^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

2012Si04, 2012Si21: E=207 MeV ^{48}Ca beam was produced from the ATLAS accelerator at Argonne National Laboratory. Target was 0.6 mg/cm^2 thick ^{80}Se. γ rays were detected with the Gammasphere spectrometer consisting of 101 Compton-suppressed Ge detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma\gamma$-coin, $\gamma\gamma\gamma\gamma$-coin, $\gamma\gamma(\theta)$. Deduced levels, J, π, band structures, γ-ray multipolarities. Comparison with cranked Nilsson-Strutinsky calculations.

All data up to 13193 level are from 2012Si04 and data above that (highly deformed bands with unresolved level energies) are from 2012Si21.

^{123}I Levels

Level scheme and band assignments are mainly from 2012Si04, based on and extended from those in (^{14}N,α3nγ) (2006Wa05 and 2009Zh19) and those in (α,2nγ) (1993Go04).

E(level)[†]	J$^\pi$[&]	E(level)[†]	J$^\pi$[&]	E(level)[†]	J$^\pi$[&]	E(level)[†]	J$^\pi$[&]
0.0	5/2$^+$	3904.2[c] 4	27/2$^+$	9284.6[f] 5	53/2$^+$	1255+z[h]	(65/2$^+$)
138.2[d] 2	7/2$^+$	4054.3[e] 4	29/2$^+$	9371.3[g] 5	51/2$^-$	2554+x[i]	(63/2$^-$)
474.3[a] 2	7/2$^+$	4250.5[b] 4	29/2$^+$	9722.7[g] 5	55/2$^-$	2585+y[j]	(67/2$^+$)
552.1[e] 2	9/2$^+$	4325.8[g] 5	31/2$^-$	10368.1 7	57/2$^+$	2618+z[h]	(69/2$^+$)
670.9 2	9/2$^+$	4541.9[d] 4	31/2$^+$	10494.7[f] 6	55/2$^+$	3976+x[i]	(67/2$^-$)
793.9[d] 2	11/2$^+$	4700.2[c] 6	31/2$^+$	10669.6 7	57/2	4048+y[j]	(71/2$^+$)
943.2[g] 2	11/2$^-$	4900.6[e] 4	33/2$^+$	10753.3[f] 6	57/2$^+$	4080+z[h]	(73/2$^+$)
1080.1[a] 4	11/2$^+$	5000.3[g] 5	35/2$^-$	10836.5[g] 6	59/2$^-$	5505+x[i]	(71/2$^-$)
1155.8[e] 2	13/2$^+$	5488.1[d] 4	35/2$^+$	11056.8 8	57/2	5637+y[j]	(75/2$^+$)
1452.7[g] 3	15/2$^-$	5591.1[g] 5	39/2$^-$	x[‡i]	(55/2$^-$)	5651+z[h]	(77/2$^+$)
1576.3[d] 3	15/2$^+$	5817.9[e] 4	37/2$^+$	11511.0[f] 6	61/2$^+$	7149+x[i]	(75/2$^-$)
1791.3[a] 5	15/2$^+$	5944.4 5	37/2$^+$	11830.7 8	59/2	7333+z[h]	(81/2$^+$)
1870.7[e] 3	17/2$^+$	6422.7 5	41/2$^-$	12032.8 9	61/2	7352+y[j]	(79/2$^+$)
2039.3[g] 4	19/2$^-$	6650.7 5	41/2$^+$	12312.6 9	61/2	8905+x[i]	(79/2$^-$)
2466.0[d] 3	19/2$^+$	6775.8[g] 5	43/2$^-$	12440.2 9	61/2	9138+z[h]	(85/2$^+$)
2613.4[g] 4	23/2$^-$	6936.7[e] 5	41/2$^+$	12469.7 7	63/2	9201+y[j]	(83/2$^+$)
2648.1[a] 5	19/2$^+$	7031.0 6	43/2	12630.9 11	63/2	10762+x[i]	(83/2$^-$)
2711.4[e] 3	21/2$^+$	7177.0[f] 5	43/2$^+$	12755.1 9	63/2	11055+z[h]	(89/2$^+$)
2876.0[b] 4	21/2$^+$	7635.0 6	45/2	12772.1 9	63/2	11152+y[j]	(87/2$^+$)
3083.4[d] 3	23/2$^+$	7660.4 8	45/2	12915.9 9	63/2	12678+x[i]	(87/2$^-$)
3199.9[c] 4	23/2$^+$	7696.5[f] 5	47/2$^+$	y[#j]	(59/2$^+$)	13065+z[h]	(93/2$^+$)
3323.7[e] 3	25/2$^+$	7766.3[g] 5	47/2$^-$	13090.0 9		13212+y[j]	(91/2$^+$)
3337.4[a] 7	23/2$^+$	7908.2 9	45/2	13192.9 9		14674+x[i]	(91/2$^-$)
3490.4[b] 4	25/2$^+$	8388.7[f] 5	49/2$^+$	z[@h]	(61/2$^+$)	15156+z[h]	(97/2$^+$)
3511.7[g] 4	27/2$^-$	8567.5[g] 5	49/2$^-$	1233+x[i]	(59/2$^-$)		
3716.1[d] 3	27/2$^+$	9136.4[f] 5	51/2$^+$	1240+y[j]	(63/2$^+$)		

† From a least-squares fit to γ-ray energies.

‡ x estimated at 11250 keV (2012Si21).

\# y estimated at 13000 keV (2012Si21).

@ z estimated at 13300 keV (2012Si21).

& As proposed in 2012Si04 based on $\gamma\gamma(\theta)$, band structures and assignments for low-lying states for levels up 12915.9 level and from 2012Si21 for levels based on E(level)=x, y and z assiged by comparisons with high-spin bands in neighboring nuclei ^{120}Te

Continued on next page (footnotes at end of table)

^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21 (continued)

^{123}I Levels (continued)

(2012Na01), ^{125}I (2011Si18), and ^{125}Xe (2011Al02). When considered in Adopted Levels, assignments of spin and/or parity will be placed inside parenthesis by the evaluator if there is no firm evidence.

