^{40}Ca(^{40}Ca,4pnγ) 2012St19

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh	NDS 114, 841 (2013)	30-Jun-2013

2012St19: ^{40}Ca beam at E=180, 185 MeV provided by the XTU tandem accelerator of the Laboratori Nazionali di Legnaro. Targets=1 and 0.9 mg/cm^2 ^{40}Ca. Gamma rays detected by the γ-spectrometer EUROBALL. Charged particles detected by the Italian Silicon Sphere (ISIS). Neutrons detected by the Neutron Wall (NWALL). Measured Eγ, Iγ, (neutron)γ-, $\gamma\gamma$-coin, DCO. Deduced levels, J, π, branching ratios, bands, multipolarity, configurations. Comparison with configuration-dependent cranked Nilsson-Strutinsky approach.

^{75}Kr Levels

E(level)[†]	J$^\pi$	E(level)[†]	J$^\pi$	E(level)[†]	J$^\pi$	E(level)[†]	J$^\pi$
0.0[‡]	5/2+	3042.8[c] 5	17/2−	6046.9[a] 7	29/2−	10857.9[c] 20	(41/2−)
179.47[&] 15	3/2−	3052.6[‡] 5	21/2+	6139.8[c] 9	29/2−	11029.3[b] 13	43/2−
187.27[#] 15	7/2+	3113.4[&] 4	19/2−	6316.7[#] 8	31/2+	11149.7[&] 13	43/2−
358.53[@] 15	5/2−	3345.4[b] 4	19/2−	6359.4[b] 7	31/2−	11428.8 24	
378.18[‡] 17	9/2+	3515.9[d] 5	19/2−	6688.7[&] 7	31/2−	11547.1[e] 24	(45/2+)
612.36[&] 18	7/2−	3590.0[e] 10	21/2+	6830.6[d] 10	31/2−	11685.8[#] 17	(43/2+)
672.4[j] 3		3626.8[@] 4	21/2−	6897.3[‡] 8	33/2+	11779.3[‡] 15	45/2+
727.5[e] 4	9/2+	3646.8?[j] 10		7036.7[e] 18	33/2+	11834.7[d] 20	(43/2−)
770.75[#] 23	11/2+	3769.3[a] 4	21/2−	7245.6[@] 9	33/2−	12023.6[@] 18	45/2−
787.6[a] 4	5/2−	3781.3[f] 9	21/2(+)	7366.9[a] 9	33/2−	12080.3[h] 16	45/2(+)
906.06[@] 22	9/2−	3828.0[#] 6	23/2+	7438.8[f] 9	(33/2+)	12133.9[g] 16	(45/2+)
1068.5[‡] 3	13/2+	3945.7[c] 6	21/2−	7499.8[c] 13	(33/2−)	12381.6[a] 19	(45/2−)
1100.3[j] 3	7/2−	4032.0[i] 13	(21/2+)	7598 4		12864[c] 3	(45/2−)
1266.9[&] 3	11/2−	4132.9[b] 4	23/2−	7728.1[b] 10	35/2−	12992.5[&] 15	47/2−
1365.2[a] 4	9/2−	4281.6[‡] 6	25/2+	7848.7[#] 9	35/2+	13019.5[b] 14	47/2−
1530.0[e] 6	13/2+	4293.9[&] 5	23/2−	8039.4[&] 10	35/2−	13367[e] 3	(49/2+)
1595.7[#] 4	15/2+	4431.8[d] 7	23/2−	8303.6[d] 14	35/2−	13990.3[‡] 18	49/2+
1648.1[@] 3	13/2−	4684.9[e] 13	25/2+	8395.9[‡] 9	37/2+	14015.7[@] 20	49/2−
1757.5[i] 5	13/2+	4726.5[f] 8	25/2(+)	8403.7[e] 20	37/2+	14167.3[h] 19	(49/2+)
1760.7[j] 4	11/2−	4728.6 14		8699.3[@] 12	37/2−	14324[g] 3	(49/2+)
1966.1[‡] 4	17/2+	4741.2[@] 5	25/2−	8841.6[a] 13	37/2−	14408[a] 3	(49/2−)
2111.4[&] 4	15/2−	4779.8?[j] 14		9071.8[c] 17	(37/2−)	15020[c] 4	(49/2−)
2115.4[a] 4	13/2−	4821.4[a] 5	25/2−	9138.8[f] 14	(37/2+)	15218.4[b] 17	(51/2−)
2320.2 6		4961.6[c] 7	25/2−	9277.9[b] 11	39/2−	15361[e] 3	(53/2+)
2564.9[@] 4	17/2−	5031.2[#] 7	27/2+	9528.9[&] 12	39/2−	16355.7[@] 23	(53/2−)
2581.0[e] 7	17/2+	5163.0[b] 6	27/2−	9649.7[#] 14	39/2+	16661[‡] 3	(53/2+)
2612.9[j] 6	15/2−	5467.4[&] 6	27/2−	9905.0[e] 22	(41/2+)	17604[e] 3	(57/2+)
2631.6[#] 5	19/2+	5539.8[d] 7	27/2−	9965.0[‡] 12	41/2+	17644[b] 4	(55/2−)
2657.7[b] 4	15/2−	5563.1[‡] 7	29/2+	9973.7[d] 17	(39/2−)	19139[@] 3	(57/2−)
2819.6[i] 9	17/2+	5798.7[e] 14	29/2+	10188.2[g] 13	41/2(+)		
2820.7[d] 5	15/2−	5923.9[@] 6	29/2−	10283.0[@] 15	41/2−		
2960.2[a] 4	17/2−	5942.8[f] 8	29/2(+)	10503.6[a] 16	(41/2−)		

