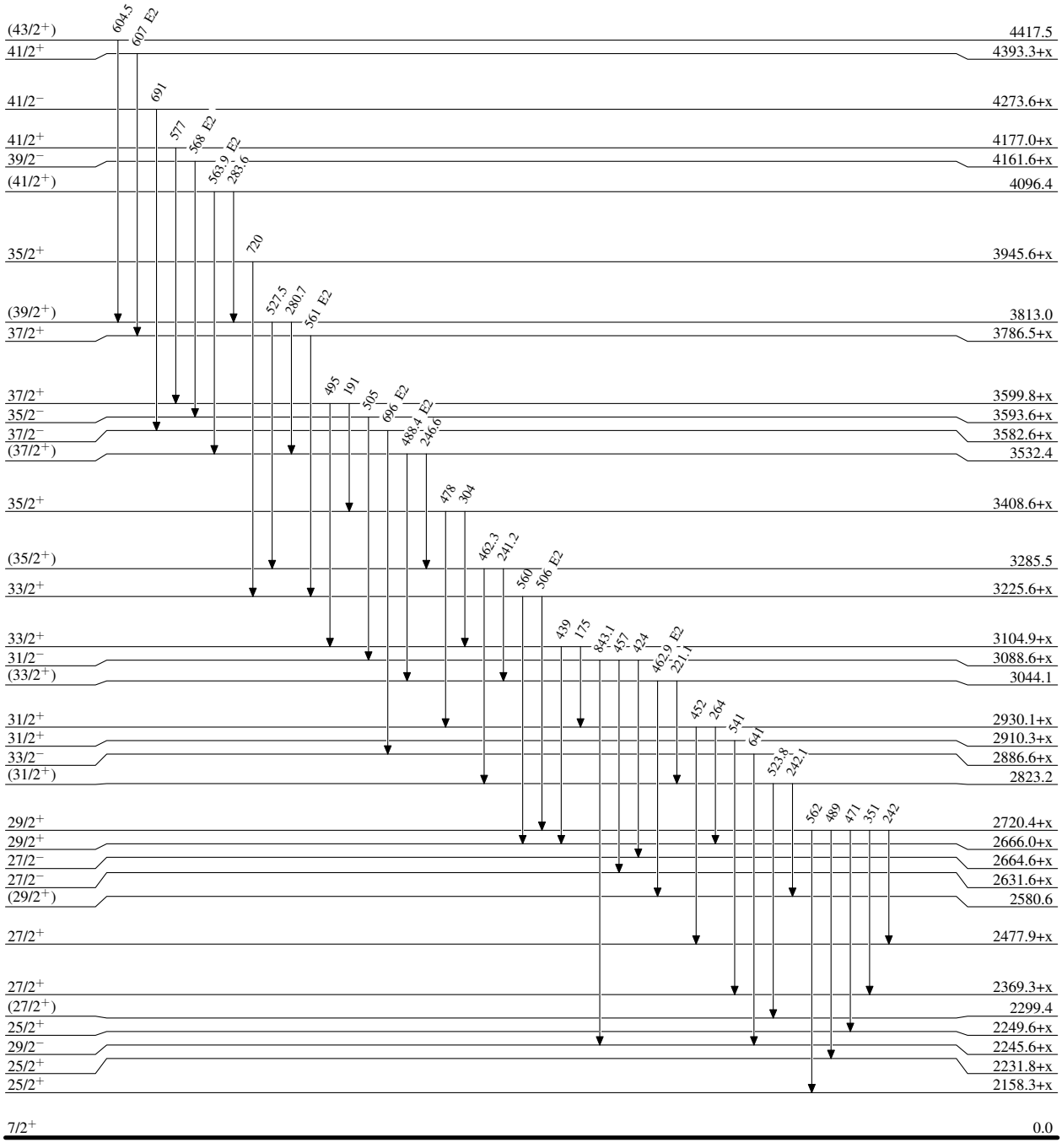


$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{167}_{71}Lu_{96}$

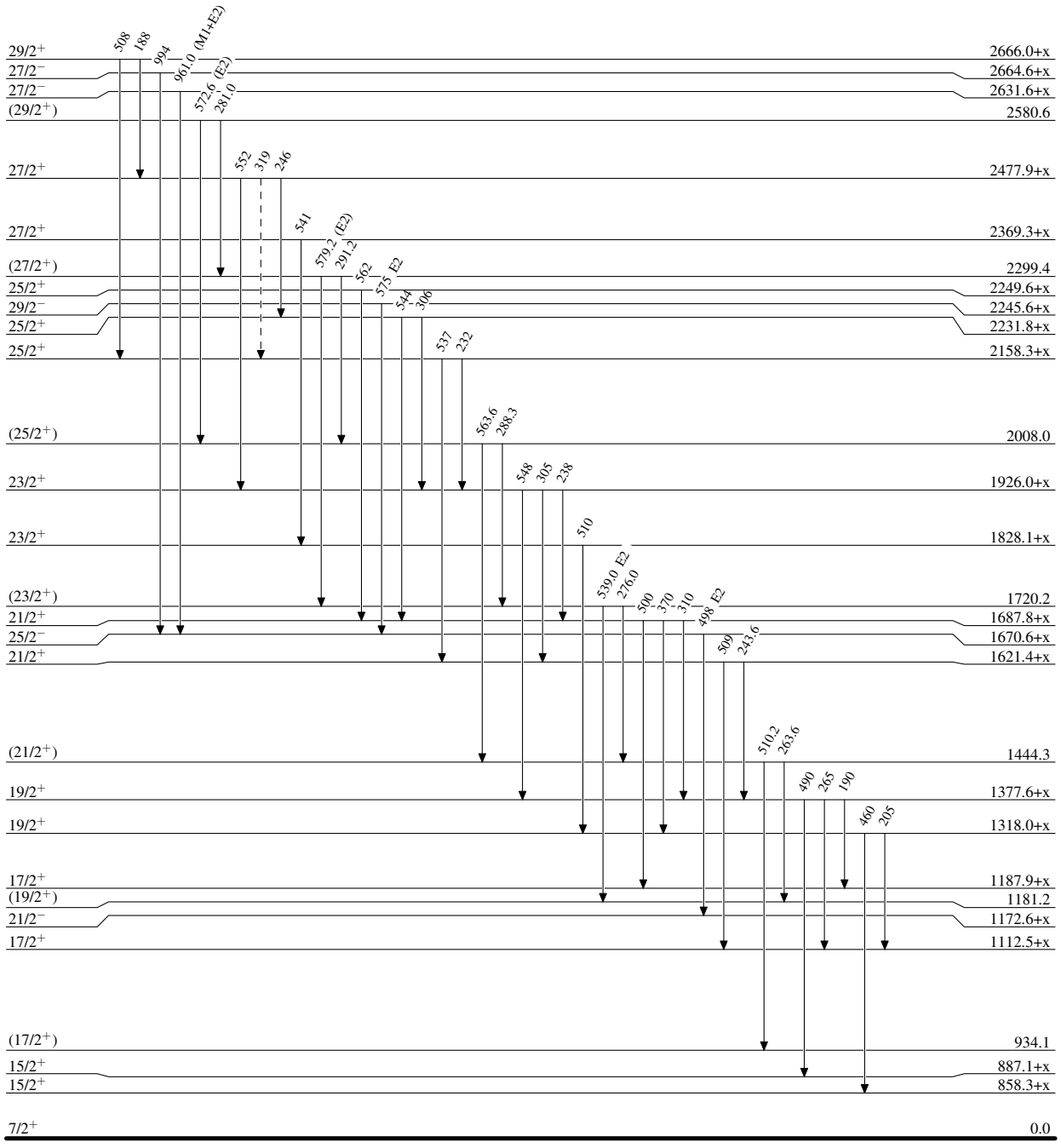
^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

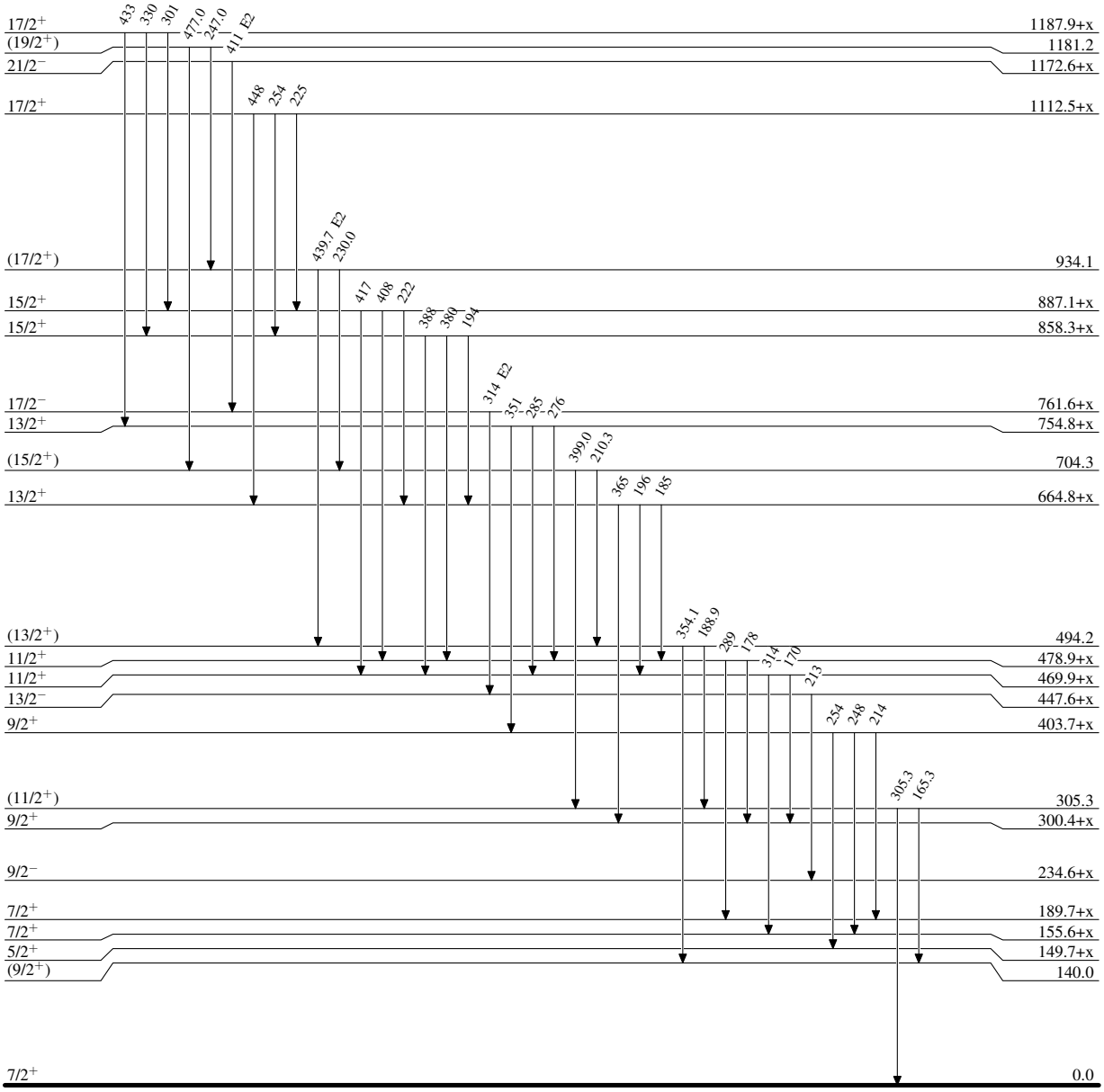


$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02

Level Scheme (continued)

Intensities: Relative photon branching from each level



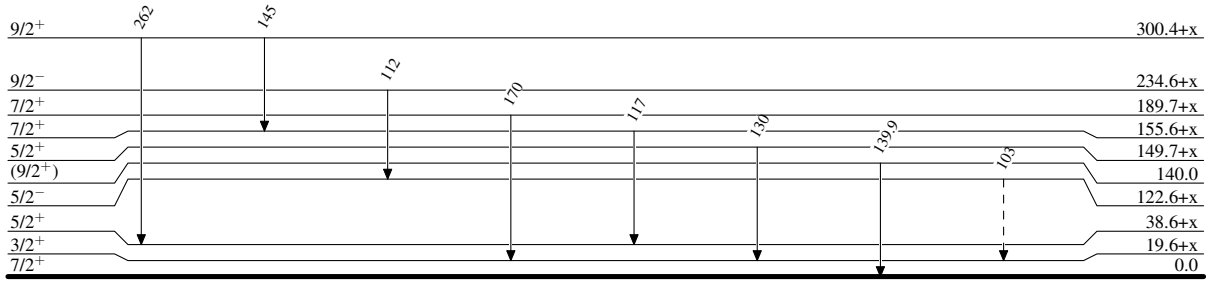
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 Legend

Level Scheme (continued)

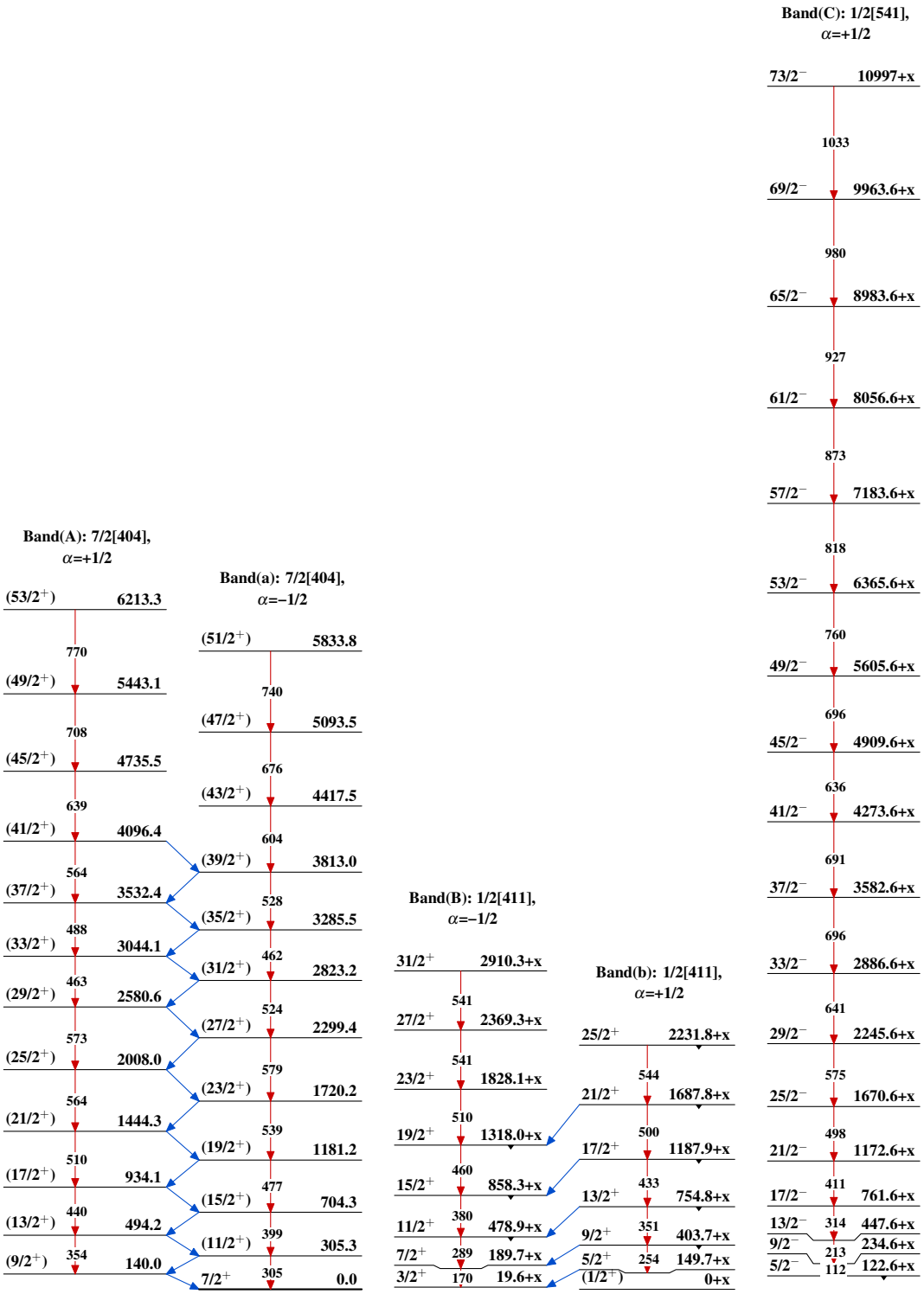
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



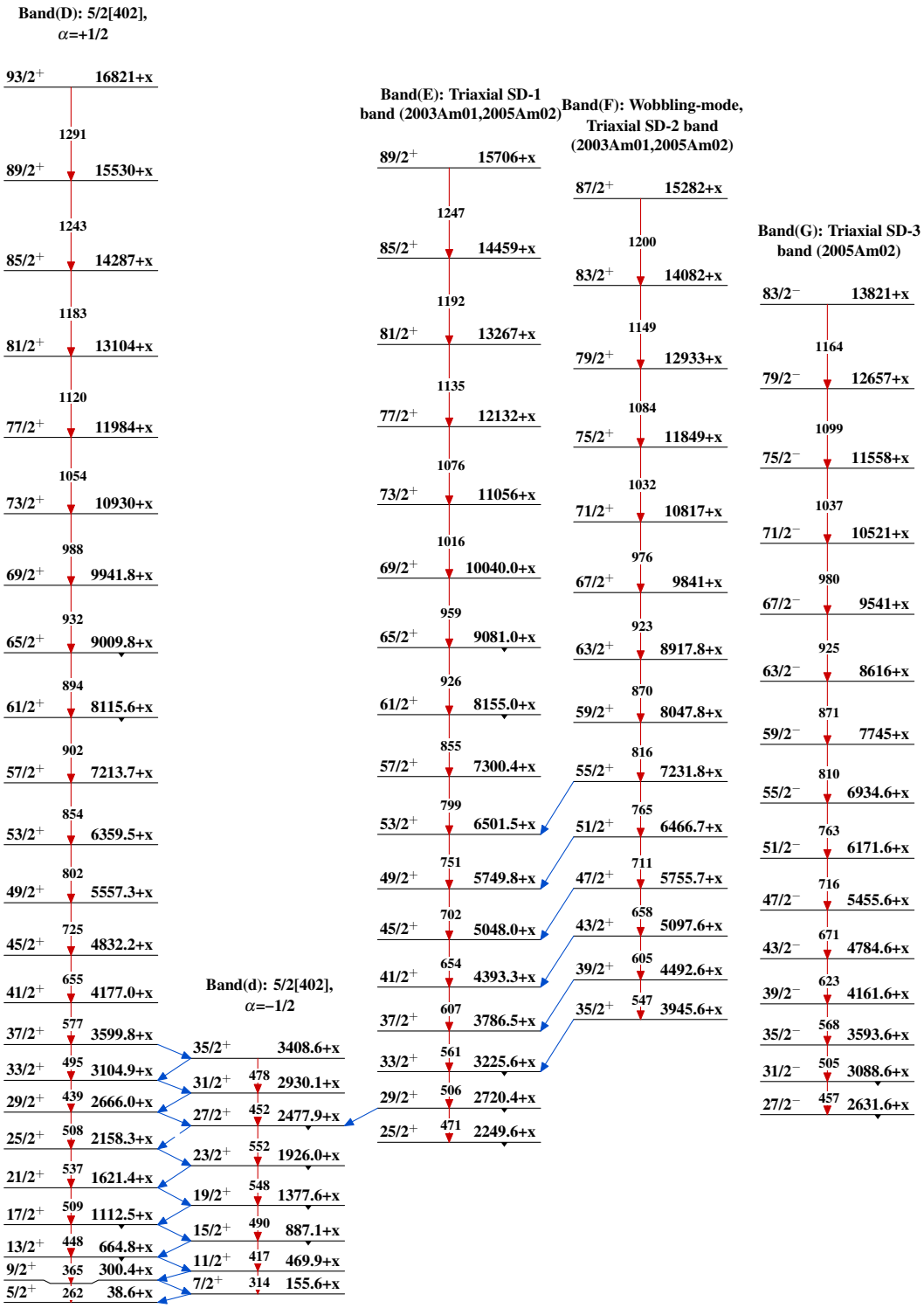
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-1 2005Am02,2003Am01,2008Gu02 (continued)



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Compiled (unevaluated) dataset from 2015Ro27: Phys Rev C 92, 064313 (2015).

See also previous papers 2005Am02 (Phys. Rev. C 71, 011302); and 2003Am01 (Phys. Lett. B553, 197) with partial analysis of the data from apparently the same experiment as described in 2015Ro27, mainly focusing on triaxial strongly-deformed (TSD) bands. The 2015Ro27 paper provides a more complete analysis of many normal-deformed structures, together with two TSD bands. A third TSD band reported in 2005Am02 has been reassigned to a normal-deformed structure (Band #4) in 2015Ro27.

Compiled by B. Singh (McMaster), February 10, 2016.

E(^{48}Ca)=203 MeV. Target=520 μg/cm^2 thick 97.7% enriched self-supporting ^{123}Sb foil. The isotopes ^{166}Lu, ^{167}Lu and ^{168}Lu were populated in the ratio 1:5:2. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma(\theta)$(DCO) at LBNL cyclotron facility using Gammasphere with 100 Compton-suppressed Ge detectors. Deduced high-spin levels, J^π, multipolarities, bands, triaxial strongly-deformed (TSD) bands, multiquasiparticle configurations, alignments, and band interactions. Comparison with cranked shell-model calculations.

^{167}Lu Levels

Nomenclature for quasiparticle orbitals:
a: $\pi g_{7/2}$, 7/2[404],α=+1/2.
b: $\pi g_{7/2}$, 7/2[404],α=−1/2.
c: $\pi d_{3/2}$, 1/2[411],α=+1/2.
d: $\pi d_{3/2}$, 1/2[411],α=−1/2.
e: $\pi h_{11/2}$, 9/2[514],α=+1/2.
f: $\pi h_{11/2}$, 9/2[514],α=−1/2.
g: $\pi h_{9/2}$, 1/2[541],α=+1/2.
h: $\pi h_{9/2}$, 1/2[541],α=−1/2.
i: $\pi d_{5/2}$, 5/2[402],α=+1/2.
j: $\pi d_{5/2}$, 5/2[402],α=−1/2.
m: $\pi i_{13/2}$, 1/2[660],α=+1/2.
A: $\nu i_{13/2}$, 5/2[642],α=+1/2.
B: $\nu i_{13/2}$, 5/2[642],α=−1/2.
C: $\nu i_{13/2}$, 3/2[651],α=+1/2.
D: $\nu i_{13/2}$, 3/2[651],α=−1/2.
E: $\nu f_{7/2}$, 5/2[523],α=+1/2.
F: $\nu f_{7/2}$, 5/2[523],α=−1/2.
G: $\nu h_{9/2}$, 3/2[521],α=+1/2.
H: $\nu h_{9/2}$, 3/2[521],α=−1/2.

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	Comments
0.0[a]	7/2$^+$	51.5 min *10*	%ε+%β^+=100
33.7[f] *4*	1/2$^+$	≥1 min	%IT=?; %ε+%β^+=?
48.6[g] *4*	3/2$^+$		
67.1[j] *4*	5/2$^+$		
136.3[s] *4*	1/2$^-$		
140.04[&] *14*	9/2$^+$		
155.9[s] *4*	5/2$^-$		
178.3[f] *4*	5/2$^+$		
184.5[k] *4*	7/2$^+$		
218.4[g] *4*	7/2$^+$		
258.7[t] *4*	3/2$^-$		
267.6[s] *4*	9/2$^-$		
305.29[a] *15*	11/2$^+$		
329.5[j] *4*	9/2$^+$		
331.87[n] *15*	9/2$^-$		
432.8[f] *4*	9/2$^+$		
433.55[o] *18*	11/2$^-$		

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

^{167}Lu Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	Comments
435.4[t] 4	7/2$^-$	
479.9[s] 4	13/2$^-$	
494.18[&] 18	13/2$^+$	
499.0[k] 4	11/2$^+$	
507.8[g] 4	11/2$^+$	
576.90[n] 19	13/2$^-$	
692.8[t] 4	11/2$^-$	
693.9[j] 4	13/2$^+$	
704.23[a] 19	15/2$^+$	
744.09[o] 20	15/2$^-$	
783.7[f] 4	13/2$^+$	
794.5[s] 4	17/2$^-$	
887.3[g] 4	15/2$^+$	
916.2[k] 4	15/2$^+$	
934.17[&] 20	17/2$^+$	
947.69[n] 21	17/2$^-$	
1034.4[t] 4	15/2$^-$	
1141.4[j] 4	17/2$^+$	
1159.41[o] 21	19/2$^-$	
1180.99[a] 21	19/2$^+$	
1205.3[s] 4	21/2$^-$	
1217.1[f] 4	17/2$^+$	
1346.5[g] 4	19/2$^+$	
1406.6[k] 4	19/2$^+$	
1411.47[n] 23	21/2$^-$	
1444.42[&] 22	21/2$^+$	
1458.9[t] 4	19/2$^-$	
1649.9[j] 4	21/2$^+$	
1655.83[o] 24	23/2$^-$	
1677.0[v] 3	(17/2$^-$)	J^{π}=17/2$^-$ in Figure 2 of 2015Ro27. No deexciting transitions given.
1703.3[s] 4	25/2$^-$	
1716.7[f] 4	21/2$^+$	
1720.06[a] 23	23/2$^+$	
1789.12[w] 25	19/2$^-$	
1856.7[g] 4	23/2$^+$	
1940.48[v] 22	21/2$^-$	
1947.3[n] 3	25/2$^-$	
1954.7[k] 4	23/2$^+$	
1959.7[t] 4	23/2$^-$	
1964.0 8	(21/2$^+$)	Level from Figure 1 in 2015Ro27.
2008.11[&] 24	25/2$^+$	
2100.28[w] 23	23/2$^-$	
2165.0[u] 4	21/2$^-$	
2187.1[j] 4	25/2$^+$	
2214.9[o] 3	27/2$^-$	
2260.7[f] 4	25/2$^+$	
2278.0[s] 4	29/2$^-$	
2278.5[l] 5	25/2$^+$	
2285.55[v] 23	25/2$^-$	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

^{167}Lu Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	Comments
2299.3[a] 3	27/2$^+$	
2350.0 4	(25/2$^+$)	Level from Figure 1 in 2015Ro27.
2378.8[x] 3	25/2$^-$	
2398.1[g] 4	27/2$^+$	
2483.5[u] 4	25/2$^-$	
2491.01[w] 24	27/2$^-$	
2506.5[k] 4	27/2$^+$	
2508.8[c] 3	25/2$^+$	
2526.6[t] 4	27/2$^-$	
2531.7[n] 3	29/2$^-$	
2580.6[&] 3	29/2$^+$	
2665.3 4	27/2$^+$	
2694.6[j] 4	29/2$^+$	
2697.0[d] 4	27/2$^+$	
2715.7[v] 3	29/2$^-$	
2728.4[@] 3	29/2$^+$	
2749.3[l] 4	29/2$^+$	
2776.7[f] 4	29/2$^+$	
2800.4[o] 3	31/2$^-$	
2822.8[a] 3	31/2$^+$	
2883.7[x] 4	29/2$^-$	
2893.0[c] 4	29/2$^+$	
2894.4[u] 4	29/2$^-$	
2918.5[s] 4	33/2$^-$	
2938.9[g] 4	31/2$^+$	
2958.8[w] 3	31/2$^-$	
2958.8[k] 4	31/2$^+$	
3014.6[b] 4	31/2$^+$	
3043.7[&] 3	33/2$^+$	
3069.9[n] 3	33/2$^-$	
3121.2[d] 4	31/2$^+$	
3133.7[j] 4	33/2$^+$	
3138.4[t] 4	31/2$^-$	
3210.8[f] 4	33/2$^+$	
3217.3[v] 3	33/2$^-$	
3254.3[l] 4	33/2$^+$	
3285.1[a] 3	35/2$^+$	
3288.7[o] 4	35/2$^-$	
3293.9[u] 4	33/2$^-$	
3322.3[@] 3	33/2$^+$	
3356.9[c] 4	33/2$^+$	
3413.9[g] 4	35/2$^+$	
3417.8 4	35/2$^+$	
3418.1[x] 4	33/2$^-$	
3437.3[k] 4	35/2$^+$	
3477.5 5	35/2$^-$	
3491.7[w] 3	35/2$^-$	
3523.1[n] 4	37/2$^-$	
3531.9[&] 3	37/2$^+$	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