[a] Band(A): Band based on 7/2$^+$.
[b] Band(B): Band based on 21/2$^+$,α=+1/2.
[c] Band(b): Band based on 23/2$^+$,α=−1/2.
[d] Band(C): Band based on 7/2$^+$,α=−1/2.
[e] Band(c): Band based on 9/2$^+$,α=+1/2.
[f] Seq.(G): Sequence based on 43/2$^+$.
[g] Seq.(H): Sequence based on 11/2$^-$.
[h] Band(D): Band based on (61/2$^+$).
[i] Band(E): Band based on (55/2$^-$).
[j] Band(F): Band based on (59/2$^+$).

γ(^{123}I)

Intensity ratio is defined as R_θ=Iγ_{fb}/I$\gamma_{90°}$, with Iγ_{fb} and I$\gamma_{90°}$ the total coincidence intensity (gating on γ rays at all angles) observed at forward and backward (fb) angles, and at 90°, respectively. Typical values are ≈1.4 and ≈0.6 for stretched quadrupole (Q) and dipole (D) transitions, respectively (2012Si04).
Note that there are different normalizations for quoted relative Iγ values. Refer to the Iγ footnote for details.

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	Comments
(61.5)		7696.5	47/2$^+$	7635.0	45/2		E_γ,Mult.: According to e-mail replies of April 5 and 7, 2012 from one of the authors (A. K. Singh), this γ ray was not observed directly, its existence was inferred from $\gamma\gamma$ coin data. Also the assignment of E1 multipolarity shown in table I of 2012Si04 is an error in the paper; its multipolarity remains unknown.
118.8 *2*		670.9	9/2$^+$	552.1	9/2$^+$		
123.8 *4*	5.6 *4*	3323.7	25/2$^+$	3199.9	23/2$^+$	D	R_θ=0.53 *7*.
138.2 *2*		138.2	7/2$^+$	0.0	5/2$^+$	D	R_θ=0.68 *4*.
148.2 *2*	21.0 *12*	9284.6	53/2$^+$	9136.4	51/2$^+$	D	R_θ=0.62 *4*.
149.3 *2*		943.2	11/2$^-$	793.9	11/2$^+$		
196.6 *2*		670.9	9/2$^+$	474.3	7/2$^+$	D	R_θ=0.61 *8*.
225.7 *4*	7.6 *5*	3716.1	27/2$^+$	3490.4	25/2$^+$	D	R_θ=0.60 *6*.
240.3[a] *4*	7.2[a@] *4*	3323.7	25/2$^+$	3083.4	23/2$^+$		
240.3[a] *4*	11.6[a@] *4*	7177.0	43/2$^+$	6936.7	41/2$^+$		
241.8 *2*		793.9	11/2$^+$	552.1	9/2$^+$	D	R_θ=0.60 *4*.
245.4 *4*	7.8 *4*	2711.4	21/2$^+$	2466.0	19/2$^+$	D	R_θ=0.64 *6*.
258.6 *4*	8.0 *3*	10753.3	57/2$^+$	10494.7	55/2$^+$	D	R_θ=0.74 *12*.
272.3 *2*		943.2	11/2$^-$	670.9	9/2$^+$	E1	R_θ=0.74 *6*. POL=+0.15 *4*.
290.5 *4*	8.5 *4*	3490.4	25/2$^+$	3199.9	23/2$^+$	D	R_θ=0.75 *5*.
294.4 *6*	4.3 *20*	1870.7	17/2$^+$	1576.3	15/2$^+$		
323.9 *4*	6.2 *4*	3199.9	23/2$^+$	2876.0	21/2$^+$	D	R_θ=0.56 *8*.
329.8 *4*	5.7 *3*	5817.9	37/2$^+$	5488.1	35/2$^+$	D	R_θ=0.51 *7*.
338.2 *4*	7.8 *4*	4054.3	29/2$^+$	3716.1	27/2$^+$	D	R_θ=0.42 *4*.
346.3 *4*	9.6 *5*	4250.5	29/2$^+$	3904.2	27/2$^+$	D	R_θ=0.53 *6*.
351.4 *2*	20.1[#] *10*	9722.7	55/2$^-$	9371.3	51/2$^-$	Q	R_θ=1.53 *23*.
353.1 *2*	26.4[#@] *13*	6775.8	43/2$^-$	6422.7	41/2$^-$		
358.7 *6*	3.7 *20*	4900.6	33/2$^+$	4541.9	31/2$^+$	D	R_θ=0.48 *17*.
361.9 *4*	6.1 *3*	1155.8	13/2$^+$	793.9	11/2$^+$	D	R_θ=0.57 *9*.
372.0 *2*	24.1 *12*	3083.4	23/2$^+$	2711.4	21/2$^+$	D	R_θ=0.53 *4*.

Continued on next page (footnotes at end of table)

^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21 (continued)