[†] From least-squares fit to Eγ data.
[‡] Band(A): Ground-state band,α=+1/2.
[#] Band(a): Ground-state band,α=−1/2.

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^{40}Ca(^{40}Ca,4pnγ) 2012St19 (continued)

^{75}Kr Levels (continued)

[@] Band(B): Band based on $3/2^-$,α=+1/2.
[&] Band(b): Band based on $3/2^-$,α=−1/2.
[a] Band(C): Band based on $5/2^-$,α=+1/2.
[b] Band(c): Band based on $5/2^-$,α=−1/2.
[c] Band(D): Band based on $15/2^-$,α=+1/2.
[d] Band(d): Band based on $15/2^-$,α=−1/2.
[e] Band(E): Band based on $9/2^+$,α=+1/2.
[f] Band(F): Band based on $21/2^{(+)}$,α=+1/2.
[g] Band(G): Band based on $41/2^{(+)}$,α=+1/2.
[h] Band(H): Band based on $45/2^{(+)}$,α=+1/2.
[i] Band(I): Band based on $13/2^+$,α=+1/2.
[j] Band(J): Band based on 672-keV level.

γ(^{75}Kr)

DCO values correspond to gates on ΔJ=2, quadrupole (E2) transition. Expected DCO values are 1.00 *3* for ΔJ=2, quadrupole and 0.55 *2* ΔJ=1, dipole transitions. However, the values listed in table I of 2012St19 follow an opposite trend.
2012St19 give branching ratios also deduced from their relative intensity data. These values are not listed here.