^{167}Lu Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
3589.4[b] 4	35/2+	4941.9[u] 4	45/2−	6529.6[l] 5	53/2+	8255.7[s] 11	61/2−
3613.7[s] 4	37/2−	4954.7[h] 4	45/2+	6592.6[x] 5	53/2−	8299.2[c] 9	(61/2+)
3625.8[d] 4	35/2+	4985.9[o] 4	47/2−	6599.8[@] 7	53/2+	8320.4[p] 10	(J1+10)
3628.5[j] 4	37/2+	5030.7[v] 4	45/2−	6628.3[c] 7	53/2+	8342.4[a] 5	63/2+
3678.3[y] 4	35/2−	5076.2[l] 5	45/2+	6631.2[a] 4	55/2+	8455.8[i] 5	63/2+
3721.3[f] 4	37/2+	5093.0[a] 4	47/2+	6634.0[s] 8	53/2−	8549.5[w] 5	63/2−
3729.7[t] 4	35/2−	5125.6[m] 5	43/2+	6659.3[p] 7	(J1+6)	8600.0[g] 6	63/2+
3770.0[u] 4	37/2−	5142.3[s] 4	45/2−	6661.9[e] 7	53/2+	8644.5[t] 6	63/2−
3774.0[o] 4	39/2−	5160.4[c] 6	45/2+	6726.6[i] 4	55/2+	8646.7[d] 8	63/2+
3778.6[v] 4	37/2−	5184.7[x] 5	45/2−	6820.1[g] 5	55/2+	8711.3[y] 6	63/2−
3812.6[a] 3	39/2+	5230.4[p] 6	(J1+2)	6839.2[w] 4	55/2−	8749.0[&] 5	65/2+
3814.8[l] 4	37/2+	5230.8[@] 5	45/2+	6953.1[n] 5	57/2−	8824.2[n] 5	65/2−
3892.5[c] 5	37/2+	5265.1[g] 4	47/2+	6965.7[d] 6	55/2+	8924.8[h] 5	65/2+
3948.7[x] 4	37/2−	5279.4[i] 4	47/2+	6969.2[t] 5	55/2−	8946.0[m] 9	63/2+
3957.9[g] 4	39/2+	5349.0[n] 4	49/2−	7001.3[y] 5	55/2−	9003.6[b] 6	(63/2+)
3972.4[@] 4	37/2+	5369.5[w] 4	47/2−	7036.1[&] 4	57/2+	9014.0[u] 5	65/2−
3974.1[m] 4	35/2+	5442.6[&] 4	49/2+	7100.9[h] 4	57/2+	9016.0[v] 6	65/2−
3978.9[k] 4	39/2+	5486.4[d] 5	47/2+	7215.0[u] 5	57/2−	9037.8[j] 5	65/2+
4045.5[n] 4	41/2−	5491.2[t] 5	47/2−	7235.0[b] 5	55/2+	9109.0[l] 6	65/2+
4078.1[w] 4	39/2−	5540.1[y] 5	47/2−	7239.8[v] 4	57/2−	9120.5[x] 6	(65/2−)
4096.0[&] 4	41/2+	5586.5[j] 4	49/2+	7241.7[j] 4	57/2+	9173.2[s] 12	(65/2−)
4193.1[d] 4	39/2+	5625.1[b] 5	47/2+	7259.8[m] 6	55/2+	9192.6[o] 5	67/2−
4205.9[j] 4	41/2+	5630.7[h] 4	49/2+	7328.3[l] 5	57/2+	9210.5[c] 10	(65/2+)
4222.8[b] 4	39/2+	5638.0[u] 4	49/2−	7334.8[o] 5	59/2−	9232.4[p] 11	(J1+12)
4224.9 4	39/2−	5705.4[o] 4	51/2−	7374.9[@] 8	57/2+	9269.9[a] 5	67/2+
4244.6[y] 4	39/2−	5714.6[v] 4	49/2−	7383.6[x] 5	57/2−	9442.9[i] 7	67/2+
4266.1[t] 4	39/2−	5778.0[l] 5	49/2+	7403.0[e] 7	57/2+	9498.2[w] 7	67/2−
4306.1[u] 4	41/2−	5783.7[m] 5	47/2+	7410.6[s] 9	57/2−	9542.1[g] 8	67/2+
4307.7[f] 4	41/2+	5833.2[a] 4	51/2+	7449.8[c] 8	57/2+	9568.2[t] 6	67/2−
4339.2[o] 4	43/2−	5859.6[x] 5	49/2−	7461.2[p] 8	(J1+8)	9571.4[d] 9	67/2+
4373.5[s] 4	41/2−	5873.9[c] 6	49/2+	7471.1[a] 4	59/2+	9657.3[y] 6	(67/2−)
4385.9[v] 4	41/2−	5894.8[@] 6	49/2+	7543.2[i] 4	59/2+	9674.1[&] 5	69/2+
4417.0[a] 4	43/2+	5907.4[s] 6	49/2−	7662.6[w] 5	59/2−	9858.3[n] 6	69/2−
4421.6[l] 4	41/2+	5912.9[p] 6	(J1+4)	7684.8[g] 5	59/2+	9869.0[m] 11	67/2+
4496.0[c] 5	41/2+	5982.1[i] 4	51/2+	7775.7[d] 6	59/2+	9946.8[h] 5	69/2+
4521.2[m] 4	39/2+	6015.4[g] 4	51/2+	7779.5[t] 6	59/2−	9969.6[j] 5	69/2+
4544.8[x] 4	41/2−	6077.5[w] 4	51/2−	7824.3[y] 6	59/2−	9993.8[u] 6	69/2−
4554.1[p] 5	(J1)	6116.9[n] 5	53/2−	7855.3[n] 5	61/2−	9997.0[v] 6	69/2−
4578.1[g] 4	43/2+	6202.5[d] 5	51/2+	7877.1[&] 4	61/2+	10068.0[l] 8	69/2+
4594.8[@] 4	41/2+	6206.0[t] 5	51/2−	7967.8[h] 4	61/2+	10070.9[x] 7	(69/2−)
4597.4[k] 4	43/2+	6212.7[&] 4	53/2+	8075.8[m] 8	59/2+	10144.7[s] 13	(69/2−)
4655.9[n] 4	45/2−	6242.3[y] 5	51/2−	8087.5[u] 5	61/2−	10185.0[p] 12	(J1+14)
4704.8[w] 4	43/2−	6332.7[h] 4	53/2+	8095.9[v] 5	61/2−	10193.0[c] 12	(69/2+)
4734.9[&] 4	45/2+	6388.3[j] 4	53/2+	8099.4[b] 6	(59/2+)	10202.9[o] 6	71/2−
4815.5[d] 4	43/2+	6397.5[u] 5	53/2−	8143.6[j] 5	61/2+	10263.6[a] 6	71/2+
4838.6[t] 4	43/2−	6405.7[b] 5	51/2+	8182.9[l] 5	61/2+	10489.1[i] 9	71/2+
4861.3[j] 4	45/2+	6447.7[v] 4	53/2−	8227.4[x] 6	61/2−	10504.1[w] 9	71/2−
4880.8[y] 4	43/2−	6490.5[o] 5	55/2−	8228.9[e] 7	61/2+	10531.4[g] 9	71/2+
4898.4[b] 4	43/2+	6494.8[m] 5	51/2+	8236.2[o] 5	63/2−	10551.3[d] 11	71/2+

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

^{167}Lu Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
10553.1[t] 8	(71/2−)	12049.5[n] 6	77/2−	13851.1[d] 14	(83/2+)	x[r]	(J2)
10654.4[&] 5	73/2+	12127.2[u] 7	(77/2−)	13921.7[&] 9	85/2+	768.0+x[r] 5	
10655.3[y] 7	(71/2−)	12139.2[v] 7	77/2−	14111.9[m] 15	(83/2+)	1582.8+x[r] 7	(J2+2)
10846.4[m] 12	(71/2+)	12154.7[x] 7	(77/2−)	14299.7[n] 10	(85/2−)	2459.0+x[r] 9	(J2+4)
10947.3[n] 6	73/2−	12160.3[l] 11	77/2+	14315.0[j] 11	85/2+	3389.0+x[r] 10	(J2+6)
10957.6[j] 6	73/2+	12168.0[h] 8	(77/2+)	14466.4[u] 9	(85/2−)	4373.7+x[r] 12	(J2+8)
11027.2[u] 7	73/2−	12209.6[s] 15	(77/2−)	14487.8[l] 13	(85/2+)	5413.2+x[r] 13	(J2+10)
11030.9[h] 5	(73/2+)	12377.2[o] 6	79/2−	14737.5[o] 10	87/2−	6509.4+x[r] 14	(J2+12)
11037.0[v] 7	73/2−	12440.4[a] 9	79/2+	14823.3[a] 12	87/2+	7662.5+x[r] 15	(J2+14)
11084.1[x] 7	(73/2−)	12657.0[w] 12	79/2−	14965.0[w] 14	(87/2−)	8872.9+x[r] 15	(J2+16)
11084.4[l] 10	73/2+	12686.9[d] 13	(79/2+)	15108.1[&] 11	89/2+	10136.9+x[r] 16	(J2+18)
11151.7[s] 14	(73/2−)	12697.3[t] 11	(79/2−)	15312.0[m] 16	(87/2+)	11446.2+x[r] 17	(J2+20)
11194.1[p] 13	(J1+16)	12780.9[&] 8	81/2+	15472.8[n] 11	(89/2−)	12802.3+x[r] 18	(J2+22)
11219.4[c] 13	(73/2+)	12962.7[m] 14	(79/2+)	15558.2[j] 12	(89/2+)	y[q]	(J3)
11265.3[o] 6	75/2−	13131.7[j] 9	81/2+	15735.0[l] 14	(89/2+)	807.0+y[q] 5	(J3+2)
11321.9[a] 8	75/2+	13157.8[n] 8	81/2−	15968.5[o] 11	(91/2−)	1670.1+y[q] 7	(J3+4)
11558.9[w] 10	75/2−	13278.2[u] 8	(81/2−)	16067.3[a] 13	(91/2+)	2588.4+y[q] 9	(J3+6)
11571.4[g] 11	(75/2+)	13290.8[x] 9	(81/2−)	16339.3[&] 12	93/2+	3562.9+y[q] 10	(J3+8)
11587.9[d] 12	75/2+	13291.0[v] 9	(81/2−)	16681.2[n] 12	(93/2−)	4593.0+y[q] 12	(J3+10)
11594.4[i] 10	75/2+	13295.4[l] 12	(81/2+)	17048.1[l] 15	(93/2+)	5682.3+y[q] 13	(J3+12)
11601.2[t] 10	(75/2−)	13537.3[o] 8	83/2−	17229.8[o] 12	(95/2−)	6830.5+y[q] 14	(J3+14)
11690.5[&] 6	77/2+	13611.0[a] 10	83/2+	17323.4[a] 14	(95/2+)	8040.5+y[q] 15	(J3+16)
11878.7[m] 13	(75/2+)	13795.4[w] 13	(83/2−)	17617.9[&] 13	(97/2+)	9310.7+y[q] 15	(J3+18)
12011.6[j] 8	77/2+	13813.3[t] 12	(83/2−)	17943.3[n] 13	(97/2−)		

† From least-squares fit (by compiler) to Eγ values. Normalized χ^2=0.61, with about 40 γ ray energies out of 630 γ rays falling within 2σ of the corresponding level-energy differences, which implies 94% of the Eγ values are fitted within 1σ.

‡ As assigned by 2015Ro27 based on multipolarities deduced from γγ(θ)(DCO) values, band structures, decay modes and theoretical model calculations.

From ^{167}Lu Adopted Levels in the ENSDF database.

@ Band(A): Band #7 built on π5/2[402],α=+1/2. Configuration=iBC -> iBCAD; BC crossing at ħω=0.32 MeV, followed by AD crossing. This band appears to be a continuation of α=+1/2 signature of band #9 in 2015Ro27. Band #7 interacts with band #4 at 49/2+; energy separation=21.0 keV.

& Band(B): Band #1 built on π7/2[404],α=+1/2. Configuration=a -> aAB -> aABCD; AB crossing at ħω=0.26 MeV, and CD crossing at ħω=0.42 MeV. Band #1 interacts with band #10 at 57/2+; energy separation=65.8 keV.

a Band(b): Band #1 built on π7/2[404],α=−1/2. Configuration=b -> bAB -> bABCD -> bABCD(ef or fg); AB crossing at ħω=0.26 MeV, CD crossing at ħω=0.42 MeV and ef or fg proton crossing at ħω=0.62 MeV.

b Band(C): Band #6, γ-vibrational band. Possible γ-vibrational band built on π1/2[411] orbital. Band #6 interacts with band #4 at 39/2+; energy separation=29.6 keV.

c Band(D): 3-qp, eAF band #4,α=+1/2. Configuration=eAF ->eAFBC; BC crossing at ħω≈0.32 MeV. Band #4 interacts with band #5 at 53/2+; energy separation=33.9 keV. Band #4 interacts with band #7 at 49/2+; energy separation=21.0 keV.

d Band(d): 3-qp, fAF band #4,α=−1/2. Configuration=fAF ->fAFBC; BC crossing at ħω≈0.32 MeV. This positive-parity band was previously assigned in 2005Am02, incorrectly, as a triaxial strongly deformed (tsd-3) band with a negative parity. Band #4 interacts with band #6 at 39/2+; energy separation=29.6 keV.

e Band(E): Possible 5-qp band #5, cBCAD,α=+1/2. Band #5 interacts with band #11 at 61/2+; energy separation=45.9 keV. Band #5 interacts with band #4 at 53/2+; energy separation=33.9 keV.

f Band(F): Band #8 built on π1/2[411],α=+1/2. Configuration=c -> cAB; AB crossing at ħω=0.27 MeV.

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

^{167}Lu Levels (continued)

[g] Band(f): Band #8 built on π1/2[411],α=−1/2. Configuration=d -> dAB -> dABCD; AB crossing at $\hbar\omega$=0.27 MeV, and CD crossing at $\hbar\omega$=0.46 MeV. Band #8 interacts with band #9 at 31/2$^+$; energy separation=20.0 keV. Band #8 interacts with band #10 at 47/2$^+$; energy separation=14.2 keV.

[h] Band(G): 5-qp band #10, aABCD,α=+1/2. Configuration=aABCD -> aAB, Landau-Zener crossing with band #1 at J=57/2. Band #10 interacts with band #1 at 57/2$^+$; energy separation=65.8 keV. Band #10 interacts with band #9 at 49/2$^+$; energy separation=45.2 keV.

[i] Band(g): 5-qp band #10, bABCD,α=−1/2. Configuration=bABCD -> bAB, Landau-Zener crossing with band #1 at J=57/2. Band #10 interacts with band #8 at 47/2$^+$; energy separation=14.2 keV.

[j] Band(H): Band #9 built on π5/2[402],α=+1/2. Configuration=i -> iAB -> iABCD; AB crossing at $\hbar\omega$=0.25 MeV, and CD crossing at $\hbar\omega$=0.46 MeV. Band #9 interacts with band #10 at 49/2$^+$; energy separation=45.2 keV. Band #9 interacts with band #11 at 61/2$^+$; energy separation=39.3 keV.

[k] Band(h): Band #9 built on π5/2[402],α=−1/2. Configuration=j -> jAB; AB crossing at $\hbar\omega$=0.25 MeV. Band #9 interacts with band #8 at 31/2$^+$; energy separation=20.0 keV.

[l] Band(I): TSD-1, 0-phonon band #11,α=+1/2. Triaxial strongly-deformed band (TSD) associated with π1/2[660] orbital. Band #11 interacts with band #5 at 61/2$^+$; energy separation=45.9 keV. Band #11 interacts with band #9 at 61/2$^+$; energy separation=39.3 keV.

[m] Band(J): TSD-2, 1-phonon band #12,α=−1/2. Triaxial strongly-deformed (TSD) band associated with π1/2[660] orbital.

[n] Band(K): Band #15 built on π9/2[514],α=+1/2. Configuration=e -> eAB -> eABfg; AB crossing at $\hbar\omega$=0.26 MeV, and fg crossing at $\hbar\omega$=0.55 MeV.

[o] Band(k): Band #15 built on π9/2[514],α=−1/2. Configuration=f -> fAB -> fABCD -> fABCDEF; AB crossing at $\hbar\omega$=0.26 MeV, Cd crossing at $\hbar\omega$=0.35-0.55 MeV, and ef crossing at $\hbar\omega$=0.6 MeV.

[p] Band(L): 3-qp, eBC band #16. Configuration=eBC -> eBCAD; AD crossing at $\hbar\omega$=0.35-0.50 MeV.

[q] Band(M): Possible triaxial strongly-deformed band #18.

[r] Band(N): Possible triaxial strongly-deformed band #17.

[s] Band(O): Band #13 built on π1/2[541],α=+1/2. Configuration=g -> gBCAD; BCAD crossing at $\hbar\omega$=0.38 MeV. Band #13 interacts with band #2 at 41/2$^-$; energy separation=12.4 keV.

[t] Band(o): Band #13 built on π1/2[541],α=−1/2. Configuration=h -> hAB -> hABCD ->hABCD(proton orbital); AB crossing at $\hbar\omega$=0.29 MeV, CD crossing at $\hbar\omega$=0.4-0.5 MeV and possible crossing at $\hbar\omega$=0.55 MeV due to proton orbitals. Band #13 interacts with band #3 at 39/2$^-$; energy separation=21.5 keV.

[u] Band(P): 3-qp, gAB band #14,α=+1/2. Configuration=gAB -> gAB(CD/EF) -> gAB(CD/EF)ef; CD/EF crossing at $\hbar\omega$=0.4-0.5 MeV and ef crossing at $\hbar\omega\approx$0.57 MeV. Band #14 interacts with band #2 at 65/2$^-$; energy separation=1.3 keV.

[v] Band(Q): 3-qp, aAE band #2,α=+1/2. Configuration=aAE -> aAEBC -> aAEBC(ef); BC crossing at $\hbar\omega$=0.32 MeV and possible ef crossing at $\hbar\omega\approx$0.5 MeV. Band #2 interacts with band #13 at 41/2$^-$; energy separation=12.4 keV. Band #2 interacts with band #14 at 65/2$^-$; energy separation=1.3 keV.

[w] Band(q): 3-qp, bAE band #2,α=−1/2. Configuration=bAE -> bAEBC; BC crossing at $\hbar\omega$=0.32 MeV.

[x] Band(R): 3-qp, aAF band #3,α=+1/2. Configuration=aAF -> aAFBC; BC crossing at $\hbar\omega\approx$0.32 MeV.

[y] Band(r): 3-qp, bAF band #3,α=−1/2. Configuration=bAF -> bAFBC; BC crossing at $\hbar\omega\approx$0.32 MeV. Band #3 interacts with band #13 at 39/2$^-$; energy separation=21.5 keV.

γ(^{167}Lu)

DCO values correspond to gates on ΔJ=2, quadrupole (E2) transitions, and angles of 32°, 37°, 143°, 148° and 163° along the x-axis and 58° to 122° along the y-axis. Expected DCO values are 1.0 for ΔJ=2, quadrupole and 0.6 for ΔJ=1, dipole transitions. Mixed M1+E2 transitions in coupled bands have DCO values between 0.6 and 1.0.

Multipolarities deduced from DCO ratios and decay patterns are not listed explicitly by 2015Ro27 but these can be implied from the assigned J^π values and band structures.

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

γ(^{167}Lu) (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
87.7@ *2*	@	136.3	1/2$^-$	48.6	3/2$^+$	
101.5 *2*	10.1 *20*	433.55	11/2$^-$	331.87	9/2$^-$	
102.6 *2*	11.2 *22*	136.3	1/2$^-$	33.7	1/2$^+$	DCO=0.92 *4*
107.3 *2*	26.3 *53*	155.9	5/2$^-$	48.6	3/2$^+$	DCO=0.84 *3*
111.7 *2*	29.1 *58*	267.6	9/2$^-$	155.9	5/2$^-$	
117.4@ *2*	@	184.5	7/2$^+$	67.1	5/2$^+$	DCO=0.85 *4*
129.7@ *2*	@	178.3	5/2$^+$	48.6	3/2$^+$	
140.0 *2*	14.7 *29*	140.04	9/2$^+$	0.0	7/2$^+$	
143.4 *2*	44.8 *28*	576.90	13/2$^-$	433.55	11/2$^-$	
144.6@ *2*	@	178.3	5/2$^+$	33.7	1/2$^+$	
145.0 *2*	19.5 *33*	329.5	9/2$^+$	184.5	7/2$^+$	DCO=0.80 *8*
159.7 *2*	1.5 *1*	2100.28	23/2$^-$	1940.48	21/2$^-$	
162.2 *5*	≤0.3	2938.9	31/2$^+$	2776.7	29/2$^+$	
165.3 *2*	37.5 *36*	305.29	11/2$^+$	140.04	9/2$^+$	
167.3 *2*	62.9 *55*	744.09	15/2$^-$	576.90	13/2$^-$	
167.7 *2*	2.5 *7*	435.4	7/2$^-$	267.6	9/2$^-$	
169.4 *2*	14.1 *11*	499.0	11/2$^+$	329.5	9/2$^+$	DCO=0.74 *7*
169.8@ *2*	@	218.4	7/2$^+$	48.6	3/2$^+$	DCO=1.00 *4*
174.9 *2*	2.1 *2*	3133.7	33/2$^+$	2958.8	31/2$^-$	DCO=0.66 *11*
176.7 *2*	1.0 *2*	435.4	7/2$^-$	258.7	3/2$^-$	DCO=1.07 *5*
178.2 *2*	9.5 *10*	507.8	11/2$^+$	329.5	9/2$^+$	DCO=0.82 *4*
185.3 *2*	4.2 *4*	2285.55	25/2$^-$	2100.28	23/2$^-$	DCO=0.91 *13*
186.0 *2*	7.9 *8*	693.9	13/2$^+$	507.8	11/2$^+$	DCO=0.68 *7*
188.2 *2*	5.1 *4*	2694.6	29/2$^+$	2506.5	27/2$^+$	DCO=0.83 *8*
188.9 *2*	25.3 *28*	494.18	13/2$^+$	305.29	11/2$^+$	
189.5 *2*	1.5 *1*	1406.6	19/2$^+$	1217.1	17/2$^+$	DCO=0.78 *16*
191.2 *2*	1.1 *2*	3628.5	37/2$^+$	3437.3	35/2$^+$	DCO=0.74 *15*
191.7 *2*	32.1 *64*	331.87	9/2$^-$	140.04	9/2$^+$	
193.5 *5*	0.9 *1*	887.3	15/2$^+$	693.9	13/2$^+$	DCO=0.69 *14*
194.8 *2*	5.8 *5*	693.9	13/2$^+$	499.0	11/2$^+$	DCO=0.82 *9*
203.1 *2*	1.9 *2*	3413.9	35/2$^+$	3210.8	33/2$^+$	
203.6 *2*	49.4 *29*	947.69	17/2$^-$	744.09	15/2$^-$	
205.3 *5*	0.5 *1*	1346.5	19/2$^+$	1141.4	17/2$^+$	DCO=0.77 *15*
205.4 *2*	3.8 *3*	2491.01	27/2$^-$	2285.55	25/2$^-$	DCO=0.86 *12*
210.3 *2*	24.0 *22*	704.23	15/2$^+$	494.18	13/2$^+$	
211.7 *2*	46.3 *34*	1159.41	19/2$^-$	947.69	17/2$^-$	
212.3 *2*	66.3 *61*	479.9	13/2$^-$	267.6	9/2$^-$	DCO=1.10 *4*
213.0 *5*	0.7 *2*	692.8	11/2$^-$	479.9	13/2$^-$	
214.5 *2*	5.7 *6*	432.8	9/2$^+$	218.4	7/2$^+$	DCO=0.81 *8*
214.6 *2*	1.2 *2*	3628.5	37/2$^+$	3413.9	35/2$^+$	
218.8 *2*	24.4 *15*	3288.7	35/2$^-$	3069.9	33/2$^-$	
221.1 *2*	11.0 *9*	3043.7	33/2$^+$	2822.8	31/2$^+$	
222.4 *2*	8.9 *7*	916.2	15/2$^+$	693.9	13/2$^+$	DCO=0.81 *5*
224.7 *2*	1.3 *2*	2715.7	29/2$^-$	2491.01	27/2$^-$	DCO=0.99 *20*
225.0 *2*	1.7 *3*	258.7	3/2$^-$	33.7	1/2$^+$	
225.3 *2*	6.8 *3*	1141.4	17/2$^+$	916.2	15/2$^+$	DCO=0.68 *16*
226.6 *5*	0.6 *1*	3437.3	35/2$^+$	3210.8	33/2$^+$	
226.9 *5*	0.3 *1*	4205.9	41/2$^+$	3978.9	39/2$^+$	
230.0 *2*	21.6 *31*	934.17	17/2$^+$	704.23	15/2$^+$	
232.3 *2*	2.4 *3*	2187.1	25/2$^+$	1954.7	23/2$^+$	DCO=0.82 *12*
234.4 *2*	24.9 *15*	3523.1	37/2$^-$	3288.7	35/2$^-$	
235.4 *5*	≤0.3	3356.9	33/2$^+$	3121.2	31/2$^+$	
238.0 *5*	0.8 *1*	1954.7	23/2$^+$	1716.7	21/2$^+$	DCO=0.80 *16*
241.2 *2*	10.9 *12*	3285.1	35/2$^+$	3043.7	33/2$^+$	
242.1 *2*	8.1 *8*	2822.8	31/2$^+$	2580.6	29/2$^+$	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
242.9 *5*	0.9 *3*	2749.3	$29/2^+$	2506.5	$27/2^+$	DCO=0.82 *12*
243.1 *2*	1.1 *2*	2958.8	$31/2^-$	2715.7	$29/2^-$	DCO=1.07 *21*
243.4 *2*	3.9 *3*	1649.9	$21/2^+$	1406.6	$19/2^+$	DCO=0.75 *11*
244.4 *2*	32.0 *30*	1655.83	$23/2^-$	1411.47	$21/2^-$	
245.1 *2*	14.4 *24*	576.90	$13/2^-$	331.87	$9/2^-$	
245.8 *2*	2.9 *3*	2506.5	$27/2^+$	2260.7	$25/2^+$	DCO=0.63 *16*
246.6 *2*	≤21.6	1180.99	$19/2^+$	934.17	$17/2^+$	
246.6 *2*	≤13.8	3531.9	$37/2^+$	3285.1	$35/2^+$	
248.3 *2*	2.0 *3*	432.8	$9/2^+$	184.5	$7/2^+$	DCO=0.84 *13*
251.0 *2*	17.2 *17*	3774.0	$39/2^-$	3523.1	$37/2^-$	
252.1 *2*	39.6 *32*	1411.47	$21/2^-$	1159.41	$19/2^-$	
254.0 *2*	1.4 *1*	1141.4	$17/2^+$	887.3	$15/2^+$	DCO=0.81 *16*
254.5 *2*	5.6 *6*	432.8	$9/2^+$	178.3	$5/2^+$	DCO=0.99 *10*
257.4 *2*	6.4 *13*	692.8	$11/2^-$	435.4	$7/2^-$	DCO=1.04 *5*
258.5 *5*	0.7 *2*	3217.3	$33/2^-$	2958.8	$31/2^-$	DCO=1.21 *24*
260.0 *5*	0.5 *2*	3678.3	$35/2^-$	3418.1	$33/2^-$	
262.4 *2*	2.7 *5*	329.5	$9/2^+$	67.1	$5/2^+$	DCO=0.90 *14*
263.5 *2*	9.5 *11*	1940.48	$21/2^-$	1677.0	$(17/2^-)$	
263.6 *2*	12.8 *10*	1444.42	$21/2^+$	1180.99	$19/2^+$	
264.0 *2*	1.0 *2*	4861.3	$45/2^+$	4597.4	$43/2^+$	
264.1 *2*	6.6 *7*	2958.8	$31/2^+$	2694.6	$29/2^+$	DCO=0.83 *8*
265.2 *2*	3.7 *2*	1406.6	$19/2^+$	1141.4	$17/2^+$	DCO=0.77 *12*
266.6 *5*	≤0.3	3892.5	$37/2^+$	3625.8	$35/2^+$	
267.6 *2*	14.2 *25*	2214.9	$27/2^-$	1947.3	$25/2^-$	
268.4 *2*	34.8 *60*	2800.4	$31/2^-$	2531.7	$29/2^-$	
269.1 *5*	0.4 *1*	3625.8	$35/2^+$	3356.9	$33/2^+$	
269.6 *2*	37.8 *60*	3069.9	$33/2^-$	2800.4	$31/2^-$	
270.2 *2*	2.8 *3*	2776.7	$29/2^+$	2506.5	$27/2^+$	
270.4 *2*	2.2 *6*	3948.7	$37/2^-$	3678.3	$35/2^-$	DCO=0.61 *6*
271.7 *2*	20.9 *14*	4045.5	$41/2^-$	3774.0	$39/2^-$	
272.0 *5*	0.6 *1*	3210.8	$33/2^+$	2938.9	$31/2^+$	
274.3 *5*	0.8 *4*	3491.7	$35/2^-$	3217.3	$33/2^-$	DCO=0.99 *20*
275.8 *2*	10.0 *9*	1720.06	$23/2^+$	1444.42	$21/2^+$	
276.0 *2*	1.4 *2*	783.7	$13/2^+$	507.8	$11/2^+$	DCO=0.67 *13*
279.4 *2*	11.0 *22*	435.4	$7/2^-$	155.9	$5/2^-$	
280.7 *2*	4.8 *9*	3812.6	$39/2^+$	3531.9	$37/2^+$	
281.0 *2*	7.6 *12*	2580.6	$29/2^+$	2299.3	$27/2^+$	
283.6 *2*	5.2 *6*	4096.0	$41/2^+$	3812.6	$39/2^+$	
284.5 *2*	4.0 *5*	783.7	$13/2^+$	499.0	$11/2^+$	DCO=0.65 *10*
287.0 *5*	0.6 *2*	3778.6	$37/2^-$	3491.7	$35/2^-$	DCO=1.00 *20*
288.3 *2*	11.0 *9*	2008.11	$25/2^+$	1720.06	$23/2^+$	
289.4 *2*	17.5 *17*	507.8	$11/2^+$	218.4	$7/2^+$	DCO=0.97 *4*
291.2 *2*	6.8 *7*	2299.3	$27/2^+$	2008.11	$25/2^+$	
291.6 *2*	25.2 *16*	1947.3	$25/2^-$	1655.83	$23/2^-$	
293.6 *2*	33.0 *66*	433.55	$11/2^-$	140.04	$9/2^+$	
293.9 *2*	14.5 *16*	4339.2	$43/2^-$	4045.5	$41/2^-$	
295.7 *5*	0.4 *1*	4244.6	$39/2^-$	3948.7	$37/2^-$	
299.4 *5*	0.9 *2*	4078.1	$39/2^-$	3778.6	$37/2^-$	DCO=1.02 *20*
300.0 *5*	0.5 *1*	4193.1	$39/2^+$	3892.5	$37/2^+$	
300.3 *5*	0.4 *1*	4544.8	$41/2^-$	4244.6	$39/2^-$	
301.0 *2*	1.1 *2*	1217.1	$17/2^+$	916.2	$15/2^+$	DCO=0.69 *14*
303.6 *2*	1.9 *2*	3437.3	$35/2^+$	3133.7	$33/2^+$	DCO=0.67 *13*
304.1 *5*	0.5 *2*	5184.7	$45/2^-$	4880.8	$43/2^-$	
304.9 *2*	2.8 *1*	1954.7	$23/2^+$	1649.9	$21/2^+$	DCO=0.73 *11*
305.3 *2*	44.3 *33*	305.29	$11/2^+$	0.0	$7/2^+$	
306.0 *2*	6.0 *7*	2260.7	$25/2^+$	1954.7	$23/2^+$	DCO=0.79 *8*