γ(^{123}I) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	Comments
391.1 4	46.1 25	943.2	$11/2^-$	552.1	$9/2^+$	D	R_θ=0.80 4.
392.4 2	21.5 10	3716.1	$27/2^+$	3323.7	$25/2^+$	D	R_θ=0.75 5.
407.0 4	6.9 3	3490.4	$25/2^+$	3083.4	$23/2^+$	D	R_θ=0.64 8.
409.2 6	4.2 5	1080.1	$11/2^+$	670.9	$9/2^+$		
413.8 6	4.2 4	3904.2	$27/2^+$	3490.4	$25/2^+$	D	R_θ=0.61 6.
413.9 2		552.1	$9/2^+$	138.2	$7/2^+$		
420.5 6	4.5 3	1576.3	$15/2^+$	1155.8	$13/2^+$		
438.1 2	26.6[#] 14	9722.7	$55/2^-$	9284.6	$53/2^+$	E1	R_θ=0.80 6. POL=+0.12 5.
456.3 4	8.1 4	5944.4	$37/2^+$	5488.1	$35/2^+$		
474.3 2		474.3	$7/2^+$	0.0	$5/2^+$	D	R_θ=0.43 9.
487.6 4	10.8 5	4541.9	$31/2^+$	4054.3	$29/2^+$		
488.5 4	11.3 7	3199.9	$23/2^+$	2711.4	$21/2^+$	D	R_θ=0.63 7.
509.5 2	100[#] 5	1452.7	$15/2^-$	943.2	$11/2^-$	Q	R_θ=1.30 4.
519.5 2	71 4	7696.5	$47/2^+$	7177.0	$43/2^+$	Q	R_θ=1.54 6.
526.3 4	16.2 8	7177.0	$43/2^+$	6650.7	$41/2^+$		
528.0 6	[@]	1080.1	$11/2^+$	552.1	$9/2^+$		
532.7 2		670.9	$9/2^+$	138.2	$7/2^+$		
534.4 4	15.1 8	4250.5	$29/2^+$	3716.1	$27/2^+$		
551.8 6	4.5 4	3199.9	$23/2^+$	2648.1	$19/2^+$		
552.1 2		552.1	$9/2^+$	0.0	$5/2^+$	Q	R_θ=1.37 6.
574.1 2	92[#] 5	2613.4	$23/2^-$	2039.3	$19/2^-$	Q	R_θ=1.42 4.
580.5 4	12.1 8	3904.2	$27/2^+$	3323.7	$25/2^+$		
586.6 2	95[#] 5	2039.3	$19/2^-$	1452.7	$15/2^-$	Q	R_θ=1.36 6.
590.8 2	79[#] 4	5591.1	$39/2^-$	5000.3	$35/2^-$	Q	R_θ=1.40 5.
595.3 4	8.6 4	2466.0	$19/2^+$	1870.7	$17/2^+$		
598.1 6	3.6 3	12630.9	63/2	12032.8	61/2	D	R_θ=0.49 13.
603.7 2	109 5	1155.8	$13/2^+$	552.1	$9/2^+$		
604.0 6	[@]	7635.0	45/2	7031.0	43/2		
605.8 6		1080.1	$11/2^+$	474.3	$7/2^+$	Q	R_θ=1.23 5.
608.3 4	8.0 5	7031.0	43/2	6422.7	$41/2^-$		
612.3 2	82 4	3323.7	$25/2^+$	2711.4	$21/2^+$	Q	R_θ=1.36 7.
614.4 4	8.9 6	3490.4	$25/2^+$	2876.0	$21/2^+$		
617.4 2	40.1 21	3083.4	$23/2^+$	2466.0	$19/2^+$	Q	R_θ=1.70 23.
632.7 4	14.3 7	3716.1	$27/2^+$	3083.4	$23/2^+$	Q	R_θ=1.12 20.
655.7 6		793.9	$11/2^+$	138.2	$7/2^+$	Q	R_θ=1.31 13.
670.9 2		670.9	$9/2^+$	0.0	$5/2^+$	Q	R_θ=1.17 8.
674.5[a] 2	84[a#] 4	5000.3	$35/2^-$	4325.8	$31/2^-$	Q	R_θ=1.44 6.
674.5[a] 6	1.8[a] 3	11511.0	$61/2^+$	10836.5	$59/2^-$		
689.3 4	8.9 7	3337.4	$23/2^+$	2648.1	$19/2^+$		
692.2 2	73 4	8388.7	$49/2^+$	7696.5	$47/2^+$	M1	R_θ=0.60 7. POL=−0.04 2.
704.3 4	17.1 10	3904.2	$27/2^+$	3199.9	$23/2^+$	Q	R_θ=1.41 13.
706.2 4	18.3 8	6650.7	$41/2^+$	5944.4	$37/2^+$	Q	R_θ=1.44 10.
711.2 4	9.7 5	1791.3	$15/2^+$	1080.1	$11/2^+$		
714.9 2	100 5	1870.7	$17/2^+$	1155.8	$13/2^+$	Q	R_θ=1.30 5.
730.6 2	46.5 24	4054.3	$29/2^+$	3323.7	$25/2^+$	Q	R_θ=1.70 19.
747.7 2	41.0 22	9136.4	$51/2^+$	8388.7	$49/2^+$	D	R_θ=0.68 10.
754.3 4	16.3 9	7177.0	$43/2^+$	6422.7	$41/2^-$	E1	R_θ=0.62 7. POL=+0.10 3.
757.7 2	31.9 14	11511.0	$61/2^+$	10753.3	$57/2^+$	Q	R_θ=1.38 6.
760.1 4	8.2 5	4250.5	$29/2^+$	3490.4	$25/2^+$		
782.4 2	61 3	1576.3	$15/2^+$	793.9	$11/2^+$	Q	R_θ=1.56 11.
796.0 4	9.8 6	4700.2	$31/2^+$	3904.2	$27/2^+$	Q	R_θ=1.50 13.
801.2 2	30.8[#] 16	8567.5	$49/2^-$	7766.3	$47/2^-$	M1	R_θ=0.53 15. POL=−0.09 3 for 801.2+803.8.
803.8 2	21.1[#] 9	9371.3	$51/2^-$	8567.5	$49/2^-$	M1	R_θ=0.64 8. POL=−0.09 3 for 801.2+803.8.

Continued on next page (footnotes at end of table)

^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21 (continued)