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Comments
171.3 *2*	5.1[†] *3*	358.53	$5/2^-$	187.27	$7/2^+$	
179.0 *1*		358.53	$5/2^-$	179.47	$3/2^-$	I_γ: not given in 2012St19, but based on earlier measurements reported in 1998Sk01, it is expected to be a strong transition.
179.3 *2*		179.47	$3/2^-$	0.0	$5/2^+$	
187.4 *2*	200 *10*	187.27	$7/2^+$	0.0	$5/2^+$	DCO=0.98 *7*
191.0 *2*		378.18	$9/2^+$	187.27	$7/2^+$	DCO=1.01 *9*
234.3 *2*	1.4 *2*	612.36	$7/2^-$	378.18	$9/2^+$	
253.7 *2*	181 *9*	612.36	$7/2^-$	358.53	$5/2^-$	DCO=0.96 *5*
293.8 *2*	102 *5*	906.06	$9/2^-$	612.36	$7/2^-$	DCO=1.01 *6*
297.9 *2*	74 *4*	1068.5	$13/2^+$	770.75	$11/2^+$	DCO=1.01 *6*
302.7 *3*	4 *1*	2960.2	$17/2^-$	2657.7	$15/2^-$	DCO=1.27 *13*
313.9 *3*	1.4 *3*	672.4		358.53	$5/2^-$	DCO=0.62 *16*
349.0 *4*	10 *2*	727.5	$9/2^+$	378.18	$9/2^+$	
358.5 *3*	15[†] *1*	358.53	$5/2^-$	0.0	$5/2^+$	DCO=0.53 *22*
360.9 *2*	74 *4*	1266.9	$11/2^-$	906.06	$9/2^-$	DCO=0.98 *7*
363.5 *3*	7.3 *9*	4132.9	$23/2^-$	3769.3	$21/2^-$	DCO=1.02 *20*
370.5 *2*	34 *2*	1966.1	$17/2^+$	1595.7	$15/2^+$	DCO=0.98 *8*
378.3 *3*	71 *4*	378.18	$9/2^+$	0.0	$5/2^+$	DCO=0.59 *5*
381.4 *3*	42 *3*	1648.1	$13/2^-$	1266.9	$11/2^-$	DCO=1.03 *9*
385.2 *3*	8 *1*	3345.4	$19/2^-$	2960.2	$17/2^-$	DCO=1.27 *10*
392.8 *3*	107 *5*	770.75	$11/2^+$	378.18	$9/2^+$	DCO=1.09 *7*
421.1 *3*	18 *2*	3052.6	$21/2^+$	2631.6	$19/2^+$	DCO=1.13 *19*
421.9 *5*	6.1 *9*	5163.0	$27/2^-$	4741.2	$25/2^-$	DCO=0.97 *19*
423.6 *3*	6 *2*	3769.3	$21/2^-$	3345.4	$19/2^-$	DCO=1.0 *3*
427.9 *3*	5 *1*	1100.3	$7/2^-$	672.4		
428.7 *5*		787.6	$5/2^-$	358.53	$5/2^-$	
429.8 *5*	3.6 *9*	3945.7	$21/2^-$	3515.9	$19/2^-$	
433.0 *3*	65 *4*	612.36	$7/2^-$	179.47	$3/2^-$	DCO=0.63 *8*
435.7 *7*	3.2 *5*	6359.4	$31/2^-$	5923.9	$29/2^-$	
453.7 *3*	21 *2*	2564.9	$17/2^-$	2111.4	$15/2^-$	DCO=1.02 *10*
453.7 *3*	11.4 *9*	4281.6	$25/2^+$	3828.0	$23/2^+$	DCO=0.90 *12*

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^{40}Ca(^{40}Ca,4pnγ) 2012St19 (continued)