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
307.2 *5*	0.7 *1*	5586.5	49/2$^+$	5279.4	47/2$^+$	
307.4 *2*	1.9 *2*	3721.3	37/2$^+$	3413.9	35/2$^+$	
307.9 *5*	0.7 *2*	4385.9	41/2$^-$	4078.1	39/2$^-$	DCO=0.91 *18*
310.0 *2*	9.0 *9*	1716.7	21/2$^+$	1406.6	19/2$^+$	DCO=0.84 *4*
310.4 *2*	32.8 *24*	744.09	15/2$^-$	433.55	11/2$^-$	
311.2 *2*	3.8 *2*	2100.28	23/2$^-$	1789.12	19/2$^-$	
314.5 *2*	7.3 *7*	499.0	11/2$^+$	184.5	7/2$^+$	DCO=0.93 *18*
314.5 *2*	87.5 *81*	794.5	17/2$^-$	479.9	13/2$^-$	DCO=1.02 *4*
316.4 *2*	20.0 *29*	2531.7	29/2$^-$	2214.9	27/2$^-$	
316.9 *2*	13.4 *21*	4655.9	45/2$^-$	4339.2	43/2$^-$	
317.7 *2*	≤4.8	4734.9	45/2$^+$	4417.0	43/2$^+$	DCO=0.68 *4*
318.4 *2*	1.6 *2*	2483.5	25/2$^-$	2165.0	21/2$^-$	DCO=1.10 *20*
318.8 *5*	0.5 *1*	4704.8	43/2$^-$	4385.9	41/2$^-$	DCO=1.09 *22*
319.4 *2*	1.2 *2*	2506.5	27/2$^+$	2187.1	25/2$^+$	DCO=0.52 *10*
319.4 *5*	≤0.3	5859.6	49/2$^-$	5540.1	47/2$^-$	
319.7 *5*	≤0.3	4815.5	43/2$^+$	4496.0	41/2$^+$	
321.0 *2*	≤3.0	4417.0	43/2$^+$	4096.0	41/2$^+$	DCO=0.73 *4*
326.2 *5*	≤0.3	5030.7	45/2$^-$	4704.8	43/2$^-$	DCO=0.81 *16*
329.2 *2*	2.0 *4*	4554.1	(J1)	4224.9	39/2$^-$	
329.8 *2*	4.4 *5*	1217.1	17/2$^+$	887.3	15/2$^+$	DCO=0.56 *8*
330.0 *2*	13.8 *12*	4985.9	47/2$^-$	4655.9	45/2$^-$	
331.9 *2*	40.4 *60*	331.87	9/2$^-$	0.0	7/2$^+$	
335.9 *5*	0.9 *3*	4880.8	43/2$^-$	4544.8	41/2$^-$	
338.4 *5*	0.7 *6*	5369.5	47/2$^-$	5030.7	45/2$^-$	DCO=0.86 *17*
341.6 *2*	6.8 *6*	1034.4	15/2$^-$	692.8	11/2$^-$	DCO=1.08 *11*
345.0 *2*	7.7 *7*	2285.55	25/2$^-$	1940.48	21/2$^-$	
345.0 *2*	1.0 *9*	5714.6	49/2$^-$	5369.5	47/2$^-$	
349.6 *2*	4.7 *5*	5442.6	49/2$^+$	5093.0	47/2$^+$	DCO=0.72 *11*
350.1 *5*	≤0.3	6592.6	53/2$^-$	6242.3	51/2$^-$	
350.4 *2*	1.6 *3*	3978.9	39/2$^+$	3628.5	37/2$^+$	
350.6 *5*	0.9 *2*	6332.7	53/2$^+$	5982.1	51/2$^+$	
351.0 *2*	12.6 *13*	783.7	13/2$^+$	432.8	9/2$^+$	DCO=0.94 *4*
351.0 *2*	1.0 *3*	2749.3	29/2$^+$	2398.1	27/2$^+$	DCO=0.85 *13*
351.4 *2*	3.2 *7*	5982.1	51/2$^+$	5630.7	49/2$^+$	
354.1 *2*	66.0 *60*	494.18	13/2$^+$	140.04	9/2$^+$	
355.5 *5*	0.7 *2*	5540.1	47/2$^-$	5184.7	45/2$^-$	
356.4 *2*	8.7 *7*	5705.4	51/2$^-$	5349.0	49/2$^-$	
358.1 *2*	≤2.4	5093.0	47/2$^+$	4734.9	45/2$^+$	DCO=0.85 *6*
362.8 *5*	0.9 *4*	6077.5	51/2$^-$	5714.6	49/2$^-$	
363.0 *2*	9.0 *18*	5349.0	49/2$^-$	4985.9	47/2$^-$	
364.6 *2*	12.9 *13*	693.9	13/2$^+$	329.5	9/2$^+$	DCO=1.01 *4*
368.4 *2*	1.3 *2*	9192.6	67/2$^-$	8824.2	65/2$^-$	DCO=0.75 *6*
370.0 *5*	0.4 *2*	6447.7	53/2$^-$	6077.5	51/2$^-$	
370.1 *2*	2.1 *2*	1716.7	21/2$^+$	1346.5	19/2$^+$	DCO=0.83 *12*
370.8 *2*	33.6 *29*	947.69	17/2$^-$	576.90	13/2$^-$	
373.8 *2*	3.3 *4*	6490.5	55/2$^-$	6116.9	53/2$^-$	
374.2 *5*	0.7 *2*	7100.9	57/2$^+$	6726.6	55/2$^+$	
379.2 *2*	17.3 *17*	887.3	15/2$^+$	507.8	11/2$^+$	DCO=0.96 *4*
379.5 *2*	1.9 *5*	6212.7	53/2$^+$	5833.2	51/2$^+$	DCO=0.76 *15*
381.0 *2*	1.6 *2*	8236.2	63/2$^-$	7855.3	61/2$^-$	DCO=0.61 *12*
381.7 *2*	2.2 *2*	7334.8	59/2$^-$	6953.1	57/2$^-$	
382.5 *5*	≤0.3	6242.3	51/2$^-$	5859.6	49/2$^-$	
384.3 *2*	1.1 *1*	2893.0	29/2$^+$	2508.8	25/2$^+$	DCO=0.91 *18*
386 *1*		2350.0	(25/2$^+$)	1964.0	(21/2$^+$)	E_γ: from Figure 1 in 2015Ro27, not listed in authors′ Table IV.
388.3 *2*	16.4 *40*	887.3	15/2$^+$	499.0	11/2$^+$	DCO=0.96 *4*
390.7 *2*	10.5 *8*	2491.01	27/2$^-$	2100.28	23/2$^-$	DCO=0.97 *4*

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
390.7 *2*	2.8 *4*	5833.2	51/2$^+$	5442.6	49/2$^+$	DCO=0.71 *11*
391.3 *5*	0.7 *2*	4597.4	43/2$^+$	4205.9	41/2$^+$	
392.0 *5*	0.7 *3*	6839.2	55/2$^-$	6447.7	53/2$^-$	
393.9 *5*	0.6 *2*	6726.6	55/2$^+$	6332.7	53/2$^+$	
395.6 *5*	0.4 *1*	5982.1	51/2$^+$	5586.5	49/2$^+$	
399.0 *2*	82.8 *66*	704.23	15/2$^+$	305.29	11/2$^+$	
399.3 *2*	1.7 *3*	2749.3	29/2$^+$	2350.0	(25/2$^+$)	
399.4 *2*	7.6 *16*	3293.9	33/2$^-$	2894.4	29/2$^-$	DCO=0.97 *10*
400.7 *5*	0.5 *2*	7239.8	57/2$^-$	6839.2	55/2$^-$	
404.8 *2*	3.4 *13*	7036.1	57/2$^+$	6631.2	55/2$^+$	DCO=0.67 *10*
406.5 *5*	≤0.3	887.3	15/2$^+$	479.9	13/2$^-$	
408.4 *2*	7.1 *7*	916.2	15/2$^+$	507.8	11/2$^+$	DCO=0.93 *9*
408.7 *5*	≤0.3	7001.3	55/2$^-$	6592.6	53/2$^-$	
410.8 *2*	100.0 *14*	1205.3	21/2$^-$	794.5	17/2$^-$	DCO=0.93 *4*
410.8 *2*	≈8.0	2894.4	29/2$^-$	2483.5	25/2$^-$	DCO=0.93 *5*
411.8 *2*	3.8 *5*	6116.9	53/2$^-$	5705.4	51/2$^-$	
415.3 *2*	48.1 *29*	1159.41	19/2$^-$	744.09	15/2$^-$	
417.4 *2*	6.0 *5*	916.2	15/2$^+$	499.0	11/2$^+$	DCO=1.00 *10*
418.0 *5*	≤0.3	5279.4	47/2$^+$	4861.3	45/2$^+$	
418.2 *2*	1.7 *2*	6631.2	55/2$^+$	6212.7	53/2$^+$	DCO=0.77 *15*
423.0 *5*	≤0.3	7662.6	59/2$^-$	7239.8	57/2$^-$	
424.0 *5*	0.5 *1*	3121.2	31/2$^+$	2697.0	27/2$^+$	
424.6 *2*	6.9 *8*	1458.9	19/2$^-$	1034.4	15/2$^-$	DCO=1.05 *11*
425.2 *2*	8.8 *18*	692.8	11/2$^-$	267.6	9/2$^-$	
430.1 *2*	5.6 *6*	2715.7	29/2$^-$	2285.55	25/2$^-$	DCO=0.94 *9*
433.3# *5*	16.9# *20*	1217.1	17/2$^+$	783.7	13/2$^+$	DCO=1.05 *4*
434.0# *5*	5.4# *13*	3210.8	33/2$^+$	2776.7	29/2$^+$	
434.7 *5*	0.9 *2*	7471.1	59/2$^+$	7036.1	57/2$^+$	DCO=0.66 *13*
439.0 *2*	11.5 *13*	3133.7	33/2$^+$	2694.6	29/2$^+$	DCO=1.03 *4*
439.7 *2*	96 *12*	934.17	17/2$^+$	494.18	13/2$^+$	
447.5 *2*	10.9 *7*	1141.4	17/2$^+$	693.9	13/2$^+$	DCO=0.91 *4*
452.3 *2*	5.7 *4*	2958.8	31/2$^+$	2506.5	27/2$^+$	DCO=0.97 *10*
453.1 *2*	17.4 *11*	3523.1	37/2$^-$	3069.9	33/2$^-$	
455.8 *2*	2.8 *8*	3121.2	31/2$^+$	2665.3	27/2$^+$	DCO=1.06 *21*
459.0 *2*	22.8 *57*	1346.5	19/2$^+$	887.3	15/2$^+$	DCO=1.03 *4*
462.3 *2*	18.5 *38*	3285.1	35/2$^+$	2822.8	31/2$^+$	
462.7 *2*	8.7 *10*	6953.1	57/2$^-$	6490.5	55/2$^-$	
463.0 *2*	35.6 *50*	3043.7	33/2$^+$	2580.6	29/2$^+$	
463.8 *2*	42.6 *26*	1411.47	21/2$^-$	947.69	17/2$^-$	
464.1 *5*	0.8 *1*	3356.9	33/2$^+$	2893.0	29/2$^+$	DCO=1.00 *20*
467.8 *2*	7.0 *11*	2958.8	31/2$^-$	2491.01	27/2$^-$	DCO=0.97 *10*
471.0 *5*	≤0.3	2749.3	29/2$^+$	2278.5	25/2$^+$	
475.0 *2*	6.8 *7*	3413.9	35/2$^+$	2938.9	31/2$^+$	DCO=1.02 *10*
476.0 *2*	6.4 *13*	3770.0	37/2$^-$	3293.9	33/2$^-$	DCO=1.01 *4*
477.0 *2*	70.1 *52*	1180.99	19/2$^+$	704.23	15/2$^+$	
478.4 *2*	5.8 *5*	3437.3	35/2$^+$	2958.8	31/2$^-$	DCO=1.01 *10*
478.9 *2*	2.3 *5*	3417.8	35/2$^+$	2938.9	31/2$^+$	Placement apparently shown from 3437.7 level in Table IV of 2015Ro27 is incorrect. The placement here follows from Figure 1 of 2015Ro27.
483.0 *2*	2.2 *2*	2491.01	27/2$^-$	2008.11	25/2$^+$	DCO=0.69 *10*
485.3 *2*	16.1 *12*	3774.0	39/2$^-$	3288.7	35/2$^-$	
488.3 *2*	22.1 *14*	3288.7	35/2$^-$	2800.4	31/2$^-$	
488.4 *2*	23.1 *18*	3531.9	37/2$^+$	3043.7	33/2$^+$	
488.6 *2*	2.2 *4*	2749.3	29/2$^+$	2260.7	25/2$^+$	DCO=0.95 *10*
490.4 *2*	12.7 *5*	1406.6	19/2$^+$	916.2	15/2$^+$	DCO=1.04 *4*

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
494.8 *2*	10.3 *10*	3628.5	37/2$^+$	3133.7	33/2$^+$	DCO=1.02 *4*
496.4 *2*	48.2 *29*	1655.83	23/2$^-$	1159.41	19/2$^-$	
498.2 *2*	93.6 *14*	1703.3	25/2$^-$	1205.3	21/2$^-$	DCO=1.03 *4*
499.8 *2*	15.6 *16*	1716.7	21/2$^+$	1217.1	17/2$^+$	DCO=1.11 *3*
501.1 *2*	8.0 *16*	1959.7	23/2$^-$	1458.9	19/2$^-$	DCO=1.03 *4*
501.6 *2*	5.5 *11*	3217.3	33/2$^-$	2715.7	29/2$^-$	DCO=1.02 *10*
504.6 *2*	3.5 *4*	3625.8	35/2$^+$	3121.2	31/2$^+$	DCO=1.08 *16*
504.7 *2*	7.8 *9*	3254.3	33/2$^+$	2749.3	29/2$^+$	DCO=0.90 *5*
504.9 *2*	5.2 *9*	2883.7	29/2$^-$	2378.8	25/2$^-$	DCO=0.95 *19*
505 *1*		1964.0	(21/2$^+$)	1458.9	19/2$^-$	E_γ: from Figure 1 in 2015Ro27, not listed in authors′ Table IV.
508.0# *5*	10.5# *21*	2694.6	29/2$^+$	2187.1	25/2$^+$	DCO=0.93 *4* DCO for 508.7+508.0.
508.7# *5*	11.0# *22*	1649.9	21/2$^+$	1141.4	17/2$^+$	DCO=0.93 *4* DCO for 508.7+508.0.
510.0 *2*	21.0 *40*	1856.7	23/2$^+$	1346.5	19/2$^+$	DCO=1.07 *4*
510.2 *2*	89.4 *66*	1444.42	21/2$^+$	934.17	17/2$^+$	
510.4 *2*	5.7 *14*	3721.3	37/2$^+$	3210.8	33/2$^+$	
516.0 *2*	6.4 *13*	2776.7	29/2$^+$	2260.7	25/2$^+$	
520.4 *2*	1.0 *3*	7855.3	61/2$^-$	7334.8	59/2$^-$	DCO=0.95 *19*
522.4 *2*	20.9 *14*	4045.5	41/2$^-$	3523.1	37/2$^-$	
523.8 *2*	26.8 *21*	2822.8	31/2$^+$	2299.3	27/2$^+$	
524.9 *5*	0.8 *2*	4898.4	43/2$^+$	4373.5	41/2$^-$	DCO=0.69 *6*
527.5 *2*	21.1 *17*	3812.6	39/2$^+$	3285.1	35/2$^+$	
530.6 *2*	5.1 *10*	3948.7	37/2$^-$	3418.1	33/2$^-$	DCO=0.98 *10*
532.8 *2*	5.8 *17*	3491.7	35/2$^-$	2958.8	31/2$^-$	DCO=1.00 *10*
534.4 *2*	5.7 *10*	3418.1	33/2$^-$	2883.7	29/2$^-$	DCO=1.18 *15*
535.3 *5*	0.8 *1*	3892.5	37/2$^+$	3356.9	33/2$^+$	DCO=0.98 *20*
535.9 *2*	42.5 *27*	1947.3	25/2$^-$	1411.47	21/2$^-$	
536.0 *2*	6.5 *9*	4306.1	41/2$^-$	3770.0	37/2$^-$	
536.4 *2*	4.7 *11*	4266.1	39/2$^-$	3729.7	35/2$^-$	DCO=0.93 *14*
537.3 *2*	10.0 *20*	2187.1	25/2$^+$	1649.9	21/2$^+$	DCO=0.98 *4*
538.2 *2*	25.7 *18*	3069.9	33/2$^-$	2531.7	29/2$^-$	
539.0 *2*	63.7 *47*	1720.06	23/2$^+$	1180.99	19/2$^+$	
541.2&# *5*	14.0&# *27*	2398.1	27/2$^+$	1856.7	23/2$^+$	DCO=1.10 DCO for 541.2 doublet.
541.2&# *5*	9.0&# *18*	2938.9	31/2$^+$	2398.1	27/2$^+$	DCO=1.10 *4* DCO for 541.2 doublet.
541.6 *2*	4.4 *9*	3978.9	39/2$^+$	3437.3	35/2$^+$	
544.0 *2*	10.4 *26*	2260.7	25/2$^+$	1716.7	21/2$^+$	DCO=0.92 *4*
544.0 *2*	3.8 *4*	3957.9	39/2$^+$	3413.9	35/2$^+$	DCO=1.12 *17*
547.0 *2*	1.8 *3*	4521.2	39/2$^+$	3974.1	35/2$^+$	DCO=0.92 *18*
548.0 *2*	10.2 *7*	1954.7	23/2$^+$	1406.6	19/2$^+$	DCO=1.00 *5*
551.7 *2*	7.2 *14*	2506.5	27/2$^+$	1954.7	23/2$^+$	DCO=1.05 *5*
554.6 *2*	2.4 *2*	1034.4	15/2$^-$	479.9	13/2$^-$	DCO=0.58 *9*
558.9 *2*	46.7 *29*	2214.9	27/2$^-$	1655.83	23/2$^-$	
559.8 *2*	5.5 *8*	3254.3	33/2$^+$	2694.6	29/2$^+$	DCO=1.02 *4* DCO for 559.8+560.6.
560.6 *2*	9.0 *9*	3814.8	37/2$^+$	3254.3	33/2$^+$	DCO=1.02 *4* DCO for 559.8+560.6.
561.1 *2*	2.0 *4*	3978.9	39/2$^+$	3417.8	35/2$^+$	
561.3 *2*	4.0 *14*	3778.6	37/2$^-$	3217.3	33/2$^-$	DCO=0.91 *14*
562.0 *5*	≤0.3	2278.5	25/2$^+$	1716.7	21/2$^+$	DCO=1.02 *4* DCO for 562.0+562.3.
562.3 *2*	2.0 *3*	2749.3	29/2$^+$	2187.1	25/2$^+$	DCO=1.02 *4* DCO for 562.0+562.3.