γ(^{123}I) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	Jπi	Ef	Jπf	Mult.[&]	Comments
814.1 2	89[#] 5	4325.8	31/2−	3511.7	27/2−	Q	Rθ=1.38 4.
825.8 2	22.3 13	4541.9	31/2+	3716.1	27/2+	Q	Rθ=1.12 10.
831.6 2	49.2[#] 23	6422.7	41/2−	5591.1	39/2−	D	Rθ=0.51 4.
840.7 2	92 5	2711.4	21/2+	1870.7	17/2+	Q	Rθ=1.20 6.
846.3 2	41.7 22	4900.6	33/2+	4054.3	29/2+	Q	Rθ=1.50 10.
856.8 4	9.3 10	2648.1	19/2+	1791.3	15/2+		
859.2 4	15.8 8	7635.0	45/2	6775.8	43/2−	D	Rθ=0.60 9.
877.2 6	3.8 3	7908.2	45/2	7031.0	43/2	D	Rθ=0.49 6.
884.6 6	4.0 4	7660.4	45/2	6775.8	43/2−	D	Rθ=0.58 8.
889.7 2	52 3	2466.0	19/2+	1576.3	15/2+	Q	Rθ=1.40 7.
895.9 4	17.4 12	9284.6	53/2+	8388.7	49/2+	Q	Rθ=1.69 21.
898.3 2	89[#] 4	3511.7	27/2−	2613.4	23/2−	Q	Rθ=1.58 10.
917.3 2	34.0 18	5817.9	37/2+	4900.6	33/2+	Q	Rθ=1.60 12.
946.2 4	9.8 5	5488.1	35/2+	4541.9	31/2+		
946.9 4	7.9 6	10669.6	57/2	9722.7	55/2−	D	Rθ=0.64 6.
958.7 4	7.2 4	12469.7	63/2	11511.0	61/2+	D	Rθ=0.43 8.
990.5 2	31.5[#] 15	7766.3	47/2−	6775.8	43/2−	Q	Rθ=1.42 10.
1005.3 4	8.4 4	2876.0	21/2+	1870.7	17/2+	Q	Rθ=1.24 8.
1030.6 6	3.4 3	10753.3	57/2+	9722.7	55/2−		
1043.8 4	10.6 5	5944.4	37/2+	4900.6	33/2+	Q	Rθ=1.34 13.
1083.5 4	11.6 7	10368.1	57/2+	9284.6	53/2+	Q	Rθ=1.26 11.
1113.8 4	17.1[#] 10	10836.5	59/2−	9722.7	55/2−	Q	Rθ=1.20 4.
1118.8 4	16.2 10	6936.7	41/2+	5817.9	37/2+	Q	Rθ=1.40 7.
1161.1 4	5.1 4	11830.7	59/2	10669.6	57/2	D	Rθ=0.78 8.
1184.7 2	28.3[#] 12	6775.8	43/2−	5591.1	39/2−	Q	Rθ=1.48 6.
1196.3 6	4.4 5	12032.8	61/2	10836.5	59/2−	D	Rθ=0.54 10.
1210.1 4	8.7 4	10494.7	55/2+	9284.6	53/2+	D	Rθ=0.74 8.
1233		1233+x	(59/2−)	x	(55/2−)		
1240		1240+y	(63/2+)	y	(59/2+)		
1244.1 6	3.2 4	12755.1	63/2	11511.0	61/2+	D	Rθ=0.71 23.
1255		1255+z	(65/2+)	z	(61/2+)		
1261.1 6	2.1 5	12772.1	63/2	11511.0	61/2+	D	Rθ=0.57 15.
1321		2554+x	(63/2−)	1233+x	(59/2−)		
1334.1 6	1.8 5	11056.8	57/2	9722.7	55/2−	D	Rθ=0.58 11.
1345		2585+y	(67/2+)	1240+y	(63/2+)		
1363		2618+z	(69/2+)	1255+z	(65/2+)		
1404.9 6	2.3 10	12915.9	63/2	11511.0	61/2+	D	Rθ=0.60 11.
1422		3976+x	(67/2−)	2554+x	(63/2−)		
1439.9 4	9.8 9	9136.4	51/2+	7696.5	47/2+	Q	Rθ=1.21 14.
1462		4080+z	(73/2+)	2618+z	(69/2+)		
1463		4048+y	(71/2+)	2585+y	(67/2+)		
1468.7 4	15.8 7	10753.3	57/2+	9284.6	53/2+	Q	Rθ=1.46 9.
1476.1 6	1.0 2	12312.6	61/2	10836.5	59/2−	D	Rθ=0.50 18.
1529		5505+x	(71/2−)	3976+x	(67/2−)		
1571		5651+z	(77/2+)	4080+z	(73/2+)		
1579.0 6	1.5 3	13090.0		11511.0	61/2+		
1589		5637+y	(75/2+)	4048+y	(71/2+)		
1603.7 6	1.1 2	12440.2	61/2	10836.5	59/2−	D	Rθ=0.49 16.
1644		7149+x	(75/2−)	5505+x	(71/2−)		
1681.9 6	1.2 2	13192.9		11511.0	61/2+		
1682		7333+z	(81/2+)	5651+z	(77/2+)		
1715		7352+y	(79/2+)	5637+y	(75/2+)		
1756		8905+x	(79/2−)	7149+x	(75/2−)		
1805		9138+z	(85/2+)	7333+z	(81/2+)		

Continued on next page (footnotes at end of table)

$^{80}Se(^{48}Ca,p4n\gamma)$ 2012Si04,2012Si21 (continued)

$\gamma(^{123}I)$ (continued)

E_γ †	E_i(level)	J^π_i	E_f	J^π_f
1849	9201+y	(83/2$^+$)	7352+y	(79/2$^+$)
1857	10762+x	(83/2$^-$)	8905+x	(79/2$^-$)
1916	12678+x	(87/2$^-$)	10762+x	(83/2$^-$)
1917	11055+z	(89/2$^+$)	9138+z	(85/2$^+$)
1951	11152+y	(87/2$^+$)	9201+y	(83/2$^+$)
1996	14674+x	(91/2$^-$)	12678+x	(87/2$^-$)
2010	13065+z	(93/2$^+$)	11055+z	(89/2$^+$)
2060	13212+y	(91/2$^+$)	11152+y	(87/2$^+$)
2091	15156+z	(97/2$^+$)	13065+z	(93/2$^+$)

† From a general statement in 2012Si04 that the uncertainties are 0.2 to 0.6 keV depending on intensity, the evaluator has assigned $\Delta E\gamma$ as follows if Iγ is given: 0.2 keV for Iγ≥20, 0.4 keV for Iγ=5-20, and 0.6 keV for Iγ<5. Uncertainty of 0.2 keV is assigned for transitions lower down in the level scheme up to 1 MeV excitation where no Iγ values are listed in 2012Si04. $\Delta E\gamma$=1 keV is assumed for transitions from 2012Si21.

‡ Normalized to I(714.9γ)=100 *5* (for γ rays from positive-parity states), unless otherwise noted.

Normalized to I(509.5γ)=100 *5* (for γ rays from negative-parity states).

@ Measurement of intensity or intensity ratio not possible due to the presence of a γ-ray of overlapping energy.

