^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 194,460 (2024)	31-Oct-2022

Includes ^{124}Sn(^{45}Sc,4nγ) from 2002Sc47 for lifetime data and deduced quadrupole moments for triaxial superdeformed states.

2004Sc14, 2003Sc02: E=152 MeV ^{30}Si beam was produced from the Vivitron Tandem accelerator at IReS, Strasbourg. Target was two foils of ^{139}La each of 500 μg/cm^2. γ rays were detected with the EUROBALL spectrometer array comprised of 30 conventional large-volume tapered Ge detectors, 26 Clover and 15 Cluster composite Ge detectors. The Clover detectors consisted of four Ge crystals each and the Clusters are composed of seven crystals each. All the detectors were surrounded by BGO scintillation detectors for Compton suppression. An inner ball of 210 BGO detectors was used as a multiplicity filter to enhance the detection of high-spin states which deexcite through long γ-ray cascades. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma(\theta)$(DCO). Deduced levels, J, π, normal-deformed and superdeformed structures, configurations.

2005An04: E=135 MeV ^{30}Si beam was produced from the XTU-tandem accelerator of Laboratori Nazionali di Legnaro, Italy. Target was 1.04 mg/cm^2 ^{139}La on a 1.4 mg/cm^2 Ta support. γ rays were detected with the GASP array of 40 Compton-suppressed Ge detectors and 80 BGO detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, recoil-distances. Deduced lifetimes of normal-deformed states in four low-lying rotational bands using differential decay-curve method (DDCM) in recoil-distance measurements.

2002Sc47: ^{124}Sn(^{45}Sc,4nγ) E=217 MeV ^{45}Sc beam was produced from the 88-inch cyclotron at LBNL. Target was a foil of 1 mg/cm^2 enriched ^{124}Sn on a gold backing. γ rays were detected with the Gammasphere of 100 Compton-suppressed Ge detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, Doppler-shift attenuation. Deduced average transition quadrupole moments of the triaxial superdeformed states.

All data are from 2004Sc14, unless otherwise stated.

Additional information 1.

^{165}Lu Levels

Q(transition)= Transition quadrupole moment.

Nomenclature for quasi-particle orbitals:

a: π1/2[411], α=+1/2.
b: π1/2[411], α=−1/2.
c: π7/2[404], α=+1/2.
d: π7/2[404], α=−1/2.
e: π9/2[514], α=+1/2.
f: π9/2[514], α=−1/2.
g: π7/2[523], α=+1/2.
h: π7/2[523], α=−1/2.
k: π5/2[402], α=+1/2.
l: π5/2[402], α=−1/2.
A: ν5/2[642], α=+1/2.
B: ν5/2[642], α=−1/2.
C: ν3/2[651], α=+1/2.
D: ν3/2[651], α=−1/2.
E: ν5/2[523], α=+1/2.
F: ν5/2[523], α=−1/2.
G: ν3/2[521], α=+1/2.
H: ν3/2[521], α=−1/2.

The first alignment of pair of $i_{13/2}$ neutrons [AB] results in an alignment gain of 10$\hbar$ at $\hbar\omega$=0.25 MeV in most bands, except for the π1/2[541] band where the alignment is delayed. The alignments of the next pair of $i_{13/2}$ neutrons [BC] and [CD] occur at higher frequencies of $\hbar\omega\approx$0.31 and 0.40 MeV, respectively with an alignment gain of $\approx$4.5$\hbar$.

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^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

^{165}Lu Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]	Comments
0.0+x[c]	3/2$^+$		E(level): x≈20 keV; see the Adopted Levels for comments.
5.4+x[g] *5*	5/2$^+$		
23.4+x[a] *4*	7/2$^+$		
54.7+x *4*	(7/2$^-$)		
141.4+x[f] *4*	7/2$^+$		
147.7+x[d] *4*	5/2$^+$		
182.4+x[b] *4*	9/2$^+$		
195.39+x[c] *10*	7/2$^+$	133 ps *12*	
234.9+x[@] *4*	9/2$^-$		
305.6+x[g] *4*	9/2$^+$		
335.5+x[&] *4*	11/2$^-$		
345.5+x[e] *5*	5/2$^-$		
366.6+x[a] *4*	11/2$^+$	15.7 ps *15*	
432.7+x[d] *4*	9/2$^+$		
466.48+x[e] *14*	9/2$^-$	58.7 ps *35*	
494.7+x[@] *4*	13/2$^-$	13.0 ps *6*	
499.3+x[f] *4*	11/2$^+$		
519.60+x[c] *14*	11/2$^+$	14.9 ps *7*	
574.2+x[b] *4*	13/2$^+$	6.70 ps *24*	
662.7+x[&] *4*	15/2$^-$	6.65 ps *35*	
694.77+x[e] *17*	13/2$^-$	33.3 ps *14*	
711.4+x[g] *3*	13/2$^+$		
802.2+x[a] *4*	15/2$^+$	3.66 ps *16*	
821.2+x[d] *4*	13/2$^+$		
893.3+x[@] *4*	17/2$^-$	2.91 ps *12*	
943.4+x[c] *3*	15/2$^+$	1.84 ps *17*	
955.5+x[f] *4*	15/2$^+$		
1030.17+x[e] *20*	17/2$^-$	7.77 ps *17*	
1048.9+x[b] *4*	17/2$^+$	2.17 ps *8*	
1099.5+x[&] *4*	19/2$^-$	1.70 ps *6*	
1197.5+x[g] *4*	17/2$^+$		
1292.1+x[d] *5*	17/2$^+$		
1310.6+x[a] *4*	19/2$^+$		
1386.4+x[@] *4*	21/2$^-$	1.25 ps *18*	
1445.5+x[c] *3*	19/2$^+$	2.16 ps *10*	
1462.25+x[e] *22*	21/2$^-$	2.8 ps *7*	
1478.6+x[f] *5*	19/2$^+$		
1587.0+x[b] *4*	21/2$^+$	1.10 ps *8*	
1618.3+x[&] *4*	23/2$^-$	0.98 ps *7*	
1740.2+x[g] *4*	21/2$^+$		
1769.6+x[p] *7*	19/2$^-$		
1818.6+x[d] *5*	21/2$^+$		
1871.6+x[a] *4*	23/2$^+$		
1945.0+x[@] *4*	25/2$^-$		
1978.64+x[e] *24*	25/2$^-$		
1990.2+x[c] *3*	23/2$^+$		
2048.3+x[f] *6*	23/2$^+$		

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^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

^{165}Lu Levels (continued)

E(level)[†]	J$^{\pi}$[‡]
2155.6+x[p] 6	23/2$^-$
2166.7+x[b] 4	25/2$^+$
2195.9+x[&] 4	27/2$^-$
2294.5+x[g] 5	25/2$^+$
2348.8+x[d] 5	25/2$^+$
2409.3+x[q] 7	25/2$^+$
2458.6+x[a] 4	27/2$^+$
2534.9+x[@] 4	29/2$^-$
2538.6+x[c] 4	27/2$^+$
2545.0+x[h] 4	27/2$^+$
2564.3+x[e] 3	29/2$^-$
2585.7+x[p] 6	27/2$^-$
2612.3+x[f] 7	27/2$^+$
2730.3+x[b] 4	29/2$^+$
2753.6+x[g] 5	29/2$^+$
2765.2+x[i] 5	29/2$^+$
2789.0+x[&] 4	31/2$^-$
2794.1+x[q] 6	29/2$^+$
2947.1+x[n] 5	31/2$^-$
2956.8+x[a] 4	31/2$^+$
2968.4+x[h] 4	31/2$^+$
2999.7+x[c] 5	31/2$^+$
3038.6+x[@] 4	33/2$^-$
3043.4+x[f] 11	31/2$^+$
3067.1+x[p] 8	31/2$^-$
3180.4+x[b] 5	33/2$^+$
3195.2+x[e] 4	33/2$^-$
3201.1+x[i] 5	33/2$^+$
3222.2+x[o] 5	33/2$^-$
3224.6+x[g] 7	33/2$^+$
3240.1+x[q] 7	33/2$^+$
3248.2+x[&] 4	35/2$^-$
3417.3+x[a] 5	35/2$^+$
3436.6+x[h] 5	35/2$^+$
3471.7+x[c] 7	35/2$^+$
3474.9+x[@] 4	37/2$^-$
3484.8+x[n] 5	35/2$^-$
3602.2+x[p] 8	35/2$^-$
3682.5+x[b] 5	37/2$^+$
3705.4+x[i] 6	37/2$^+$
3734.9+x[&] 4	39/2$^-$
3754.6+x[g] 8	37/2$^+$
3765.2+x[q] 8	37/2$^+$
3823.8+x[o] 5	37/2$^-$
3853.5+x[e] 6	37/2$^-$
3864.5+x[r] 10	35/2$^+$
3970.2+x[a] 5	39/2$^+$
3980.9+x[h] 5	39/2$^+$

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^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

^{165}Lu Levels (continued)

E(level)[†]	Jπ[‡]	Comments
4009.9+x[@] 4	41/2$^-$	
4034.7+x[c] 8	39/2$^+$	
4116.8+x[n] 6	39/2$^-$	
4184.9+x[p] 8	39/2$^-$	
4270.0+x[i] 5	41/2$^+$	
4290.5+x[b] 6	41/2$^+$	
4321.9+x[&] 4	43/2$^-$	
4347.3+x[q] 9	41/2$^+$	
4374.0+x[g] 9	41/2$^+$	
4403.4+x[r] 10	39/2$^+$	
4453.4+x[o] 6	41/2$^-$	
4490.6+x[e] 7	41/2$^-$	
4575.0+x[m] 8	41/2$^-$	
4579.4+x[h] 5	43/2$^+$	
4613.9+x[a] 6	43/2$^+$	
4644.9+x[@] 4	45/2$^-$	
4686.7+x[c] 8	43/2$^+$	
4773.2+x[n] 7	43/2$^-$	
4788.2+x[s] 14	41/2$^+$	
4800.2+x[p] 8	43/2$^-$	
4888.7+x[i] 5	45/2$^+$	
4960.5+x[b] 6	45/2$^+$	
4988.6+x[q] 10	45/2$^+$	
4996.1+x[&] 4	47/2$^-$	
5001.4+x[r] 10	43/2$^+$	
5068.9+x[g] 10	45/2$^+$	
5115.5+x[o] 7	45/2$^-$	
5145.1+x[e] 9	45/2$^-$	
5173.9+x[m] 8	45/2$^-$	
5220.8+x[h] 6	47/2$^+$	
5325.9+x[a] 7	47/2$^+$	
5363.5+x[@] 4	49/2$^-$	
5393.7+x 8	47/2$^+$	Level decays to 43/2$^+$ member of the π1/2[411] band.
5435.6+x[c] 10	47/2$^+$	
5446.5+x[p] 8	47/2$^-$	
5449.5+x[s] 12	45/2$^+$	
5475.5+x[n] 7	47/2$^-$	
5539.6+x[i] 6	49/2$^+$	
5656.5+x[r] 11	47/2$^+$	
5685.4+x[q] 10	49/2$^+$	
5695.5+x[b] 8	49/2$^+$	
5740.2+x[&] 5	51/2$^-$	
5786.3+x[o] 8	49/2$^-$	
5823.9+x[g] 11	49/2$^+$	
5825.1+x[m] 8	49/2$^-$	
5845.1+x[e] 12	49/2$^-$	
5860.9+x[l] 12	(49/2)$^-$	
5899.8+x[h] 6	51/2$^+$	

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^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

^{165}Lu Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
6080.9+x[j] 7	51/2+	7953.5+x[r] 15	59/2+	10367.1+x[h] 11	71/2+
6101.7+x[a] 8	51/2+	8094.7+x[q] 15	61/2+	10414.8+x[s] 20	69/2+
6137.9+x[p] 9	51/2−	8114.5+x[k] 11	61/2+	10449.0+x[p] 17	71/2−
6146.7+x[@] 5	53/2−	8127.8+x[o] 10	61/2−	10546.9+x[j] 17	71/2+
6155.5+x[s] 11	49/2+	8212.5+x[b] 16	61/2+	10594.0+x[a] 19	71/2+
6178.5+x[n] 8	51/2−	8226.8+x[m] 13	61/2−	10644.8+x[n] 19	71/2−
6188.7+x[c] 10	51/2+	8258.1+x[g] 18	61/2+	10646.7+x[c] 21	71/2+
6236.3+x[i] 6	53/2+	8269.2+x[&] 7	63/2−	10733.3+x[r] 20	71/2+
6367.9+x[r] 11	51/2+	8312.2+x[e] 18	61/2−	10793.7+x[i] 13	73/2+
6435.7+x[q] 11	53/2+	8330.8+x[h] 9	63/2+	10826.9+x[@] 13	73/2−
6448.5+x[k] 8	53/2+	8336.7+x[l] 18	(61/2)−	10985.9+x[q] 20	73/2+
6507.5+x[o] 9	53/2−	8552.6+x[s] 17	61/2+	11017.3+x[o] 16	73/2−
6511.5+x[b] 11	53/2+	8556.9+x[p] 13	63/2−	11142.0+x[m] 19	73/2−
6538.8+x[&] 5	55/2−	8584.9+x[j] 12	63/2+	11193.9+x[e] 23	73/2−
6552.2+x[m] 9	53/2−	8660.4+x[a] 15	63/2+	11201.6+x[&] 11	75/2−
6608.6+x[e] 14	53/2−	8691.6+x[n] 15	63/2−	11425.9+x[s] 22	73/2+
6613.4+x[g] 14	53/2+	8733.7+x[c] 17	63/2+	11477.1+x[p] 19	75/2−
6632.3+x[h] 7	55/2+	8754.6+x[i] 9	65/2+	11496.8+x[h] 14	75/2+
6642.2+x[l] 14	(53/2)−	8794.9+x[@] 9	65/2−	11582.9+x[j] 18	75/2+
6841.9+x[j] 9	55/2+	8825.6+x[r] 17	63/2+	11612.3+x[a] 20	75/2+
6886.5+x[p] 9	55/2−	9003.5+x[q] 17	65/2+	11656.7+x[c] 22	75/2+
6904.3+x[s] 12	53/2+	9027.9+x[o] 12	65/2−	11683.8+x[n] 20	75/2−
6907.6+x[a] 9	55/2+	9067.5+x[k] 14	65/2+	11768.4+x[r] 22	75/2+
6947.1+x[n] 10	55/2−	9133.5+x[b] 18	65/2+	11899.2+x[i] 15	77/2+
6982.1+x[@] 6	57/2−	9155.7+x[m] 16	65/2−	11935.8+x[@] 15	77/2−
6994.7+x[c] 13	55/2+	9160.9+x[g] 20	65/2+	12062.1+x[q] 22	77/2+
6998.0+x[i] 7	57/2+	9198.6+x[&] 9	67/2−	12105.3+x[o] 18	77/2−
7133.6+x[r] 12	55/2+	9242.4+x[e] 20	65/2−	12189.8+x[m] 21	77/2−
7239.0+x[q] 12	57/2+	9265.0+x[l] 20	(65/2)−	12215.6+x[e] 24	77/2−
7240.5+x[k] 10	57/2+	9308.7+x[h] 10	67/2+	12277.6+x[&] 14	79/2−
7287.9+x[o] 10	57/2−	9457.3+x[s] 19	65/2+	12485.0+x[s] 23	77/2+
7338.5+x[b] 14	57/2+	9475.1+x[p] 15	67/2−	12558.7+x[p] 21	79/2−
7354.6+x[m] 10	57/2−	9544.9+x[j] 14	67/2+	12643.9+x[j] 20	79/2+
7383.2+x[&] 6	59/2−	9607.1+x[a] 17	67/2+	12649.9+x[a] 22	79/2+
7418.3+x[g] 16	57/2+	9642.9+x[n] 17	67/2−	12678.8+x[h] 16	79/2+
7431.2+x[e] 17	57/2−	9671.7+x[c] 19	67/2+	12720.7+x[c] 24	79/2+
7439.2+x[h] 8	59/2+	9742.6+x[i] 10	69/2+	12858.0+x[r] 23	79/2+
7467.0+x[l] 17	(57/2)−	9752.2+x[r] 19	67/2+	13041.3+x[i] 17	81/2+
7677.9+x[j] 10	59/2+	9780.9+x[@] 10	69/2−	13102.3+x[@] 17	81/2−
7693.8+x[p] 10	59/2−	9966.5+x[q] 19	69/2+	13195.6+x[q] 23	81/2+
7703.0+x[s] 15	57/2+	9991.0+x[o] 14	69/2−	13245.0+x[o] 20	81/2−
7760.3+x[a] 12	59/2+	10072.5+x[k] 16	69/2+	13399.3+x[&] 16	83/2−
7788.4+x[n] 13	59/2−	10107.5+x[b] 20	69/2+	13592.5+x[s] 25	81/2+
7837.5+x[i] 7	61/2+	10129.2+x[m] 18	69/2−	13686.4+x[p] 22	83/2−
7841.7+x[c] 15	59/2+	10175.0+x[&] 10	71/2−	13715.0+x[a] 23	83/2+
7863.9+x[@] 7	61/2−	10207.5+x[e] 22	69/2−	13829.7+x[c] 25	83/2+

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^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

^{165}Lu Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
14009.0+x[r] 25	83/2+	y[t]	J	z[u]	J1
14199.8+x[i] 19	85/2+	624.5+y[t] 8	J+2	712.2+z[u] 8	J1+2
14384.9+x[q] 25	85/2+	1308.3+y[t] 12	J+4	1482.4+z[u] 12	J1+4
14558.1+x[&] 18	87/2−	2049.0+y[t] 14	J+6	2311.3+z[u] 14	J1+6
14848.9+x[p] 24	87/2−	2847.3+y[t] 16	J+8	3197.1+z[u] 16	J1+8
15209+x[r] 3	87/2+	3703.3+y[t] 18	J+10	4140.8+z[u] 18	J1+10
15624+x[q] 3	89/2+	4618.9+y[t] 20	J+12	5143.3+z[u] 20	J1+12
15745.1+x[&] 20	91/2−	5594.2+y[t] 22	J+14	6206.3+z[u] 22	J1+14
16463+x?[r] 3	(91/2+)	6631.2+y[t] 23	J+16		

† From a least-squares fit to Eγ data.

‡ As proposed by 2004Sc14 based on γγ(θ)(DCO) data for selected transitions and band assignments. The assignments are consistent with those in the Adopted Levels, except that all are given in parentheses there due to lack of strong supporting arguments.

From differential decay curve method (DDCM) in recoil-distance measurements in 2005An04.

@ Band(A): π9/2[514], α=+1/2. Changes to π9/2[514]⊗[AB] at ħω=0.25 MeV and spin range of 29/2 to 31/2, and 9/2[514]⊗[ABCD] at higher frequencies.

& Band(a): π9/2[514], α=−1/2. See comment for the α=+1/2 signature partner of this band.

a Band(B): π7/2[404], α=−1/2. From low to high spins, configuration changes to π7/2[404]⊗[AB], then to π7/2[404]⊗[ABCD], and finally to π7/2[404]⊗[ABCDEF].

b Band(b): π7/2[404], α=+1/2. See comment for the α=−1/2 signature partner of this band.

c Band(C): π1/2[411], α=−1/2. At higher spins, configuration=π1/2[411]⊗[AB], and then π1/2[411]⊗[ABCD].

d Band(c): π1/2[411], α=+1/2.

e Band(D): π1/2[541], α=+1/2. From low to high spins, configuration changes to π1/2[541]⊗[AB], then to π1/2[541]⊗[ABCD] and finally to π1/2[541]⊗[ABCDEF].

f Band(E): π5/2[402], α=−1/2.

g Band(e): π5/2[402], α=+1/2. From low to high spins, configuration changes to π5/2[402]⊗[AB], and then to π5/2[402]⊗[ABCD].

h Band(F): π9/2[514]⊗[AE], α=−1/2. At higher spins, the configuration changes to π9/2[514]⊗[AEBC]. The upbend at ħω≈0.56 MeV near spin 59/2 may be due to the alignment of proton pair *fg* or *gh*, with the resulting configuration=π9/2[514]⊗[AEBC(*fg* and/or *gh*)].

i Band(f): π9/2[514]⊗[AE], α=+1/2. See comment for α=−1/2 signature partner of this band.

j Band(G): π9/2[514]⊗[AHBC], α=−1/2. At higher frequencies, the configuration is probably π9/2[514]⊗[AHBCEF].

k Band(g): π9/2[514]⊗[AHBC], α=+1/2. See comment for the α=−1/2 signature partner of this band.

l Band(H): Band #1, α=+1/2. This band probably decays into the π1/2[541] band.

m Band(I): Band #2, α=+1/2. See comment for band #3. Configuration for band #2 changes from π7/2[404]⊗[AE] at high spins to π9/2[514]⊗[BC] at low spins.

n Band(i): Band #3, α=−1/2. Bands #2 to #5 form pairs of signature partners above spin 45/2. At lower spins, the bands seem to form different pairs, where band #4 interchanges character with band #2 and band #3 and band #4 seem to be signature partners. From low to high spins, configuration for band #3 is π9/2[514], π9/2[514]⊗[BC], and finally to π9/2[514]⊗[BCEF].

o Band(J): Band #4, α=+1/2. See comment for band #3. Configuration for band #4 changes from π9/2[514]⊗[BC] at high spins to π7/2[404]⊗[AE] at low spins.

p Band(j): BAND #5, α=−1/2. See comment for band #3. The configuration changes from unfavored π1/2[541] or from π7/2[404]+octupole vibration at low spin to π7/2[404]⊗[AE] at high spins.

q Band(K): Zero-phonon wobbling-mode (Triaxial) SD-1 band. (2004Sc14,2003Sc02,1995Sc39). Q(transition)=6.0 *+12−2*, 6.4 *+19−7* (2002Sc47). π1/2[660] band, α=+1/2. Percent feeding=1.3 (2003Sc02).

r Band(L): One-phonon wobbling mode (Triaxial) SD-2 band. (2004Sc14,2003Sc02). Percent feeding=0.4.

s Band(M): Two-phonon wobbling mode (Triaxial) SD-3 band. (2004Sc14,2003Sc02). Percent feeding=0.1.