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
563.6 *2*	64.8 *60*	2008.11	$25/2^+$	1444.42	$21/2^+$	
563.9 *2*	22.1 *36*	4096.0	$41/2^+$	3531.9	$37/2^+$	
565.2 *2*	16.6 *12*	4339.2	$43/2^-$	3774.0	$39/2^-$	
565.4 *2*	6.6 *6*	2285.55	$25/2^-$	1720.06	$23/2^+$	DCO=0.68 *7*
566.3 *2*	2.3 *6*	4244.6	$39/2^-$	3678.3	$35/2^-$	
566.8 *2*	8.6 *17*	2526.6	$27/2^-$	1959.7	$23/2^-$	DCO=1.04 *4*
567.4 *2*	2.8 *2*	4193.1	$39/2^+$	3625.8	$35/2^+$	DCO=0.99 *15*
568.4 *2*	1.4 *3*	4941.9	$45/2^-$	4373.5	$41/2^-$	
572.6 *2*	40.1 *31*	2580.6	$29/2^+$	2008.11	$25/2^+$	
572.6 *2*	5.1 *5*	4838.6	$43/2^-$	4266.1	$39/2^-$	DCO=1.04 *10*
574.7 *2*	71.6 *13*	2278.0	$29/2^-$	1703.3	$25/2^-$	DCO=1.03 *4*
574.8 *2*	1.5 *2*	3589.4	$35/2^+$	3014.6	$31/2^+$	
577.3 *2*	9.5 *10*	4205.9	$41/2^+$	3628.5	$37/2^+$	DCO=0.97 *5*
579.2 *2*	52.5 *40*	2299.3	$27/2^+$	1720.06	$23/2^+$	
584.4 *2*	30.1 *38*	2531.7	$29/2^-$	1947.3	$25/2^-$	
585.8 *2*	47.8 *51*	2800.4	$31/2^-$	2214.9	$27/2^-$	
586.4 *2*	5.7 *21*	4078.1	$39/2^-$	3491.7	$35/2^-$	DCO=0.99 *10*
586.4 *2*	5.5 *6*	4307.7	$41/2^+$	3721.3	$37/2^+$	
588.0 *2*	1.3 *2*	8824.2	$65/2^-$	8236.2	$63/2^-$	
591.3 *2*	5.7 *6*	3729.7	$35/2^-$	3138.4	$31/2^-$	DCO=1.07 *11*
593.9 *2*	2.3 *5*	3322.3	$33/2^+$	2728.4	$29/2^+$	DCO=0.99 *11*
594.0 *2*	2.1 *2*	4838.6	$43/2^-$	4244.6	$39/2^-$	DCO=0.81 *15*
596.0 *2*	3.2 *8*	4544.8	$41/2^-$	3948.7	$37/2^-$	
597.0 *2*	1.1 *3*	4222.8	$39/2^+$	3625.8	$35/2^+$	
603.3 *2*	1.5 *3*	4373.5	$41/2^-$	3770.0	$37/2^-$	DCO=0.93 *19*
603.5 *2*	1.0 *2*	4496.0	$41/2^+$	3892.5	$37/2^+$	DCO=0.99 *20*
603.6 *5*	0.6 *1*	4193.1	$39/2^+$	3589.4	$35/2^+$	
604.3 *2*	1.4 *3*	5125.6	$43/2^+$	4521.2	$39/2^+$	
604.4 *2*	22.4 *20*	4417.0	$43/2^+$	3812.6	$39/2^+$	DCO=0.99 *2*
606.8 *2*	7.8 *7*	4421.6	$41/2^+$	3814.8	$37/2^+$	DCO=1.07 *11*
607.3 *2*	5.3 *21*	4385.9	$41/2^-$	3778.6	$37/2^-$	DCO=0.95 *10*
609.4 *2*	1.0 *3*	4222.8	$39/2^+$	3613.7	$37/2^-$	DCO=0.64 *5*
610.2 *2*	20.2 *14*	4655.9	$45/2^-$	4045.5	$41/2^-$	
612.0 *2*	5.4 *5*	3138.4	$31/2^-$	2526.6	$27/2^-$	DCO=1.05 *11*
613.7 *2*	1.5 *2*	4838.6	$43/2^-$	4224.9	$39/2^-$	
616.6 *2*	3.2 *8*	3014.6	$31/2^+$	2398.1	$27/2^+$	
618.6 *2*	2.1 *8*	4597.4	$43/2^+$	3978.9	$39/2^+$	DCO=1.02 *15*
620.2 *2*	3.0 *10*	4578.1	$43/2^+$	3957.9	$39/2^+$	DCO=1.05 *16*
622.4 *2*	1.6 *3*	4594.8	$41/2^+$	3972.4	$37/2^+$	DCO=1.02 *10*
622.4 *2*	2.6 *2*	4815.5	$43/2^+$	4193.1	$39/2^+$	DCO=0.94 *14* Initial level: negative parity in Table IV of 2015Ro27 is a misprint, it should be positive as in level-scheme Figure 1.
626.6 *2*	4.4 *17*	4704.8	$43/2^-$	4078.1	$39/2^-$	DCO=1.02 *15*
632.2 *5*	0.4 *1*	2893.0	$29/2^+$	2260.7	$25/2^+$	
633.2 *2*	6.4 *16*	4222.8	$39/2^+$	3589.4	$35/2^+$	DCO=0.97 *4*
635.9 *2*	10.9 *10*	4941.9	$45/2^-$	4306.1	$41/2^-$	DCO=1.05 *4*
636.0 *2*	1.2 *2*	5230.8	$45/2^+$	4594.8	$41/2^+$	DCO=1.07 *6*
636.2 *2*	2.9 *8*	4880.8	$43/2^-$	4244.6	$39/2^-$	
639.1 *2*	26.1 *22*	4734.9	$45/2^+$	4096.0	$41/2^+$	DCO=0.98 *2*
640.0 *2*	3.3 *9*	5184.7	$45/2^-$	4544.8	$41/2^-$	DCO=1.13 *17*
640.9 *2*	50.8 *12*	2918.5	$33/2^-$	2278.0	$29/2^-$	DCO=1.05 *4*
644.7 *2*	3.8 *15*	5030.7	$45/2^-$	4385.9	$41/2^-$	DCO=0.98 *15*
646.7 *2*	18.1 *15*	4985.9	$47/2^-$	4339.2	$43/2^-$	
647.0 *2*	4.7 *6*	4954.7	$45/2^+$	4307.7	$41/2^+$	DCO=1.02 *15*
650.1 *2*	3.1 *6*	3972.4	$37/2^+$	3322.3	$33/2^+$	DCO=0.94 *7*
650.4 *2*	2.3 *6*	3589.4	$35/2^+$	2938.9	$31/2^+$	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
651.5 *2*	1.7 *4*	1856.7	23/2$^+$	1205.3	21/2$^-$	
652.6 *2*	6.9 *7*	5491.2	47/2$^-$	4838.6	43/2$^-$	DCO=1.02 *10*
654.6 *2*	6.4 *6*	5076.2	45/2$^+$	4421.6	41/2$^+$	DCO=0.91 *4*
655.3 *2*	9.0 *9*	4861.3	45/2$^+$	4205.9	41/2$^+$	DCO=0.94 *5*
655.9 *2*	14.4 *7*	2100.28	23/2$^-$	1444.42	21/2$^+$	DCO=0.65 *3*
657.0 *5*	0.9 *4*	5030.7	45/2$^-$	4373.5	41/2$^-$	
658.1 *2*	1.0 *2*	5783.7	47/2$^+$	5125.6	43/2$^+$	DCO=0.87 *13*
658.7 *2*	5.0 *5*	2378.8	25/2$^-$	1720.06	23/2$^+$	DCO=0.69 *7*
659.3 *2*	2.8 *7*	5540.1	47/2$^-$	4880.8	43/2$^-$	
660.9 *5*	0.9 *3*	2938.9	31/2$^+$	2278.0	29/2$^-$	
664.1 *5*	0.7 *1*	5894.8	49/2$^+$	5230.8	45/2$^+$	DCO=0.98 *5*
664.4 *5*	0.6 *1*	5160.4	45/2$^+$	4496.0	41/2$^+$	DCO=1.04 *21*
664.5 *2*	2.3 *1*	1458.9	19/2$^-$	794.5	17/2$^-$	DCO=0.55 *8*
664.6 *2*	4.1 *17*	5369.5	47/2$^-$	4704.8	43/2$^-$	DCO=1.00 *15*
670.8 *2*	5.2 *12*	3589.4	35/2$^+$	2918.5	33/2$^-$	DCO=0.64 *6*
670.9 *2*	2.4 *2*	5486.4	47/2$^+$	4815.5	43/2$^+$	DCO=0.94 *14*
674.9 *2*	3.8 *10*	5859.6	49/2$^-$	5184.7	45/2$^-$	DCO=0.97 *4*
675.5 *2*	7.4 *19*	4898.4	43/2$^+$	4222.8	39/2$^+$	DCO=1.10 *7*
676.0 *2*	17.1 *15*	5093.0	47/2$^+$	4417.0	43/2$^+$	DCO=1.00 *4*
676.0 *2*	4.7 *6*	5630.7	49/2$^+$	4954.7	45/2$^+$	DCO=1.03 *15*
676.2# *5*	1.5# *3*	5230.4	(J1+2)	4554.1	(J1)	
677.0# *5*	2.5# *5*	3477.5	35/2$^-$	2800.4	31/2$^-$	
682.0 *2*	2.9 *3*	5279.4	47/2$^+$	4597.4	43/2$^+$	DCO=1.01 *15*
682.5 *2*	1.4 *3*	5912.9	(J1+4)	5230.4	(J1+2)	
684.0 *2*	3.2 *16*	5714.6	49/2$^-$	5030.7	45/2$^-$	DCO=1.05 *16*
687.0 *2*	2.9 *3*	5265.1	47/2$^+$	4578.1	43/2$^+$	DCO=1.07 *16*
692.6 *2*	11.5 *20*	4306.1	41/2$^-$	3613.7	37/2$^-$	DCO=1.04 *4*
693.0 *2*	17.4 *24*	5349.0	49/2$^-$	4655.9	45/2$^-$	
694.7 *2*	1.2 *3*	2398.1	27/2$^+$	1703.3	25/2$^-$	
695.8 *2*	32.4 *69*	3613.7	37/2$^-$	2918.5	33/2$^-$	DCO=1.01 *4* E_γ: somewhat poor fit, level-energy difference=695.2.
696.2 *2*	10.0 *20*	5638.0	49/2$^-$	4941.9	45/2$^-$	DCO=1.00 *4*
701.8 *2*	4.9 *5*	5778.0	49/2$^+$	5076.2	45/2$^+$	DCO=1.00 *10*
702.0 *2*	4.7 *6*	6332.7	53/2$^+$	5630.7	49/2$^+$	DCO=1.01 *15*
702.1 *2*	3.0 *8*	6242.3	51/2$^-$	5540.1	47/2$^-$	
702.8 *2*	2.0 *2*	5982.1	51/2$^+$	5279.4	47/2$^+$	DCO=0.99 *15*
704.2 *5*	0.5 *2*	5125.6	43/2$^+$	4421.6	41/2$^+$	
705.0 *5*	≤0.3	6599.8	53/2$^+$	5894.8	49/2$^+$	DCO=0.97 *5*
705.8 *5*	0.4 *1*	2893.0	29/2$^+$	2187.1	25/2$^+$	
706.1 *5*	0.8 *2*	4521.2	39/2$^+$	3814.8	37/2$^+$	DCO=0.66 *13*
707.6 *2*	21.4 *19*	5442.6	49/2$^+$	4734.9	45/2$^+$	DCO=1.01 *4*
707.7 *5*	0.4 *1*	5783.7	47/2$^+$	5076.2	45/2$^+$	
707.9 *2*	3.2 *14*	6077.5	51/2$^-$	5369.5	47/2$^-$	DCO=0.96 *14*
710.8 *5*	0.7 *1*	6494.8	51/2$^+$	5783.7	47/2$^+$	DCO=1.00 *20*
713.6 *5*	0.7 *1*	5873.9	49/2$^+$	5160.4	45/2$^+$	DCO=1.02 *20*
714.8 *2*	6.9 *7*	6206.0	51/2$^-$	5491.2	47/2$^-$	DCO=1.05 *11*
716.1 *2*	2.2 *2*	6202.5	51/2$^+$	5486.4	47/2$^+$	DCO=0.99 *15*
717.0 *2*	2.0 *2*	5982.1	51/2$^+$	5265.1	47/2$^+$	
717.0 *5*	0.4 *1*	6494.8	51/2$^+$	5778.0	49/2$^+$	
719.6 *2*	18.7 *25*	5705.4	51/2$^-$	4985.9	47/2$^-$	
719.8@ *2*	@	3974.1	35/2$^+$	3254.3	33/2$^+$	DCO=0.66 *10*
720.2 *2*	6.3 *13*	2728.4	29/2$^+$	2008.11	25/2$^+$	DCO=0.94 *9*
723.1 *5*	≤0.3	3121.2	31/2$^+$	2398.1	27/2$^+$	
725.2 *2*	5.9 *6*	5586.5	49/2$^+$	4861.3	45/2$^+$	DCO=1.04 *10*
725.8 *5*	≤0.3	6599.8	53/2$^+$	5873.9	49/2$^+$	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
726.6 *5*	0.8 *2*	6634.0	53/2$^-$	5907.4	49/2$^-$	DCO=1.06 *21*
726.7 *2*	7.0 *18*	5625.1	47/2$^+$	4898.4	43/2$^+$	DCO=0.95 *10*
730.3 *5*	≤0.3	7259.8	55/2$^+$	6529.6	53/2$^+$	
733.0 *2*	3.7 *9*	6592.6	53/2$^-$	5859.6	49/2$^-$	DCO=0.97 *4*
733.1 *2*	2.3 *9*	6447.7	53/2$^-$	5714.6	49/2$^-$	DCO=1.08 *16*
735.6 *5*	0.7 *1*	6015.4	51/2$^+$	5279.4	47/2$^+$	
736.4 *2*	1.0 *2*	3014.6	31/2$^+$	2278.0	29/2$^-$	DCO=0.67 *13*
740.3 *2*	14.7 *17*	5833.2	51/2$^+$	5093.0	47/2$^+$	DCO=0.97 *4*
741.0[a] *5*	≤0.3	7403.0	57/2$^+$	6661.9	53/2$^+$	
741.8 *2*	2.9 *6*	3322.3	33/2$^+$	2580.6	29/2$^+$	DCO=0.96 *5*
744.4 *2*	1.5 *2*	6726.6	55/2$^+$	5982.1	51/2$^+$	DCO=0.95 *19*
744.6 *5*	0.5 *1*	7471.1	59/2$^+$	6726.6	55/2$^+$	
746.4 *5*	≤0.3	6332.7	53/2$^+$	5586.5	49/2$^+$	
746.4[#] *5*	1.3[#] *3*	6659.3	(J1+6)	5912.9	(J1+4)	
747.3[#] *5*	2.3[#] *5*	4224.9	39/2$^-$	3477.5	35/2$^-$	
750.4 *2*	1.8 *2*	6015.4	51/2$^+$	5265.1	47/2$^+$	DCO=1.07 *21*
751.6 *2*	3.8 *5*	6529.6	53/2$^+$	5778.0	49/2$^+$	DCO=0.91 *9*
752.0 *5*	≤0.3	6659.3	(J1+6)	5907.4	49/2$^-$	
754.1 *2*	2.7 *1*	1959.7	23/2$^-$	1205.3	21/2$^-$	
754.4 *5*	0.3 *1*	6628.3	53/2$^+$	5873.9	49/2$^+$	DCO=1.00 *20*
757.6 *2*	1.1 *1*	6388.3	53/2$^+$	5630.7	49/2$^+$	
759.0 *2*	3.2 *8*	7001.3	55/2$^-$	6242.3	51/2$^-$	DCO=0.97 *4*
759.4 *2*	3.8 *3*	1940.48	21/2$^-$	1180.99	19/2$^+$	
759.6 *2*	7.7 *19*	6397.5	53/2$^-$	5638.0	49/2$^-$	DCO=0.97 *10*
760.0 *2*	13.0 *14*	4373.5	41/2$^-$	3613.7	37/2$^-$	DCO=0.95 *4*
761.6 *2*	2.5 *11*	6839.2	55/2$^-$	6077.5	51/2$^-$	DCO=0.94 *14*
763.2 *2*	1.4 *2*	6965.7	55/2$^+$	6202.5	51/2$^+$	DCO=0.94 *19*
763.2 *2*	5.6 *7*	6969.2	55/2$^-$	6206.0	51/2$^-$	DCO=1.08 *11*
765.0 *5*	0.6 *2*	7259.8	55/2$^+$	6494.8	51/2$^+$	DCO=1.06 *21*
765.1 *5*	0.8 *2*	5907.4	49/2$^-$	5142.3	45/2$^-$	DCO=1.04 *8* DCO for 768.8+765.1.
767.9 *2*	11.7 *10*	6116.9	53/2$^-$	5349.0	49/2$^-$	
768.0 *5*	≤0.3	768.0+x		x	(J2)	DCO=0.84 *31*
768.1 *2*	4.8 *6*	7100.9	57/2$^+$	6332.7	53/2$^+$	DCO=1.03 *15*
768.8 *5*	0.8 *2*	5142.3	45/2$^-$	4373.5	41/2$^-$	DCO=1.04 *21* DCO for 768.8+765.1.
770.0 *2*	16.1 *15*	6212.7	53/2$^+$	5442.6	49/2$^+$	DCO=0.99 *4*
772.0 *5*	≤0.3	4385.9	41/2$^-$	3613.7	37/2$^-$	
774.9 *5*	≤0.3	7403.0	57/2$^+$	6628.3	53/2$^+$	DCO=0.99 *20*
775.1 *5*	≤0.3	7374.9	57/2$^+$	6599.8	53/2$^+$	DCO=0.96 *10*
776.2 *2*	2.6 *10*	7877.1	61/2$^+$	7100.9	57/2$^+$	
776.6 *5*	0.4 *2*	7410.6	57/2$^-$	6634.0	53/2$^-$	DCO=1.02 *20*
780.6 *2*	6.7 *17*	6405.7	51/2$^+$	5625.1	47/2$^+$	DCO=0.86 *13*
781.0 *2*	4.0 *4*	1940.48	21/2$^-$	1159.41	19/2$^-$	
784.8 *2*	10.2 *9*	6490.5	55/2$^-$	5705.4	51/2$^-$	
788.0 *5*	≤0.3	6661.9	53/2$^+$	5873.9	49/2$^+$	
788.0 *5*	≤0.3	7449.8	57/2$^+$	6661.9	53/2$^+$	
791.0 *2*	3.6 *9*	7383.6	57/2$^-$	6592.6	53/2$^-$	DCO=1.02 *4*
792.1 *2*	1.7 *7*	7239.8	57/2$^-$	6447.7	53/2$^-$	DCO=0.93 *19*
798.3 *2*	10.1 *11*	6631.2	55/2$^+$	5833.2	51/2$^+$	DCO=0.99 *4*
798.7 *2*	2.7 *4*	7328.3	57/2$^+$	6529.6	53/2$^+$	DCO=0.96 *10*
801.8 *2*	3.4 *3*	6388.3	53/2$^+$	5586.5	49/2$^+$	DCO=0.95 *4*
801.9 *5*	0.6 *2*	7461.2	(J1+8)	6659.3	(J1+6)	
804.7 *2*	2.0 *2*	6820.1	55/2$^+$	6015.4	51/2$^+$	DCO=0.97 *19*
807.0 *5*	≤0.3	807.0+y	(J3+2)	y	(J3)	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
808.5 *2*	1.0 *2*	2665.3	27/2$^+$	1856.7	23/2$^+$	
810.0 *2*	1.2 *2*	7775.7	59/2$^+$	6965.7	55/2$^+$	DCO=1.01 *19*
810.3 *2*	3.0 *3*	7779.5	59/2$^-$	6969.2	55/2$^-$	DCO=1.09 *16*
814.8 *5*	≤0.3	1582.8+x	(J2+2)	768.0+x		DCO=0.96 *18*
815.2 *5*	≤0.3	8143.6	61/2$^+$	7328.3	57/2$^+$	DCO=0.99 *20*
816.0 *5*	0.6 *2*	8075.8	59/2$^+$	7259.8	55/2$^+$	DCO=1.03 *20*
816.6 *2*	1.2 *2*	7543.2	59/2$^+$	6726.6	55/2$^+$	DCO=1.09 *22*
817.6 *2*	6.8 *17*	7215.0	57/2$^-$	6397.5	53/2$^-$	DCO=1.00 *10*
821.4 *5*	0.4 *1*	7449.8	57/2$^+$	6628.3	53/2$^+$	DCO=1.00 *20*
823.0 *2*	3.2 *8*	7824.3	59/2$^-$	7001.3	55/2$^-$	DCO=1.02 *4*
823.3 *2*	1.7 *8*	7662.6	59/2$^-$	6839.2	55/2$^-$	DCO=0.93 *19*
823.4 *2*	2.5 *1*	2526.6	27/2$^-$	1703.3	25/2$^-$	
823.4 *2*	11.2 *40*	7036.1	57/2$^+$	6212.7	53/2$^+$	DCO=0.94 *4*
826.0 *5*	≤0.3	8228.9	61/2$^+$	7403.0	57/2$^+$	
829.3 *2*	4.6 *12*	7235.0	55/2$^+$	6405.7	51/2$^+$	DCO=0.90 *14*
836.2 *2*	2.4 *2*	5142.3	45/2$^-$	4306.1	41/2$^-$	DCO=1.03 *16*
836.2 *2*	10.1 *10*	6953.1	57/2$^-$	6116.9	53/2$^-$	
840.0 *2*	6.1 *8*	7471.1	59/2$^+$	6631.2	55/2$^+$	DCO=0.98 *10*
841.0 *2*	8.5 *30*	7877.1	61/2$^+$	7036.1	57/2$^+$	DCO=0.97 *5*
843.1 *5*	0.7 *1*	3121.2	31/2$^+$	2278.0	29/2$^-$	DCO=0.50 *10*
843.8 *2*	3.7 *9*	8227.4	61/2$^-$	7383.6	57/2$^-$	DCO=0.93 *6*
844.4 *2*	7.4 *8*	7334.8	59/2$^-$	6490.5	55/2$^-$	
845.1 *5*	≤0.3	8255.7	61/2$^-$	7410.6	57/2$^-$	DCO=1.02 *20*
849.4 *5*	≤0.3	8299.2	(61/2$^+$)	7449.8	57/2$^+$	
851.3 *2*	1.9 *2*	3770.0	37/2$^-$	2918.5	33/2$^-$	DCO=0.95 *19*
853.0 *2*	1.3 *1*	2508.8	25/2$^+$	1655.83	23/2$^-$	DCO=0.63 *13*
853.5 *2*	2.3 *2*	7241.7	57/2$^+$	6388.3	53/2$^+$	DCO=1.02 *15*
854.5 *2*	1.3 *3*	8182.9	61/2$^+$	7328.3	57/2$^+$	DCO=1.10 *17* DCO for 854.9+854.5.
854.9 *5*	0.6 *2*	9037.8	65/2$^+$	8182.9	61/2$^+$	DCO=1.10 *22* DCO for 854.9+854.5.
855.0 *2*	2.1 *5*	1789.12	19/2$^-$	934.17	17/2$^+$	
855.9 *2*	1.3 *5*	8095.9	61/2$^-$	7239.8	57/2$^-$	DCO=0.96 *19*
859.2 *5*	≤0.3	8320.4	(J1+10)	7461.2	(J1+8)	
860.4 *2*	1.5 *1*	3138.4	31/2$^-$	2278.0	29/2$^-$	
863.1 *5*	≤0.3	1670.1+y	(J3+4)	807.0+y	(J3+2)	
864.4 *2*	4.2 *11*	8099.4	(59/2$^+$)	7235.0	55/2$^+$	
864.7 *2*	1.4 *2*	7684.8	59/2$^+$	6820.1	55/2$^+$	DCO=0.97 *19*
865.0 *2*	1.9 *2*	8644.5	63/2$^-$	7779.5	59/2$^-$	DCO=1.05 *21*
866.9 *2*	3.9 *5*	7967.8	61/2$^+$	7100.9	57/2$^+$	DCO=0.99 *15*
870.1 *5*	0.5 *1*	8946.0	63/2$^+$	8075.8	59/2$^+$	DCO=0.94 *19*
871.0 *5*	0.6 *2*	8646.7	63/2$^+$	7775.7	59/2$^+$	DCO=0.99 *20*
871.3 *2*	3.7 *4*	8342.4	63/2$^+$	7471.1	59/2$^+$	DCO=1.08 *16*
871.9 *2*	6.4 *23*	8749.0	65/2$^+$	7877.1	61/2$^+$	DCO=0.96 *10*
872.6 *2*	5.4 *13*	8087.5	61/2$^-$	7215.0	57/2$^-$	DCO=0.96 *9*
876.2 *5*	≤0.3	2459.0+x	(J2+4)	1582.8+x	(J2+2)	DCO=0.95 *19*
880.1 *5*	0.4 *2*	9109.0	65/2$^+$	8228.9	61/2$^+$	
886.9 *2*	1.3 *5*	8549.5	63/2$^-$	7662.6	59/2$^-$	DCO=0.96 *19*
887.0 *2*	3.3 *8*	8711.3	63/2$^-$	7824.3	59/2$^-$	DCO=0.93 *6*
888.4 *2*	1.8 *7*	7100.9	57/2$^+$	6212.7	53/2$^+$	
890.0 *2*	1.5 *2*	6332.7	53/2$^+$	5442.6	49/2$^+$	
893.1 *2*	2.6 *7*	9120.5	(65/2$^-$)	8227.4	61/2$^-$	
894.2 *2*	1.0 *1*	9037.8	65/2$^+$	8143.6	61/2$^+$	DCO=1.09 *22*
901.4 *2*	6.0 *7*	8236.2	63/2$^-$	7334.8	59/2$^-$	DCO=0.94 *9*
901.9 *2*	1.2 *1*	8143.6	61/2$^+$	7241.7	57/2$^+$	DCO=1.05 *21*
902.1 *2*	8.9 *9*	7855.3	61/2$^-$	6953.1	57/2$^-$	DCO=1.08 *5*