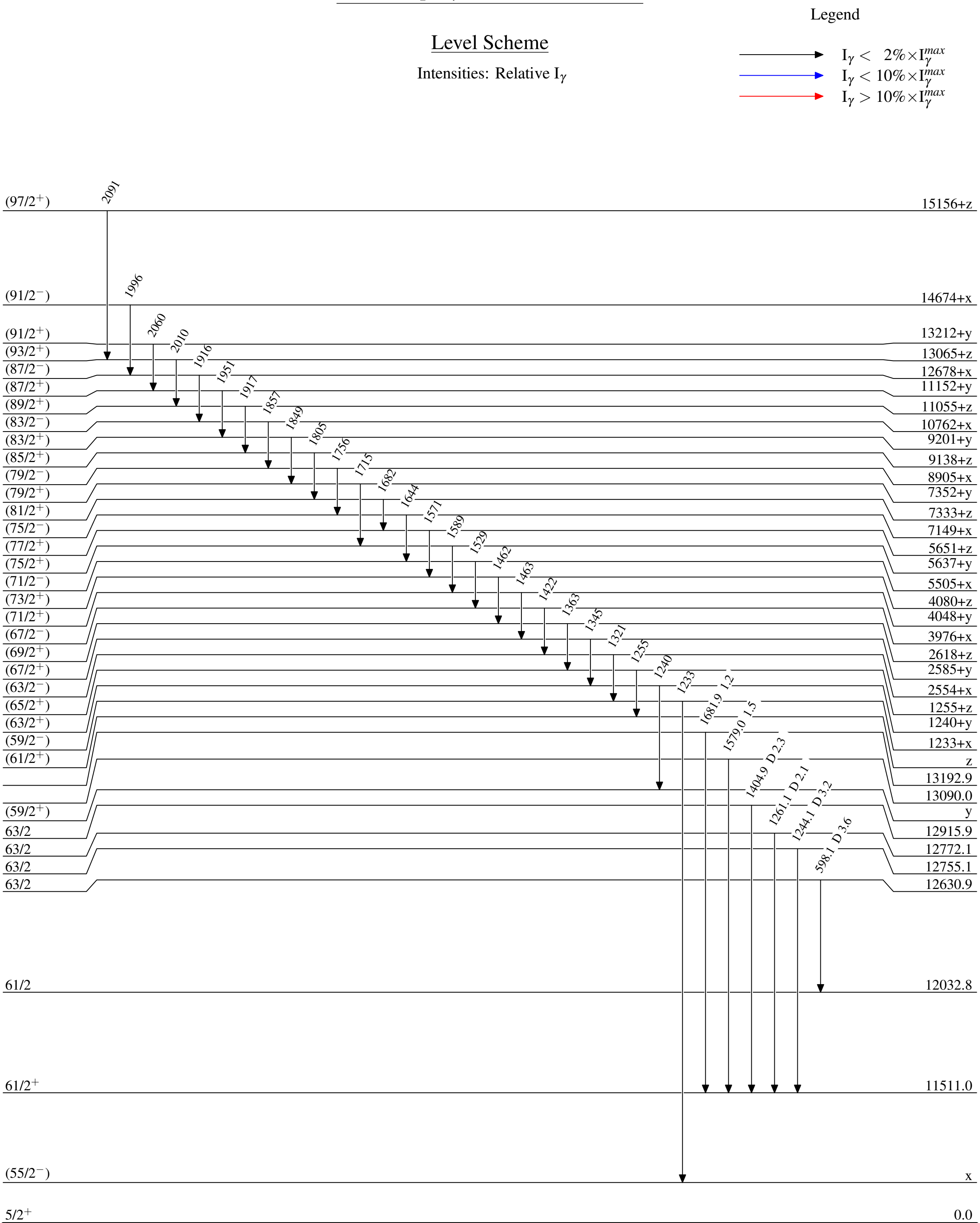
& From $\gamma\gamma(\theta)$ data in 2012Si04. Electric or magnetic nature of the transition has been determined from an unpublished work of the linear polarization measurements for some transitions as indicated in 2012Si04, with the POL values from an email reply of March 23, 2012 from one of the author of 2012Si04-A. K. Singh, to the XUNDL compiler B. Singh. Note that authors′ assignments of M1 or E1 and E2 are replaced (by the evaluator) with D and Q, respectively, where there is no experimental data for electric or magnetic nature of the transition.

[a] Multiply placed with intensity suitably divided.