Continued on next page (footnotes at end of table)

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

^{165}Lu Levels (continued)

[t] Band(N): Triaxial SD-4 band (2004Sc14).
[u] Band(O): Triaxial SD-5 band (2004Sc14).

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$

R(DCO) are for 25° and 90° and normalized to known ΔJ=2, stretched quadrupole transitions (2004Sc14). The DCO ratios correspond to gates on ΔJ=2, quadrupole transitions. The ratio of 1 implies ΔJ=2, quadrupole (most likely E2) and DCO≈0.5 implies ΔJ=1, dipole transition.

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
48.0		195.39+x	7/2$^+$	147.7+x	5/2$^+$		M1 in 2004Sc14.
93.6 *1*		234.9+x	9/2$^-$	141.4+x	7/2$^+$		E1 in 2004Sc14.
100.6 *3*	12 *2*	335.5+x	11/2$^-$	234.9+x	9/2$^-$	D	DCO=0.48 *6* M1 in 2004Sc14.
121.1 *8*	1.2 *4*	466.48+x	9/2$^-$	345.5+x	5/2$^-$		E2 in 2004Sc14.
136.1 *5*	5.8 *14*	141.4+x	7/2$^+$	5.4+x	5/2$^+$	D	DCO=0.46 *5* M1 in 2004Sc14.
147.7 *5*	5.8 *14*	147.7+x	5/2$^+$	0.0+x	3/2$^+$	D	DCO=0.52 *6* M1 in 2004Sc14.
152.7 *8*	1.2 *4*	335.5+x	11/2$^-$	182.4+x	9/2$^+$	D	DCO=0.5 *1* E1 in 2004Sc14.
159.2 *1*	57 *5*	182.4+x	9/2$^+$	23.4+x	7/2$^+$	D	DCO=0.64 *7* M1 in 2004Sc14.
159.4 *1*	88 *7*	494.7+x	13/2$^-$	335.5+x	11/2$^-$	D	DCO=0.55 *6* M1 in 2004Sc14.
164.3 *3*	11.1 *17*	305.6+x	9/2$^+$	141.4+x	7/2$^+$	D	DCO=0.57 *6* M1 in 2004Sc14.
168.2 *1*	77 *6*	662.7+x	15/2$^-$	494.7+x	13/2$^-$	D	DCO=0.58 *6* M1 in 2004Sc14.
175.1 *5*	4.9 *12*	694.77+x	13/2$^-$	519.60+x	11/2$^+$	D	DCO=0.4 *1* E1 in 2004Sc14.
180.2 *1*	108 *9*	234.9+x	9/2$^-$	54.7+x	(7/2$^-$)	D	DCO=0.60 *6* (M1) in 2004Sc14.
184.3 *1*	28.4 *23*	366.6+x	11/2$^+$	182.4+x	9/2$^+$	D	DCO=0.61 *7* M1 in 2004Sc14.
191.6 *8*	2.4 *7*	711.4+x	13/2$^+$	519.60+x	11/2$^+$		M1 in 2004Sc14.
193.8 *3*	15.7 *24*	499.3+x	11/2$^+$	305.6+x	9/2$^+$	D	DCO=0.56 *5* M1 in 2004Sc14.
195.4 *1*	63 *5*	195.39+x	7/2$^+$	0.0+x	3/2$^+$	(E2)	DCO=0.65 *7* E2 in 2004Sc14 seems inconsistent DCO, which indicates D; but E2 from level scheme.
203.1 *5*	5.2 *13*	2968.4+x	31/2$^+$	2765.2+x	29/2$^+$	D	DCO=0.60 *7* M1 in 2004Sc14.
206.4 *1*	72 *6*	1099.5+x	19/2$^-$	893.3+x	17/2$^-$	D	DCO=0.68 *6* M1 in 2004Sc14.
207.6 *1*	23.0 *18*	574.2+x	13/2$^+$	366.6+x	11/2$^+$	D	DCO=0.73 *9* M1 in 2004Sc14.

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
209.7 *1*	64 *5*	3248.2+x	35/2$^-$	3038.6+x	33/2$^-$	D	DCO=0.60 *7* M1 in 2004Sc14.
211.5 *1*	119 *10*	234.9+x	9/2$^-$	23.4+x	7/2$^+$	D	DCO=0.60 *6* E1 in 2004Sc14.
212.2 *3*	10.4 *16*	711.4+x	13/2$^+$	499.3+x	11/2$^+$	D	DCO=0.46 *6* M1 in 2004Sc14.
214.1 *5*	3.8 *10*	519.60+x	11/2$^+$	305.6+x	9/2$^+$		M1 in 2004Sc14.
214.1 *8*	1.2 *4*	3417.3+x	35/2$^+$	3201.1+x	33/2$^+$		M1 in 2004Sc14.
220.2 *8*	1.5 *4*	2765.2+x	29/2$^+$	2545.0+x	27/2$^+$		M1 in 2004Sc14.
224.3[#] *5*	8.4 *21*	3180.4+x	33/2$^+$	2956.8+x	31/2$^+$		M1 in 2004Sc14.
226.5 *3*	14.2 *21*	2956.8+x	31/2$^+$	2730.3+x	29/2$^+$	D	DCO=0.64 *8* M1 in 2004Sc14.
226.8 *1*	59 *5*	3474.9+x	37/2$^-$	3248.2+x	35/2$^-$	D	DCO=0.56 *6* M1 in 2004Sc14.
228.2 *3*	14.6 *22*	802.2+x	15/2$^+$	574.2+x	13/2$^+$	D	DCO=0.80 *11* M1 in 2004Sc14.
228.3 *1*	28.8 *23*	694.77+x	13/2$^-$	466.48+x	9/2$^-$	(E2)	DCO=0.64 *6* E2 in 2004Sc14 seems inconsistent DCO, which indicates D; but E2 from level scheme.
230.7 *1*	86 *7*	893.3+x	17/2$^-$	662.7+x	15/2$^-$	D	DCO=0.61 *7* M1 in 2004Sc14.
231.9 *5*	6.5 *16*	943.4+x	15/2$^+$	711.4+x	13/2$^+$	D	DCO=0.70 *6* M1 in 2004Sc14.
232.1 *1*	43 *3*	1618.3+x	23/2$^-$	1386.4+x	21/2$^-$	D	DCO=0.71 *8* M1 in 2004Sc14.
235.6 *3*	11.8 *18*	3436.6+x	35/2$^+$	3201.1+x	33/2$^+$	D	DCO=0.49 *7* M1 in 2004Sc14.
237.2 *3*	10.7 *16*	3417.3+x	35/2$^+$	3180.4+x	33/2$^+$	D	DCO=0.53 *8* M1 in 2004Sc14.
237.4 *5*	4.9 *12*	432.7+x	9/2$^+$	195.39+x	7/2$^+$	D	DCO=0.63 *6* M1 in 2004Sc14.
241.8 *5*	6.6 *16*	1197.5+x	17/2$^+$	955.5+x	15/2$^+$	D	DCO=0.58 *6* M1 in 2004Sc14.
244.1 *5*	8.2 *20*	3201.1+x	33/2$^+$	2956.8+x	31/2$^+$	D	DCO=0.48 *7* M1 in 2004Sc14.
244.3 *5*	7.7 *19*	955.5+x	15/2$^+$	711.4+x	13/2$^+$		M1 in 2004Sc14.
246.3 *8*	1.3 *4*	2294.5+x	25/2$^+$	2048.3+x	23/2$^+$		M1 in 2004Sc14.
246.7 *3*	10.8 *16*	1048.9+x	17/2$^+$	802.2+x	15/2$^+$	D	DCO=0.72 *9* M1 in 2004Sc14.
249.7 *1*	50 *4*	3038.6+x	33/2$^-$	2789.0+x	31/2$^-$	D	DCO=0.56 *6* M1 in 2004Sc14.
251.0 *1*	27.9 *22*	2195.9+x	27/2$^-$	1945.0+x	25/2$^-$	D	DCO=0.64 *6* M1 in 2004Sc14.

$^{165}_{71}Lu_{94}$-9

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
254.1 *1*	27.2 *22*	2789.0+x	31/2$^-$	2534.9+x	29/2$^-$	D	DCO=0.60 *6* M1 in 2004Sc14.
259.8[#] *1*	65 *5*	494.7+x	13/2$^-$	234.9+x	9/2$^-$		E2 in 2004Sc14.
260.0[#] *1*	43 *3*	3734.9+x	39/2$^-$	3474.9+x	37/2$^-$		M1 in 2004Sc14.
262.0 *5*	9.1 *23*	1310.6+x	19/2$^+$	1048.9+x	17/2$^+$	D	DCO=0.65 *7* M1 in 2004Sc14.
262.0 *5*	5.9 *15*	1740.2+x	21/2$^+$	1478.6+x	19/2$^+$	Q	DCO=0.54 *6* M1 in 2004Sc14.
262.6 *5*	5.2 *13*	3484.8+x	35/2$^-$	3222.2+x	33/2$^-$		M1 in 2004Sc14.
265.3 *5*	8.7 *22*	3682.5+x	37/2$^+$	3417.3+x	35/2$^+$	D	DCO=0.50 *9* M1 in 2004Sc14.
268.6 *5*	6.2 *16*	3705.4+x	37/2$^+$	3436.6+x	35/2$^+$	D	DCO=0.47 *6* M1 in 2004Sc14.
269.4 *8*	1.7 *5*	2999.7+x	31/2$^+$	2730.3+x	29/2$^+$	D	DCO=0.6 *1* M1 in 2004Sc14.
271.1 *1*	27.9 *22*	466.48+x	9/2$^-$	195.39+x	7/2$^+$	D	DCO=0.59 *6* E1 in 2004Sc14.
271.4 *3*	13.1 *20*	2730.3+x	29/2$^+$	2458.6+x	27/2$^+$	D	DCO=0.48 *7* M1 in 2004Sc14.
275.0 *8*	1.1 *3*	3222.2+x	33/2$^-$	2947.1+x	31/2$^-$	D	DCO=0.62 *9* M1 in 2004Sc14.
275.0 *1*	34 *3*	4009.9+x	41/2$^-$	3734.9+x	39/2$^-$	D	DCO=0.61 *7* M1 in 2004Sc14.
275.2 *5*	3.5 *9*	3980.9+x	39/2$^+$	3705.4+x	37/2$^+$	D	DCO=0.51 *7* M1 in 2004Sc14.
276.5 *3*	13.4 *20*	1587.0+x	21/2$^+$	1310.6+x	19/2$^+$	D	DCO=0.50 *7* M1 in 2004Sc14.
281.1 *5*	3.5 *9*	1478.6+x	19/2$^+$	1197.5+x	17/2$^+$		M1 in 2004Sc14.
284.5 *5*	5.6 *14*	1871.6+x	23/2$^+$	1587.0+x	21/2$^+$	D	DCO=0.64 *8* M1 in 2004Sc14.
285.0 *5*	6.0 *15*	432.7+x	9/2$^+$	147.7+x	5/2$^+$	Q	DCO=0.80 *7* E2 in 2004Sc14.
287.0 *1*	62 *5*	1386.4+x	21/2$^-$	1099.5+x	19/2$^-$	D	DCO=0.67 *7* M1 in 2004Sc14.
287.6 *5*	5.1 *13*	3970.2+x	39/2$^+$	3682.5+x	37/2$^+$	D	DCO=0.58 *7* M1 in 2004Sc14.
288.8 *5*	6.0 *15*	4270.0+x	41/2$^+$	3980.9+x	39/2$^+$	D	DCO=0.72 *1* M1 in 2004Sc14.
291.8 *5*	6.6 *16*	2458.6+x	27/2$^+$	2166.7+x	25/2$^+$	D	DCO=0.75 *12* M1 in 2004Sc14.
292.9 *8*	2.6 *8*	4116.8+x	39/2$^-$	3823.8+x	37/2$^-$	D	DCO=0.67 *9* M1 in 2004Sc14.

$^{165}_{71}Lu_{94}$-10

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
295.0 *5*	9.6 *24*	2166.7+x	25/2$^+$	1871.6+x	23/2$^+$	D	DCO=0.65 *9* M1 in 2004Sc14.
299.8 *5*	5.4 *14*	4270.0+x	41/2$^+$	3970.2+x	39/2$^+$	D	DCO=0.58 *7*
300.1 *5*	3.4 *8*	305.6+x	9/2$^+$	5.4+x	5/2$^+$	Q	DCO=0.85 *14* E2 in 2004Sc14.
301.1 *8*	1.2 *4*	3248.2+x	35/2$^-$	2947.1+x	31/2$^-$		E2 in 2004Sc14.
301.5 *5*	4.4 *11*	821.2+x	13/2$^+$	519.60+x	11/2$^+$	D	DCO=0.48 *6* M1 in 2004Sc14.
308.2 *8*	2.5 *8*	2048.3+x	23/2$^+$	1740.2+x	21/2$^+$		M1 in 2004Sc14.
309.1 *5*	7.5 *19*	4579.4+x	43/2$^+$	4270.0+x	41/2$^+$	D	DCO=0.64 *8* M1 in 2004Sc14.
309.4 *8*	2.2 *7*	4290.5+x	41/2$^+$	3980.9+x	39/2$^+$		M1 in 2004Sc14.
309.4 *3*	12.6 *19*	4888.7+x	45/2$^+$	4579.4+x	43/2$^+$	D	DCO=0.64 *8* M1 in 2004Sc14.
312.0 *1*	27.3 *22*	4321.9+x	43/2$^-$	4009.9+x	41/2$^-$	D	DCO=0.56 *6* M1 in 2004Sc14.
317.7 *8*	2.5 *8*	2612.3+x	27/2$^+$	2294.5+x	25/2$^+$		M1 in 2004Sc14.
318.6 *3*	10.3 *15*	5539.6+x	49/2$^+$	5220.8+x	47/2$^+$	D	DCO=0.68 *9* M1 in 2004Sc14.
320.1 *8*	1.7 *5*	4773.2+x	43/2$^-$	4453.4+x	41/2$^-$		M1 in 2004Sc14.
322.7 *1*	22.2 *18*	4644.9+x	45/2$^-$	4321.9+x	43/2$^-$	D	DCO=0.69 *8* M1 in 2004Sc14.
324.2 *1*	29 *2*	519.60+x	11/2$^+$	195.39+x	7/2$^+$	E2	DCO=0.92 *8*
326.6[#] *1*	43 *3*	1945.0+x	25/2$^-$	1618.3+x	23/2$^-$		M1 in 2004Sc14.
327.0[#] *1*	57 *5*	662.7+x	15/2$^-$	335.5+x	11/2$^-$		E2 in 2004Sc14.
331.0[a] *8*	0.9 *3*	5446.5+x	47/2$^-$	5115.5+x	45/2$^-$		M1 in 2004Sc14.
331.9 *3*	10.8 *16*	5220.8+x	47/2$^+$	4888.7+x	45/2$^+$	D	DCO=0.56 *8* M1 in 2004Sc14.
335.4 *1*	37.9 *30*	1030.17+x	17/2$^-$	694.77+x	13/2$^-$	E2	DCO=0.80 *6*
336.0 *5*	7.9 *20*	6236.3+x	53/2$^+$	5899.8+x	51/2$^+$	D	DCO=0.56 *7* M1 in 2004Sc14.
336.6 *8*	1.7 *5*	4453.4+x	41/2$^-$	4116.8+x	39/2$^-$		M1 in 2004Sc14.
338.9 *1*	32 *3*	2534.9+x	29/2$^-$	2195.9+x	27/2$^-$	D	DCO=0.65 *6* M1 in 2004Sc14.
339.0 *5*	6.0 *15*	3823.8+x	37/2$^-$	3484.8+x	35/2$^-$	D	DCO=0.64 *8* M1 in 2004Sc14.
339.8 *8*	1.0 *3*	5786.3+x	49/2$^-$	5446.5+x	47/2$^-$		M1 in 2004Sc14.
343.0 *1*	34.3 *27*	366.6+x	11/2$^+$	23.4+x	7/2$^+$	E2	DCO=0.93 *9*
344.8[#] *5*	3.8 *10*	711.4+x	13/2$^+$	366.6+x	11/2$^+$		M1 in 2004Sc14.
345.5 *5*	3.2 *8*	345.5+x	5/2$^-$	0.0+x	3/2$^+$		E1 in 2004Sc14.
346.6 *8*	2.8 *8*	4960.5+x	45/2$^+$	4613.9+x	43/2$^+$		M1 in 2004Sc14.

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
348.3 *8*	2.0 *6*	1292.1+x	17/2$^+$	943.4+x	15/2$^+$		M1 in 2004Sc14.
349.5 *8*	1.4 *4*	5825.1+x	49/2$^-$	5475.5+x	47/2$^-$		M1 in 2004Sc14.
351.2 *3*	13.7 *21*	4996.1+x	47/2$^-$	4644.9+x	45/2$^-$	D	DCO=0.55 *6* M1 in 2004Sc14.
351.5 *8*	1.3 *4*	6137.9+x	51/2$^-$	5786.3+x	49/2$^-$		M1 in 2004Sc14.
352.8 *8*	1.2 *4*	6178.5+x	51/2$^-$	5825.1+x	49/2$^-$		M1 in 2004Sc14.
357.6 *5*	4.9 *12*	499.3+x	11/2$^+$	141.4+x	7/2$^+$	Q	DCO=0.91 *11* E2 in 2004Sc14.
360.1 *5*	7.9 *20*	5899.8+x	51/2$^+$	5539.6+x	49/2$^+$	(D)	DCO=0.81 *11* M1 in 2004Sc14.
365.9 *5*	3.9 *10*	6998.0+x	57/2$^+$	6632.3+x	55/2$^+$	D	DCO=0.69 *1* M1 in 2004Sc14.
367.2 *3*	10.9 *16*	5363.5+x	49/2$^-$	4996.1+x	47/2$^-$	D	DCO=0.61 *6* M1 in 2004Sc14.
367.6 *8*	1.8 *5*	6448.5+x	53/2$^+$	6080.9+x	51/2$^+$		M1 in 2004Sc14.
369.4 *8*	1.7 *5*	6507.5+x	53/2$^-$	6137.9+x	51/2$^-$		M1 in 2004Sc14.
373.0 *8*	2.4 *7*	1818.6+x	21/2$^+$	1445.5+x	19/2$^+$		M1 in 2004Sc14.
373.5 *8*	0.5 *2*	6552.2+x	53/2$^-$	6178.5+x	51/2$^-$		M1 in 2004Sc14.
377.0 *5*	8.6 *22*	5740.2+x	51/2$^-$	5363.5+x	49/2$^-$	D	DCO=0.58 *7* M1 in 2004Sc14.
378.9 *8*	2.1 *6*	6886.5+x	55/2$^-$	6507.5+x	53/2$^-$		M1 in 2004Sc14.
384.8 *8*	2.0 *6*	2794.1+x	29/2$^+$	2409.3+x	25/2$^+$		E2 in 2004Sc14.
386.0 *8*	0.96 *29*	2155.6+x	23/2$^-$	1769.6+x	19/2$^-$	Q	DCO=1.20 *15* E2 in 2004Sc14.
388.5 *3*	12.3 *18*	821.2+x	13/2$^+$	432.7+x	9/2$^+$	Q	DCO=0.93 *7* E2 in 2004Sc14.
391.7 *1*	45 *4*	574.2+x	13/2$^+$	182.4+x	9/2$^+$	E2	DCO=0.89 *9*
391.8 *5*	5.1 *13*	6538.8+x	55/2$^-$	6146.7+x	53/2$^-$	D	DCO=0.72 *9* M1 in 2004Sc14.
393.4 *8*	0.9 *3*	6841.9+x	55/2$^+$	6448.5+x	53/2$^+$		M1 in 2004Sc14.
394.8 *8*	0.3 *1*	6947.1+x	55/2$^-$	6552.2+x	53/2$^-$		M1 in 2004Sc14.
395.8 *5*	6.4 *16*	6632.3+x	55/2$^+$	6236.3+x	53/2$^+$	D	DCO=0.62 *8* M1 in 2004Sc14.
398.6 *1*	60 *5*	893.3+x	17/2$^-$	494.7+x	13/2$^-$	E2	DCO=0.92 *8*
398.6 *8*	2.1 *6*	7240.5+x	57/2$^+$	6841.9+x	55/2$^+$		M1 in 2004Sc14.
398.6 *5*	4.5 *11*	7837.5+x	61/2$^+$	7439.2+x	59/2$^+$	D	DCO=0.55 *8* M1 in 2004Sc14.
401.2 *5*	3.9 *10*	7383.2+x	59/2$^-$	6982.1+x	57/2$^-$		M1 in 2004Sc14.
401.4 *8*	1.4 *4*	7287.9+x	57/2$^-$	6886.5+x	55/2$^-$		M1 in 2004Sc14.
404.8[#] *5*	3.9 *10*	2753.6+x	29/2$^+$	2348.8+x	25/2$^+$		E2 in 2004Sc14.
405.0 *5*	3.2 *8*	8269.2+x	63/2$^-$	7863.9+x	61/2$^-$	D	DCO=0.65 *7* M1 in 2004Sc14.