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
904.2 *2*	1.9 *5*	9003.6	(63/2$^+$)	8099.4	(59/2$^+$)	
911.3 *5*	≤0.3	9210.5	(65/2$^+$)	8299.2	(61/2$^+$)	
912.0 *5*	0.9 *2*	7543.2	59/2$^+$	6631.2	55/2$^+$	
912.0 *5*	≤0.3	9232.4	(J1+12)	8320.4	(J1+10)	
912.6 *2*	1.0 *1*	8455.8	63/2$^+$	7543.2	59/2$^+$	DCO=0.98 *5*
915.2 *2*	1.2 *2*	8600.0	63/2$^+$	7684.8	59/2$^+$	DCO=0.92 *18*
917.5 *5*	≤0.3	9173.2	(65/2$^-$)	8255.7	61/2$^-$	
918.3 *5*	≤0.3	2588.4+y	(J3+6)	1670.1+y	(J3+4)	
919.5 *5*	0.8 *4*	9016.0	65/2$^-$	8095.9	61/2$^-$	DCO=1.03 *21*
923.0 *5*	0.5 *1*	9869.0	67/2$^+$	8946.0	63/2$^+$	DCO=1.05 *21*
923.7 *2*	1.2 *2*	9568.2	67/2$^-$	8644.5	63/2$^-$	DCO=1.10 *22*
924.7 *5*	0.4 *2*	9571.4	67/2$^+$	8646.7	63/2$^+$	DCO=1.04 *21*
925.1 *2*	5.5 *20*	9674.1	69/2$^+$	8749.0	65/2$^+$	DCO=1.01 *10*
926.0 *5*	0.9 *2*	9109.0	65/2$^+$	8182.9	61/2$^+$	DCO=0.98 *15*
926.6 *2*	3.8 *10*	9014.0	65/2$^-$	8087.5	61/2$^-$	DCO=0.98 *15*
927.5 *2*	2.8 *3*	9269.9	67/2$^+$	8342.4	63/2$^+$	DCO=0.96 *14*
930.0 *5*	≤0.3	3389.0+x	(J2+6)	2459.0+x	(J2+4)	DCO=0.99 *20*
931.7 *2*	1.7 *4*	7967.8	61/2$^+$	7036.1	57/2$^+$	DCO=0.93 *14*
931.8 *2*	1.5 *2*	9969.6	69/2$^+$	9037.8	65/2$^+$	DCO=1.01 *20*
941.2 *5*	≤0.3	8182.9	61/2$^+$	7241.7	57/2$^+$	DCO=1.05 *21*
942.1 *5*	≤0.3	9542.1	67/2$^+$	8600.0	63/2$^+$	DCO=0.96 *19*
946.0 *2*	2.9 *7*	9657.3	(67/2$^-$)	8711.3	63/2$^-$	
948.7 *5*	0.8 *4*	9498.2	67/2$^-$	8549.5	63/2$^-$	DCO=1.02 *20*
950.4 *2*	2.8 *8*	10070.9	(69/2$^-$)	9120.5	(65/2$^-$)	
952.6 *5*	≤0.3	10185.0	(J1+14)	9232.4	(J1+12)	
956.4 *2*	4.8 *5*	9192.6	67/2$^-$	8236.2	63/2$^-$	DCO=1.01 *15*
957.0 *2*	2.8 *8*	8924.8	65/2$^+$	7967.8	61/2$^+$	DCO=0.95 *14*
959.0 *5*	0.7 *2*	10068.0	69/2$^+$	9109.0	65/2$^+$	DCO=0.96 *19*
962.0 *2*	1.3 *4*	2665.3	27/2$^+$	1703.3	25/2$^-$	DCO=0.53 *11*
968.9 *2*	4.8 *5*	8824.2	65/2$^-$	7855.3	61/2$^-$	DCO=1.00 *15*
971.5 *5*	≤0.3	10144.7	(69/2$^-$)	9173.2	(65/2$^-$)	
974.5 *5*	≤0.3	3562.9+y	(J3+8)	2588.4+y	(J3+6)	
976.9 *5*	≤0.3	9993.8	69/2$^-$	9016.0	65/2$^-$	
977.4 *5*	≤0.3	10846.4	(71/2$^+$)	9869.0	67/2$^+$	I_γ: listed as 3 in table IV of 2015Ro27 (or 0.3 for revised normalization here). Compiler assumes that it is meant to be ≤3.
979.9 *5*	≤0.3	10551.3	71/2$^+$	9571.4	67/2$^+$	DCO=0.98 *20*
980.0 *2*	2.4 *6*	9993.8	69/2$^-$	9014.0	65/2$^-$	DCO=1.02 *15*
980.3 *2*	3.0 *11*	10654.4	73/2$^+$	9674.1	69/2$^+$	DCO=1.02 *15*
981.1 *5*	≤0.3	9997.0	69/2$^-$	9016.0	65/2$^-$	DCO=0.95 *19*
982.5 *5*	≤0.3	9997.0	69/2$^-$	9014.0	65/2$^-$	
982.5 *5*	≤0.3	10193.0	(69/2$^+$)	9210.5	(65/2$^+$)	
984.7 *5*	≤0.3	4373.7+x	(J2+8)	3389.0+x	(J2+6)	DCO=0.98 *20*
984.9 *5*	≤0.3	10553.1	(71/2$^-$)	9568.2	67/2$^-$	
987.1 *5*	0.9 *1*	9442.9	67/2$^+$	8455.8	63/2$^+$	DCO=1.22 *24*
988.0 *2*	1.0 *1*	10957.6	73/2$^+$	9969.6	69/2$^+$	DCO=1.03 *21*
989.3 *5*	≤0.3	10531.4	71/2$^+$	9542.1	67/2$^+$	DCO=0.90 *18*
993.7 *2*	1.2 *2*	2697.0	27/2$^+$	1703.3	25/2$^-$	
993.7 *2*	1.0 *2*	10263.6	71/2$^+$	9269.9	67/2$^+$	DCO=0.91 *18*
998.0 *2*	2.0 *5*	10655.3	(71/2$^-$)	9657.3	(67/2$^-$)	
1005.9 *5*	0.5 *2*	10504.1	71/2$^-$	9498.2	67/2$^-$	DCO=0.94 *19*
1007.0 *5*	≤0.3	11151.7	(73/2$^-$)	10144.7	(69/2$^-$)	
1009.1 *5*	≤0.3	11194.1	(J1+16)	10185.0	(J1+14)	
1010.3 *2*	3.4 *4*	10202.9	71/2$^-$	9192.6	67/2$^-$	DCO=0.99 *15*
1013.2 *2*	2.2 *6*	11084.1	(73/2$^-$)	10070.9	(69/2$^-$)	
1016.0 *2*	1.2 *3*	3293.9	33/2$^-$	2278.0	29/2$^-$	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
1016.4 *5*	0.6 *2*	11084.4	73/2$^+$	10068.0	69/2$^+$	DCO=1.17 *23*
1022.0 *2*	2.7 *8*	9946.8	69/2$^+$	8924.8	65/2$^+$	DCO=0.91 *18*
1026.4 *5*	≤0.3	11219.4	(73/2$^+$)	10193.0	(69/2$^+$)	
1030.1 *5*	≤0.3	4593.0+y	(J3+10)	3562.9+y	(J3+8)	
1032.3 *5*	≤0.3	11878.7	(75/2$^+$)	10846.4	(71/2$^+$)	
1033.9 *5*	0.8 *3*	11027.2	73/2$^-$	9993.8	69/2$^-$	DCO=0.95 *19*
1034.1 *2*	3.0 *4*	9858.3	69/2$^-$	8824.2	65/2$^-$	DCO=1.04 *16*
1036.1 *2*	1.9 *7*	11690.5	77/2$^+$	10654.4	73/2$^+$	DCO=1.01 *20*
1036.6 *5*	≤0.3	11587.9	75/2$^+$	10551.3	71/2$^+$	DCO=1.11 *22*
1039.5 *5*	≤0.3	5413.2+x	(J2+10)	4373.7+x	(J2+8)	DCO=0.98 *20*
1039.5 *5*	≤0.3	11037.0	73/2$^-$	9997.0	69/2$^-$	DCO=0.90 *18*
1040.0 *5*	≤0.3	11571.4	(75/2$^+$)	10531.4	71/2$^+$	
1046.2 *5*	0.8 *1*	10489.1	71/2$^+$	9442.9	67/2$^+$	DCO=0.87 *17*
1048.1 *5*	≤0.3	11601.2	(75/2$^-$)	10553.1	(71/2$^-$)	
1054.0 *5*	0.8 *1*	12011.6	77/2$^+$	10957.6	73/2$^+$	DCO=1.11 *22*
1054.8 *5*	0.4 *2*	11558.9	75/2$^-$	10504.1	71/2$^-$	DCO=0.97 *19*
1057.9[a] *5*	≤0.3	12209.6	(77/2$^-$)	11151.7	(73/2$^-$)	
1058.3 *5*	0.8 *2*	11321.9	75/2$^+$	10263.6	71/2$^+$	DCO=1.13 *23*
1062.4 *2*	1.6 *2*	11265.3	75/2$^-$	10202.9	71/2$^-$	DCO=0.97 *19*
1070.6 *2*	1.1 *3*	12154.7	(77/2$^-$)	11084.1	(73/2$^-$)	
1075.9 *5*	0.5 *1*	12160.3	77/2$^+$	11084.4	73/2$^+$	DCO=1.13 *23*
1084.0 *5*	≤0.3	12962.7	(79/2$^+$)	11878.7	(75/2$^+$)	
1084.1 *2*	1.4 *3*	11030.9	(73/2$^+$)	9946.8	69/2$^+$	
1089.0 *2*	2.0 *3*	10947.3	73/2$^-$	9858.3	69/2$^-$	DCO=1.00 *15*
1089.3 *5*	≤0.3	5682.3+y	(J3+12)	4593.0+y	(J3+10)	
1090.1 *5*	≤0.3	12127.2	(77/2$^-$)	11037.0	73/2$^-$	
1090.4 *5*	0.7 *3*	12780.9	81/2$^+$	11690.5	77/2$^+$	DCO=0.92 *18*
1096.1 *5*	≤0.3	12697.3	(79/2$^-$)	11601.2	(75/2$^-$)	
1096.2 *5*	≤0.3	6509.4+x	(J2+12)	5413.2+x	(J2+10)	DCO=0.94 *19*
1098.1 *5*	0.4 *2*	12657.0	79/2$^-$	11558.9	75/2$^-$	DCO=0.98 *20*
1099.0 *5*	≤0.3	12686.9	(79/2$^+$)	11587.9	75/2$^+$	
1100.1 *5*	≤0.3	12127.2	(77/2$^-$)	11027.2	73/2$^-$	
1102.0 *5*	≤0.3	12139.2	77/2$^-$	11037.0	73/2$^-$	DCO=0.98 *20*
1102.2 *2*	1.1 *3*	12049.5	77/2$^-$	10947.3	73/2$^-$	DCO=0.98 *20*
1105.3 *5*	0.6 *1*	11594.4	75/2$^+$	10489.1	71/2$^+$	DCO=1.08 *22*
1108.3 *5*	0.8 *3*	13157.8	81/2$^-$	12049.5	77/2$^-$	DCO=1.01 *22*
1111.9 *2*	1.1 *4*	12377.2	79/2$^-$	11265.3	75/2$^-$	DCO=1.03 *21*
1112.3 *5*	≤0.3	12139.2	77/2$^-$	11027.2	73/2$^-$	
1115.9 *5*	≤0.3	13813.3	(83/2$^-$)	12697.3	(79/2$^-$)	
1118.4 *5*	0.4 *1*	12440.4	79/2$^+$	11321.9	75/2$^+$	DCO=0.90 *18*
1120.1 *5*	0.6 *1*	13131.7	81/2$^+$	12011.6	77/2$^+$	DCO=1.02 *20*
1135.1 *5*	0.4 *1*	13295.4	(81/2$^+$)	12160.3	77/2$^+$	
1136.1 *5*	0.7 *2*	13290.8	(81/2$^-$)	12154.7	(77/2$^-$)	
1137.1 *5*	0.9 *2*	12168.0	(77/2$^+$)	11030.9	(73/2$^+$)	
1138.4 *5*	≤0.3	13795.4	(83/2$^-$)	12657.0	79/2$^-$	
1139.1[a] *5*	≤0.3	13278.2	(81/2$^-$)	12139.2	77/2$^-$	
1140.8 *5*	≤0.3	13921.7	85/2$^+$	12780.9	81/2$^+$	DCO=0.98 *20*
1141.9 *5*	≤0.3	14299.7	(85/2$^-$)	13157.8	81/2$^-$	
1148.2 *5*	≤0.3	6830.5+y	(J3+14)	5682.3+y	(J3+12)	
1149.2 *5*	≤0.3	14111.9	(83/2$^+$)	12962.7	(79/2$^+$)	
1150.9 *5*	≤0.3	13278.2	(81/2$^-$)	12127.2	(77/2$^-$)	
1151.8[a] *5*	≤0.3	13291.0	(81/2$^-$)	12139.2	77/2$^-$	
1153.1 *5*	≤0.3	7662.5+x	(J2+14)	6509.4+x	(J2+12)	DCO=0.97 *18*
1160.1 *5*	0.5 *2*	13537.3	83/2$^-$	12377.2	79/2$^-$	DCO=0.97 *19*
1164.1 *5*	≤0.3	13851.1	(83/2$^+$)	12686.9	(79/2$^+$)	

Continued on next page (footnotes at end of table)

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)

$\gamma(^{167}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1169.6 *5*	≤0.3	14965.0	(87/2$^-$)	13795.4	(83/2$^-$)	
1170.6 *5*	≤0.3	13611.0	83/2$^+$	12440.4	79/2$^+$	DCO=1.07 *21*
1173.1 *5*	≤0.3	15472.8	(89/2$^-$)	14299.7	(85/2$^-$)	
1183.3 *5*	0.4 *1*	14315.0	85/2$^+$	13131.7	81/2$^+$	DCO=0.97 *19*
1186.4 *5*	≤0.3	15108.1	89/2$^+$	13921.7	85/2$^+$	DCO=0.98 *20*
1188.2 *5*	≤0.3	14466.4	(85/2$^-$)	13278.2	(81/2$^-$)	
1191.1 *2*	1.5 *2*	2894.4	29/2$^-$	1703.3	25/2$^-$	DCO=1.03 *21*
1192.4 *5*	≤0.3	14487.8	(85/2$^+$)	13295.4	(81/2$^+$)	
1200.1 *5*	≤0.3	15312.0	(87/2$^+$)	14111.9	(83/2$^+$)	Final level: J^π=(81/2$^+$) in Table IV of 2015Ro27 is a misprint, it should be (83/2$^+$) as in level-scheme Figure 1.
1200.2 *5*	≤0.3	14737.5	87/2$^-$	13537.3	83/2$^-$	DCO=0.91 *18*
1208.4 *5*	≤0.3	16681.2	(93/2$^-$)	15472.8	(89/2$^-$)	
1210.0 *5*	≤0.3	8040.5+y	(J3+16)	6830.5+y	(J3+14)	
1210.4 *5*	≤0.3	8872.9+x	(J2+16)	7662.5+x	(J2+14)	DCO=1.00 *20*
1212.3 *5*	≤0.3	14823.3	87/2$^+$	13611.0	83/2$^+$	DCO=1.04 *21*
1231.0 *5*	≤0.3	15968.5	(91/2$^-$)	14737.5	87/2$^-$	
1231.2 *5*	≤0.3	16339.3	93/2$^+$	15108.1	89/2$^+$	DCO=1.00 *20*
1243.2 *5*	≤0.3	15558.2	(89/2$^+$)	14315.0	85/2$^+$	
1244.0 *5*	≤0.3	16067.3	(91/2$^+$)	14823.3	87/2$^+$	
1247.2 *5*	≤0.3	15735.0	(89/2$^+$)	14487.8	(85/2$^+$)	
1256.1 *5*	≤0.3	17323.4	(95/2$^+$)	16067.3	(91/2$^+$)	
1261.3 *5*	≤0.3	17229.8	(95/2$^-$)	15968.5	(91/2$^-$)	
1262.1[a] *5*	≤0.3	17943.3	(97/2$^-$)	16681.2	(93/2$^-$)	
1264.0 *5*	≤0.3	10136.9+x	(J2+18)	8872.9+x	(J2+16)	DCO=0.97 *19*
1270.2 *5*	≤0.3	9310.7+y	(J3+18)	8040.5+y	(J3+16)	
1278.1 *2*	1.5 *2*	2483.5	25/2$^-$	1205.3	21/2$^-$	DCO=1.11 *22*
1278.6 *5*	≤0.3	17617.9	(97/2$^+$)	16339.3	93/2$^+$	
1309.3 *5*	≤0.3	11446.2+x	(J2+20)	10136.9+x	(J2+18)	DCO=1.11 *29*
1313.1[a] *5*	≤0.3	17048.1	(93/2$^+$)	15735.0	(89/2$^+$)	
1356.1 *5*	≤0.3	12802.3+x	(J2+22)	11446.2+x	(J2+20)	
1370.0 *5*	0.6 *1*	2165.0	21/2$^-$	794.5	17/2$^-$	

[†] According to footnote 'a' in Table IV of 2015Ro27, uncertainty is 0.2 keV for most transitions, except 0.5 keV for γ rays with Iγ<10 units relative to 1000 for 410.8-keV γ ray from 1205.3, 21/2$^-$ level, or <1.0 unit relative to 100.0 for 410.8-keV γ ray listed here. Compiler also assigns 0.5 keV uncertainty for all the unresolved multiplets as marked by footnote 'e' in table IV of 2015Ro27. For Eγ values stated to nearest keV, Δ(Eγ)=1 keV is assigned.

[‡] Values listed in Table IV are divided by a factor of 10 by compiler thus these are given here relative to 100.0 for 410.8-keV γ ray.

[#] Unresolved multiplet. Energy uncertainty is assigned by the compiler as 0.5 keV, and the intensity is listed as approximate by 2015Ro27.

[@] Intensity is not given in Table IV of 2015Ro27, however it is expected to be strong as the transition lies near the bottom of the band, thus compiler assigns Δ(Eγ)=0.2 keV.

[&] Multiply placed with intensity suitably divided.

[a] Placement of transition in the level scheme is uncertain.

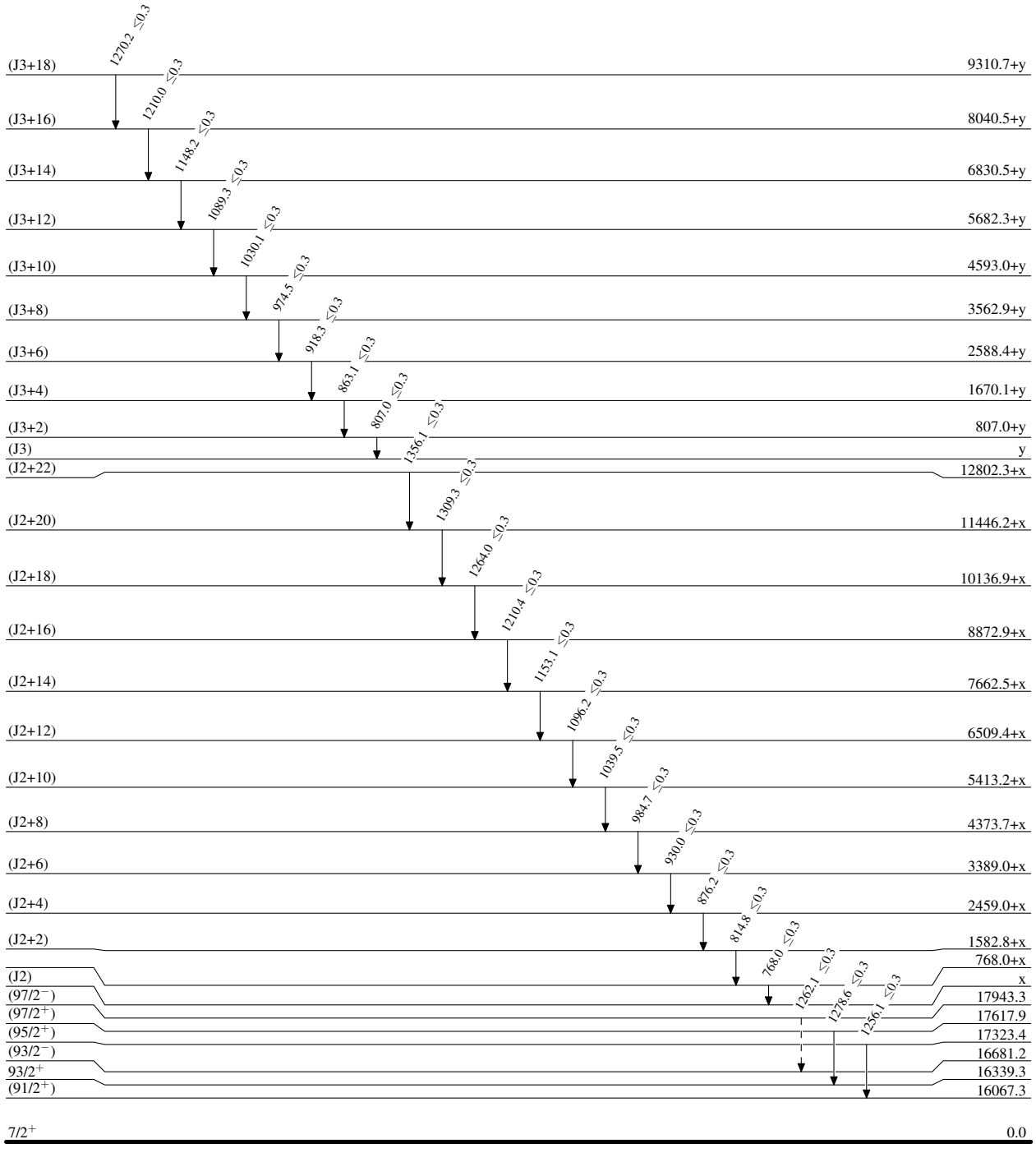
^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Legend

Level Scheme

Intensities: Relative I_γ

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



$^{167}_{71}Lu_{96}$

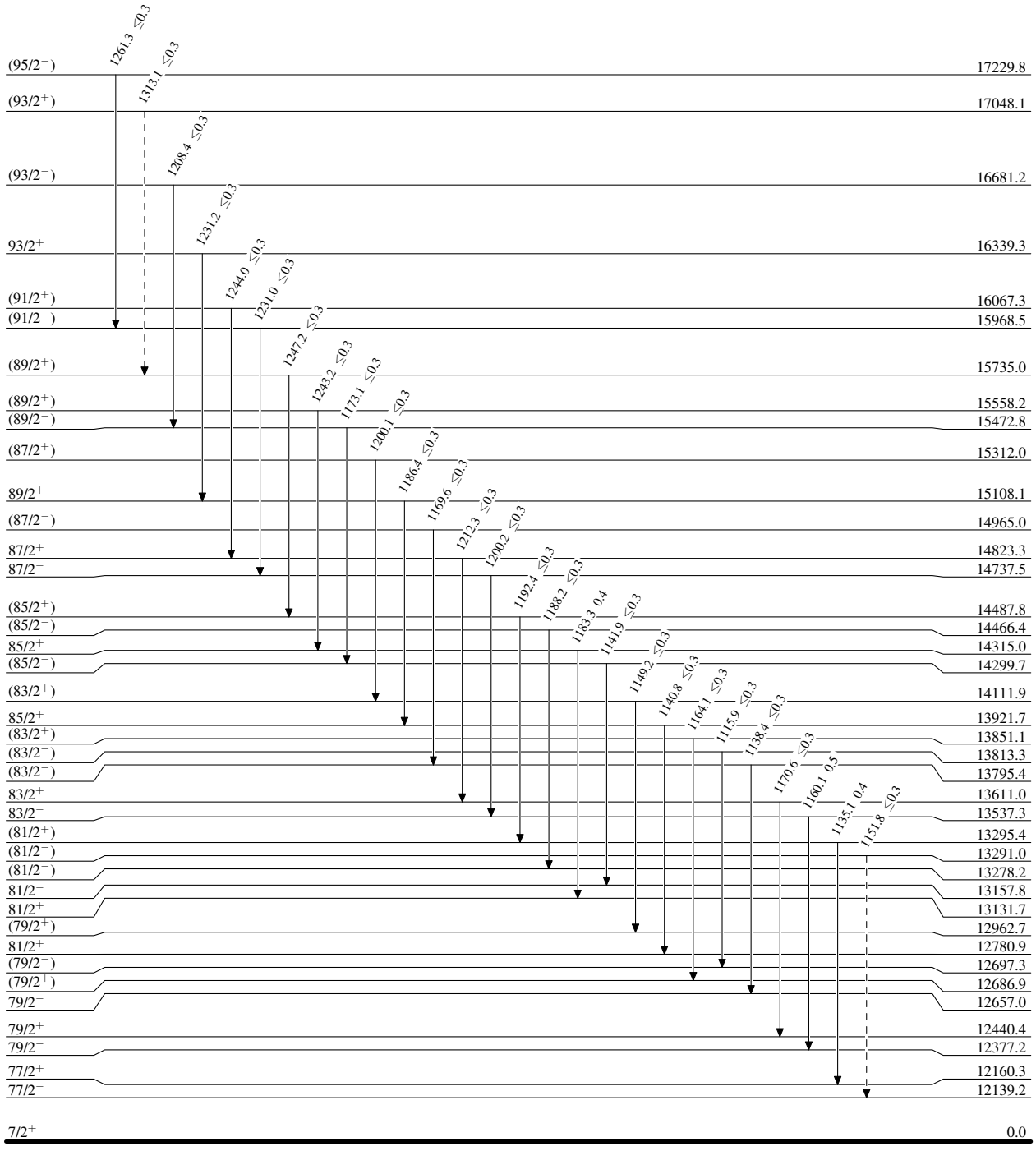
^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

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)



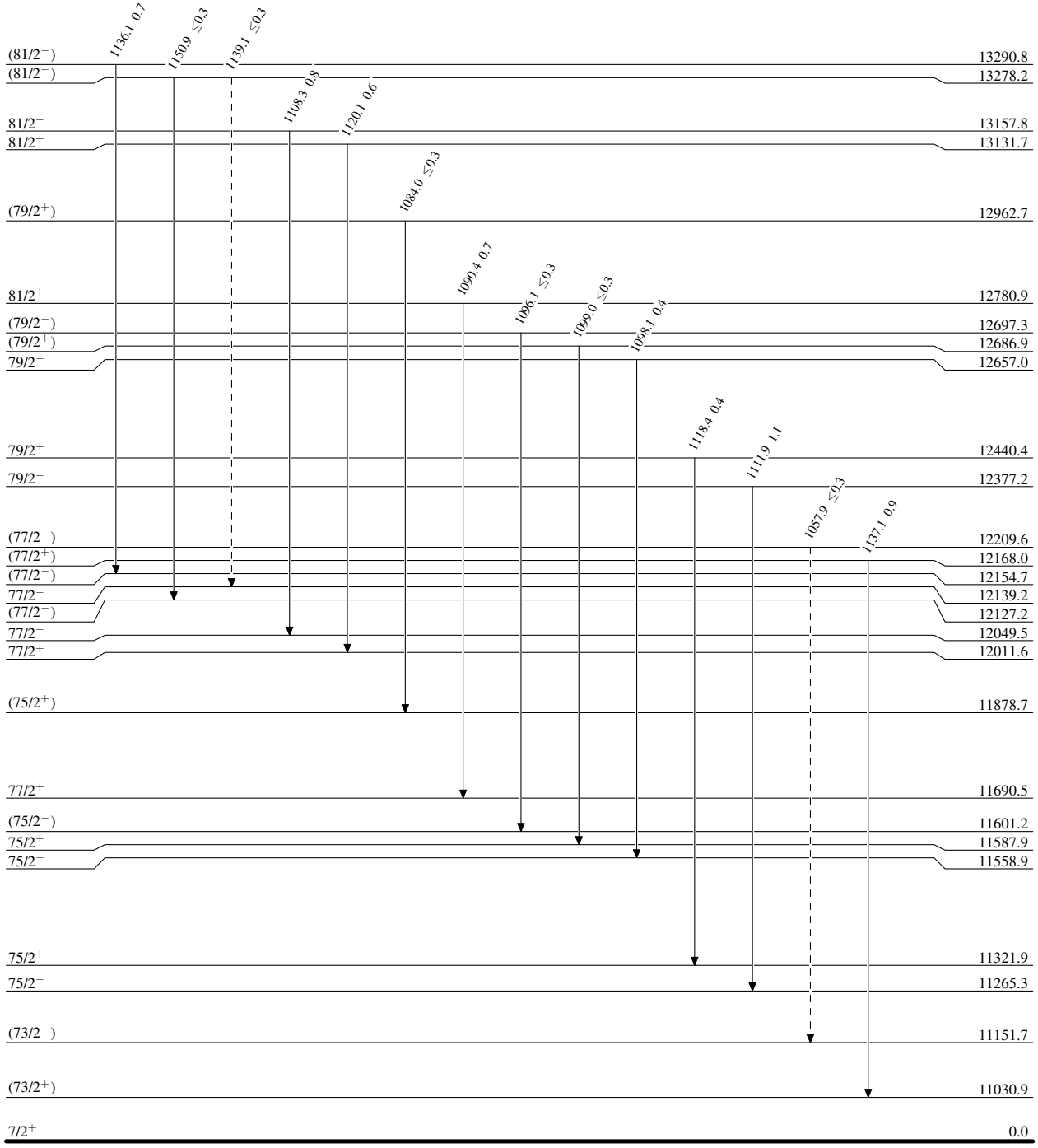
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

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)