^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21

Level Scheme

Intensities: Relative I_γ



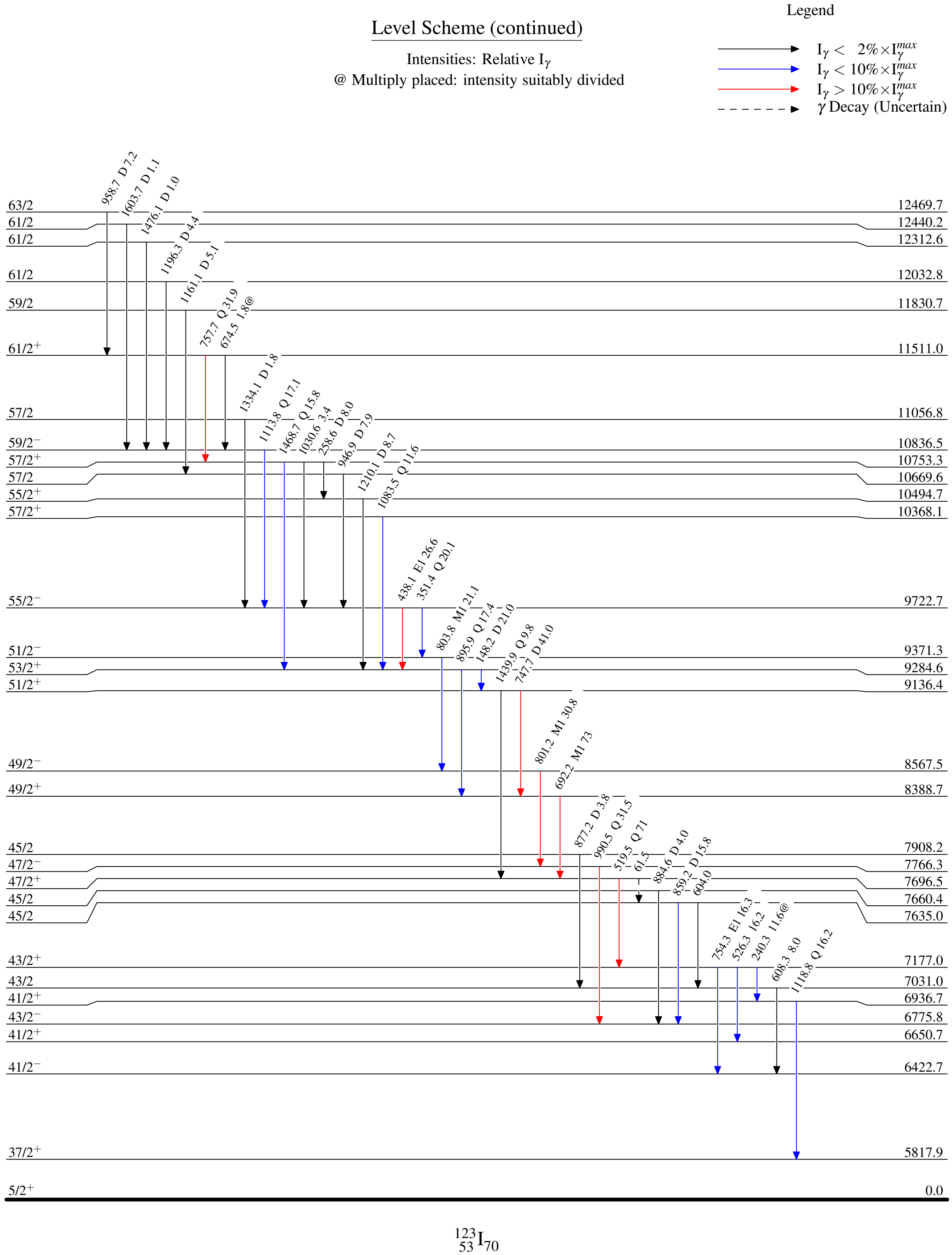
$^{123}_{53}I_{70}$

$^{80}Se(^{48}Ca,p4n\gamma)$ 2012Si04,2012Si21

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



$^{80}Se(^{48}Ca,p4n\gamma)$ 2012Si04,2012Si21

Level Scheme (continued)

Intensities: Relative I_γ

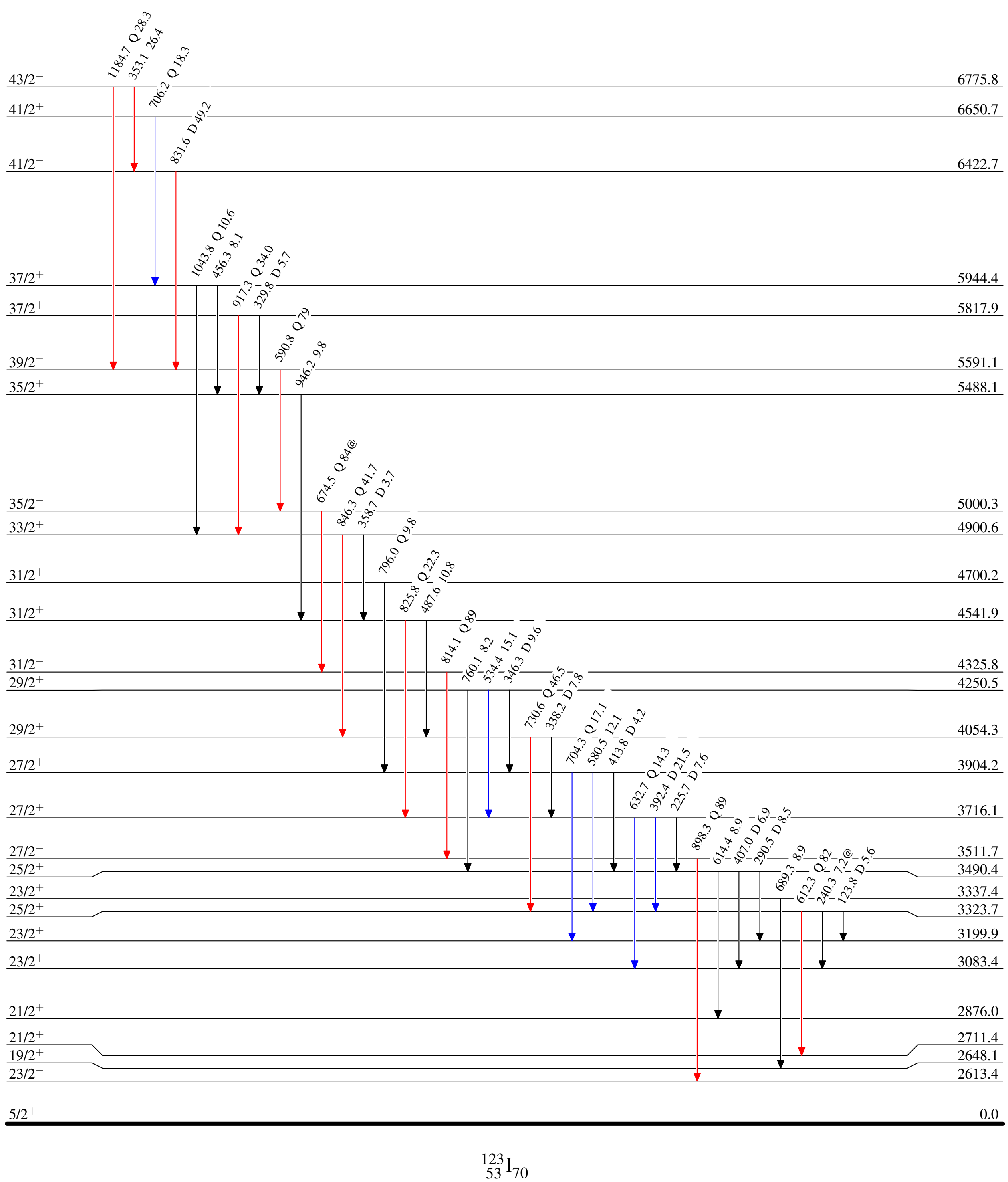
@ Multiply placed: intensity suitably divided

Legend

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

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

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



$^{80}Se(^{48}Ca,p4n\gamma)$ 2012Si04,2012Si21

Level Scheme (continued)