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
405.6 *5*	7.3 *18*	711.4+x	13/2$^+$	305.6+x	9/2$^+$	Q	DCO=0.91 *9* E2 in 2004Sc14.
405.9 *8*	0.9 *3*	7693.8+x	59/2$^-$	7287.9+x	57/2$^-$		M1 in 2004Sc14.
406.0 *5*	7.8 *20*	6146.7+x	53/2$^-$	5740.2+x	51/2$^-$	D	DCO=0.65 *8* M1 in 2004Sc14.
407.5[a] *8*	0.3 *1*	7354.6+x	57/2$^-$	6947.1+x	55/2$^-$		M1 in 2004Sc14.
418.1 *5*	7.0 *18*	2956.8+x	31/2$^+$	2538.6+x	27/2$^+$	Q	DCO=1.01 *11* E2 in 2004Sc14.
418.3 *8*	2.9 *9*	2585.7+x	27/2$^-$	2166.7+x	25/2$^+$	D	DCO=0.50 *8* E1 in 2004Sc14.
423.4 *5*	5.8 *14*	2968.4+x	31/2$^+$	2545.0+x	27/2$^+$	Q	DCO=0.95 *11* E2 in 2004Sc14.
423.7 *3*	19.0 *28*	943.4+x	15/2$^+$	519.60+x	11/2$^+$	E2	DCO=1.06 *9*
429.7 *5*	3.2 *8*	2968.4+x	31/2$^+$	2538.6+x	27/2$^+$		E2 in 2004Sc14.
430.3 *5*	8.0 *20*	2585.7+x	27/2$^-$	2155.6+x	23/2$^-$	Q	DCO=1.04 *9* E2 in 2004Sc14.
431.1[a] *8*	2.8 *8*	3043.4+x	31/2$^+$	2612.3+x	27/2$^+$		E2 in 2004Sc14.
432.1 *1*	32.4 *26*	1462.25+x	21/2$^-$	1030.17+x	17/2$^-$	E2	DCO=1.00 *6*
434.0 *8*	0.6 *2*	8127.8+x	61/2$^-$	7693.8+x	59/2$^-$		M1 in 2004Sc14.
435.6 *1*	47.1 *38*	802.2+x	15/2$^+$	366.6+x	11/2$^+$	E2	DCO=0.95 *9*
435.7[#] *5*	6.0 *15*	3201.1+x	33/2$^+$	2765.2+x	29/2$^+$		E2 in 2004Sc14.
436.3 *5*	3.5 *9*	955.5+x	15/2$^+$	519.60+x	11/2$^+$		E2 in 2004Sc14.
436.4 *1*	23.8 *19*	3474.9+x	37/2$^-$	3038.6+x	33/2$^-$	Q	DCO=0.94 *9* E2 in 2004Sc14.
436.6 *1*	97 *8*	1099.5+x	19/2$^-$	662.7+x	15/2$^-$	E2	DCO=0.94 *7*
436.6 *8*	0.6 *2*	8114.5+x	61/2$^+$	7677.9+x	59/2$^+$		M1 in 2004Sc14.
437.4 *8*	1.8 *5*	7677.9+x	59/2$^+$	7240.5+x	57/2$^+$		M1 in 2004Sc14.
442.0 *8*	1.5 *4*	7439.2+x	59/2$^+$	6998.0+x	57/2$^+$		M1 in 2004Sc14.
442.9 *5*	4.2 *10*	6982.1+x	57/2$^-$	6538.8+x	55/2$^-$	D	DCO=0.52 *7* M1 in 2004Sc14.
444.1 *5*	9.2 *23*	943.4+x	15/2$^+$	499.3+x	11/2$^+$	E2	DCO=1.31 *21*
445.3 *5*	3.5 *9*	2794.1+x	29/2$^+$	2348.8+x	25/2$^+$	Q	DCO=0.89 *17* E2 in 2004Sc14.
446.1 *8*	2.8 *8*	3240.1+x	33/2$^+$	2794.1+x	29/2$^+$	Q	DCO=0.89 *17* E2 in 2004Sc14.
448.6 *8*	0.3 *1*	1740.2+x	21/2$^+$	1292.1+x	17/2$^+$		E2 in 2004Sc14.
449.0 *5*	7.1 *18*	3417.3+x	35/2$^+$	2968.4+x	31/2$^+$	Q	DCO=1.02 *9* E2 in 2004Sc14.
450.1 *5*	7.0 *18*	3180.4+x	33/2$^+$	2730.3+x	29/2$^+$	Q	DCO=1.06 *11* E2 in 2004Sc14.
455.0 *8*	1.2 *4*	2999.7+x	31/2$^+$	2545.0+x	27/2$^+$	Q	DCO=1.15 *21* E2 in 2004Sc14.

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	Comments
455.9 *5*	7.5 *19*	955.5+x	15/2$^+$	499.3+x	11/2$^+$	Q	DCO=1.17 *11* E2 in 2004Sc14.
459.0 *3*	12.6 *19*	2753.6+x	29/2$^+$	2294.5+x	25/2$^+$	Q	DCO=1.01 *9* E2 in 2004Sc14.
459.1 *1*	28.1 *22*	3248.2+x	35/2$^-$	2789.0+x	31/2$^-$	Q	DCO=1.08 *9* E2 in 2004Sc14.
460.5 *3*	10.7 *16*	3417.3+x	35/2$^+$	2956.8+x	31/2$^+$	Q	DCO=0.89 *11* E2 in 2004Sc14.
461.0 *8*	1.9 *6*	2999.7+x	31/2$^+$	2538.6+x	27/2$^+$	Q	DCO=1.20 *22* E2 in 2004Sc14.
468.2 *5*	6.8 *17*	3436.6+x	35/2$^+$	2968.4+x	31/2$^+$	Q	DCO=0.89 *11* E2 in 2004Sc14.
470.4 *8*	0.46 *14*	8584.9+x	63/2$^+$	8114.5+x	61/2$^+$		M1 in 2004Sc14.
470.6 *8*	0.8 *2*	3201.1+x	33/2$^+$	2730.3+x	29/2$^+$	Q	DCO=0.90 *18* E2 in 2004Sc14.
470.9 *5*	9.9 *25*	1292.1+x	17/2$^+$	821.2+x	13/2$^+$	Q	DCO=1.04 *8* E2 in 2004Sc14.
471.0 *5*	6.8 *17*	3224.6+x	33/2$^+$	2753.6+x	29/2$^+$	Q	DCO=0.95 *9* E2 in 2004Sc14.
472.0 *5*	9.6 *24*	3471.7+x	35/2$^+$	2999.7+x	31/2$^+$	Q	DCO=1.12 *11* E2 in 2004Sc14.
474.7 *1*	51 *4*	1048.9+x	17/2$^+$	574.2+x	13/2$^+$	E2	DCO=1.01 *9*
475.0 *8*	2.6 *8*	2294.5+x	25/2$^+$	1818.6+x	21/2$^+$	Q	DCO=0.95 *11* E2 in 2004Sc14.
479.8 *5*	8.0 *2*	3436.6+x	35/2$^+$	2956.8+x	31/2$^+$	Q	DCO=1.05 *11* E2 in 2004Sc14.
481.5 *5*	5.4 *14*	3067.1+x	31/2$^-$	2585.7+x	27/2$^-$	Q	DCO=0.92 *9* E2 in 2004Sc14.
486.1 *3*	10.0 *15*	1197.5+x	17/2$^+$	711.4+x	13/2$^+$	Q	DCO=0.99 *9* E2 in 2004Sc14.
486.5 *8*	2.8 *8*	3240.1+x	33/2$^+$	2753.6+x	29/2$^+$	Q	DCO=0.85 *15* E2 in 2004Sc14.
486.6 *1*	22.7 *18*	3734.9+x	39/2$^-$	3248.2+x	35/2$^-$	Q	DCO=1.02 *9* E2 in 2004Sc14.
493.1 *1*	61 *5*	1386.4+x	21/2$^-$	893.3+x	17/2$^-$	E2	DCO=1.05 *9*
493.2 *8*	2.6 *8*	8330.8+x	63/2$^+$	7837.5+x	61/2$^+$		M1 in 2004Sc14.
498.3 *5*	6.7 *17*	2956.8+x	31/2$^+$	2458.6+x	27/2$^+$	Q	DCO=1.05 *11* E2 in 2004Sc14.
502.0 *5*	6.3 *16*	3682.5+x	37/2$^+$	3180.4+x	33/2$^+$	Q	DCO=1.02 *11* E2 in 2004Sc14.
502.1 *1*	30 *2*	1445.5+x	19/2$^+$	943.4+x	15/2$^+$	E2	DCO=1.23 *13*
503.7 *1*	40 *3*	3038.6+x	33/2$^-$	2534.9+x	29/2$^-$	Q	DCO=1.08 *11* E2 in 2004Sc14.

$^{165}_{71}Lu_{94}$-14

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
508.4 *1*	51 *4*	1310.6+x	19/2$^+$	802.2+x	15/2$^+$	Q	DCO=1.14 *12* E2 in 2004Sc14.
509.8[#] *3*	10.5 *16*	2968.4+x	31/2$^+$	2458.6+x	27/2$^+$		E2 in 2004Sc14.
516.4 *1*	28.9 *23*	1978.64+x	25/2$^-$	1462.25+x	21/2$^-$	Q	DCO=1.04 *8* E2 in 2004Sc14.
518.8 *1*	100 *8*	1618.3+x	23/2$^-$	1099.5+x	19/2$^-$	E2	DCO=1.06 *8*
523.5 *5*	9.0 *22*	1478.6+x	19/2$^+$	955.5+x	15/2$^+$	Q	DCO=0.78 *11* E2 in 2004Sc14.
525.1 *5*	4.6 *12*	3765.2+x	37/2$^+$	3240.1+x	33/2$^+$	Q	DCO=0.95 *12* E2 in 2004Sc14.
526.1 *5*	9.4 *24*	1818.6+x	21/2$^+$	1292.1+x	17/2$^+$	Q	DCO=1.10 *8* E2 in 2004Sc14.
530.1 *5*	5.7 *14*	3754.6+x	37/2$^+$	3224.6+x	33/2$^+$	Q	DCO=1.09 *9* E2 in 2004Sc14.
530.2 *5*	4.3 *11*	2348.8+x	25/2$^+$	1818.6+x	21/2$^+$	Q	DCO=1.05 *11* E2 in 2004Sc14.
535.1 *5*	5.5 *14*	3602.2+x	35/2$^-$	3067.1+x	31/2$^-$	Q	DCO=1.14 *12* E2 in 2004Sc14.
535.1 *1*	32 *3*	4009.9+x	41/2$^-$	3474.9+x	37/2$^-$	Q	DCO=1.04 *9* E2 in 2004Sc14.
537.6 *8*	2.4 *7*	3484.8+x	35/2$^-$	2947.1+x	31/2$^-$		E2 in 2004Sc14.
538.2 *1*	52 *4*	1587.0+x	21/2$^+$	1048.9+x	17/2$^+$	E2	DCO=1.03 *9*
538.9 *8*	0.58 *17*	4403.4+x	39/2$^+$	3864.5+x	35/2$^+$		E2 in 2004Sc14.
540.9 *5*	3.8 *10*	2999.7+x	31/2$^+$	2458.6+x	27/2$^+$	Q	DCO=1.05 *11* E2 in 2004Sc14.
542.6 *3*	10.8 *16*	1740.2+x	21/2$^+$	1197.5+x	17/2$^+$	Q	DCO=1.02 *9* E2 in 2004Sc14.
544.6 *3*	14 *2*	3980.9+x	39/2$^+$	3436.6+x	35/2$^+$	Q	DCO=1.20 *11* E2 in 2004Sc14.
544.7 *1*	30 *2*	1990.2+x	23/2$^+$	1445.5+x	19/2$^+$	Q	DCO=1.20 *12* E2 in 2004Sc14.
548.4 *3*	14.2 *21*	2538.6+x	27/2$^+$	1990.2+x	23/2$^+$	Q	DCO=1.05 *12* E2 in 2004Sc14.
552.9 *3*	10.0 *15*	3970.2+x	39/2$^+$	3417.3+x	35/2$^+$	Q	DCO=1.01 *11* E2 in 2004Sc14.
554.6 *5*	9.7 *24*	2294.5+x	25/2$^+$	1740.2+x	21/2$^+$	Q	DCO=1.08 *9* E2 in 2004Sc14.
554.8 *3*	11.8 *18*	2545.0+x	27/2$^+$	1990.2+x	23/2$^+$	Q	DCO=1.04 *9* E2 in 2004Sc14.
558.5 *1*	57 *5*	1945.0+x	25/2$^-$	1386.4+x	21/2$^-$	Q	DCO=1.02 *9* E2 in 2004Sc14.

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
561.0 *1*	42 *3*	1871.6+x	23/2$^+$	1310.6+x	19/2$^+$	Q	DCO=0.98 *9* E2 in 2004Sc14.
562.5[#] *8*	2.4 *7*	3980.9+x	39/2$^+$	3417.3+x	35/2$^+$		E2 in 2004Sc14.
563.0 *5*	8.8 *22*	4034.7+x	39/2$^+$	3471.7+x	35/2$^+$	Q	DCO=1.12 *12* E2 in 2004Sc14.
563.6 *1*	27.9 *22*	2730.3+x	29/2$^+$	2166.7+x	25/2$^+$	Q	DCO=1.04 *9* E2 in 2004Sc14.
564.0 *5*	4.8 *12*	2612.3+x	27/2$^+$	2048.3+x	23/2$^+$	Q	DCO=1.10 *11* E2 in 2004Sc14.
564.8 *8*	1.7 *5*	4270.0+x	41/2$^+$	3705.4+x	37/2$^+$		E2 in 2004Sc14.
568.9 *5*	4.6 *12*	2155.6+x	23/2$^-$	1587.0+x	21/2$^+$	D	DCO=0.59 *7* E1 in 2004Sc14.
569.7 *5*	8.0 *2*	2048.3+x	23/2$^+$	1478.6+x	19/2$^+$	Q	DCO=0.90 *9* E2 in 2004Sc14.
577.6 *1*	97 *8*	2195.9+x	27/2$^-$	1618.3+x	23/2$^-$	Q	DCO=1.06 *9* E2 in 2004Sc14.
579.7 *1*	53 *4*	2166.7+x	25/2$^+$	1587.0+x	21/2$^+$	Q	DCO=1.04 *9* E2 in 2004Sc14.
582.1 *5*	5.5 *14*	4347.3+x	41/2$^+$	3765.2+x	37/2$^+$	Q	DCO=0.89 *12* E2 in 2004Sc14.
582.7 *5*	4.5 *11*	4184.9+x	39/2$^-$	3602.2+x	35/2$^-$	Q	DCO=1.02 *13* E2 in 2004Sc14.
585.7 *1*	22.1 *18*	2564.3+x	29/2$^-$	1978.64+x	25/2$^-$	Q	DCO=1.17 *9* E2 in 2004Sc14.
586.8 *1*	22.1 *18*	4321.9+x	43/2$^-$	3734.9+x	39/2$^-$	Q	DCO=1.16 *11* E2 in 2004Sc14.
587.0 *1*	36.9 *30*	2458.6+x	27/2$^+$	1871.6+x	23/2$^+$	Q	DCO=1.10 *9* E2 in 2004Sc14.
587.5[#] *5*	5.2 *13*	4270.0+x	41/2$^+$	3682.5+x	37/2$^+$		E2 in 2004Sc14.
589.8 *1*	56 *4*	2534.9+x	29/2$^-$	1945.0+x	25/2$^-$	Q	DCO=1.03 *9* E2 in 2004Sc14.
590.7 *5*	3.3 *8*	2409.3+x	25/2$^+$	1818.6+x	21/2$^+$	Q	DCO=1.20 *15* E2 in 2004Sc14.
592.7 *8*	1.4 *4*	4347.3+x	41/2$^+$	3754.6+x	37/2$^+$		E2 in 2004Sc14.
593.2 *1*	86 *7*	2789.0+x	31/2$^-$	2195.9+x	27/2$^-$	Q	DCO=0.90 *9* E2 in 2004Sc14.
598.0 *8*	1.0 *3*	5001.4+x	43/2$^+$	4403.4+x	39/2$^+$		E2 in 2004Sc14.
598.2 *5*	4.2 *10*	2765.2+x	29/2$^+$	2166.7+x	25/2$^+$	Q	DCO=0.97 *11* E2 in 2004Sc14.
598.5 *3*	13 *2*	4579.4+x	43/2$^+$	3980.9+x	39/2$^+$	Q	DCO=0.97 *9* E2 in 2004Sc14.
598.8 *5*	4.1 *10*	5173.9+x	45/2$^-$	4575.0+x	41/2$^-$		E2 in 2004Sc14.

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	Comments
601.6 *5*	6.0 *15*	3823.8+x	37/2$^-$	3222.2+x	33/2$^-$	Q	DCO=1.10 *11* E2 in 2004Sc14.
608.0 *5*	8.6 *22*	4290.5+x	41/2$^+$	3682.5+x	37/2$^+$	Q	DCO=0.89 *11* E2 in 2004Sc14.
608.8 *5*	7.3 *18*	2348.8+x	25/2$^+$	1740.2+x	21/2$^+$	Q	DCO=1.10 *12* E2 in 2004Sc14.
608.8 *8*	1.9 *6*	4374.0+x	41/2$^+$	3765.2+x	37/2$^+$		E2 in 2004Sc14.
609.3 *5*	6.3 *16*	4579.4+x	43/2$^+$	3970.2+x	39/2$^+$	Q	DCO=1.05 *11* E2 in 2004Sc14.
615.4 *5*	4.9 *12*	4800.2+x	43/2$^-$	4184.9+x	39/2$^-$	Q	DCO=1.25 *15* E2 in 2004Sc14.
618.5 *3*	12.5 *19*	4888.7+x	45/2$^+$	4270.0+x	41/2$^+$	Q	DCO=0.90 *11* E2 in 2004Sc14.
619.4 *5*	5.6 *14*	4374.0+x	41/2$^+$	3754.6+x	37/2$^+$	Q	DCO=0.91 *9* E2 in 2004Sc14.
624.4		3864.5+x	35/2$^+$	3240.1+x	33/2$^+$		E2+M1 in 2004Sc14.
624.5 *8*	0.6 *2*	624.5+y	J+2	y	J		E2 in 2004Sc14.
625.0 *8*	1.1 *3*	5115.5+x	45/2$^-$	4490.6+x	41/2$^-$		E2 in 2004Sc14.
628.8 *8*	2.5 *8*	3823.8+x	37/2$^-$	3195.2+x	33/2$^-$	Q	DCO=0.98 *11* E2 in 2004Sc14.
629.6 *5*	6.2 *16*	4453.4+x	41/2$^-$	3823.8+x	37/2$^-$	Q	DCO=0.96 *11* E2 in 2004Sc14.
630.9 *3*	13.2 *20*	3195.2+x	33/2$^-$	2564.3+x	29/2$^-$	Q	DCO=1.14 *9* E2 in 2004Sc14.
632.0 *5*	5.0 *12*	4116.8+x	39/2$^-$	3484.8+x	35/2$^-$	Q	DCO=1.00 *9* E2 in 2004Sc14.
635.2 *1*	26.3 *21*	4644.9+x	45/2$^-$	4009.9+x	41/2$^-$	Q	DCO=1.06 *9* E2 in 2004Sc14.
637.1 *5*	5.3 *13*	4490.6+x	41/2$^-$	3853.5+x	37/2$^-$	Q	DCO=1.10 *12* E2 in 2004Sc14.
638.2 *8*	0.24 *7*	4403.4+x	39/2$^+$	3765.2+x	37/2$^+$		E2+M1 in 2004Sc14.
641.3 *5*	7.3 *18*	4988.6+x	45/2$^+$	4347.3+x	41/2$^+$	Q	DCO=1.00 *9* E2 in 2004Sc14.
641.4 *3*	12.3 *18*	5220.8+x	47/2$^+$	4579.4+x	43/2$^+$	Q	DCO=1.06 *9* E2 in 2004Sc14.
643.7 *3*	10.4 *16*	4613.9+x	43/2$^+$	3970.2+x	39/2$^+$	Q	DCO=1.13 *12* E2 in 2004Sc14.
646.3 *5*	3.6 *9*	5446.5+x	47/2$^-$	4800.2+x	43/2$^-$	Q	DCO=1.19 *16* E2 in 2004Sc14.
651.1 *3*	12.2 *18*	5539.6+x	49/2$^+$	4888.7+x	45/2$^+$	Q	DCO=1.16 *12* E2 in 2004Sc14.
651.2 *5*	3.3 *8*	5825.1+x	49/2$^-$	5173.9+x	45/2$^-$		E2 in 2004Sc14.