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

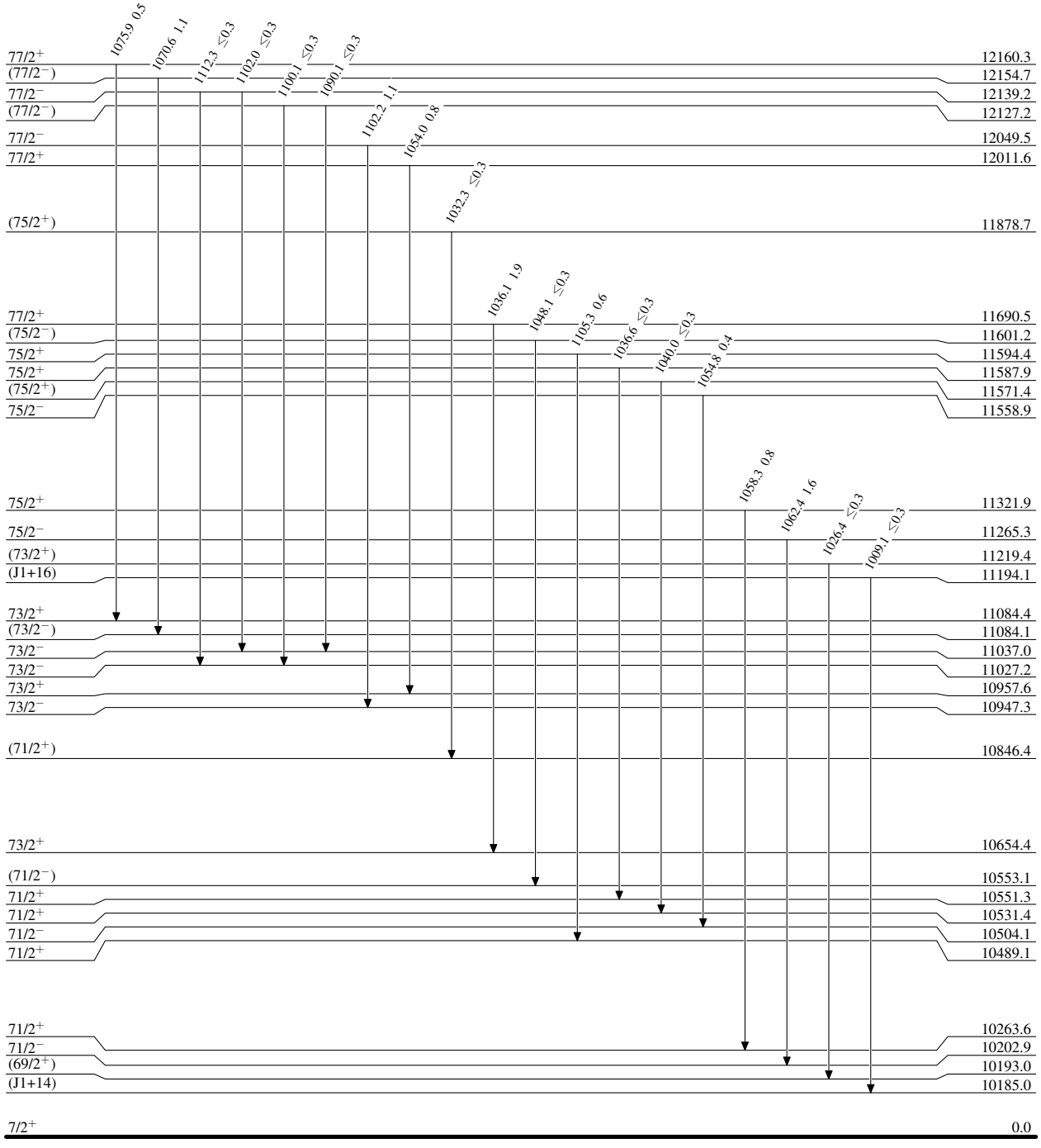
Intensities: Relative I_γ

Legend

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

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

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



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

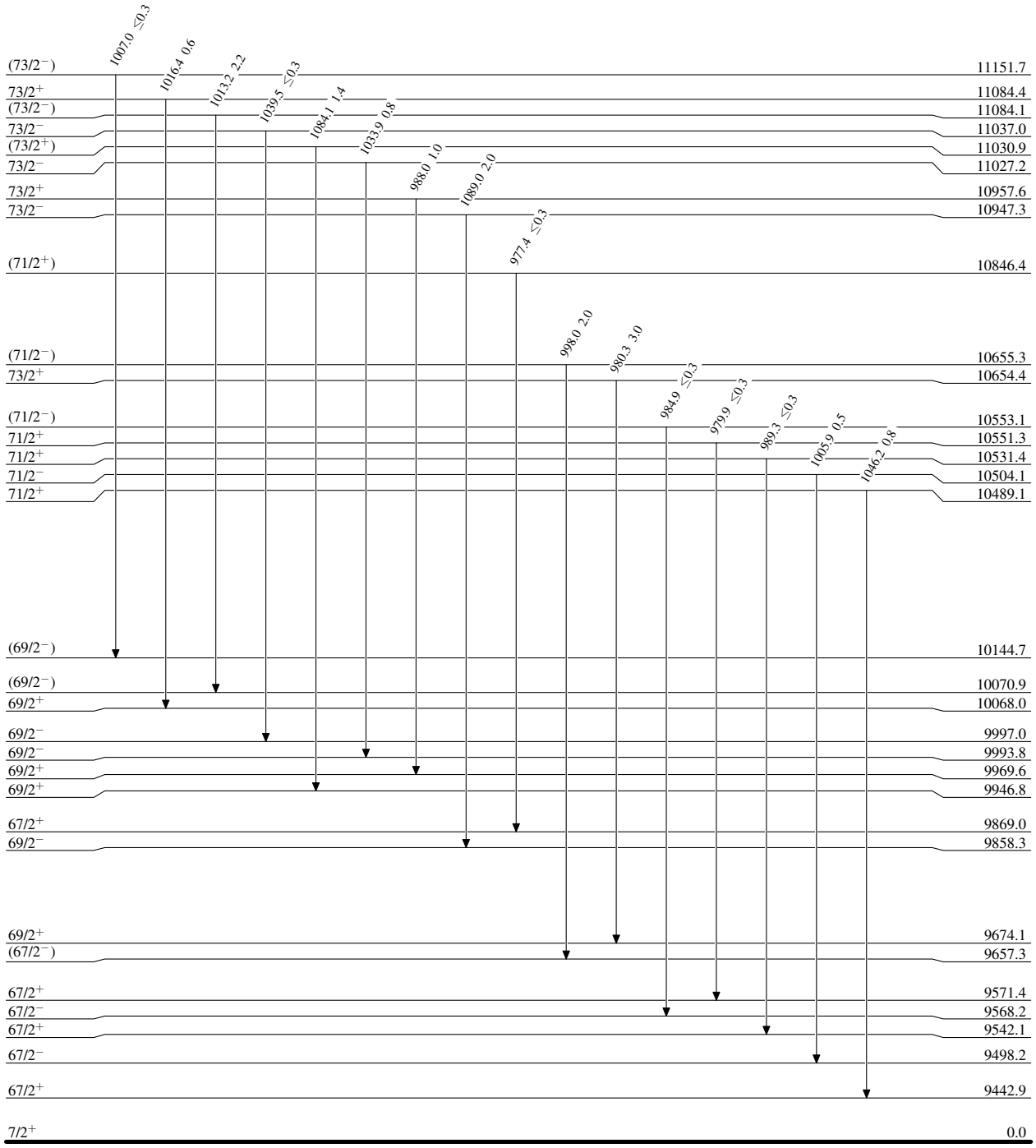
Intensities: Relative I_γ

Legend

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

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

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



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

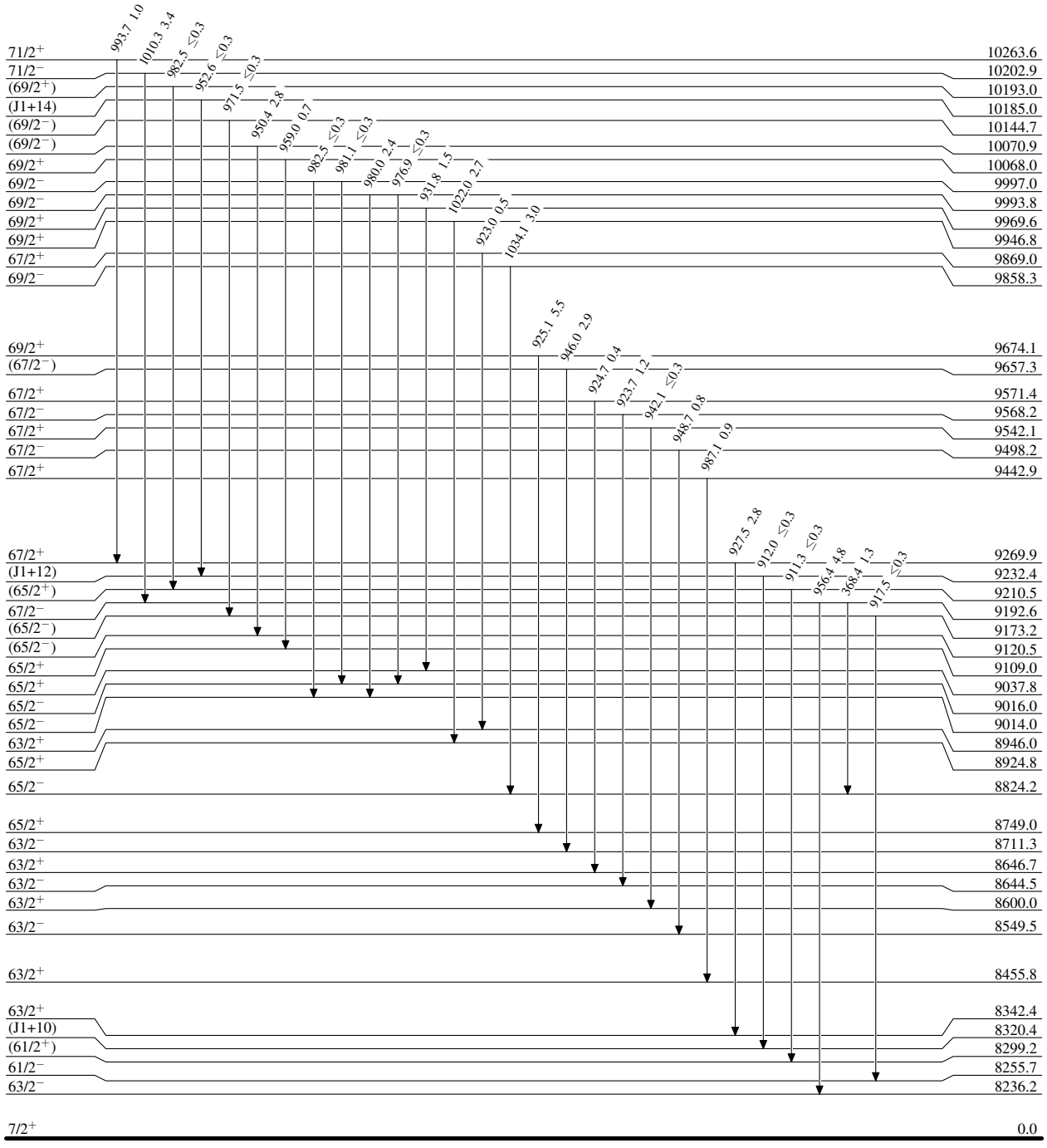
Intensities: Relative I_γ

Legend

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

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

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



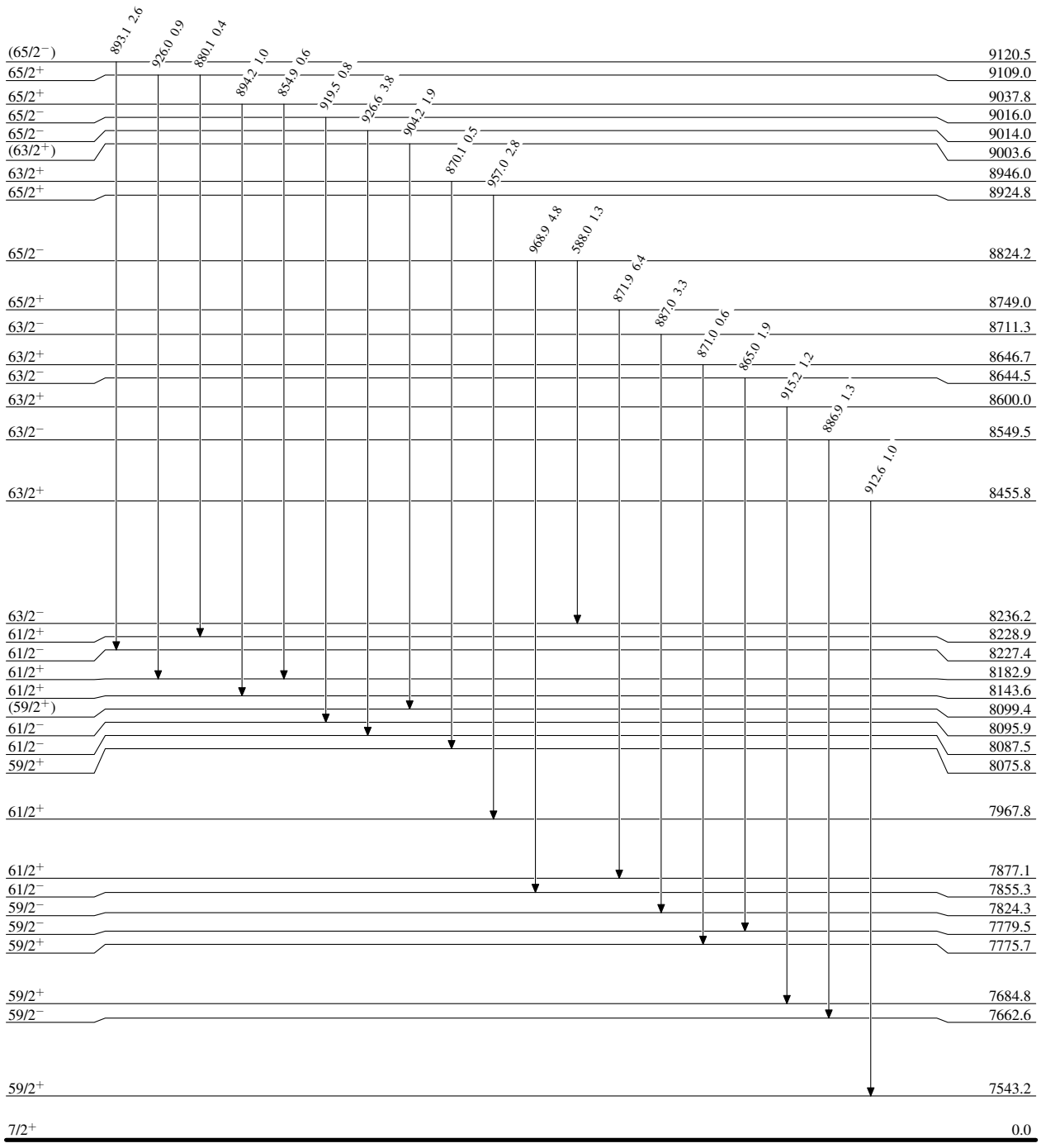
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ

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



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

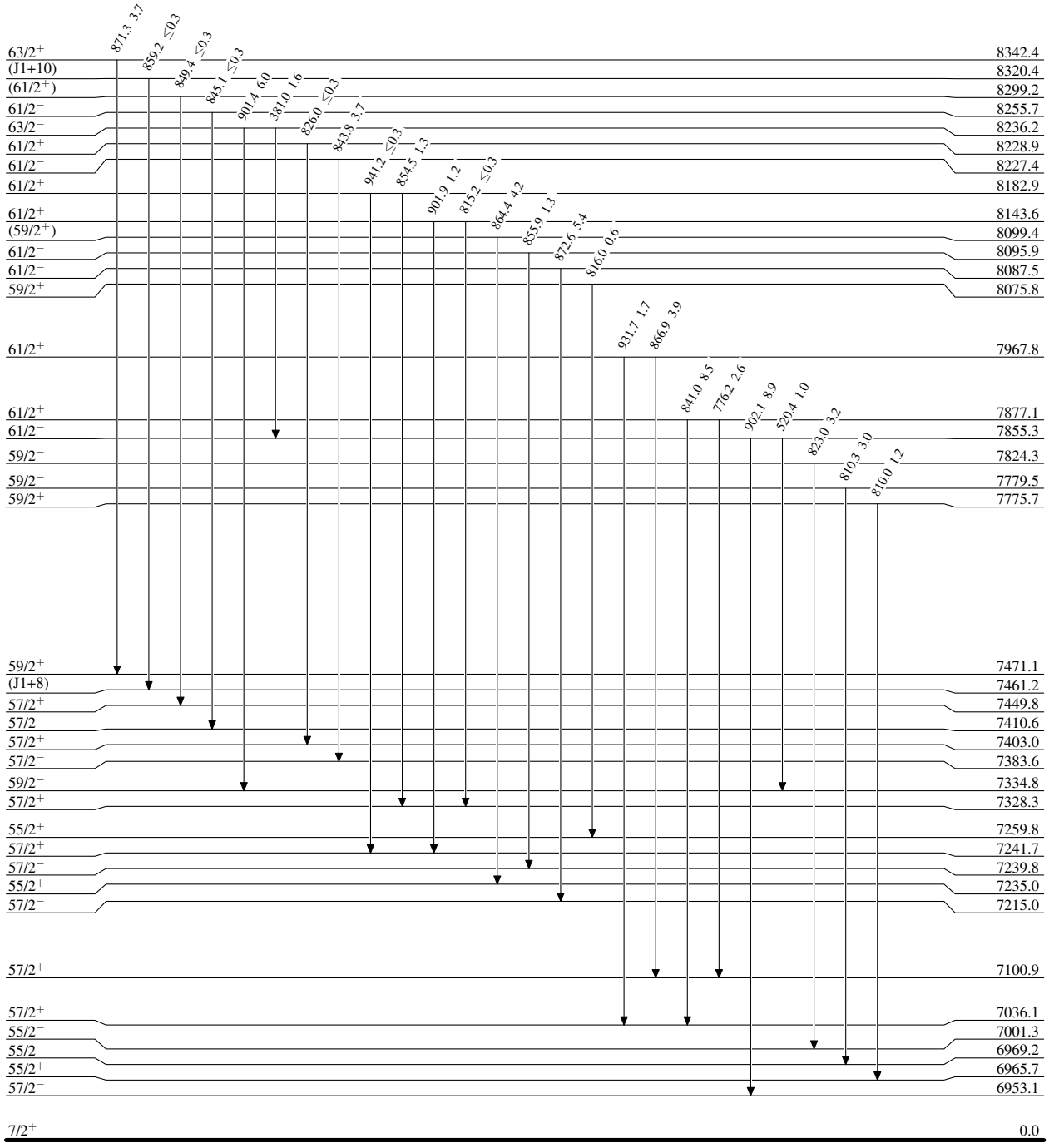
Intensities: Relative I_γ

Legend

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

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

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



$^{167}_{71}Lu_{96}$

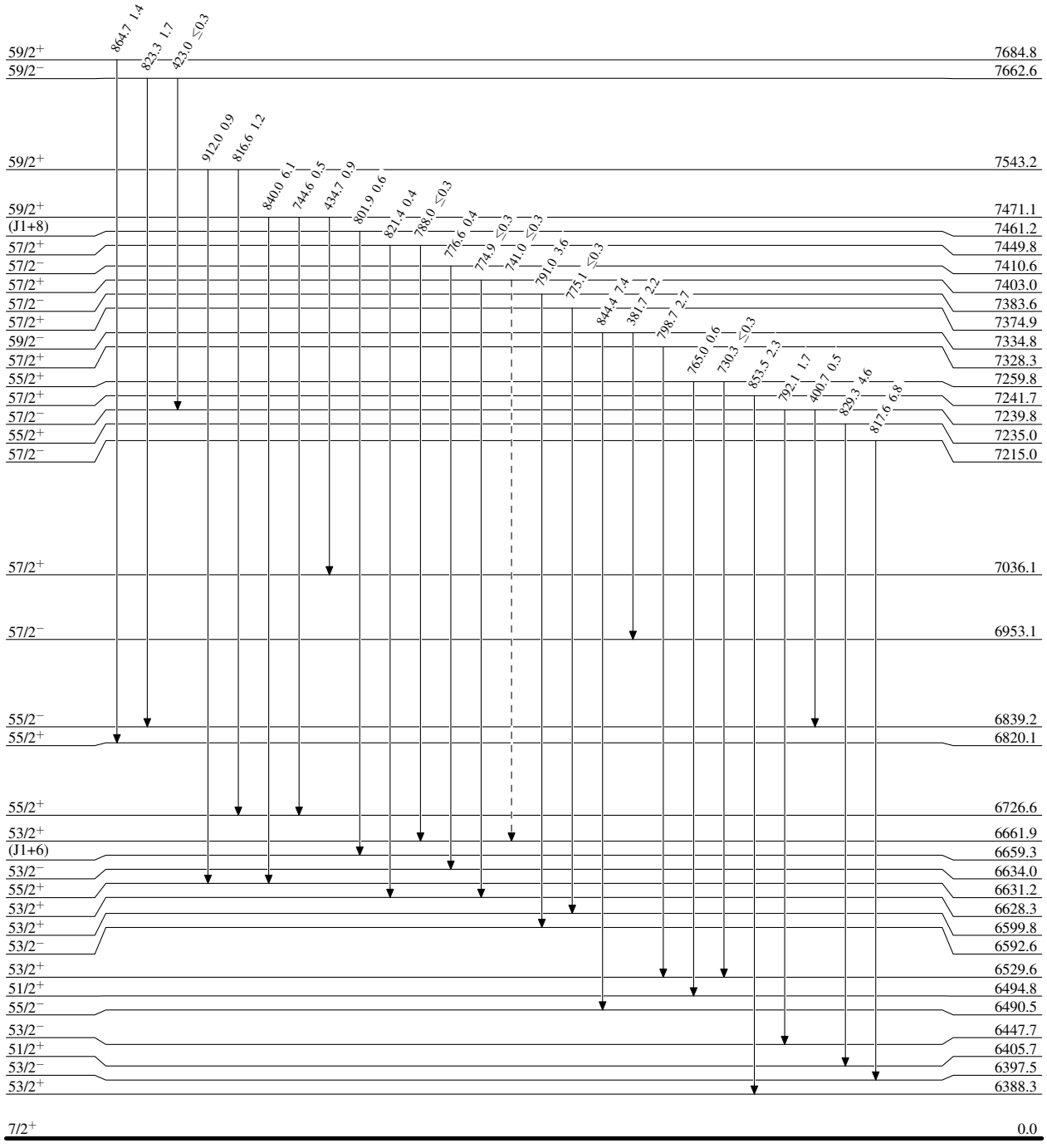
^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

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)



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

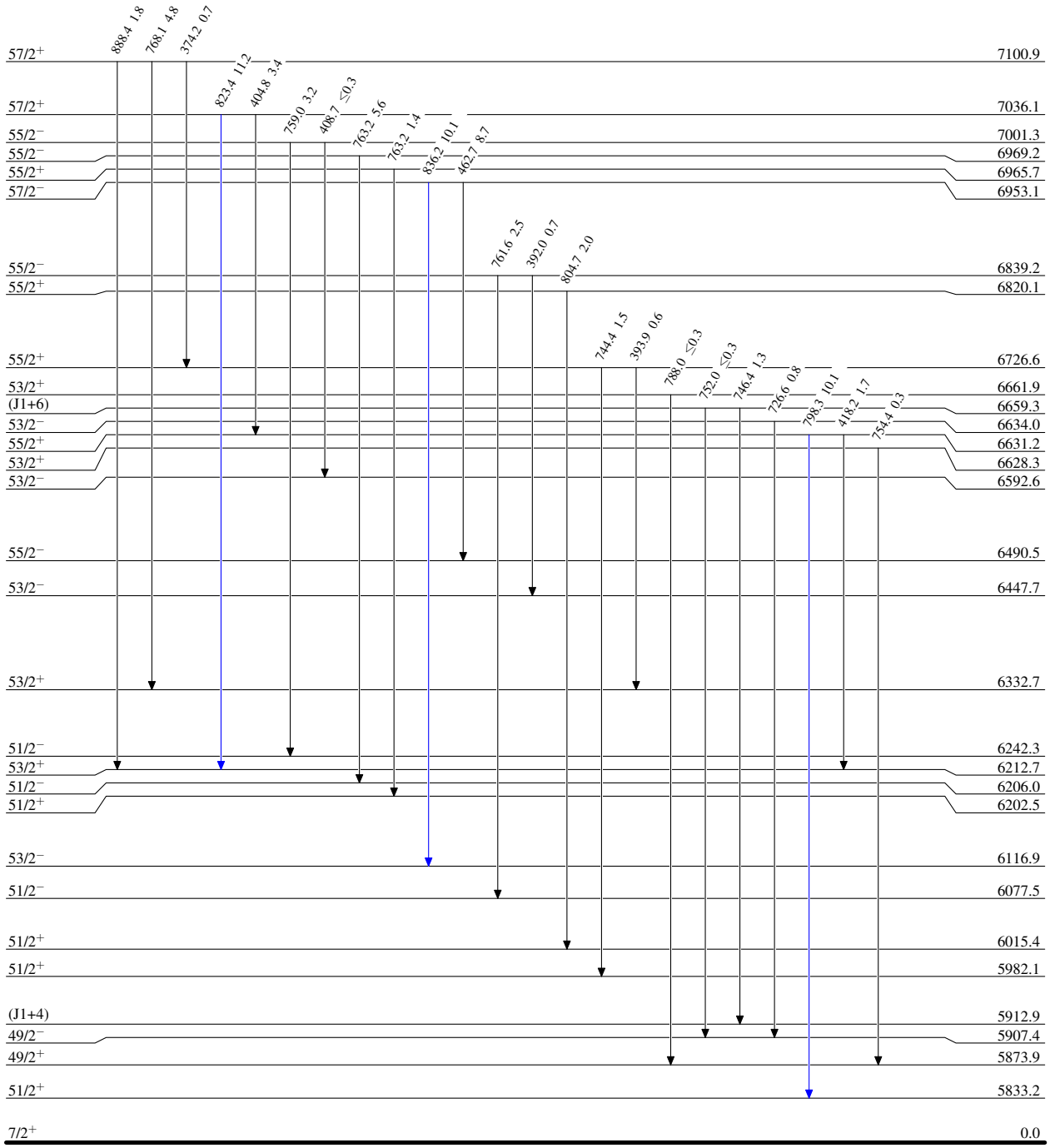
Intensities: Relative I_γ

Legend

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

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

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



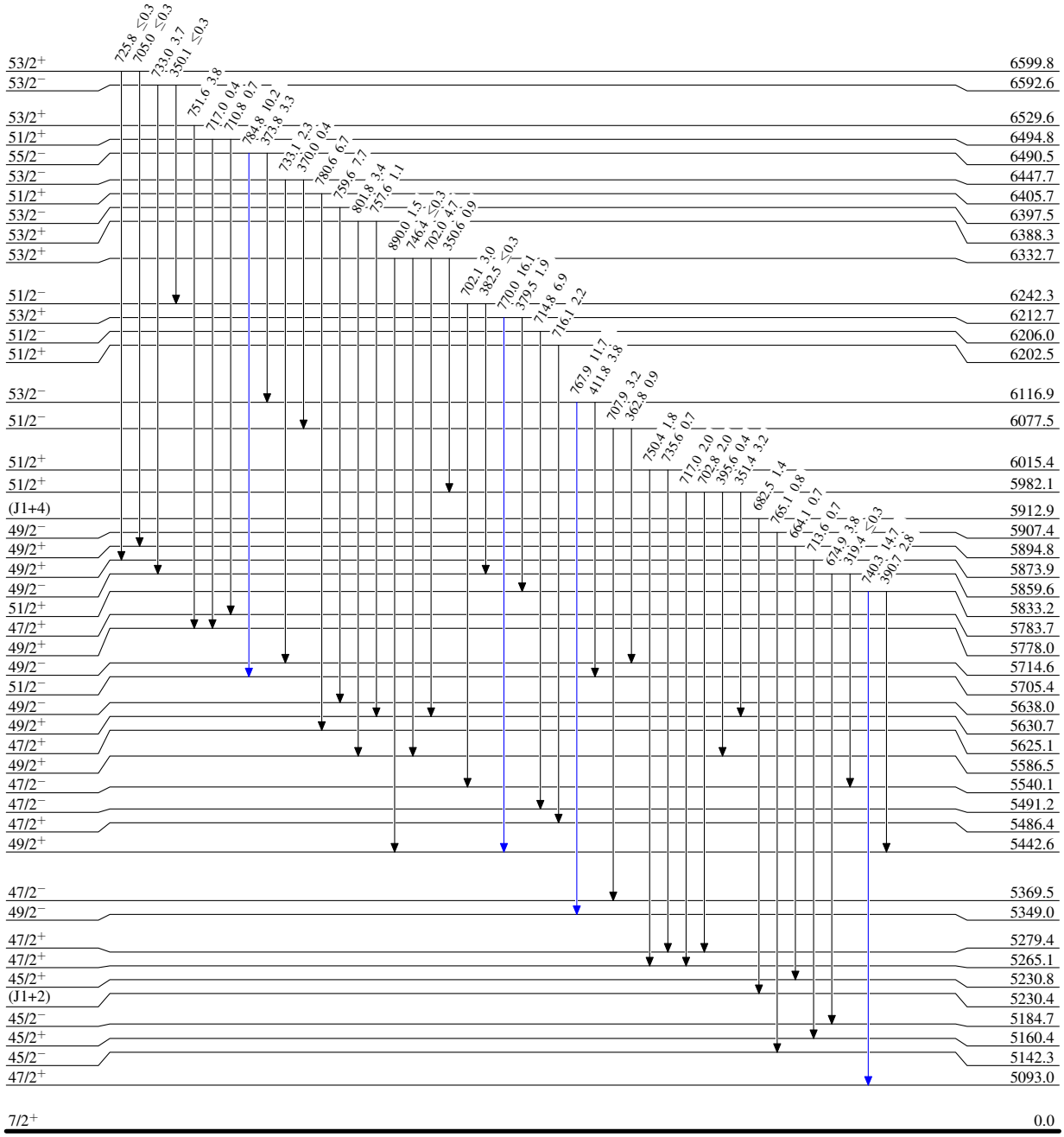
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ

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



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

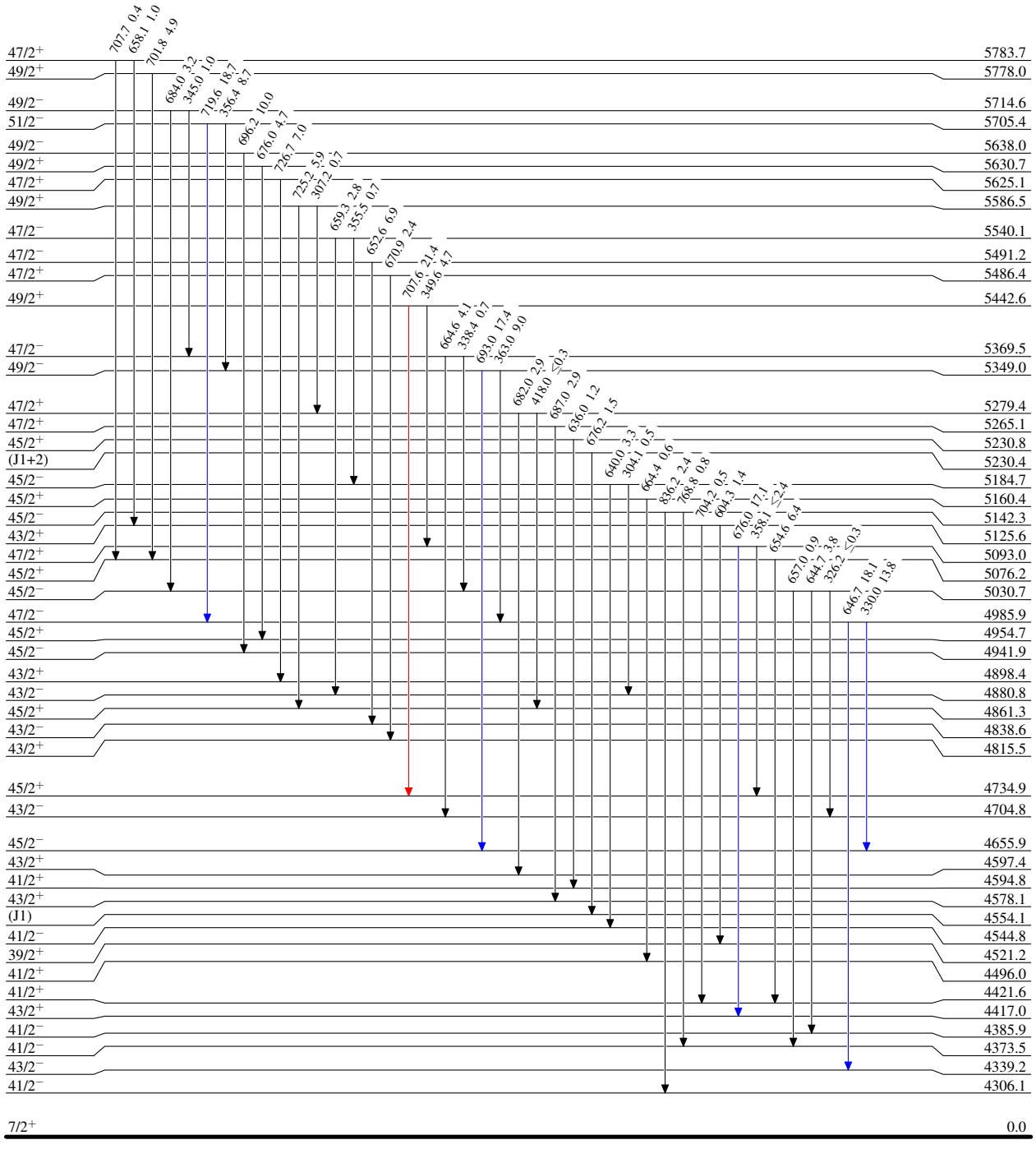
Intensities: Relative I_γ

Legend

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

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

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



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

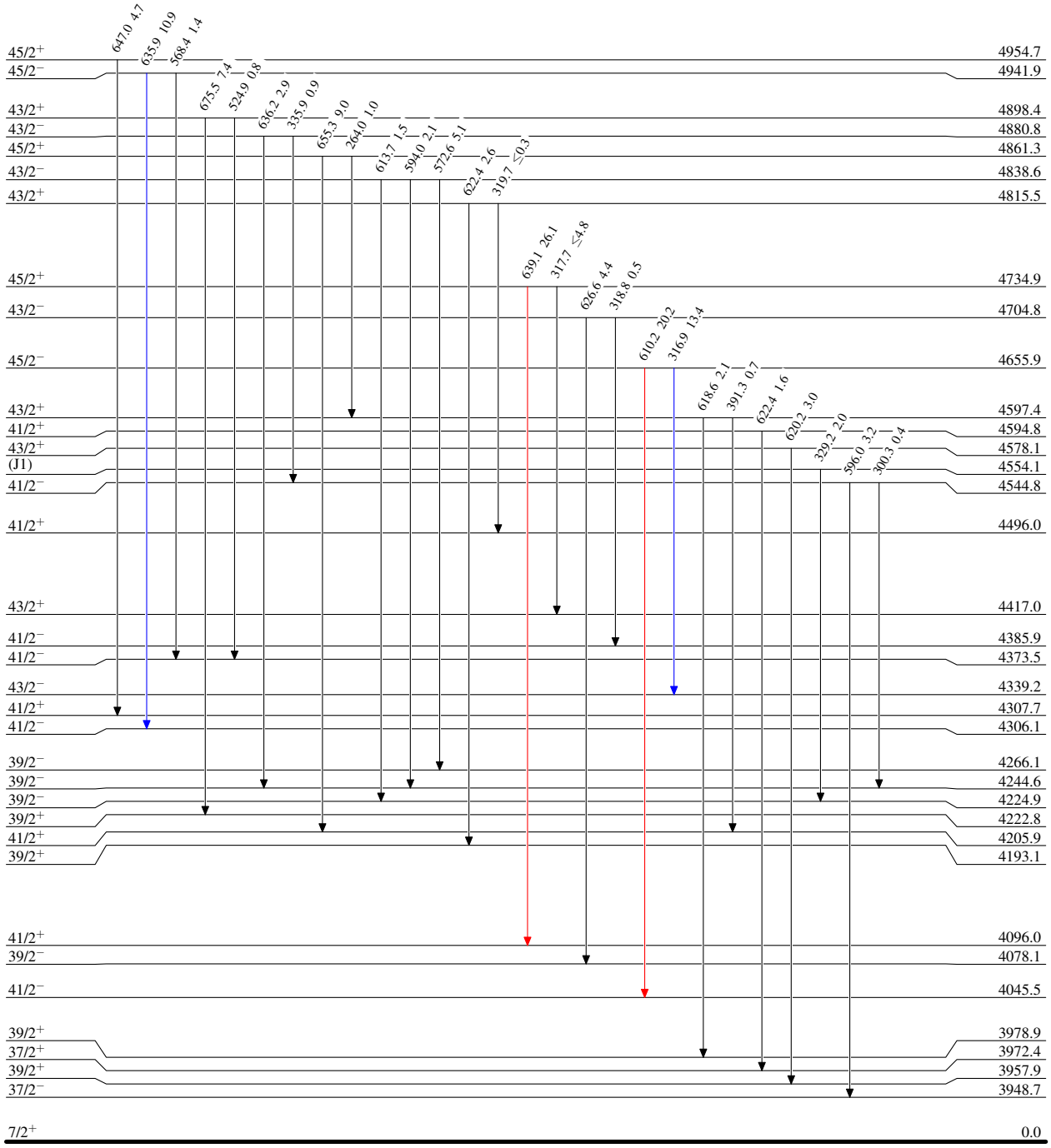
Intensities: Relative I_γ

Legend

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

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

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



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

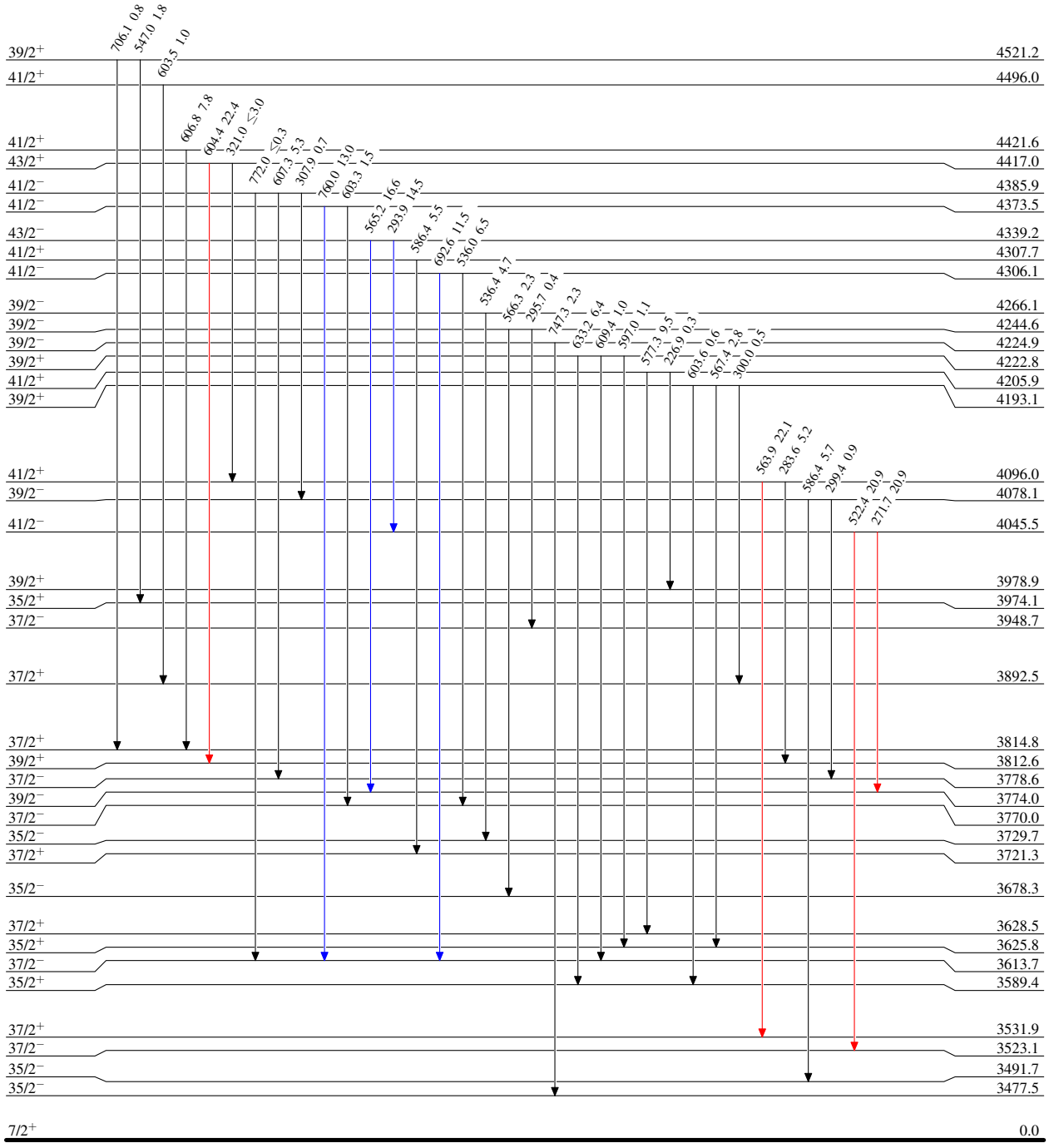
Intensities: Relative I_γ

Legend

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

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

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



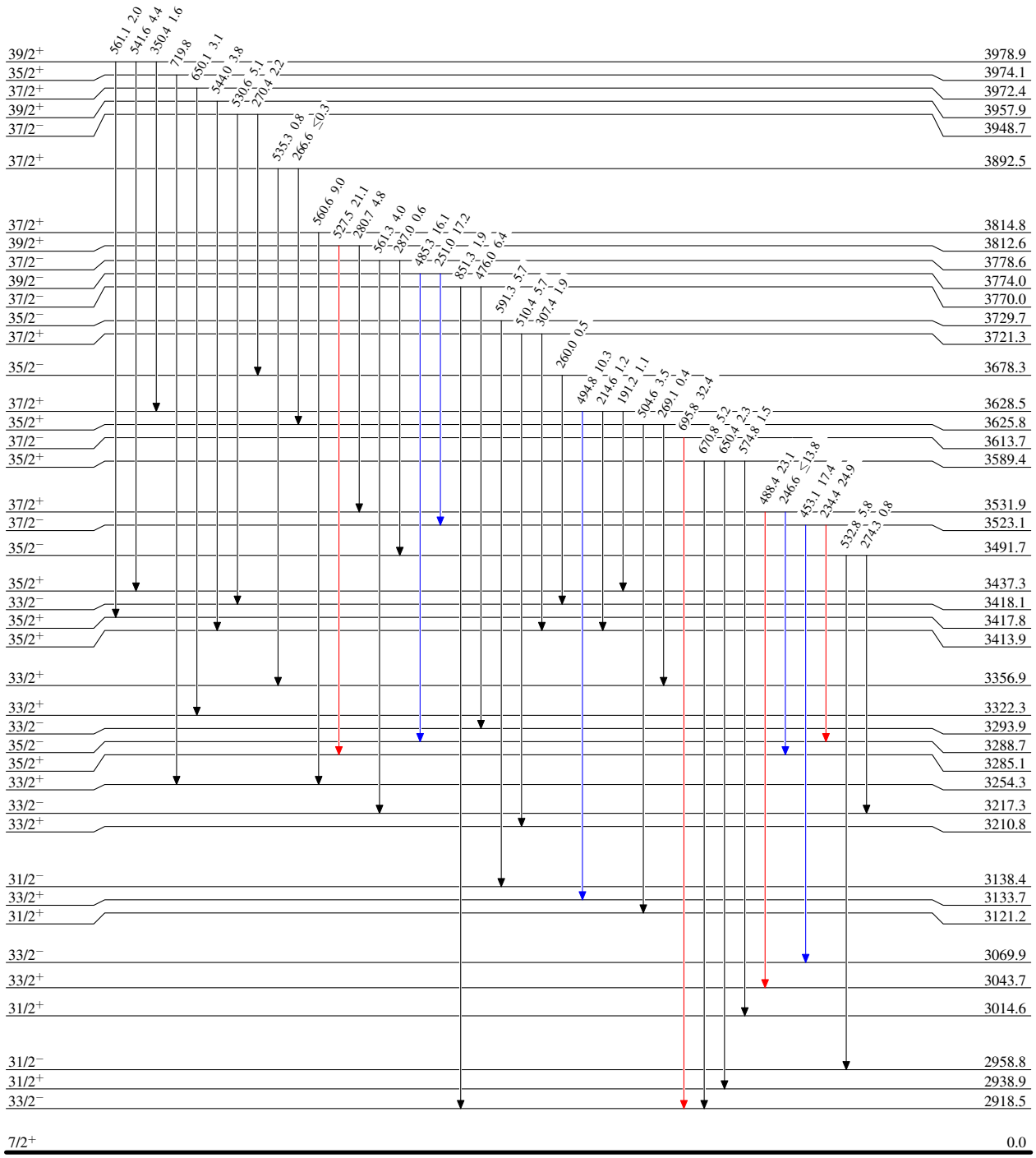
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ

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



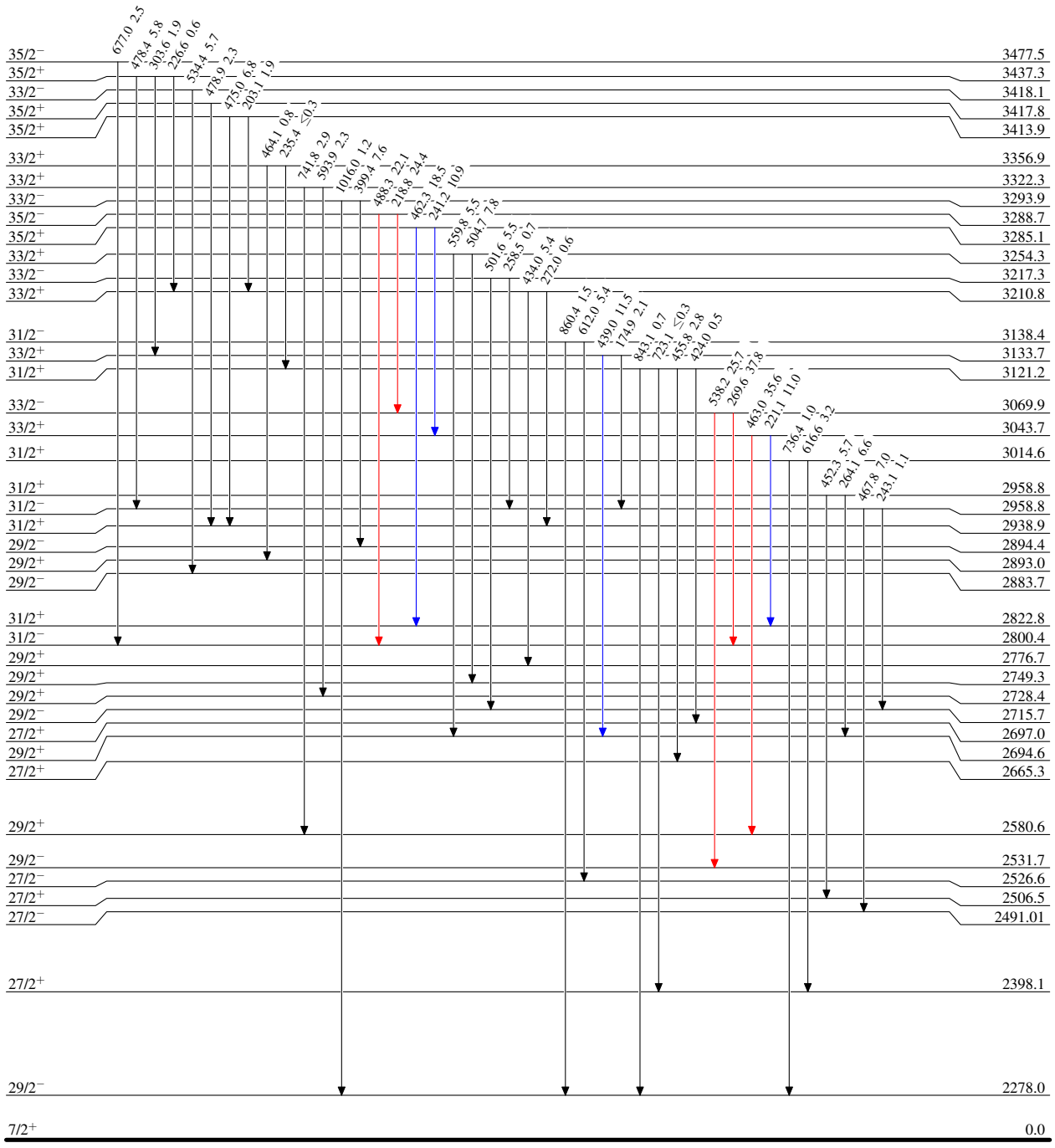
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ

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



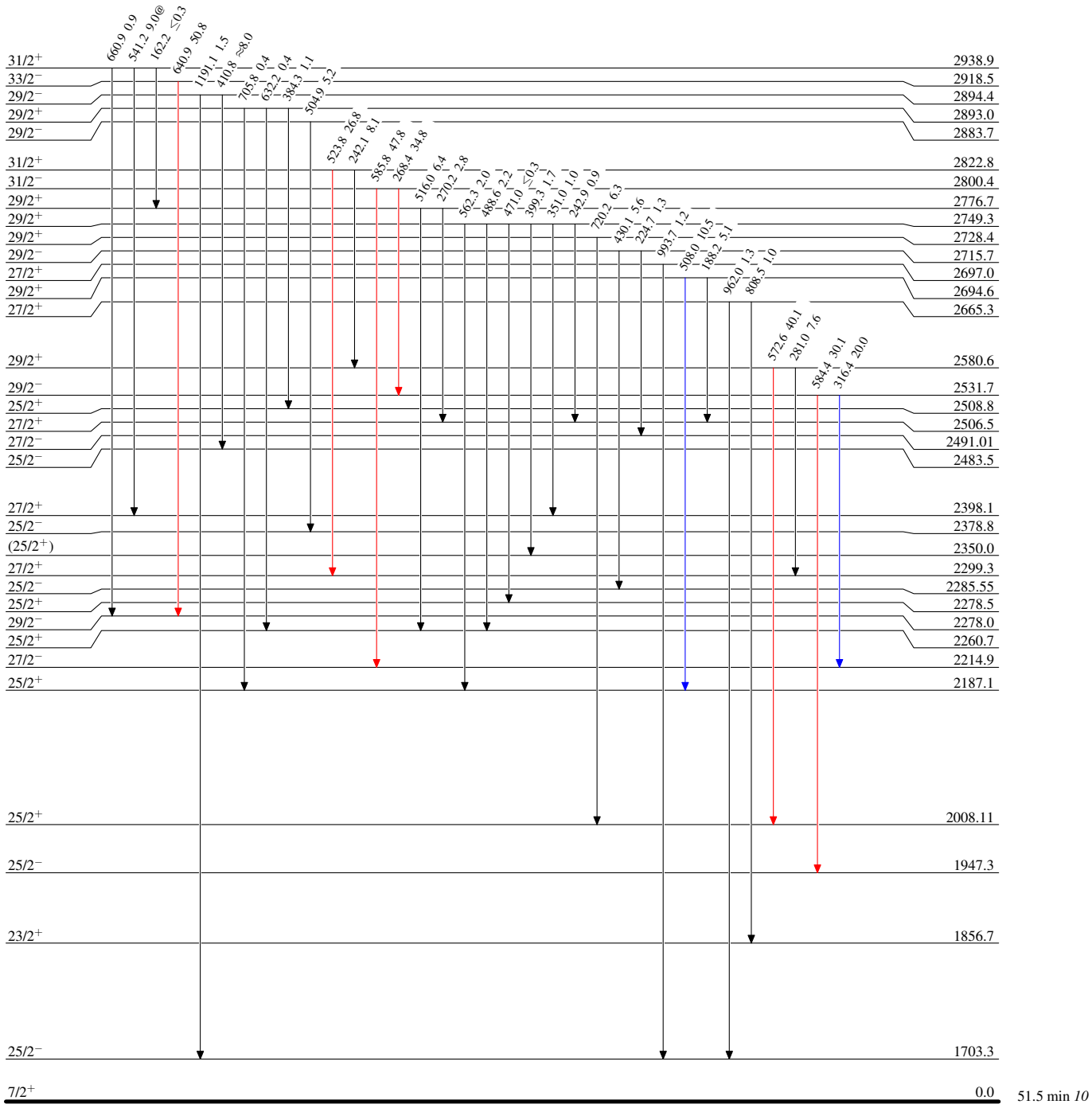
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



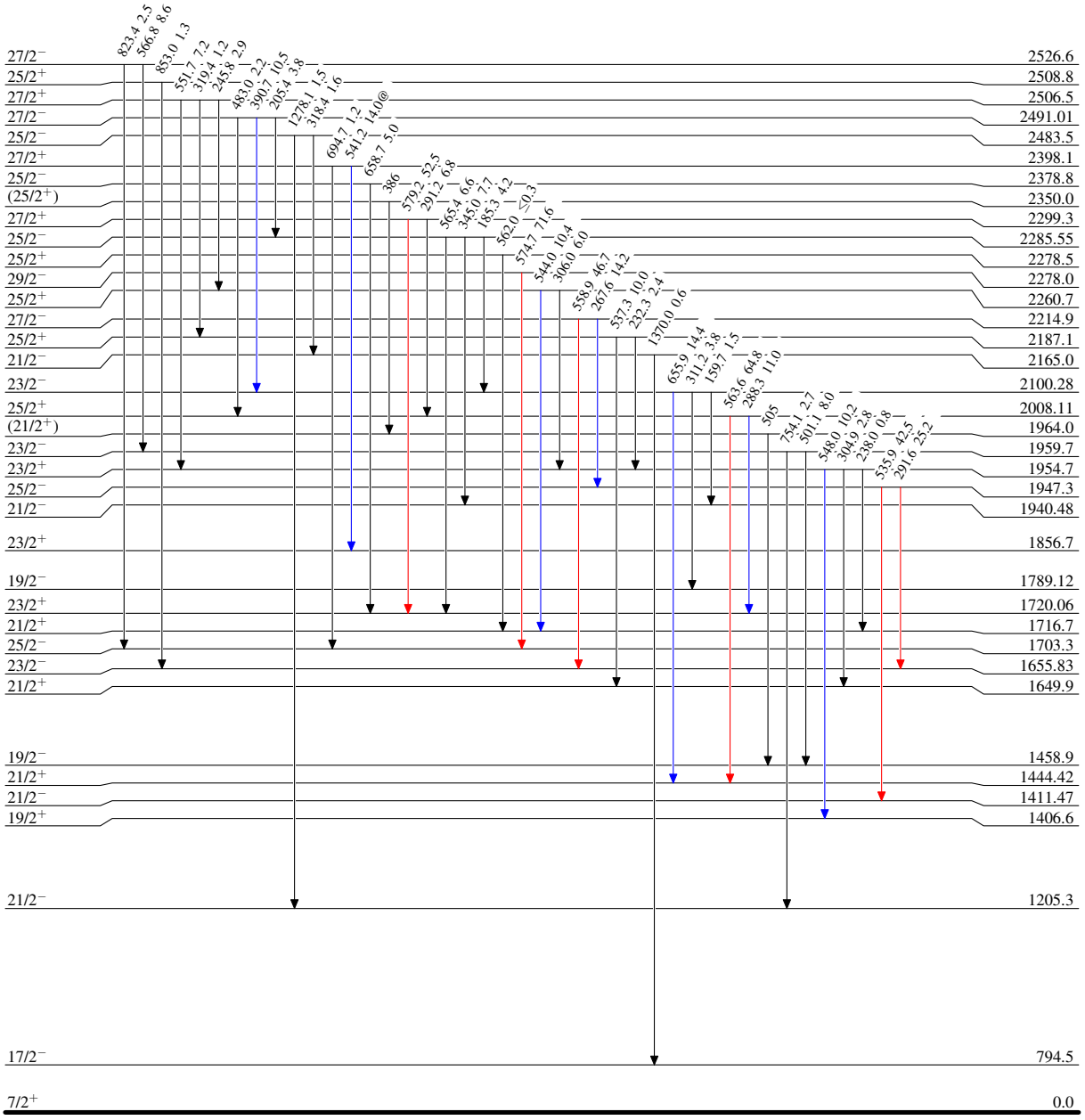
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