Intensities: Relative I_γ

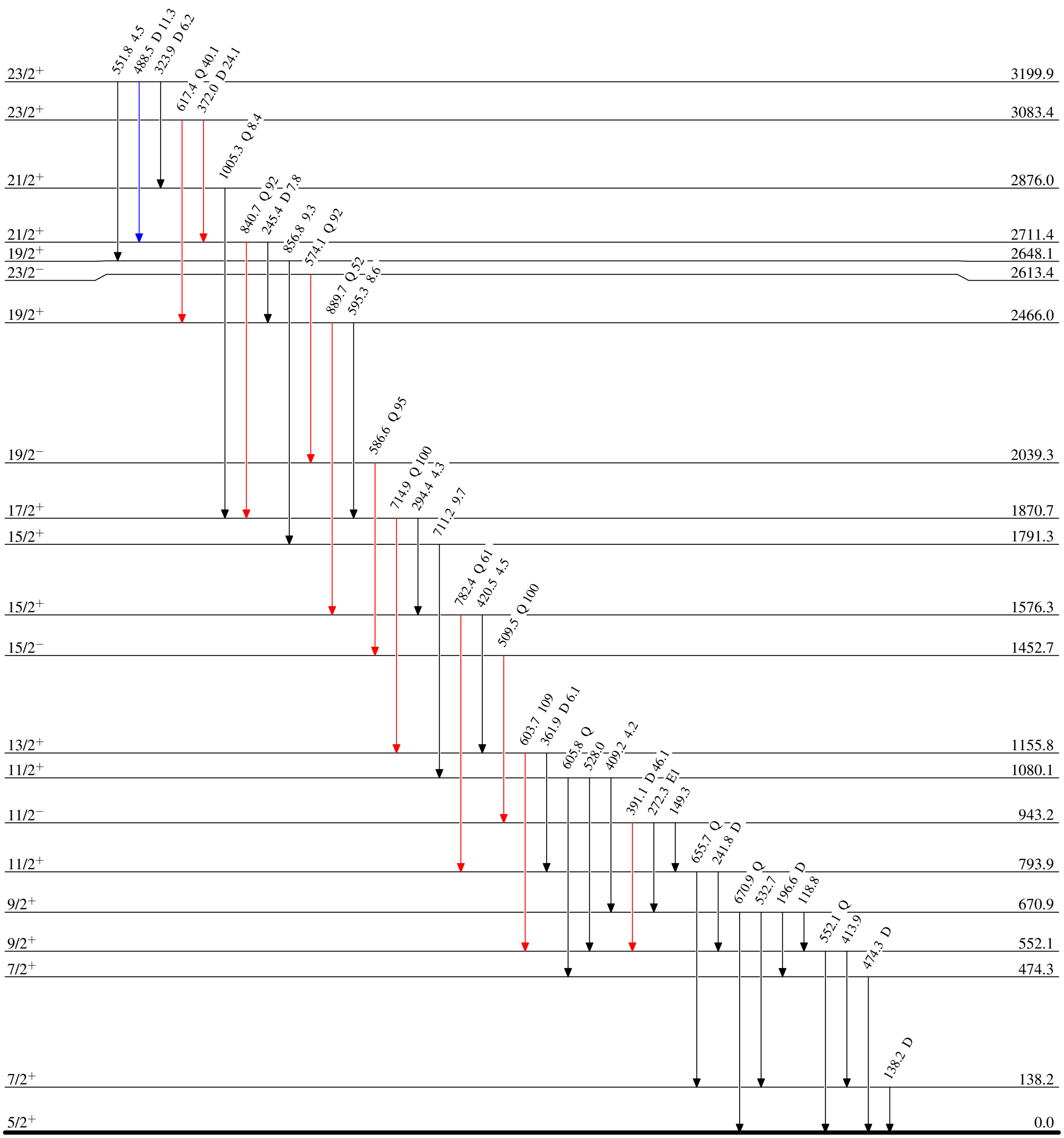
@ Multiply placed: intensity suitably divided