$^{165}_{71}Lu_{94}$-17

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ	Comments
652.0 *5*	8.4 *21*	4686.7+x	43/2$^+$	4034.7+x	39/2$^+$	Q		DCO=1.02 *11* E2 in 2004Sc14.
654.1 *8*	0.27 *8*	5001.4+x	43/2$^+$	4347.3+x	41/2$^+$			E2+M1 in 2004Sc14.
654.5 *5*	3.1 *8*	5145.1+x	45/2$^-$	4490.6+x	41/2$^-$	Q		DCO=0.93 *12* E2 in 2004Sc14.
655.1 *8*	2.7 *8*	5656.5+x	47/2$^+$	5001.4+x	43/2$^+$			E2 in 2004Sc14.
656.3 *5*	4.5 *11*	4773.2+x	43/2$^-$	4116.8+x	39/2$^-$	Q		DCO=0.90 *10* E2 in 2004Sc14.
658.1 *8*	2.5 *8*	3222.2+x	33/2$^-$	2564.3+x	29/2$^-$			E2 in 2004Sc14.
658.4 *5*	8.9 *22*	3853.5+x	37/2$^-$	3195.2+x	33/2$^-$	Q		DCO=1.05 *10* E2 in 2004Sc14.
661.3 *8*	1.5 *4*	5449.5+x	45/2$^+$	4788.2+x	41/2$^+$			E2 in 2004Sc14.
662.0 *5*	3.0 *8*	5115.5+x	45/2$^-$	4453.4+x	41/2$^-$	Q		DCO=0.92 *12* E2 in 2004Sc14.
667.9 *8*	0.74 *22*	5656.5+x	47/2$^+$	4988.6+x	45/2$^+$	(E2+M1)[&]	+3.1[&] *4*	DCO=0.37 *14* E2+M1 in 2004Sc14.
670.0 *5*	4.7 *12*	4960.5+x	45/2$^+$	4290.5+x	41/2$^+$	Q		DCO=1.20 *15* E2 in 2004Sc14.
670.8 *8*	2.6 *8*	5786.3+x	49/2$^-$	5115.5+x	45/2$^-$	Q		DCO=0.94 *12* E2 in 2004Sc14.
674.1 *1*	20.3 *16*	4996.1+x	47/2$^-$	4321.9+x	43/2$^-$	Q		DCO=1.02 *9* E2 in 2004Sc14.
679.2 *5*	8.6 *22*	5899.8+x	51/2$^+$	5220.8+x	47/2$^+$	Q		DCO=0.92 *9* E2 in 2004Sc14.
682.5 *8*	0.52 *16*	6367.9+x	51/2$^+$	5685.4+x	49/2$^+$	(E2+M1)[&]	+3.1[&] *4*	DCO=0.38 *13* (2003Sc02) E2+M1 in 2004Sc14.
683.8 *8*	1.0 *3*	1308.3+y	J+4	624.5+y	J+2			E2 in 2004Sc14.
687.2 *8*	1.6 *5*	6080.9+x	51/2$^+$	5393.7+x	47/2$^+$			E2 in 2004Sc14.
687.3 *5*	5.2 *13*	3222.2+x	33/2$^-$	2534.9+x	29/2$^-$	Q		DCO=1.13 *12* E2 in 2004Sc14.
690.5 *8*	2.0 *6*	4960.5+x	45/2$^+$	4270.0+x	41/2$^+$			E2 in 2004Sc14.
691.4 *5*	4.0 *1*	6137.9+x	51/2$^-$	5446.5+x	47/2$^-$	Q		DCO=1.25 *16* E2 in 2004Sc14.
694.8 *5*	3.3 *8*	5068.9+x	45/2$^+$	4374.0+x	41/2$^+$	Q		DCO=0.89 *9* E2 in 2004Sc14.
695.7 *3*	12.2 *18*	3484.8+x	35/2$^-$	2789.0+x	31/2$^-$	Q		DCO=1.05 *9* E2 in 2004Sc14.
696.7 *3*	10.9 *16*	6236.3+x	53/2$^+$	5539.6+x	49/2$^+$	Q		DCO=1.21 *15* E2 in 2004Sc14.
696.8 *5*	4.9 *12*	5685.4+x	49/2$^+$	4988.6+x	45/2$^+$	Q		DCO=1.20 *14* E2 in 2004Sc14.
697.9 *8*	0.36 *11*	7133.6+x	55/2$^+$	6435.7+x	53/2$^+$			E2+M1 in 2004Sc14.

$^{165}_{71}Lu_{94}$-18

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
700.0 *8*	2.6 *8*	5845.1+x	49/2$^-$	5145.1+x	45/2$^-$	Q	DCO=0.90 *11* E2 in 2004Sc14.
702.31 *5*	4.2 *10*	5475.5+x	47/2$^-$	4773.2+x	43/2$^-$	Q	DCO=0.94 *11* E2 in 2004Sc14.
703.0 *5*	4.2 *10*	6178.5+x	51/2$^-$	5475.5+x	47/2$^-$	Q	DCO=0.94 *11* E2 in 2004Sc14.
706.0 *8*	1.6 *5*	6155.5+x	49/2$^+$	5449.5+x	45/2$^+$		E2 in 2004Sc14.
707.0 *5*	5.1 *13*	5393.7+x	47/2$^+$	4686.7+x	43/2$^+$	Q	DCO=0.98 *9* E2 in 2004Sc14.
708.1 *8*	0.6 *2*	6101.7+x	51/2$^+$	5393.7+x	47/2$^+$		E2 in 2004Sc14.
711.4 *8*	2.6 *8*	6367.9+x	51/2$^+$	5656.5+x	47/2$^+$	Q	DCO=1.00 *9* E2 in 2004Sc14.
712.0 *5*	7.2 *18*	5325.9+x	47/2$^+$	4613.9+x	43/2$^+$	Q	DCO=1.09 *11* E2 in 2004Sc14.
712.2 *8*	0.5 *2*	712.2+z	J1+2	z	J1		E2 in 2004Sc14.
715.8[a] *8*	1.4 *4*	5860.9+x	(49/2)$^-$	5145.1+x	45/2$^-$		E2 in 2004Sc14.
718.7 *1*	23.8 *19*	5363.5+x	49/2$^-$	4644.9+x	45/2$^-$	Q	DCO=1.00 *11* E2 in 2004Sc14.
720.7 *8*	0.5 *2*	1769.6+x	19/2$^-$	1048.9+x	17/2$^+$	D	DCO=0.63 *9* E1 in 2004Sc14.
721.2 *5*	3.9 *10*	6507.5+x	53/2$^-$	5786.3+x	49/2$^-$	Q	DCO=1.06 *12* E2 in 2004Sc14.
727.3 *8*	2.1 *6*	6552.2+x	53/2$^-$	5825.1+x	49/2$^-$		E2 in 2004Sc14.
732.9 *5*	6.8 *17*	6632.3+x	55/2$^+$	5899.8+x	51/2$^+$	Q	DCO=1.25 *12* E2 in 2004Sc14.
735.0 *5*	4.1 *10*	5695.5+x	49/2$^+$	4960.5+x	45/2$^+$	Q	DCO=0.98 *15* E2 in 2004Sc14.
740.7 *8*	0.9 *3*	2049.0+y	J+6	1308.3+y	J+4		E2 in 2004Sc14.
743.9 *3*	17.0 *26*	5740.2+x	51/2$^-$	4996.1+x	47/2$^-$	Q	DCO=1.00 *9* E2 in 2004Sc14.
748.6 *5*	5.5 *14*	6886.5+x	55/2$^-$	6137.9+x	51/2$^-$	Q	DCO=1.17 *15* E2 in 2004Sc14.
748.8 *8*	1.7 *5*	6904.3+x	53/2$^+$	6155.5+x	49/2$^+$		E2 in 2004Sc14.
749.0 *8*	1.80 *54*	5435.6+x	47/2$^+$	4686.7+x	43/2$^+$	Q	DCO=1.14 *20* E2 in 2004Sc14.
750.2 *5*	4.6 *12*	6435.7+x	53/2$^+$	5685.4+x	49/2$^+$	Q	DCO=1.12 *12* E2 in 2004Sc14.
751.2 *3*	16.8 *25*	2947.1+x	31/2$^-$	2195.9+x	27/2$^-$	Q	DCO=1.02 *10* E2 in 2004Sc14.
753.0 *8*	1.3 *4*	6188.7+x	51/2$^+$	5435.6+x	47/2$^+$	Q	DCO=1.05 *22* E2 in 2004Sc14.
753.0 *8*	2.1 *6*	6448.5+x	53/2$^+$	5695.5+x	49/2$^+$	Q	DCO=1.01 *12* E2 in 2004Sc14.

$^{165}_{71}Lu_{94}$-19

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	Comments
755.0 *5*	3.0 *8*	5823.9+x	49/2$^+$	5068.9+x	45/2$^+$	Q	DCO=0.93 *9* E2 in 2004Sc14.
755.0 *5*	4.5 *11*	6080.9+x	51/2$^+$	5325.9+x	47/2$^+$	Q	DCO=1.01 *9* E2 in 2004Sc14.
761.0 *8*	1.42 *43*	6841.9+x	55/2$^+$	6080.9+x	51/2$^+$	Q	DCO=1.10 *11* E2 in 2004Sc14.
761.4 *5*	9.3 *23*	6998.0+x	57/2$^+$	6236.3+x	53/2$^+$	Q	DCO=1.02 *10* E2 in 2004Sc14.
763.5 *8*	1.4 *4*	6608.6+x	53/2$^-$	5845.1+x	49/2$^-$	Q	DCO=1.05 *11* E2 in 2004Sc14.
765.7 *8*	1.7 *5*	7133.6+x	55/2$^+$	6367.9+x	51/2$^+$	Q	DCO=0.88 *14* E2 in 2004Sc14.
768.6 *8*	1.2 *4*	6947.1+x	55/2$^-$	6178.5+x	51/2$^-$	Q	DCO=0.98 *11* E2 in 2004Sc14.
770.2 *8*	0.9 *3*	1482.4+z	J1+4	712.2+z	J1+2		E2 in 2004Sc14.
775.8 *5*	4.3 *11*	6101.7+x	51/2$^+$	5325.9+x	47/2$^+$	Q	DCO=1.21 *15* E2 in 2004Sc14.
780.4 *5*	4.1 *10*	7287.9+x	57/2$^-$	6507.5+x	53/2$^-$	Q	DCO=0.89 *12* E2 in 2004Sc14.
781.3 *8*	1.0 *3*	6642.2+x	(53/2)$^-$	5860.9+x	(49/2)$^-$		E2 in 2004Sc14.
783.3 *3*	16.9 *25*	6146.7+x	53/2$^-$	5363.5+x	49/2$^-$	Q	DCO=1.04 *11* E2 in 2004Sc14.
789.5 *8*	2.0 *6*	6613.4+x	53/2$^+$	5823.9+x	49/2$^+$	Q	DCO=1.04 *11* E2 in 2004Sc14.
792.0 *8*	2.2 *7*	7240.5+x	57/2$^+$	6448.5+x	53/2$^+$	Q	DCO=1.10 *14* E2 in 2004Sc14.
795.0 *8*	0.9 *3*	6188.7+x	51/2$^+$	5393.7+x	47/2$^+$	Q	DCO=1.15 *18* E2 in 2004Sc14.
798.3 *8*	0.8 *2*	2847.3+y	J+8	2049.0+y	J+6		E2 in 2004Sc14.
798.7 *3*	12.5 *19*	6538.8+x	55/2$^-$	5740.2+x	51/2$^-$	Q	DCO=1.02 *11* E2 in 2004Sc14.
798.7 *8*	1.9 *6*	7703.0+x	57/2$^+$	6904.3+x	53/2$^+$		E2 in 2004Sc14.
802.5 *8*	1.4 *4*	7354.6+x	57/2$^-$	6552.2+x	53/2$^-$		E2 in 2004Sc14.
803.3 *5*	3.2 *8*	7239.0+x	57/2$^+$	6435.7+x	53/2$^+$	Q	DCO=0.89 *11* E2 in 2004Sc14.
804.9 *8*	1.4 *4*	7418.3+x	57/2$^+$	6613.4+x	53/2$^+$		E2 in 2004Sc14.
805.9 *8*	2.6 *8*	6907.6+x	55/2$^+$	6101.7+x	51/2$^+$	Q	DCO=1.20 *16* E2 in 2004Sc14.
806.0 *8*	1.9 *6*	6994.7+x	55/2$^+$	6188.7+x	51/2$^+$	Q	DCO=1.05 *18* E2 in 2004Sc14.
806.9 *5*	5.5 *14*	7439.2+x	59/2$^+$	6632.3+x	55/2$^+$	Q	DCO=0.92 *11* E2 in 2004Sc14.

$^{165}_{71}Lu_{94}$-20

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
807.3 *5*	3.2 *8*	7693.8+x	59/2$^-$	6886.5+x	55/2$^-$	Q	DCO=1.21 *15* E2 in 2004Sc14.
816.0 *8*	2.3 *7*	6511.5+x	53/2$^+$	5695.5+x	49/2$^+$	Q	DCO=1.19 *16* E2 in 2004Sc14.
819.9 *8*	1.2 *4*	7953.5+x	59/2$^+$	7133.6+x	55/2$^+$	Q	DCO=1.05 *12* E2 in 2004Sc14.
822.6 *8*	1.3 *4*	7431.2+x	57/2$^-$	6608.6+x	53/2$^-$	Q	DCO=1.10 *12* E2 in 2004Sc14.
824.8 *8*	0.9 *3*	7467.0+x	(57/2)$^-$	6642.2+x	(53/2)$^-$		E2 in 2004Sc14.
826.7 *8*	0.2 *1*	6907.6+x	55/2$^+$	6080.9+x	51/2$^+$		E2 in 2004Sc14.
827.0 *8*	1.7 *5*	7338.5+x	57/2$^+$	6511.5+x	53/2$^+$	Q	DCO=1.05 *16* E2 in 2004Sc14.
828.9 *8*	0.8 *2*	2311.3+z	J1+6	1482.4+z	J1+4		E2 in 2004Sc14.
835.4 *3*	15.4 *23*	6982.1+x	57/2$^-$	6146.7+x	53/2$^-$	Q	DCO=0.91 *9* E2 in 2004Sc14.
836.0 *8*	2.5 *8*	7677.9+x	59/2$^+$	6841.9+x	55/2$^+$	Q	DCO=1.04 *12* E2 in 2004Sc14.
839.5 *5*	8.9 *22*	7837.5+x	61/2$^+$	6998.0+x	57/2$^+$	Q	DCO=0.98 *11* E2 in 2004Sc14.
839.8 *8*	0.8 *2*	8258.1+x	61/2$^+$	7418.3+x	57/2$^+$		E2 in 2004Sc14.
839.9 *5*	3.8 *10*	8127.8+x	61/2$^-$	7287.9+x	57/2$^-$	Q	DCO=0.88 *11* E2 in 2004Sc14.
840.0[a] *8*	2.9 *9*	4575.0+x	41/2$^-$	3734.9+x	39/2$^-$		M1 in 2004Sc14.
841.4 *8*	1.1 *3*	7788.4+x	59/2$^-$	6947.1+x	55/2$^-$	Q	DCO=0.83 *12* E2 in 2004Sc14.
844.5 *3*	11.0 *16*	7383.2+x	59/2$^-$	6538.8+x	55/2$^-$	Q	DCO=0.89 *9* E2 in 2004Sc14.
847.0 *8*	1.4 *4*	7841.7+x	59/2$^+$	6994.7+x	55/2$^+$	Q	DCO=0.95 *15* E2 in 2004Sc14.
849.6 *8*	1.8 *5*	8552.6+x	61/2$^+$	7703.0+x	57/2$^+$		E2 in 2004Sc14.
852.7 *8*	2.3 *7*	7760.3+x	59/2$^+$	6907.6+x	55/2$^+$		E2 in 2004Sc14.
855.7 *8*	2.8 *8*	8094.7+x	61/2$^+$	7239.0+x	57/2$^+$	Q	DCO=1.01 *11* E2 in 2004Sc14.
856.0 *8*	0.6 *2*	3703.3+y	J+10	2847.3+y	J+8		E2 in 2004Sc14.
863.1 *8*	2.9 *9*	8556.9+x	63/2$^-$	7693.8+x	59/2$^-$		E2 in 2004Sc14.
869.7 *8*	0.6 *2*	8336.7+x	(61/2)$^-$	7467.0+x	(57/2)$^-$		E2 in 2004Sc14.
872.1 *8*	0.93 *28*	8825.6+x	63/2$^+$	7953.5+x	59/2$^+$	Q	DCO=0.92 *15* E2 in 2004Sc14.
872.2 *8*	1.3 *4*	8226.8+x	61/2$^-$	7354.6+x	57/2$^-$		E2 in 2004Sc14.
874.0 *8*	2.5 *8*	8114.5+x	61/2$^+$	7240.5+x	57/2$^+$	Q	DCO=1.20 *15* E2 in 2004Sc14.
874.0 *8*	1.3 *4*	8212.5+x	61/2$^+$	7338.5+x	57/2$^+$	Q	DCO=1.06 *16* E2 in 2004Sc14.