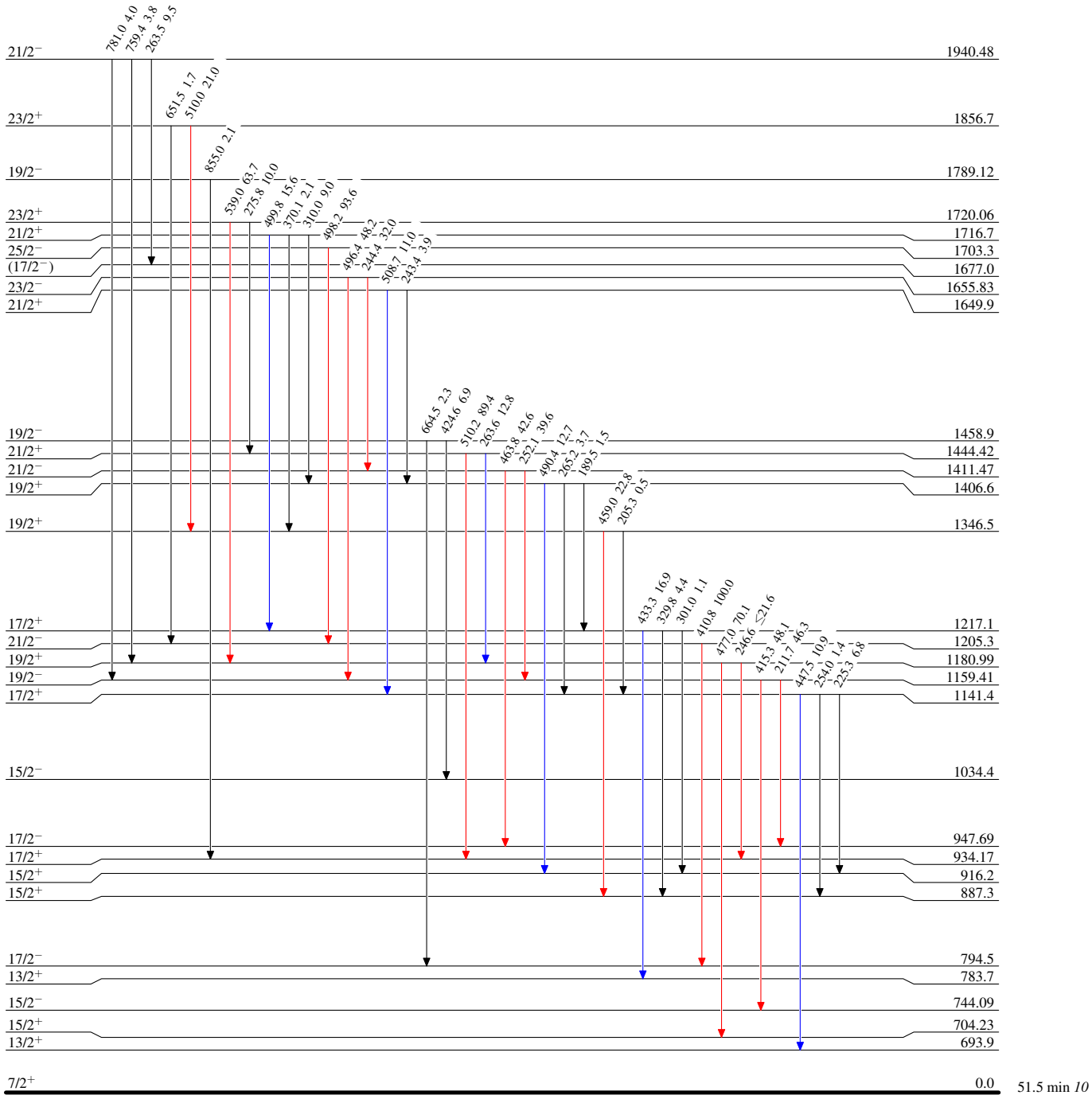
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



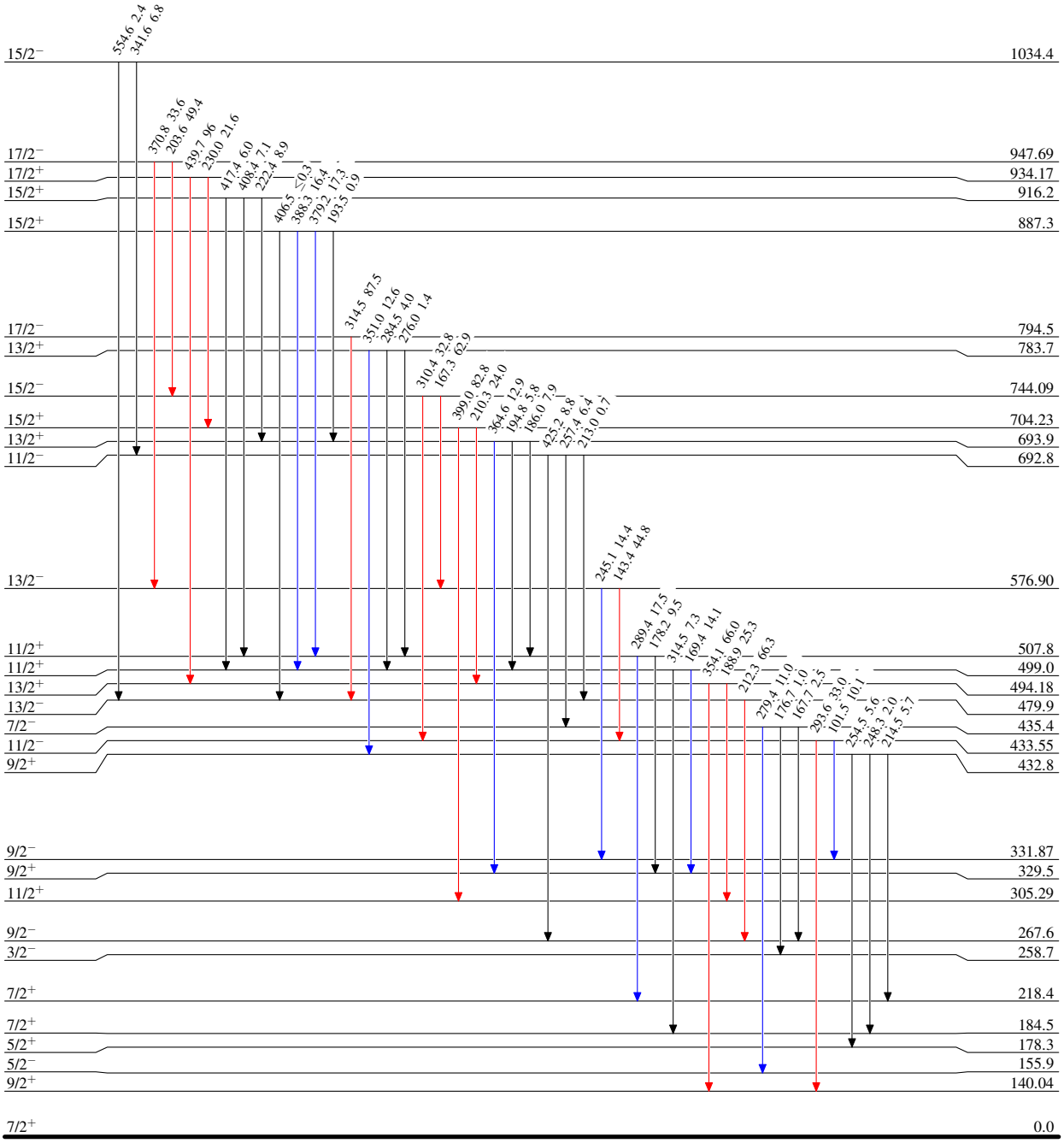
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



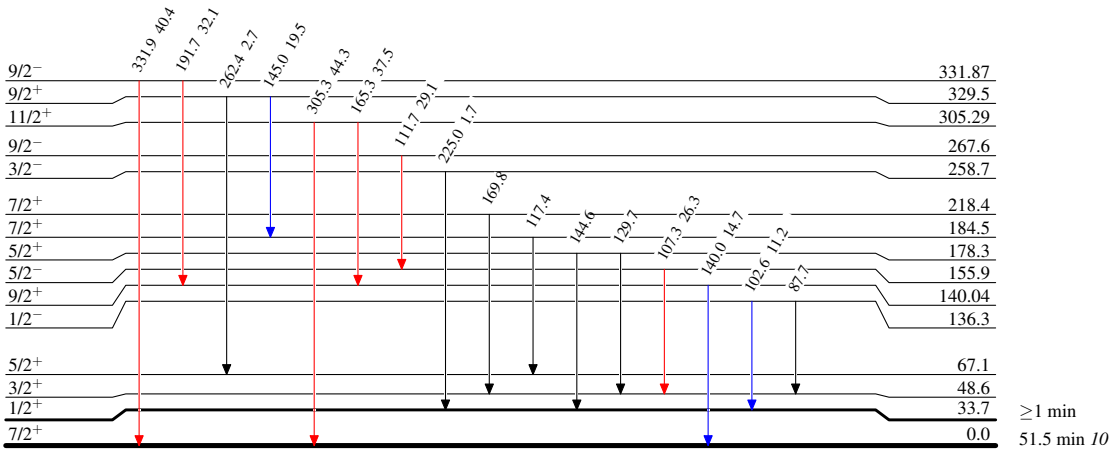
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27

Level Scheme (continued)

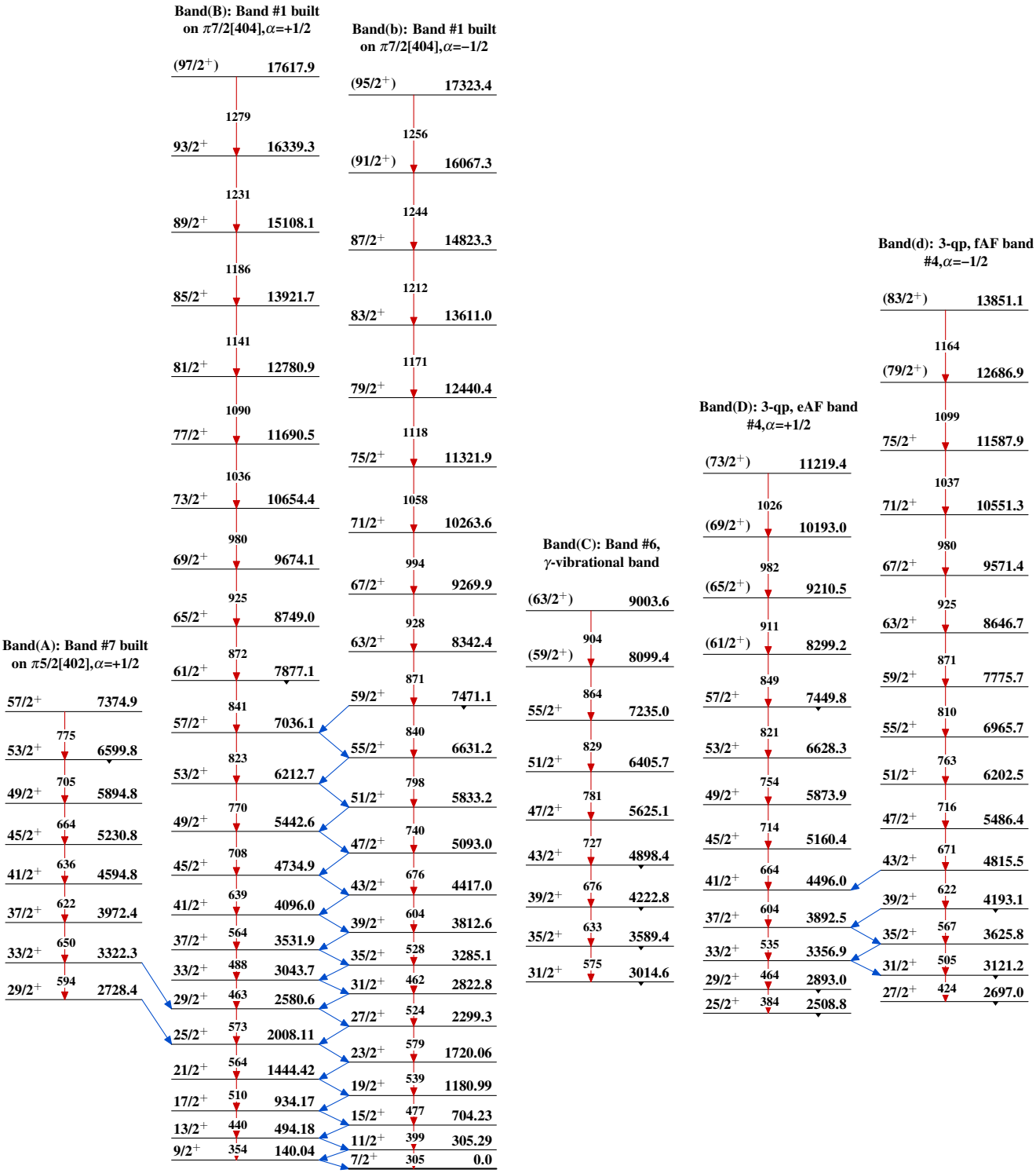
Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



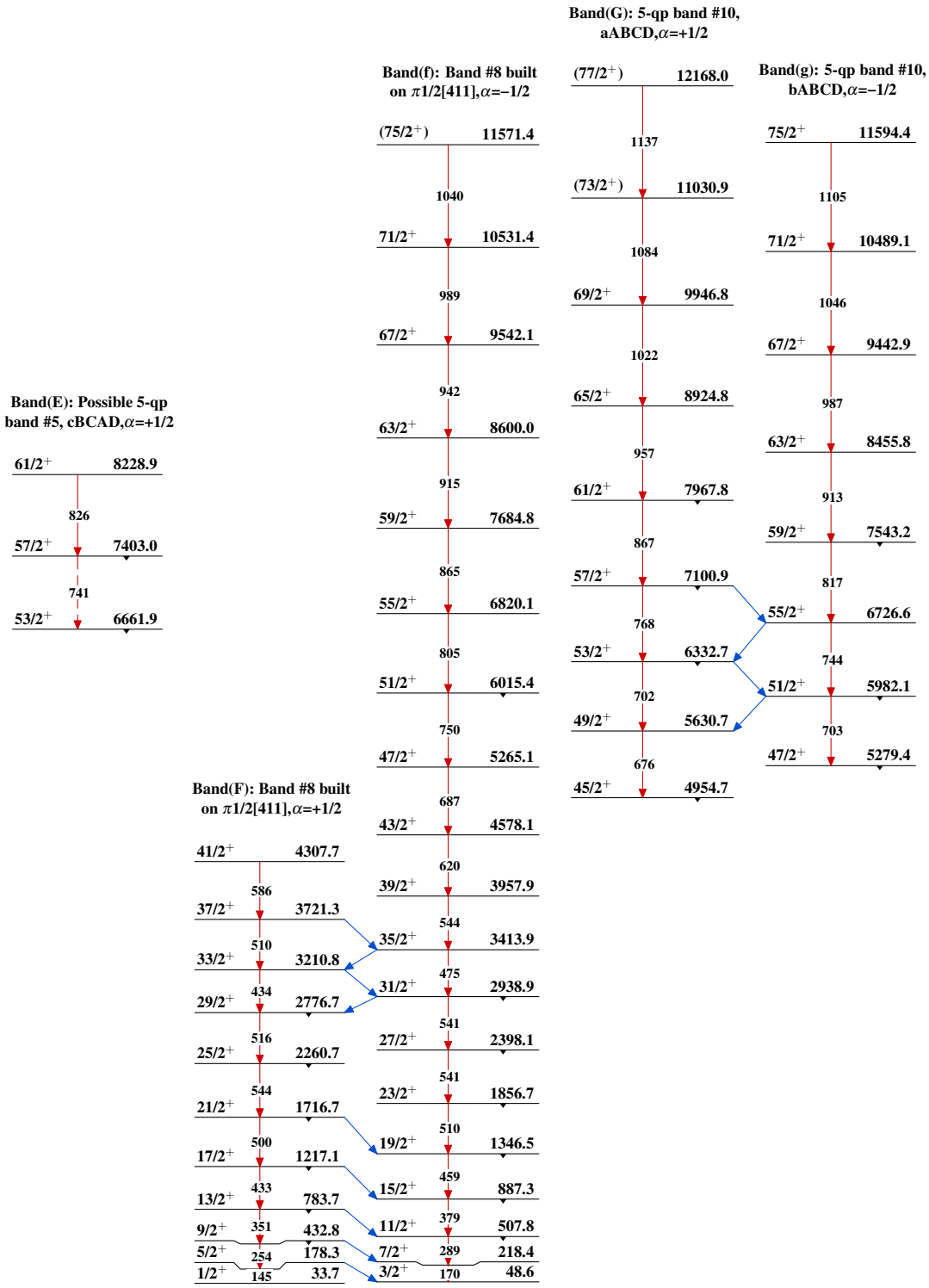
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27



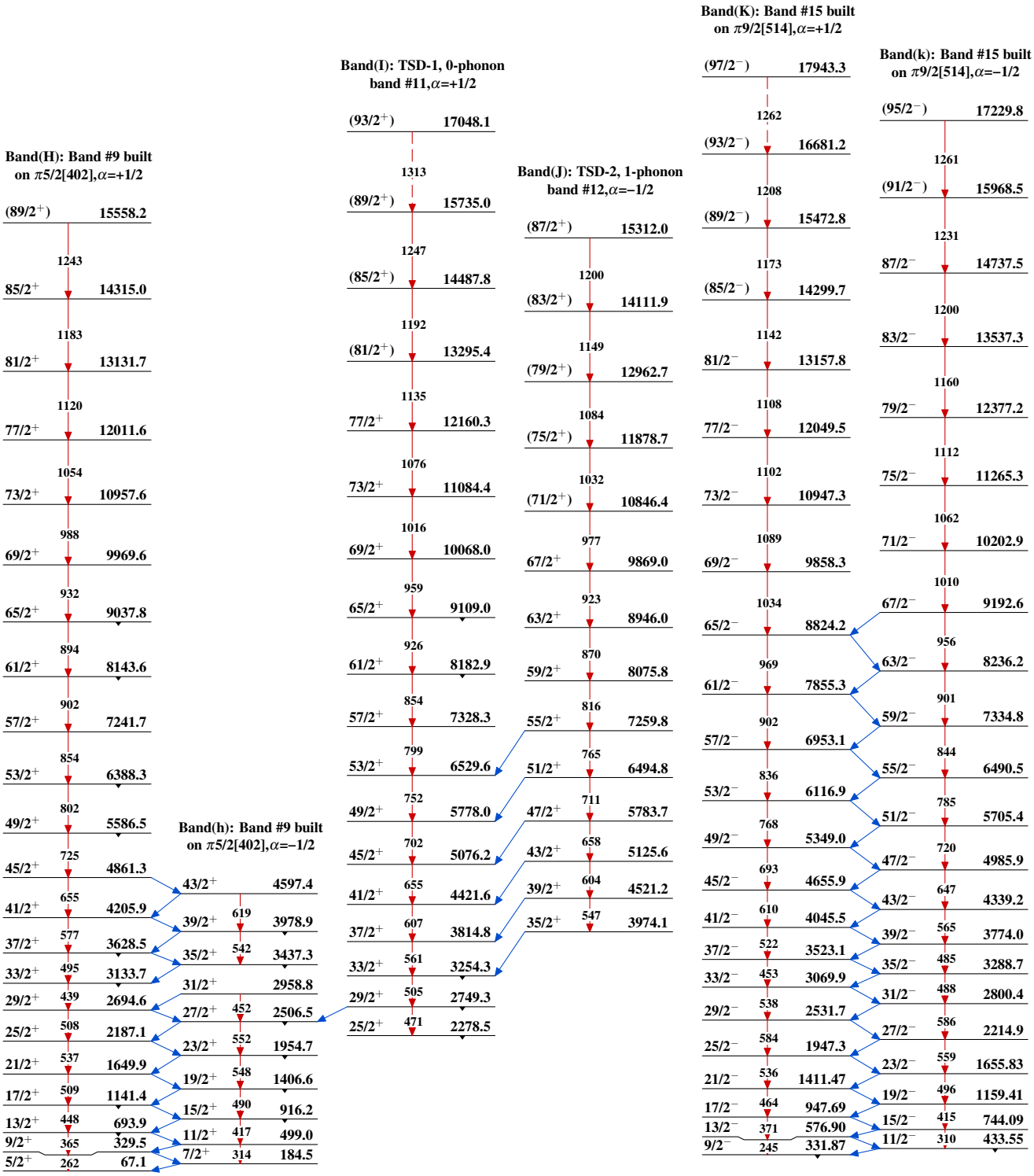
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)



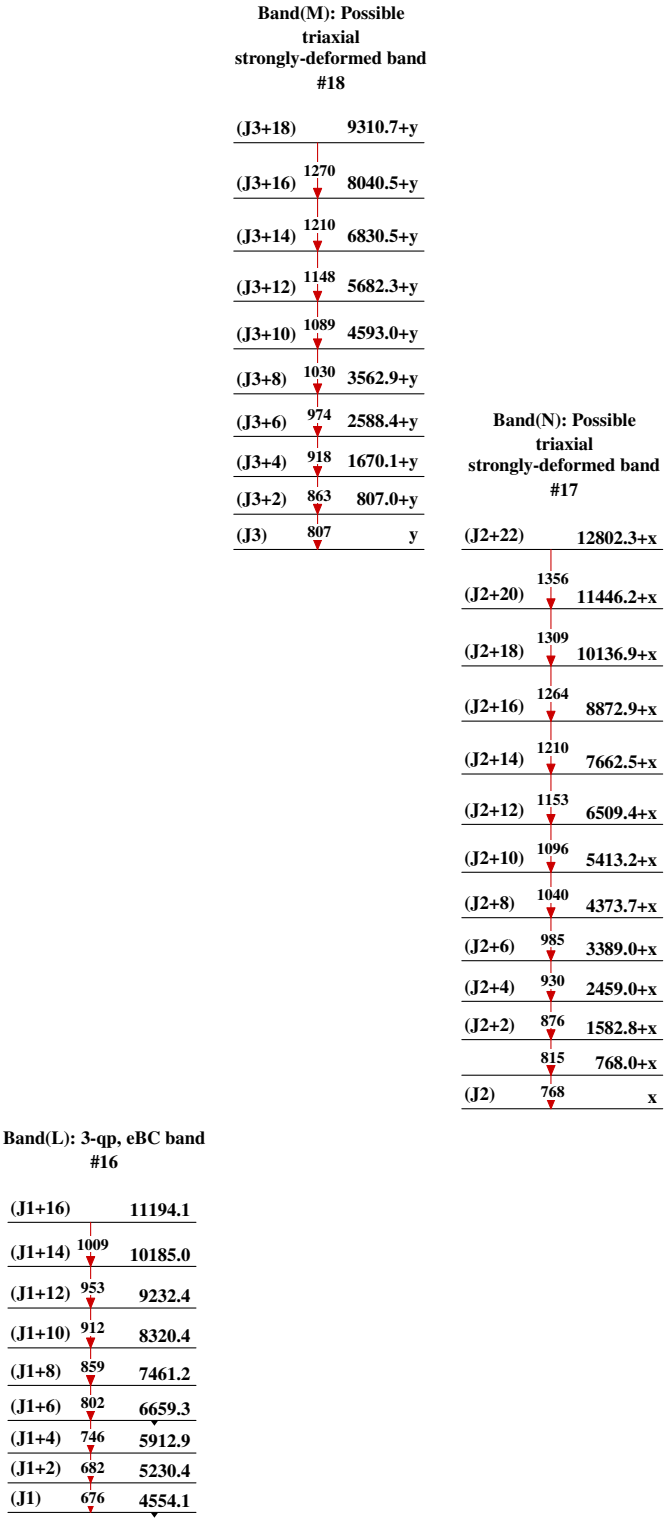
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)



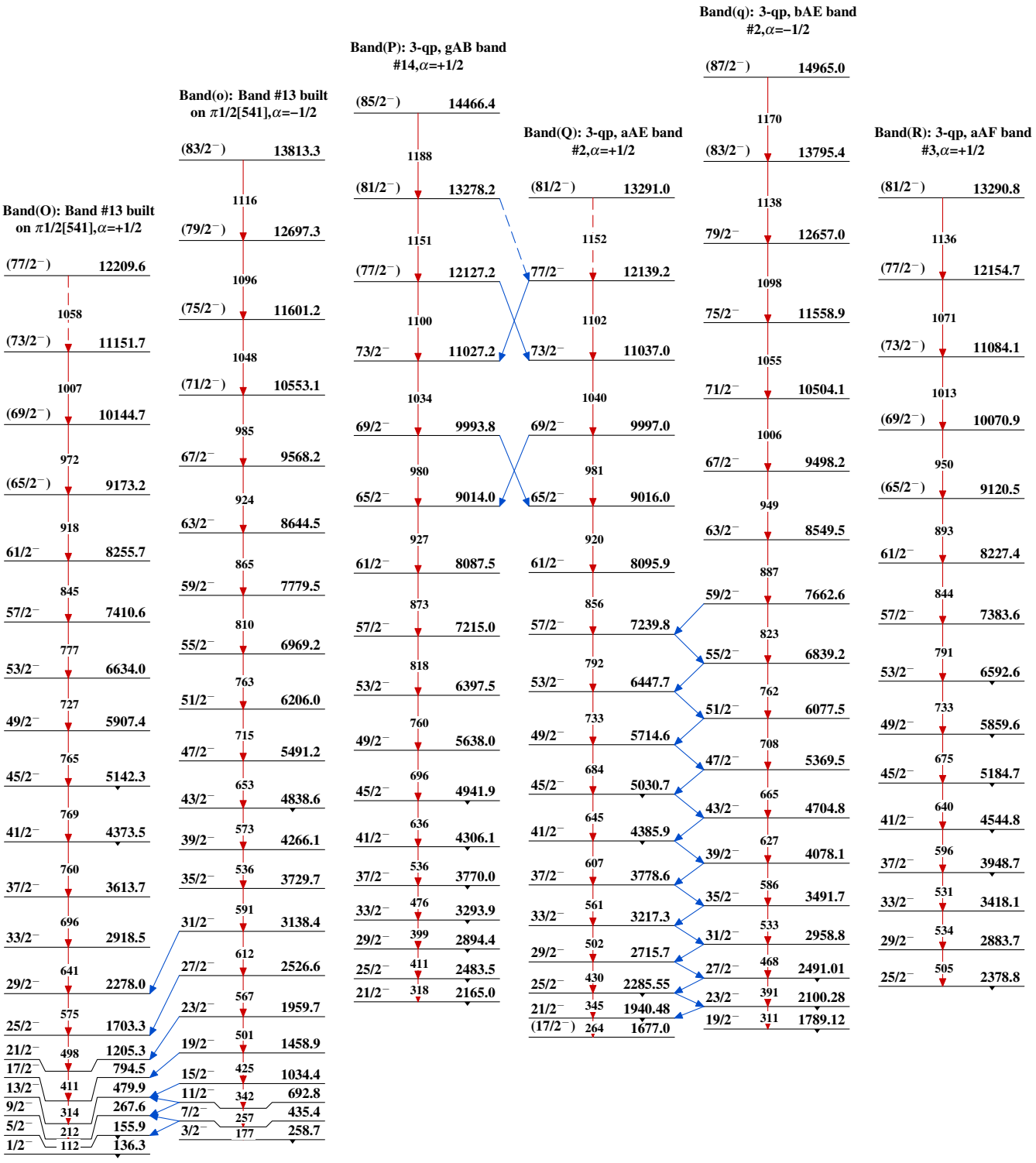
$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)



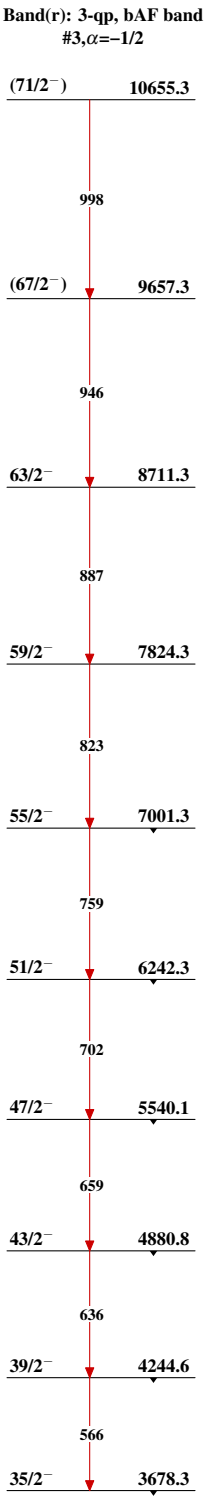
$^{167}_{71}Lu_{96}$

$^{123}Sb(^{48}Ca,4n\gamma)$:XUNDL-2 2015Ro27 (continued)



$^{167}_{71}Lu_{96}$

^{123}Sb(^{48}Ca,4nγ):XUNDL-2 2015Ro27 (continued)



$^{167}_{71}Lu_{96}$