Legend

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

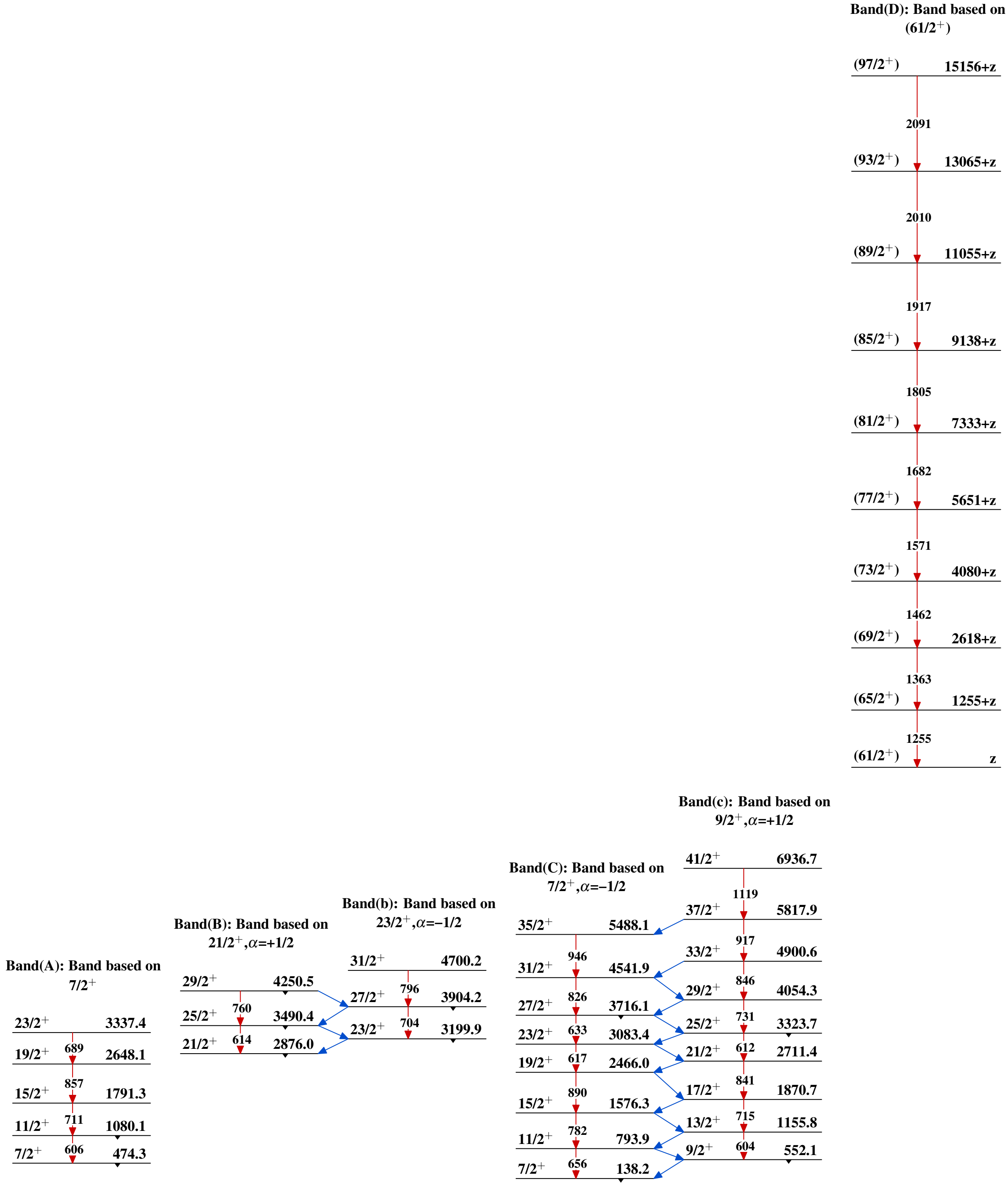
$I_\gamma < 10\% \times I_\gamma^{max}$

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



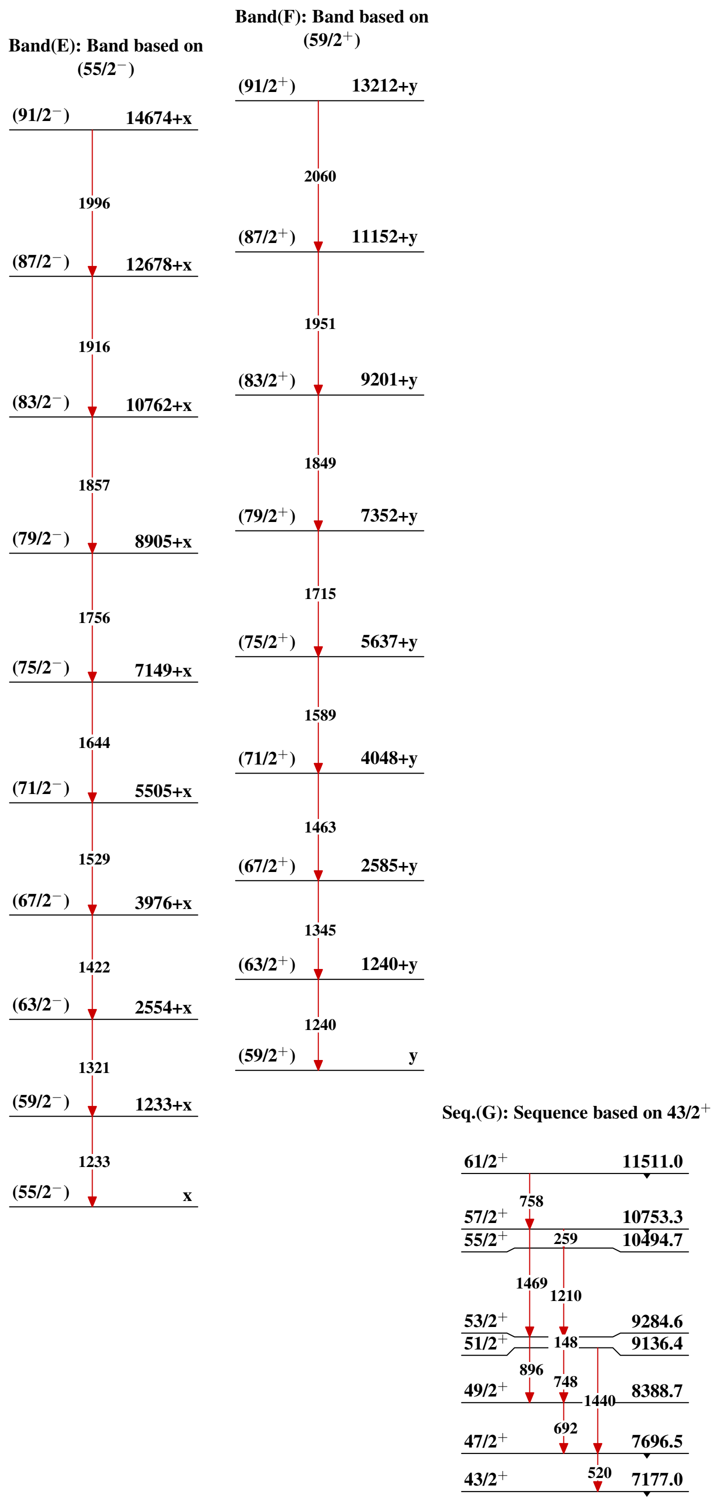
$^{123}_{53}I_{70}$

^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21



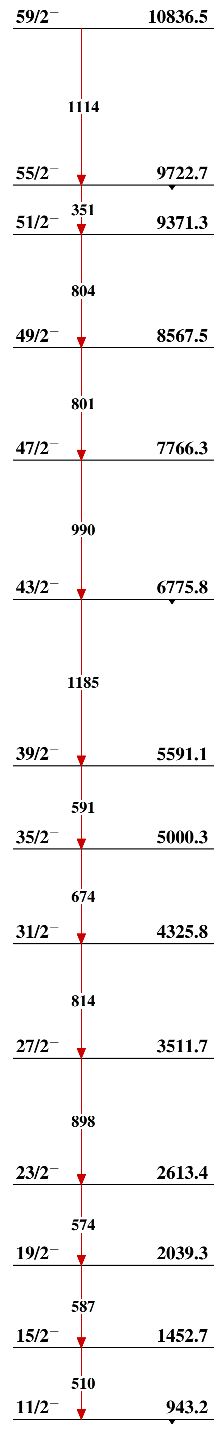
$^{123}_{53}I_{70}$

^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21 (continued)



^{80}Se(^{48}Ca,p4nγ) 2012Si04,2012Si21 (continued)

Seq.(H): Sequence based on 11/2$^-$



$^{123}_{53}I_{70}$