$^{165}_{71}Lu_{94}$-21

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	Comments
881.0 *8*	1.2 *4*	8312.2+x	61/2$^-$	7431.2+x	57/2$^-$	Q	DCO=1.06 *12* E2 in 2004Sc14.
881.6 *5*	9.2 *23*	7863.9+x	61/2$^-$	6982.1+x	57/2$^-$	Q	DCO=1.20 *12* E2 in 2004Sc14.
885.8 *8*	0.5 *2*	3197.1+z	J1+8	2311.3+z	J1+6		E2 in 2004Sc14.
886.2 *5*	9.3 *23*	8269.2+x	63/2$^-$	7383.2+x	59/2$^-$	Q	DCO=1.15 *11* E2 in 2004Sc14.
891.7 *5*	5.0 *12*	8330.8+x	63/2$^+$	7439.2+x	59/2$^+$	Q	DCO=0.94 *11* E2 in 2004Sc14.
892.0 *8*	1.3 *4*	8733.7+x	63/2$^+$	7841.7+x	59/2$^+$	Q	DCO=0.98 *17* E2 in 2004Sc14.
900.1 *8*	2.2 *7*	8660.4+x	63/2$^+$	7760.3+x	59/2$^+$	Q	E2 in 2004Sc14.
900.1 *5*	3.5 *9*	9027.9+x	65/2$^-$	8127.8+x	61/2$^-$	Q	DCO=0.92 *15* E2 in 2004Sc14.
902.8 *8*	0.7 *2*	9160.9+x	65/2$^+$	8258.1+x	61/2$^+$		E2 in 2004Sc14.
903.2 *8*	0.55 *16*	8691.6+x	63/2$^-$	7788.4+x	59/2$^-$	Q	DCO=0.92 *15* E2 in 2004Sc14.
904.7 *8*	1.5 *4*	9457.3+x	65/2$^+$	8552.6+x	61/2$^+$		E2 in 2004Sc14.
907.0 *8*	2.7 *8*	8584.9+x	63/2$^+$	7677.9+x	59/2$^+$	Q	DCO=1.12 *15* E2 in 2004Sc14.
908.9 *8*	2.1 *6*	9003.5+x	65/2$^+$	8094.7+x	61/2$^+$	Q	DCO=1.14 *12* E2 in 2004Sc14.
915.6 *8*	0.3 *1*	4618.9+y	J+12	3703.3+y	J+10		E2 in 2004Sc14.
917.2 *5*	4.4 *11*	8754.6+x	65/2$^+$	7837.5+x	61/2$^+$	Q	DCO=1.25 *15* E2 in 2004Sc14.
918.2 *8*	2.3 *7*	9475.1+x	67/2$^-$	8556.9+x	63/2$^-$		E2 in 2004Sc14.
921.0 *8*	1.2 *4*	9133.5+x	65/2$^+$	8212.5+x	61/2$^+$		E2 in 2004Sc14.
926.6 *8*	0.79 *24*	9752.2+x	67/2$^+$	8825.6+x	63/2$^+$	Q	DCO=0.95 *17* E2 in 2004Sc14.
928.3 *8*	0.3 *1*	9265.0+x	(65/2)$^-$	8336.7+x	(61/2)$^-$		E2 in 2004Sc14.
928.9 *8*	1.2 *4*	9155.7+x	65/2$^-$	8226.8+x	61/2$^-$		E2 in 2004Sc14.
929.4 *5*	5.0 *12*	9198.6+x	67/2$^-$	8269.2+x	63/2$^-$	Q	DCO=1.08 *9* E2 in 2004Sc14.
930.2 *8*	0.8 *2*	9242.4+x	65/2$^-$	8312.2+x	61/2$^-$		E2 in 2004Sc14.
931.0 *5*	6.7 *17*	8794.9+x	65/2$^-$	7863.9+x	61/2$^-$	Q	DCO=1.16 *12* E2 in 2004Sc14.
938.0 *8*	1.2 *4*	9671.7+x	67/2$^+$	8733.7+x	63/2$^+$		E2 in 2004Sc14.
943.7 *8*	0.4 *1*	4140.8+z	J1+10	3197.1+z	J1+8		E2 in 2004Sc14.
946.7 *8*	1.6 *5*	9607.1+x	67/2$^+$	8660.4+x	63/2$^+$		E2 in 2004Sc14.
951.2 *8*	0.34 *10*	9642.9+x	67/2$^-$	8691.6+x	63/2$^-$	Q	DCO=0.92 *19* E2 in 2004Sc14.
953.0 *8*	2.2 *7*	9067.5+x	65/2$^+$	8114.5+x	61/2$^+$	Q	DCO=1.18 *17* E2 in 2004Sc14.

$^{165}_{71}Lu_{94}$-22

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	Comments
957.5 *8*	1.3 *4*	10414.8+x	69/2$^+$	9457.3+x	65/2$^+$		E2 in 2004Sc14.
960.0 *8*	2.6 *8*	9544.9+x	67/2$^+$	8584.9+x	63/2$^+$	Q	DCO=1.20 *15* E2 in 2004Sc14.
963.0 *8*	1.5 *4*	9966.5+x	69/2$^+$	9003.5+x	65/2$^+$	Q	DCO=0.95 *12* E2 in 2004Sc14.
963.1 *8*	2.3 *7*	9991.0+x	69/2$^-$	9027.9+x	65/2$^-$		E2 in 2004Sc14.
965.1 *8*	0.6 *2*	10207.5+x	69/2$^-$	9242.4+x	65/2$^-$		E2 in 2004Sc14.
973.5 *8*	1.1 *3*	10129.2+x	69/2$^-$	9155.7+x	65/2$^-$		E2 in 2004Sc14.
973.9 *8*	2.2 *7*	10449.0+x	71/2$^-$	9475.1+x	67/2$^-$		E2 in 2004Sc14.
974.0 *8*	0.60 *18*	10107.5+x	69/2$^+$	9133.5+x	65/2$^+$		E2 in 2004Sc14.
975.0 *8*	1.0 *3*	10646.7+x	71/2$^+$	9671.7+x	67/2$^+$		E2 in 2004Sc14.
975.3 *8*	0.2 *1*	5594.2+y	J+14	4618.9+y	J+12		E2 in 2004Sc14.
976.4 *5*	3.8 *10*	10175.0+x	71/2$^-$	9198.6+x	67/2$^-$	Q	DCO=1.06 *9* E2 in 2004Sc14.
977.9 *5*	3.7 *9*	9308.7+x	67/2$^+$	8330.8+x	63/2$^+$		E2 in 2004Sc14.
981.1 *8*	0.71 *21*	10733.3+x	71/2$^+$	9752.2+x	67/2$^+$	Q	DCO=1.13 *15* E2 in 2004Sc14.
986.0 *5*	3.4 *8*	9780.9+x	69/2$^-$	8794.9+x	65/2$^-$	Q	DCO=1.08 *11* E2 in 2004Sc14.
986.4 *8*	0.4 *1*	11193.9+x	73/2$^-$	10207.5+x	69/2$^-$		E2 in 2004Sc14.
986.9 *8*	1.3 *4*	10594.0+x	71/2$^+$	9607.1+x	67/2$^+$		E2 in 2004Sc14.
987.9 *5*	3.3 *8*	9742.6+x	69/2$^+$	8754.6+x	65/2$^+$	Q	DCO=1.14 *16* E2 in 2004Sc14.
1001.9 *8*	0.16 *5*	10644.8+x	71/2$^-$	9642.9+x	67/2$^-$		E2 in 2004Sc14.
1002.0 *8*	1.5 *4*	10546.9+x	71/2$^+$	9544.9+x	67/2$^+$	Q	DCO=1.22 *17* E2 in 2004Sc14.
1002.5 *8*	0.3 *1*	5143.3+z	J1+12	4140.8+z	J1+10		E2 in 2004Sc14.
1005.0 *8*	1.6 *5*	10072.5+x	69/2$^+$	9067.5+x	65/2$^+$		E2 in 2004Sc14.
1010.0 *8*	0.8 *2*	11656.7+x	75/2$^+$	10646.7+x	71/2$^+$		E2 in 2004Sc14.
1011.1 *8*	0.7 *2*	11425.9+x	73/2$^+$	10414.8+x	69/2$^+$		E2 in 2004Sc14.
1012.8 *8*	0.95 *28*	11142.0+x	73/2$^-$	10129.2+x	69/2$^-$		E2 in 2004Sc14.
1018.2 *8*	1.0 *1*	11612.3+x	75/2$^+$	10594.0+x	71/2$^+$		E2 in 2004Sc14.
1019.3 *8*	1.1 *3*	10985.9+x	73/2$^+$	9966.5+x	69/2$^+$	Q	DCO=0.96 *12* E2 in 2004Sc14.
1021.7 *8*	0.2 *1*	12215.6+x	77/2$^-$	11193.9+x	73/2$^-$		E2 in 2004Sc14.
1026.3 *8*	1.9 *6*	11017.3+x	73/2$^-$	9991.0+x	69/2$^-$		E2 in 2004Sc14.
1026.6 *5*	3.0 *8*	11201.6+x	75/2$^-$	10175.0+x	71/2$^-$	Q	DCO=1.14 *12* E2 in 2004Sc14.
1028.1 *8*	1.4 *4*	11477.1+x	75/2$^-$	10449.0+x	71/2$^-$		E2 in 2004Sc14.
1035.1 *8*	0.52 *16*	11768.4+x	75/2$^+$	10733.3+x	71/2$^+$	Q	DCO=1.14 *15* E2 in 2004Sc14.

$^{165}_{71}Lu_{94}$-23

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	Comments
1036.0 *8*	1.4 *4*	11582.9+x	75/2$^+$	10546.9+x	71/2$^+$	Q	DCO=0.95 *15* E2 in 2004Sc14.
1037.0 *8*	0.10 *3*	6631.2+y	J+16	5594.2+y	J+14		E2 in 2004Sc14.
1037.7 *8*	0.9 *3*	12649.9+x	79/2$^+$	11612.3+x	75/2$^+$		E2 in 2004Sc14.
1039.0 *8*	0.11 *3*	11683.8+x	75/2$^-$	10644.8+x	71/2$^-$		E2 in 2004Sc14.
1046.0 *8*	2.2 *7*	10826.9+x	73/2$^-$	9780.9+x	69/2$^-$		E2 in 2004Sc14.
1047.8 *8*	0.93 *28*	12189.8+x	77/2$^-$	11142.0+x	73/2$^-$		E2 in 2004Sc14.
1051.2 *8*	2.4 *7*	10793.7+x	73/2$^+$	9742.6+x	69/2$^+$		E2 in 2004Sc14.
1058.4 *5*	3.1 *8*	10367.1+x	71/2$^+$	9308.7+x	67/2$^+$		E2 in 2004Sc14.
1059.1 *8*	0.5 *2*	12485.0+x	77/2$^+$	11425.9+x	73/2$^+$		E2 in 2004Sc14.
1061.0 *8*	1.2 *4*	12643.9+x	79/2$^+$	11582.9+x	75/2$^+$		E2 in 2004Sc14.
1063.0 *8*	0.10 *3*	6206.3+z	J1+14	5143.3+z	J1+12		E2 in 2004Sc14.
1064.0 *8*	0.5 *2*	12720.7+x	79/2$^+$	11656.7+x	75/2$^+$		E2 in 2004Sc14.
1065.0 *8*	0.5 *2*	13715.0+x	83/2$^+$	12649.9+x	79/2$^+$		E2 in 2004Sc14.
1076.0 *8*	2.4 *7*	12277.6+x	79/2$^-$	11201.6+x	75/2$^-$	Q	DCO=0.89 *13* E2 in 2004Sc14.
1076.3 *8*	0.9 *3*	12062.1+x	77/2$^+$	10985.9+x	73/2$^+$		E2 in 2004Sc14.
1081.6 *8*	1.1 *3*	12558.7+x	79/2$^-$	11477.1+x	75/2$^-$		E2 in 2004Sc14.
1088.0 *8*	1.0 *3*	12105.3+x	77/2$^-$	11017.3+x	73/2$^-$		E2 in 2004Sc14.
1089.6 *8*	0.44 *13*	12858.0+x	79/2$^+$	11768.4+x	75/2$^+$		E2 in 2004Sc14.
1102.2[a]		5449.5+x	45/2$^+$	4347.3+x	41/2$^+$		(E2) in 2004Sc14.
1105.4 *8*	1.5 *4*	11899.2+x	77/2$^+$	10793.7+x	73/2$^+$		E2 in 2004Sc14.
1107.4 *8*	0.3 *1*	13592.5+x	81/2$^+$	12485.0+x	77/2$^+$		E2 in 2004Sc14.
1108.9 *8*	1.4 *4*	11935.8+x	77/2$^-$	10826.9+x	73/2$^-$		E2 in 2004Sc14.
1109.0 *8*	0.4 *1*	13829.7+x	83/2$^+$	12720.7+x	79/2$^+$		E2 in 2004Sc14.
1121.7 *8*	1.4 *4*	13399.3+x	83/2$^-$	12277.6+x	79/2$^-$	Q	DCO=1.11 *14* E2 in 2004Sc14.
1127.7 *8*	0.6 *2*	13686.4+x	83/2$^-$	12558.7+x	79/2$^-$		E2 in 2004Sc14.
1129.7 *8*	1.2 *4*	11496.8+x	75/2$^+$	10367.1+x	71/2$^+$		E2 in 2004Sc14.
1133.4 *8*	0.6 *2*	13195.6+x	81/2$^+$	12062.1+x	77/2$^+$		E2 in 2004Sc14.
1139.7 *8*	0.8 *2*	13245.0+x	81/2$^-$	12105.3+x	77/2$^-$		E2 in 2004Sc14.
1142.2 *8*	0.9 *3*	13041.3+x	81/2$^+$	11899.2+x	77/2$^+$		E2 in 2004Sc14.
1151.0 *8*	0.27 *8*	14009.0+x	83/2$^+$	12858.0+x	79/2$^+$		E2 in 2004Sc14.
1158.5 *8*	0.5 *2*	14199.8+x	85/2$^+$	13041.3+x	81/2$^+$		E2 in 2004Sc14.
1158.8 *8*	0.7 *2*	14558.1+x	87/2$^-$	13399.3+x	83/2$^-$		E2 in 2004Sc14.
1162.5 *8*	0.4 *1*	14848.9+x	87/2$^-$	13686.4+x	83/2$^-$		E2 in 2004Sc14.
1166.5 *8*	0.6 *2*	13102.3+x	81/2$^-$	11935.8+x	77/2$^-$		E2 in 2004Sc14.
1166.9[a]		6155.5+x	49/2$^+$	4988.6+x	45/2$^+$		(E2) in 2004Sc14.
1182.0 *8*	0.4 *1*	12678.8+x	79/2$^+$	11496.8+x	75/2$^+$		E2 in 2004Sc14.
1187.0 *8*	0.40 *12*	15745.1+x	91/2$^-$	14558.1+x	87/2$^-$		E2 in 2004Sc14.
1189.3 *8*	0.4 *1*	14384.9+x	85/2$^+$	13195.6+x	81/2$^+$		E2 in 2004Sc14.
1199.8 *8*	0.22 *7*	15209+x	87/2$^+$	14009.0+x	83/2$^+$		E2 in 2004Sc14.

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04 (continued)

$\gamma(^{165}Lu)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1218.9[a]		6904.3+x	$53/2^+$	5685.4+x	$49/2^+$	(E2) in 2004Sc14.
1239.3 *8*	0.2 *1*	15624+x	$89/2^+$	14384.9+x	$85/2^+$	E2 in 2004Sc14.
1253.7[a] *8*	0.15 *4*	16463+x?	$(91/2^+)$	15209+x	$87/2^+$	E2 in 2004Sc14.

† 2004Sc14 give an uncertainty range of 0.1-0.8 keV for all assigned transitions, based on individual γ-ray intensities. The evaluators assign uncertainties to γ transitions as follows: 0.1 for Iγ>20%, 0.3 for Iγ=(10-20)%, 0.5 for Iγ=(3-10)% and 0.8 for Iγ<3%.

‡ 2004Sc14 give an uncertainty range of (8-30)% for all γ intensities. The evaluators have assigned individual uncertainties to γ intensities based on the following criterion: 8% for Iγ>20%, 15% for Iγ=(10-20)%, 25% for Iγ=(3-10)% and 30% for Iγ<3%.

Transition contaminated from a γ-ray line with similar energy.

@ From DCO ratios, mult=Q corresponds to $\Delta J=2$, stretched quadrupole (most likely E2) transition and mult=D corresponds to $\Delta J=1$, dipole (small quadrupole admixture is possible). The mult=E2 is from DCO ratio and application of RUL for levels of known lifetimes.

& From DCO. The other solution with dominant M1 component is excluded in analogy with ^{163}Lu transitions in SD bands.

a Placement of transition in the level scheme is uncertain.

$^{165}_{71}Lu_{94}$-25

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

Level Scheme

Intensities: Relative I_γ

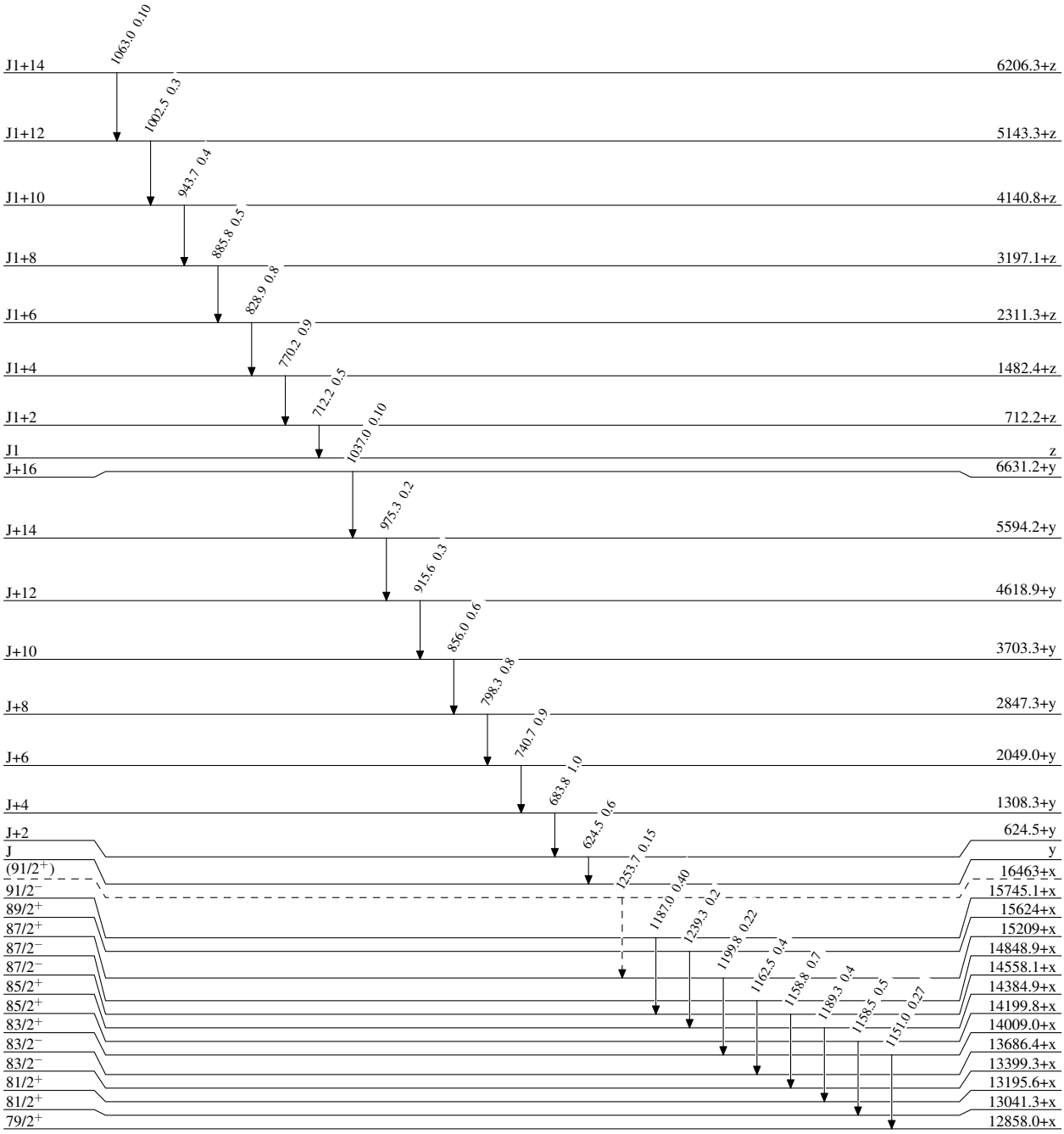
Legend

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

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

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

γ Decay (Uncertain)



$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

Level Scheme (continued)

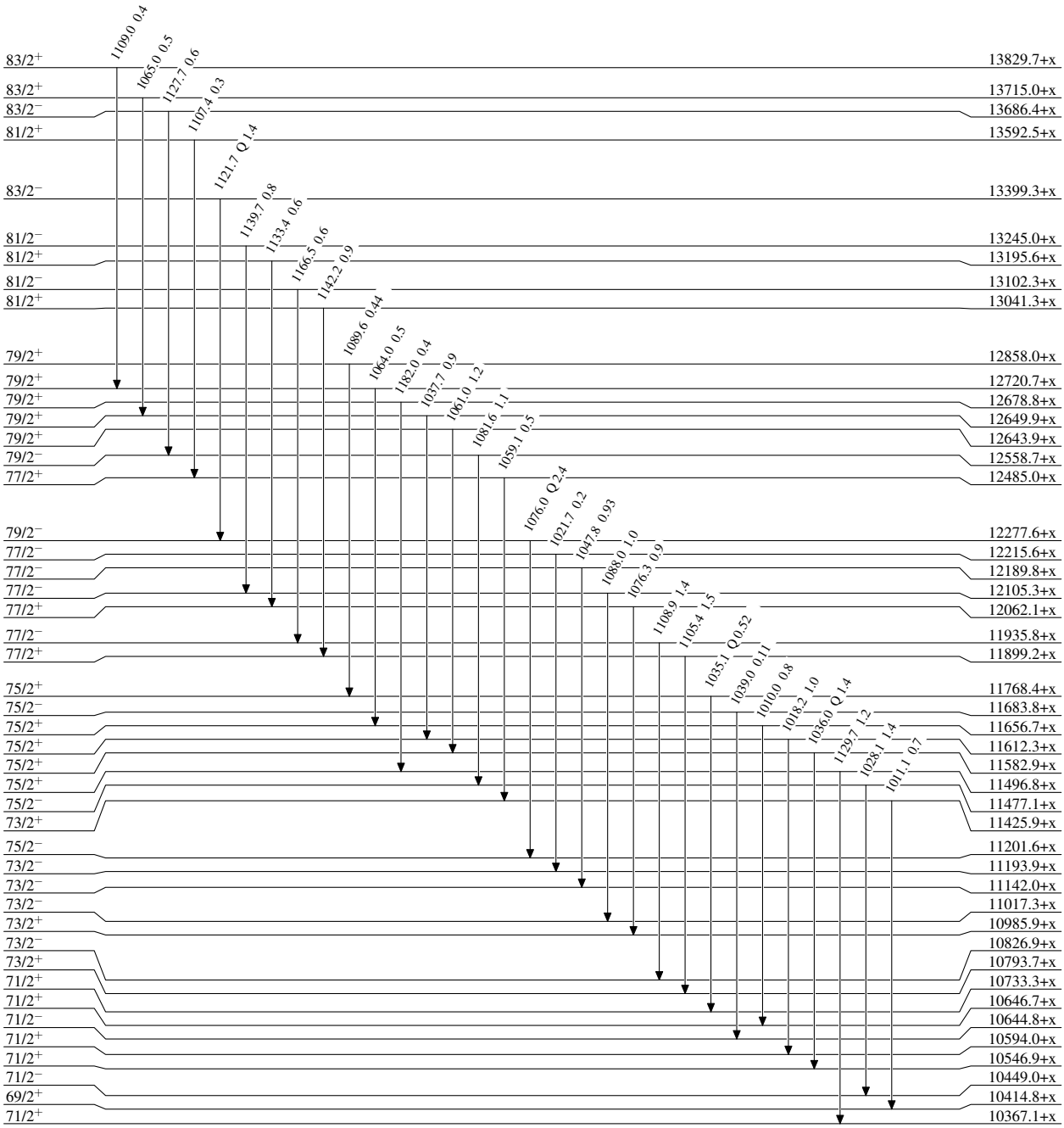
Intensities: Relative I_γ

Legend

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

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

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



$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

Level Scheme (continued)

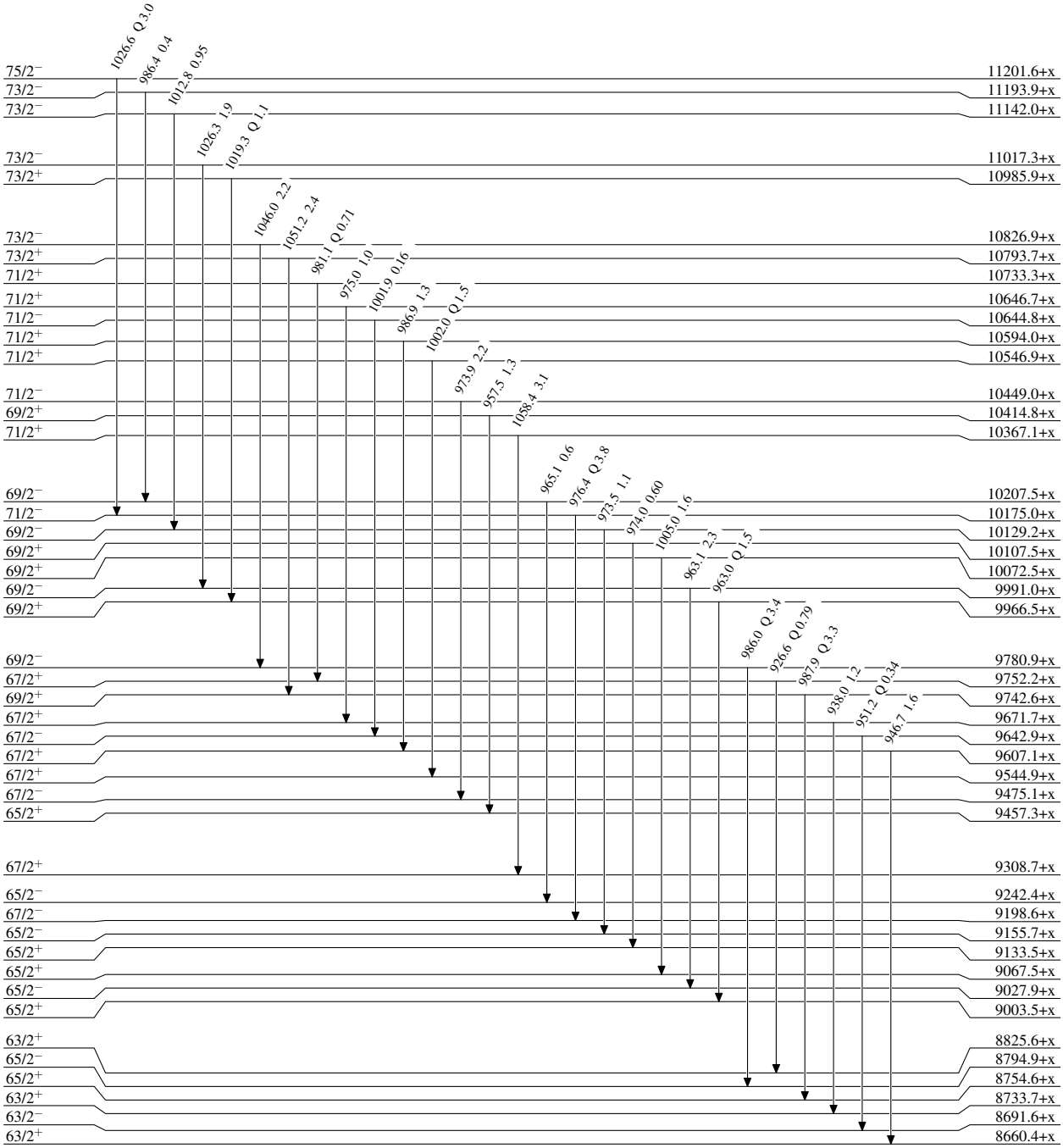
Intensities: Relative I_γ

Legend

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

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

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



$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

Level Scheme (continued)

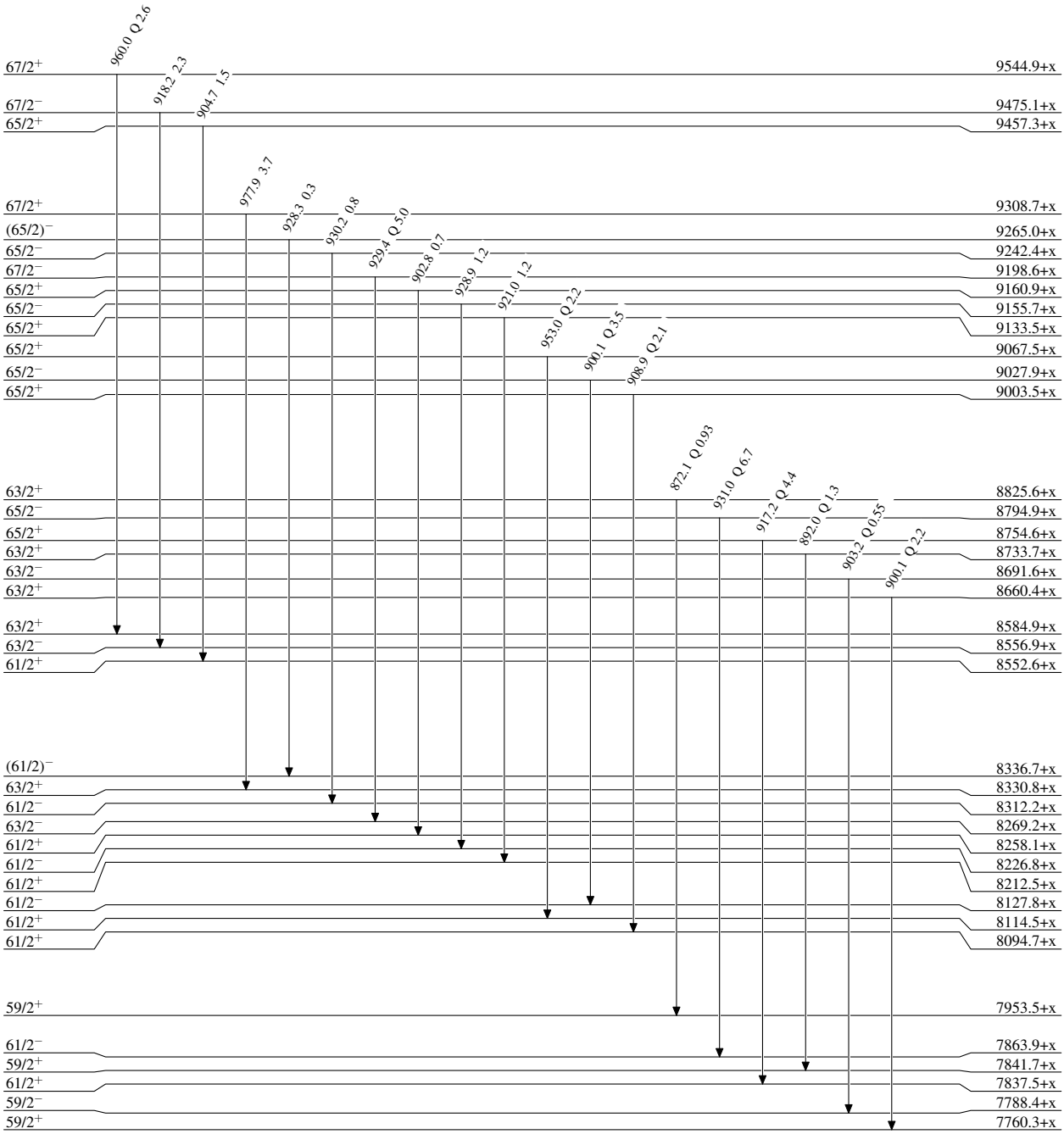
Intensities: Relative I_γ

Legend

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

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

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

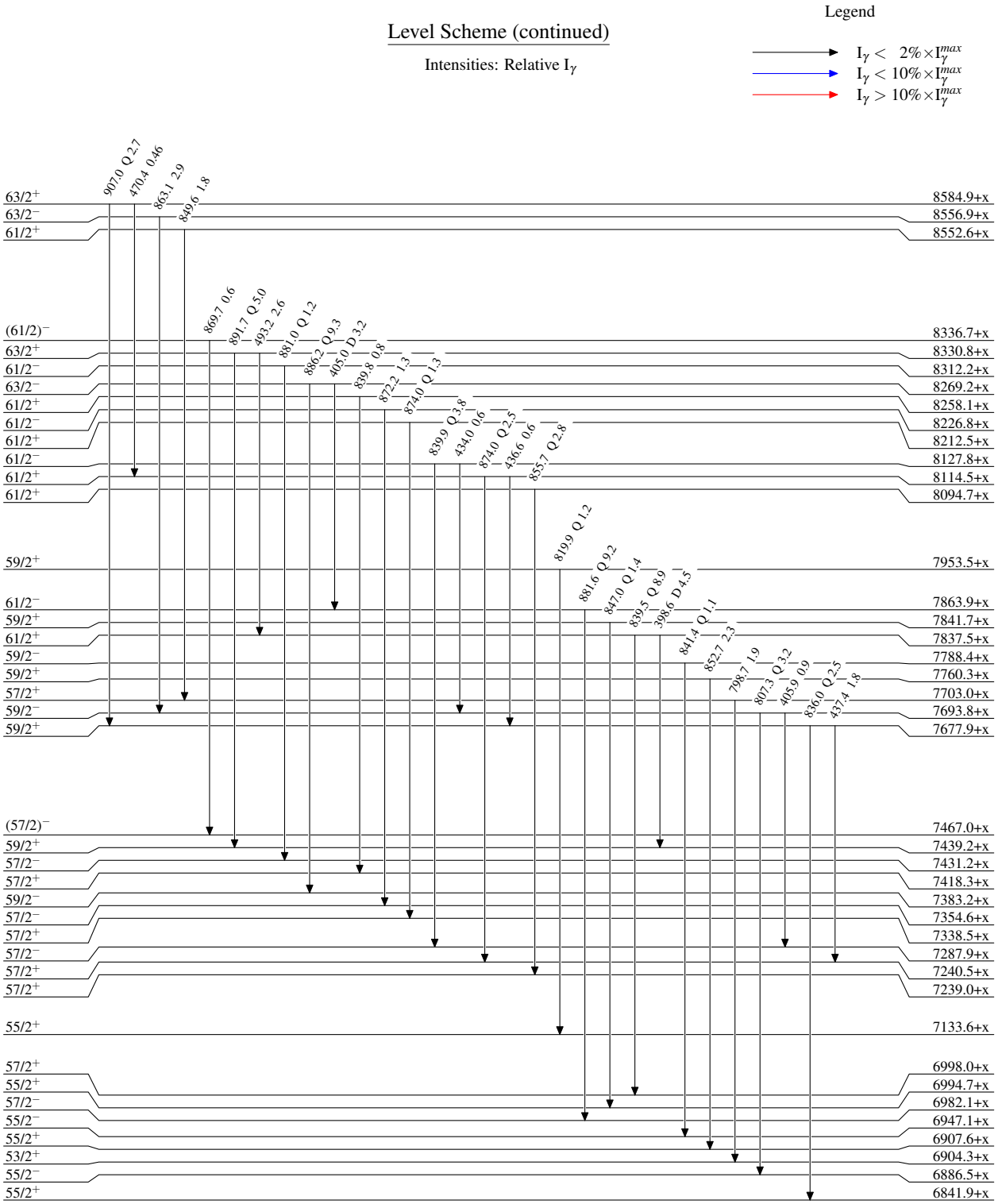


$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

Level Scheme (continued)

Intensities: Relative I_γ



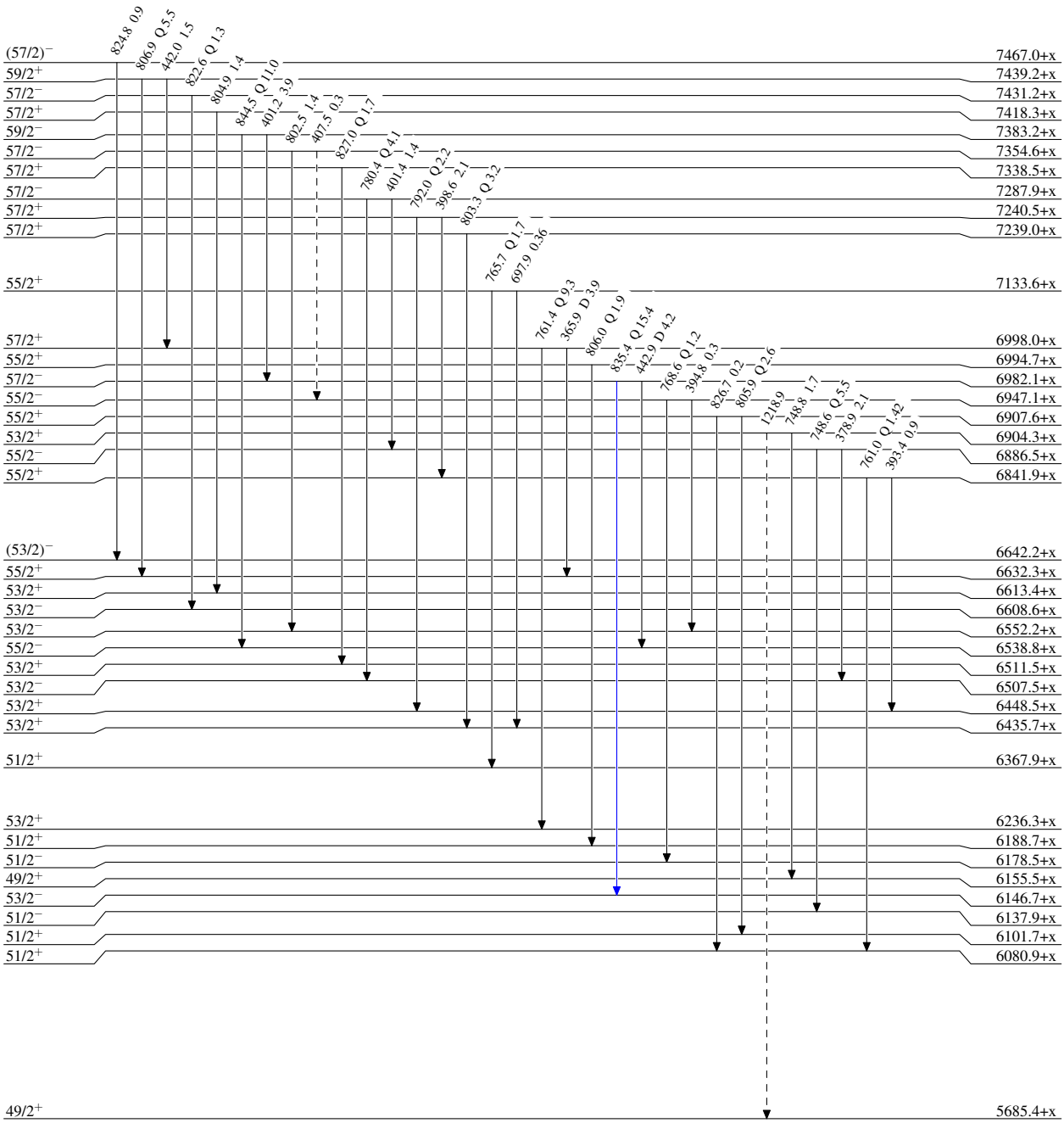
$^{165}_{71}Lu_{94}$

$^{139}La(^{30}Si,4n\gamma)$ 2004Sc14,2003Sc02,2005An04

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)



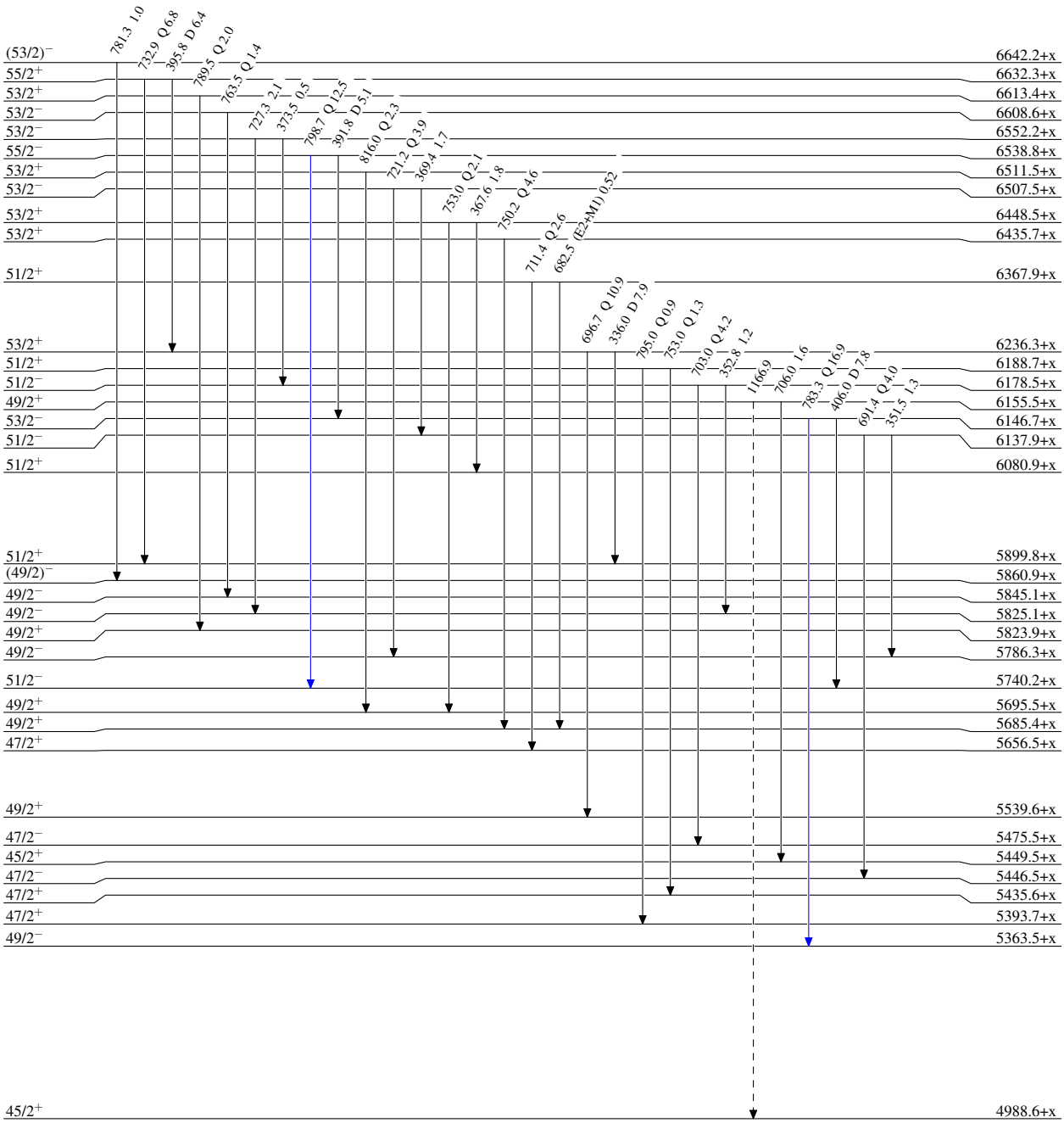
$^{165}_{71}Lu_{94}$

$^{139}La(^{30}Si,4n\gamma)$ 2004Sc14,2003Sc02,2005An04

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)



$^{165}_{71}Lu_{94}$

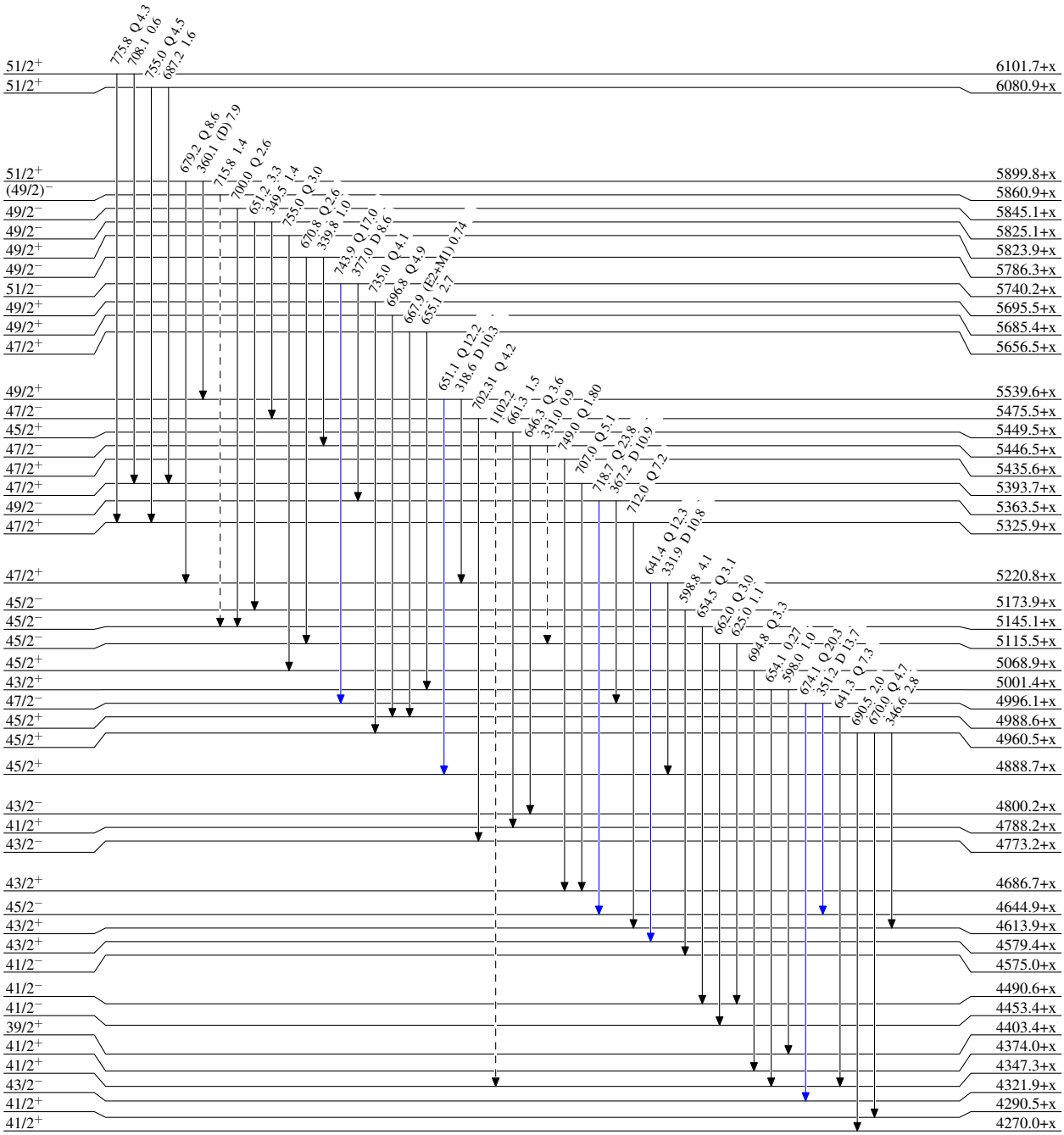
$^{139}La(^{30}Si,4n\gamma)$ 2004Sc14,2003Sc02,2005An04

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)



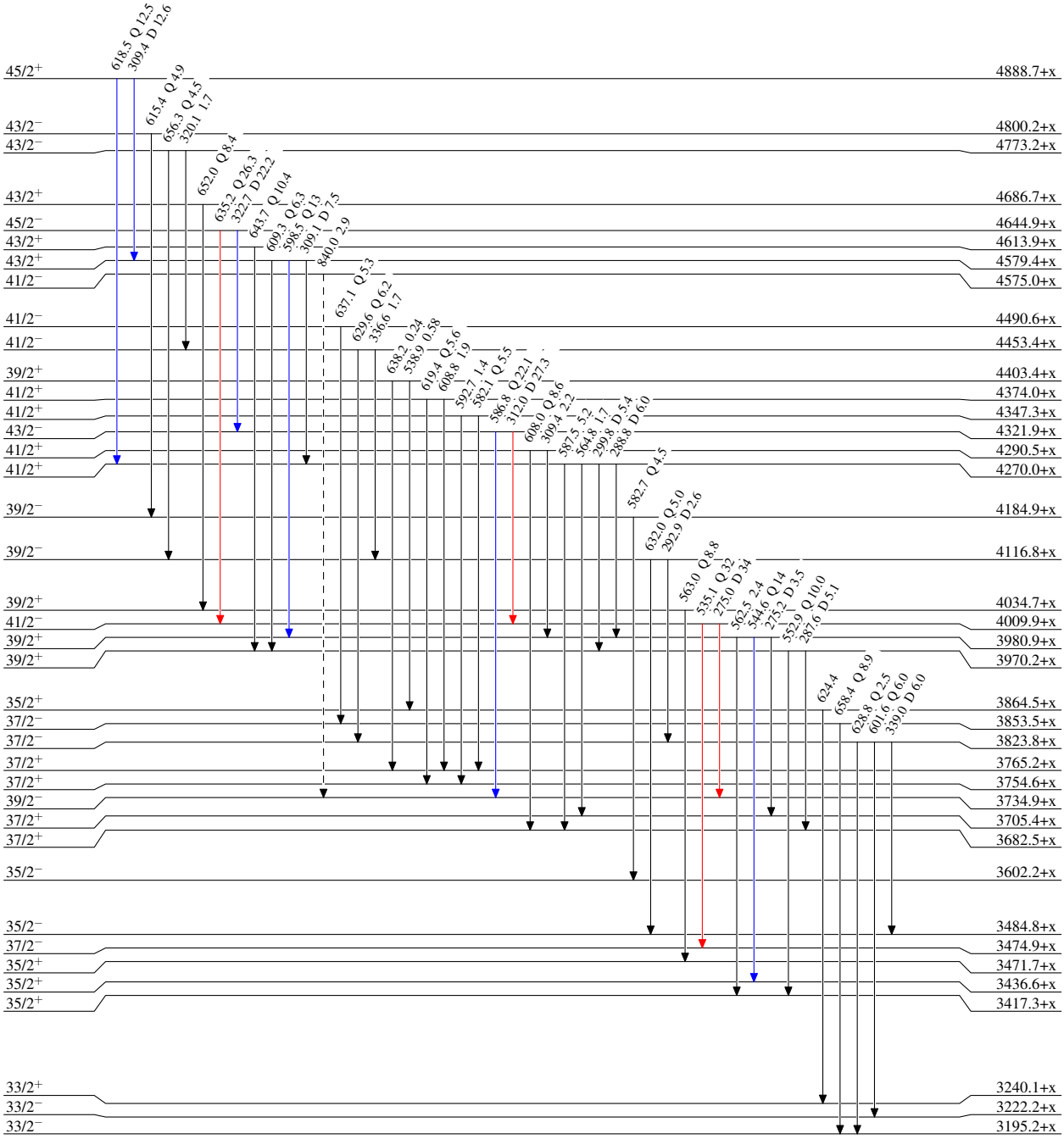
$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

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)

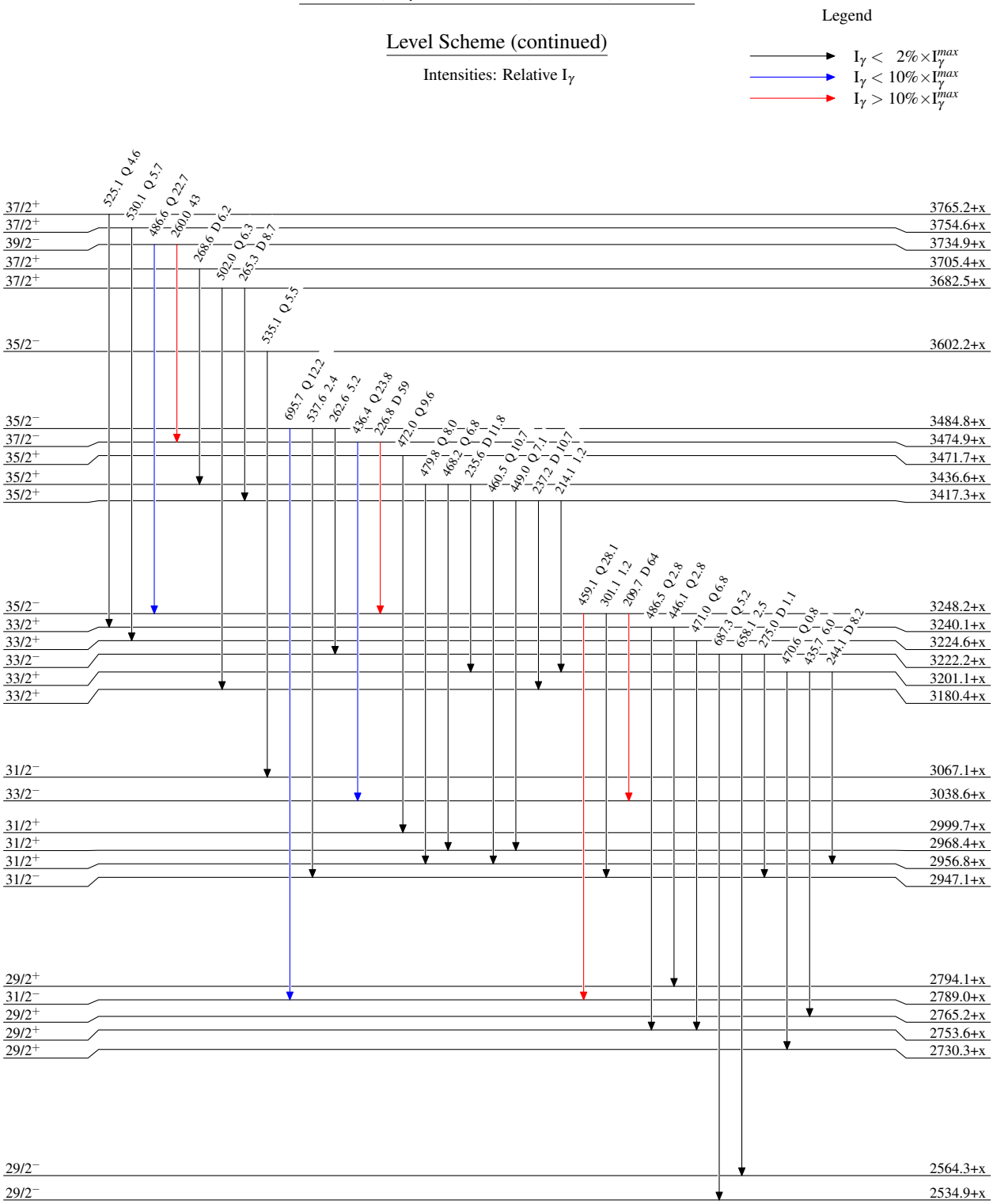


$^{165}_{71}Lu_{94}$

$^{139}La(^{30}Si,4n\gamma)$ 2004Sc14,2003Sc02,2005An04

Level Scheme (continued)

Intensities: Relative I_γ



$^{165}_{71}Lu_{94}$

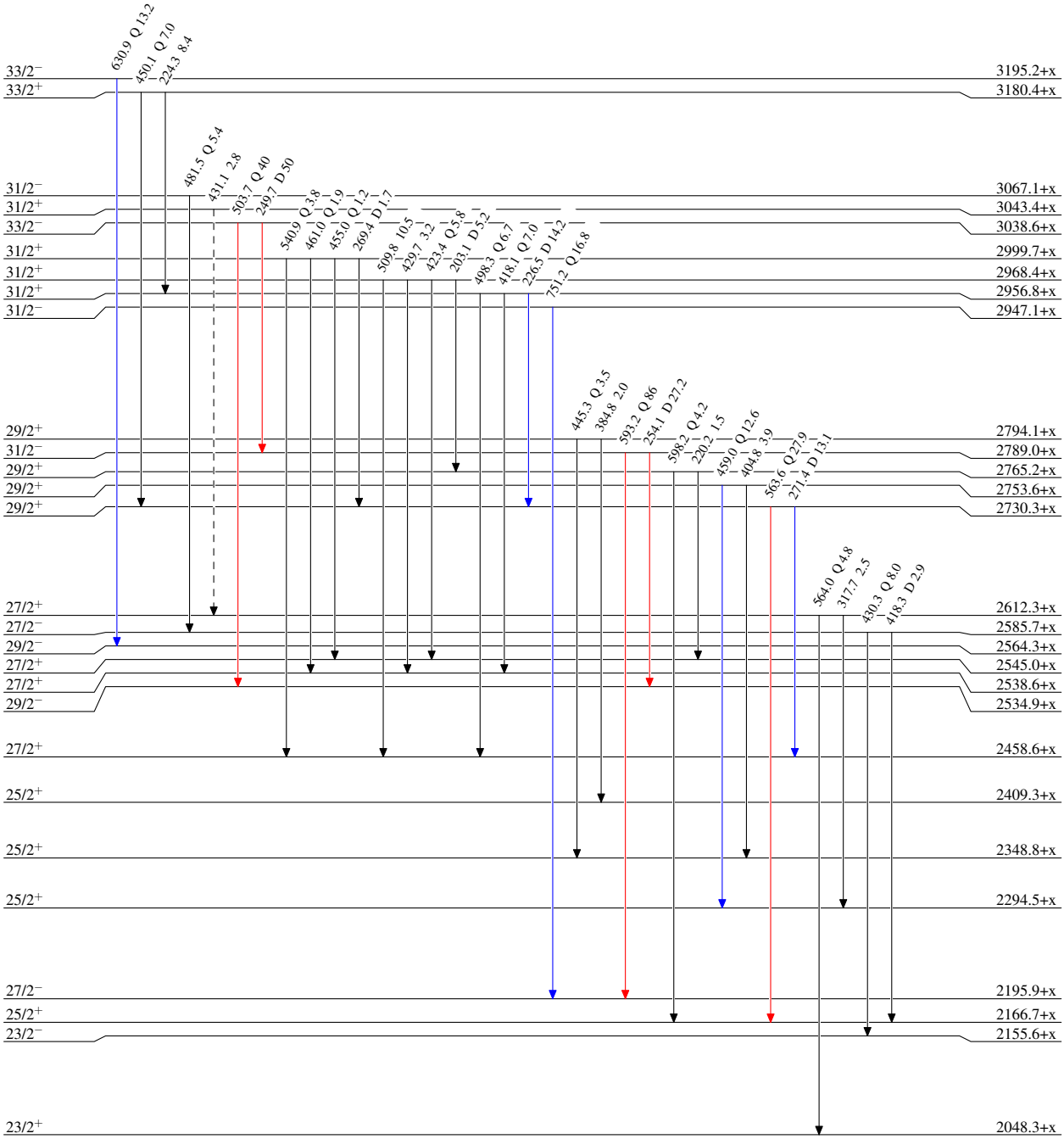
^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

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)



$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

Level Scheme (continued)

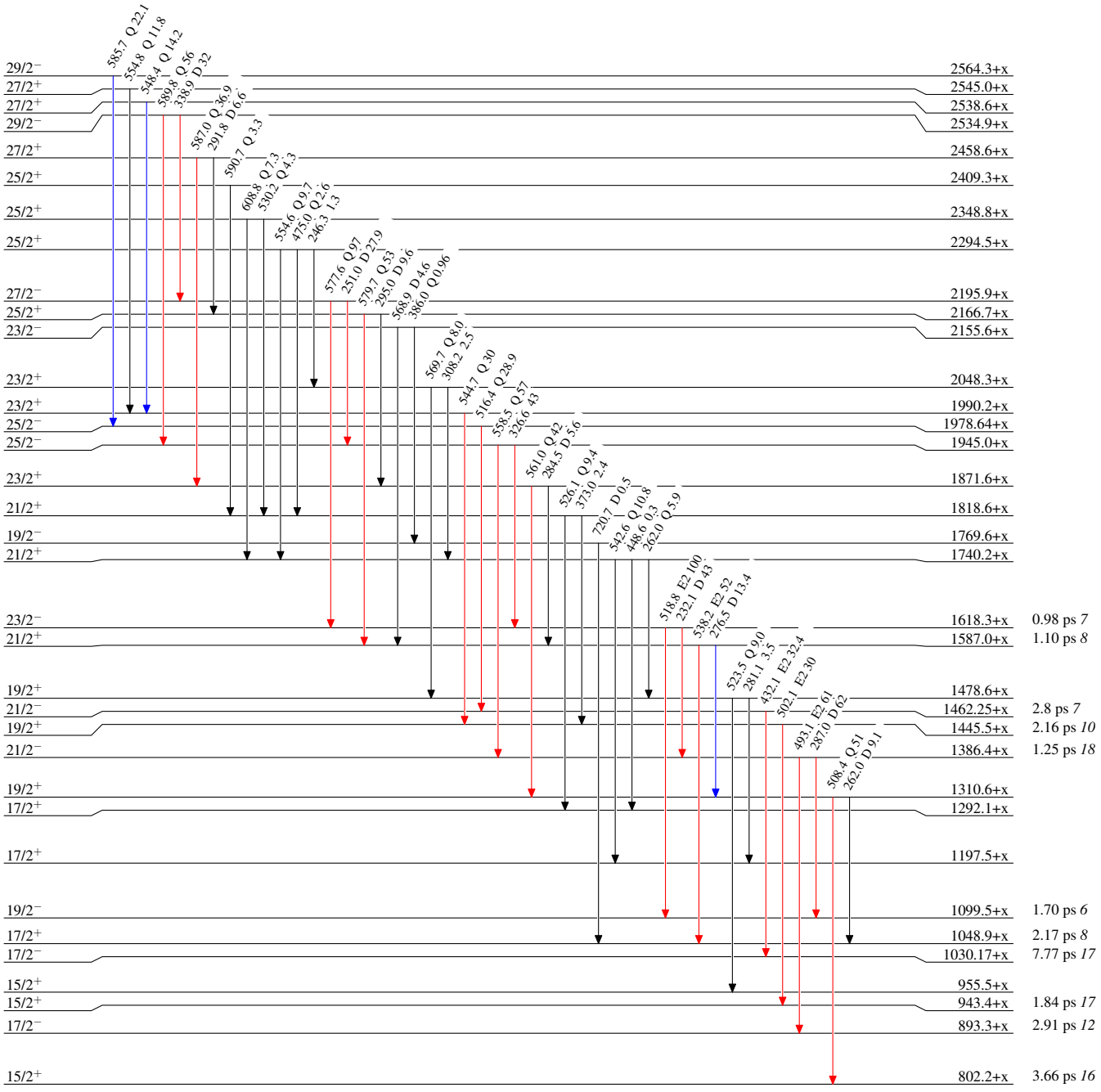
Intensities: Relative I_γ

Legend

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

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

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



$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

Level Scheme (continued)

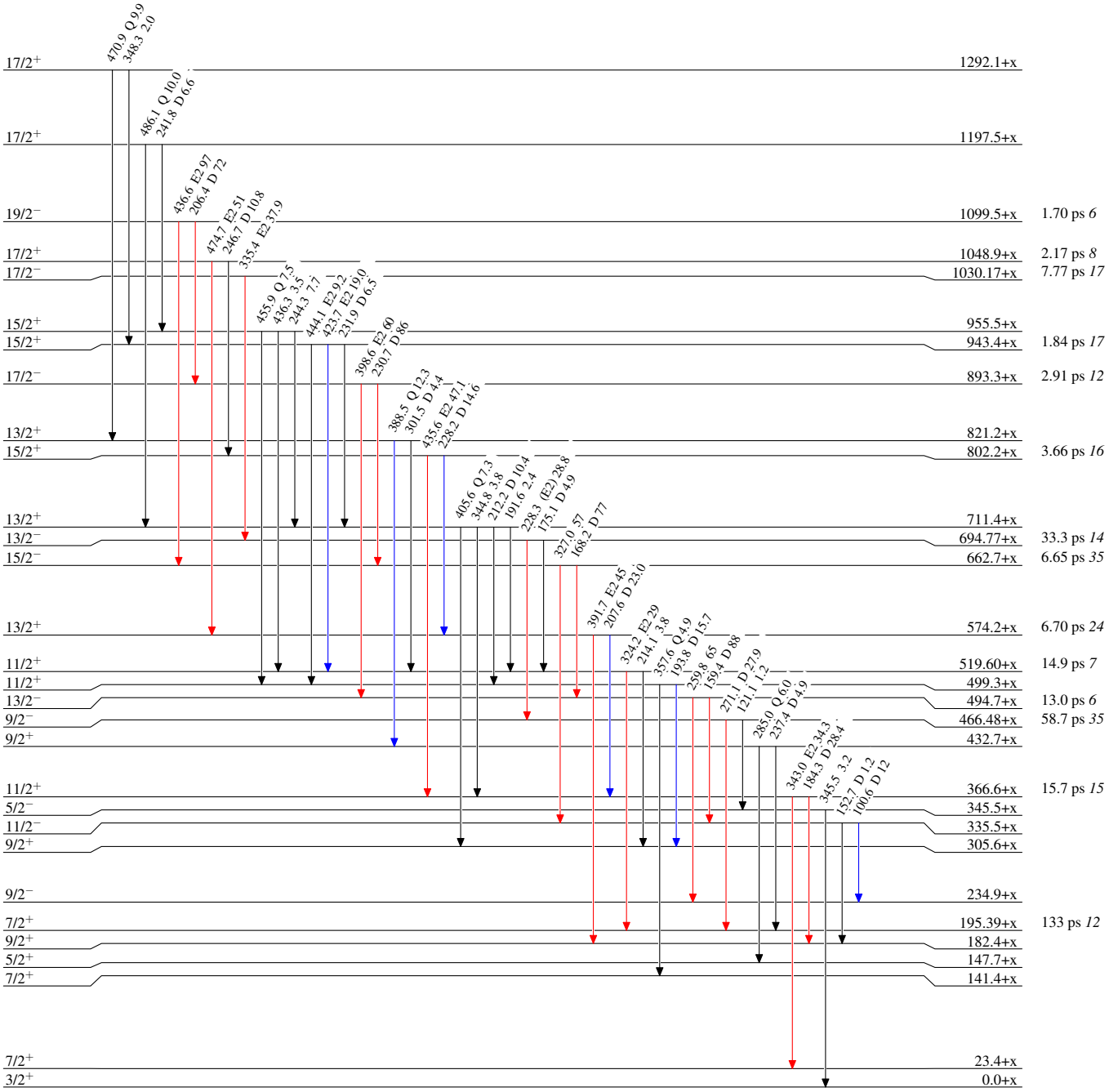
Intensities: Relative I_γ

Legend

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

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

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

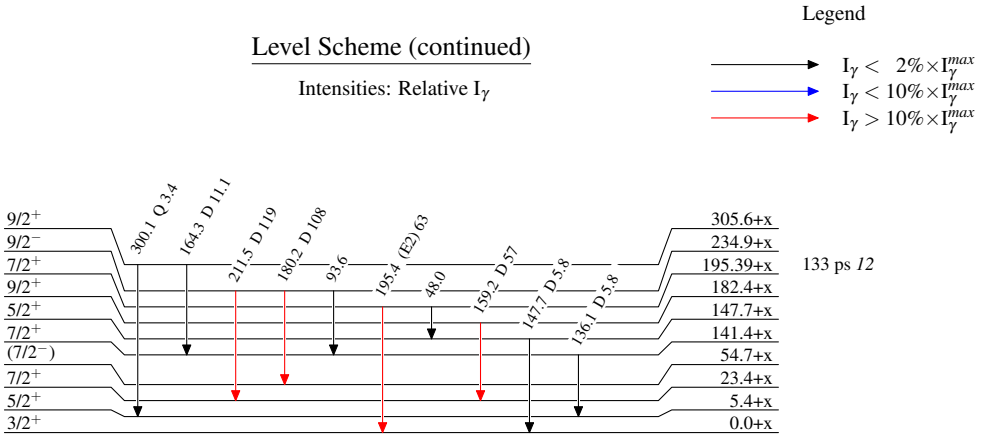


$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

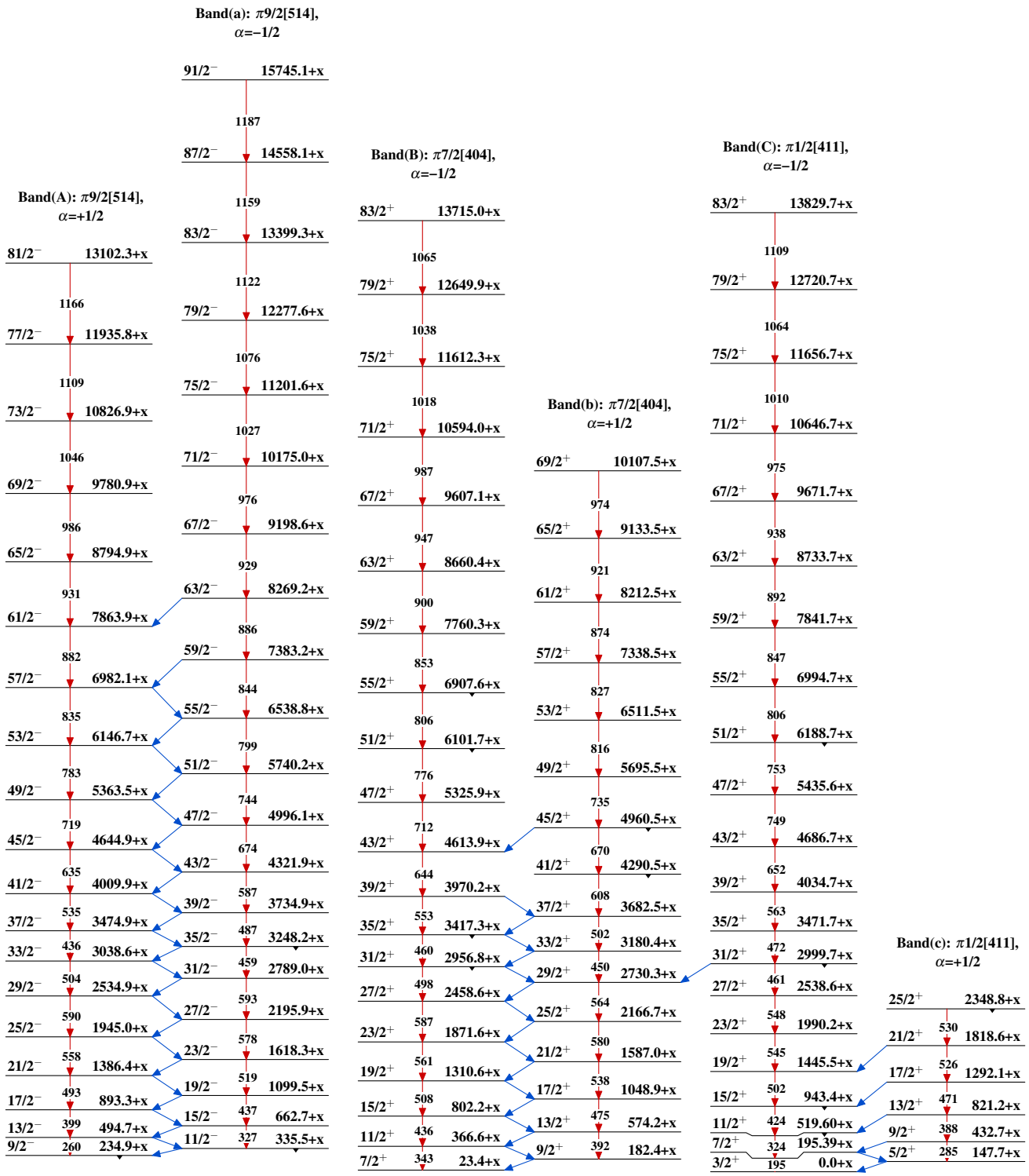
Level Scheme (continued)

Intensities: Relative I_γ



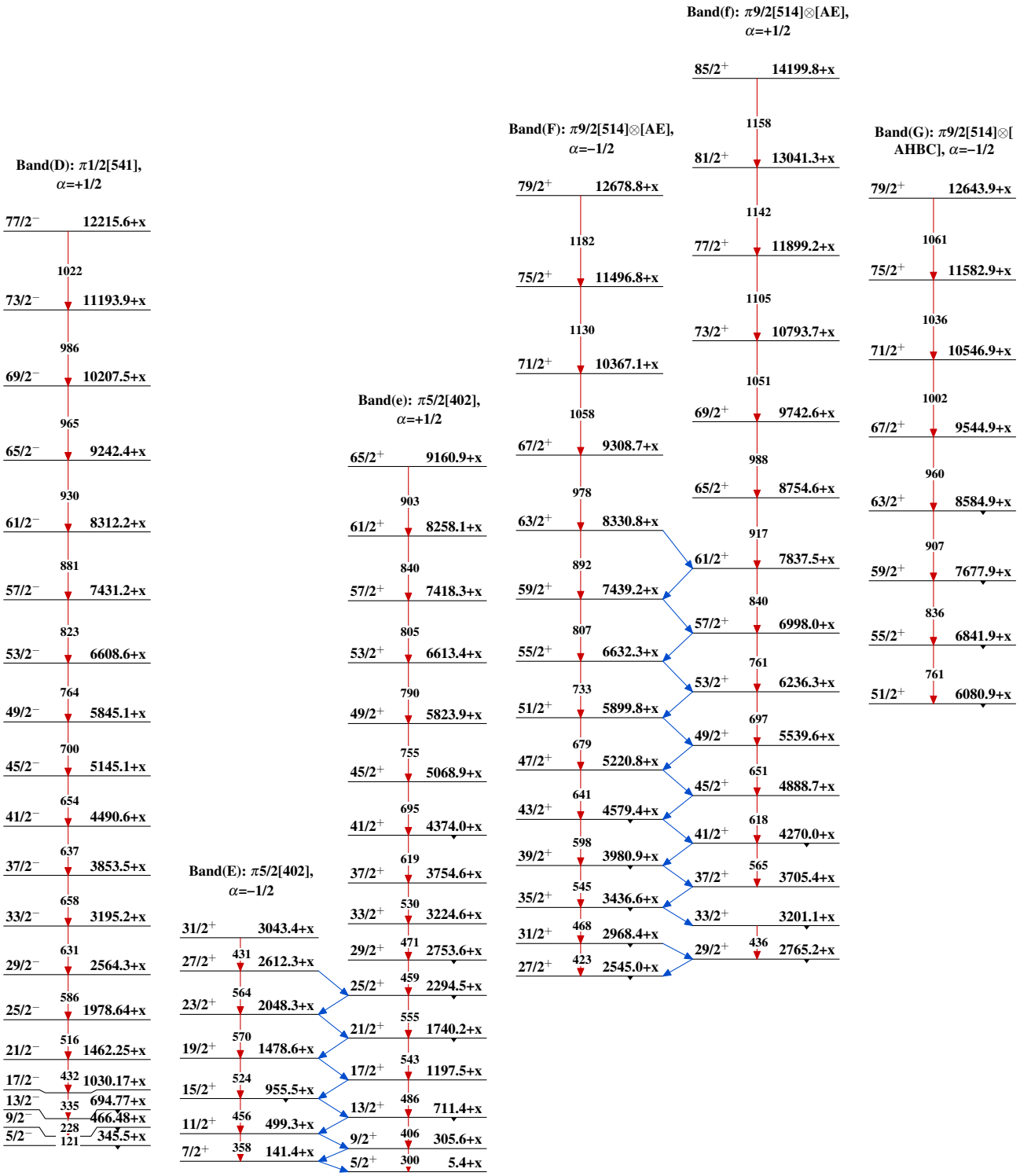
$^{165}_{71}Lu_{94}$

^{139}La(^{30}Si,4nγ) 2004Sc14,2003Sc02,2005An04

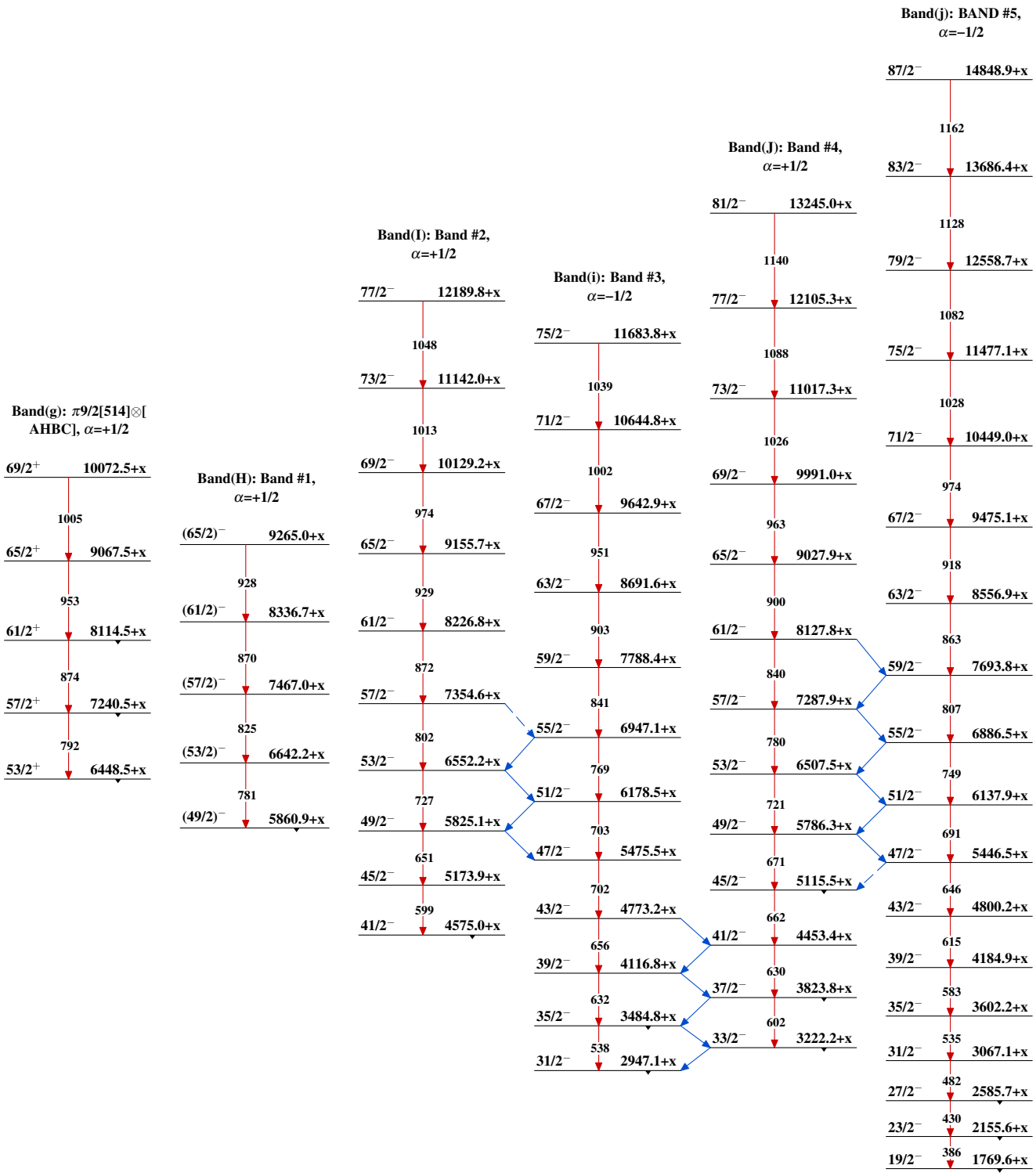


$^{165}_{71}Lu_{94}$

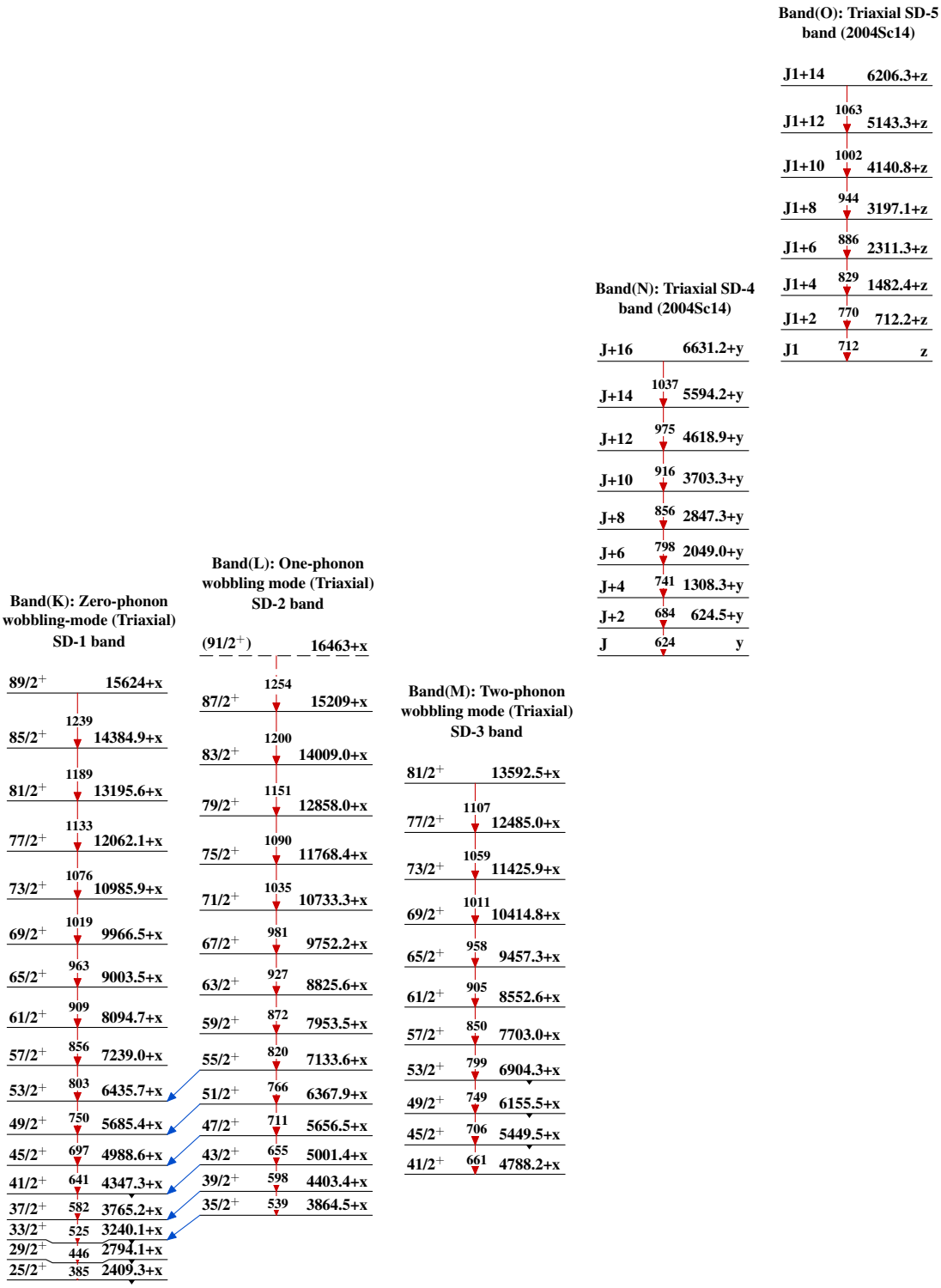
$^{139}La(^{30}Si,4n\gamma)$ 2004Sc14,2003Sc02,2005An04 (continued)



$^{139}La(^{30}Si,4n\gamma)$ 2004Sc14,2003Sc02,2005An04 (continued)



$^{139}La(^{30}Si,4n\gamma)$ 2004Sc14,2003Sc02,2005An04 (continued)



$^{165}_{71}Lu_{94}$