γ(^{75}Kr) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
463.5 *3*	35 *3*	2111.4	15/2⁻	1648.1	13/2⁻	DCO=1.02 *11*
473.2 *6*	1.5 *4*	3515.9	19/2⁻	3042.8	17/2⁻	DCO=0.86 *29*
486.3 *4*	3 *1*	4431.8	23/2⁻	3945.7	21/2⁻	DCO=0.99 *16*
493 *1*		672.4		179.47	3/2⁻	
500.6 *7*	3.0 *6*	2820.7	15/2⁻	2320.2		DCO=0.8 *5*
506.0 *3*	9 *1*	4132.9	23/2⁻	3626.8	21/2⁻	DCO=1.22 *24*
513.8 *3*	10 *1*	3626.8	21/2⁻	3113.4	19/2⁻	DCO=1.10 *11*
523.9 *5*	3.9 *6*	4293.9	23/2⁻	3769.3	21/2⁻	
527.3 *3*	57 *3*	1595.7	15/2⁺	1068.5	13/2⁺	DCO=1.1 *1*
527.4 *4*	6.5 *7*	4821.4	25/2⁻	4293.9	23/2⁻	
529.9 *3*	3.4 *8*	4961.6	25/2⁻	4431.8	23/2⁻	DCO=1.5 *4*
532.5 *4*	17 *1*	5563.1	29/2⁺	5031.2	27/2⁺	DCO=0.78 *14* E_γ: 32.5 in Table I of 2012St19 is a misprint.
540.1 *7*	10.7 *6*	727.5	9/2⁺	187.27	7/2⁺	DCO=1.16 *16*
547.2 *3*	7 *2*	8395.9	37/2⁺	7848.7	35/2⁺	DCO=0.80 *17*
547.4 *3*	98 *6*	906.06	9/2⁻	358.53	5/2⁻	DCO=0.56 *8*
549.0 *3*	20 *1*	3113.4	19/2⁻	2564.9	17/2⁻	DCO=1.06 *13*
577.2 *6*	19 *2*	1365.2	9/2⁻	787.6	5/2⁻	
578.1 *4*	1.6 *4*	5539.8	27/2⁻	4961.6	25/2⁻	
579.7 *7*	6 *1*	6046.9	29/2⁻	5467.4	27/2⁻	
580.7 *3*	12 *2*	6897.3	33/2⁺	6316.7	31/2⁺	DCO=0.86 *23*
583.5 *3*	65 *3*	770.75	11/2⁺	187.27	7/2⁺	DCO=0.35 *19*
600.0 *7*	1.0 *6*	6139.8	29/2⁻	5539.8	27/2⁻	
608.3 *4*	14 *1*	4741.2	25/2⁻	4132.9	23/2⁻	DCO=1.07 *18*
608.4 *7*		787.6	5/2⁻	179.47	3/2⁻	
641.5 *6*	5 *1*	6688.7	31/2⁻	6046.9	29/2⁻	
646.1 *5*	10 *1*	5467.4	27/2⁻	4821.4	25/2⁻	
654.4 *4*	112 *6*	1266.9	11/2⁻	612.36	7/2⁻	DCO=0.56 *4*
660.5 *4*	20 *3*	1760.7	11/2⁻	1100.3	7/2⁻	DCO=0.52 *5*
665.7 *4*	32 *2*	2631.6	19/2⁺	1966.1	17/2⁺	DCO=1.10 *9*
667.5 *4*	5.6 *5*	4293.9	23/2⁻	3626.8	21/2⁻	DCO=0.91 *23*
678 *1*	2.9 *6*	7366.9	33/2⁻	6688.7	31/2⁻	
687.5 *4*	8 *1*	3345.4	19/2⁻	2657.7	15/2⁻	DCO=0.47 *15*
689.2 *5*	9 *1*	1757.5	13/2⁺	1068.5	13/2⁺	
690.3 *4*	184 *9*	1068.5	13/2⁺	378.18	9/2⁺	DCO=0.55 *5*
695.5 *5*	11 *2*	3515.9	19/2⁻	2820.7	15/2⁻	DCO=0.54 *15*
732.7 *8*	5.3 *9*	3345.4	19/2⁻	2612.9	15/2⁻	DCO=0.62 *6*
741.8 *4*	17 *4*	1100.3	7/2⁻	358.53	5/2⁻	
741.9 *4*	102 *5*	1648.1	13/2⁻	906.06	9/2⁻	DCO=0.55 *4*
749.7 *6*	39 *4*	2115.4	13/2⁻	1365.2	9/2⁻	DCO=0.54 *18*
750.1 *5*	31 *3*	5031.2	27/2⁺	4281.6	25/2⁺	DCO=0.96 *15*
752.7 *5*	24 *2*	1365.2	9/2⁻	612.36	7/2⁻	DCO=0.85 *22* I_γ: deduced from the backed-target (1 mg/cm$^{2)}$ experiment.
754.4 *5*	8 *2*	6316.7	31/2⁺	5563.1	29/2⁺	DCO=0.88 *26*
760.9 *6*	9 *1*	5923.9	29/2⁻	5163.0	27/2⁻	
775.8 *4*	22 *2*	3828.0	23/2⁺	3052.6	21/2⁺	DCO=1.17 *15*
787.8 *5*	17 *2*	4132.9	23/2⁻	3345.4	19/2⁻	DCO=0.47 *10*
802.2 *7*	5.2 *8*	1530.0	13/2⁺	727.5	9/2⁺	DCO=0.76 *46*
809.3 *4*	21 *5*	3769.3	21/2⁻	2960.2	17/2⁻	DCO=0.56 *6*
824.8 *4*	77 *5*	1595.7	15/2⁺	770.75	11/2⁺	DCO=0.50 *5*
844.2 *4*	112 *10*	2111.4	15/2⁻	1266.9	11/2⁻	DCO=0.51 *4*
844.5 *4*	27 *7*	2960.2	17/2⁻	2115.4	13/2⁻	DCO=0.55 *7*
848.4 *8*	30 *3*	2115.4	13/2⁻	1266.9	11/2⁻	DCO=1.1 *5*
852.3 *7*	21 *4*	2612.9	15/2⁻	1760.7	11/2⁻	DCO=0.54 *9*
854.7 *8*	13 *1*	1760.7	11/2⁻	906.06	9/2⁻	

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^{40}Ca(^{40}Ca,4pnγ) 2012St19 (continued)

γ(^{75}Kr) (continued)

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Comments
854.9 *8*	7.0 *9*	2820.7	15/2$^-$	1966.1	17/2$^+$	DCO=0.49 *4* 2012St19 state that DCO ratio is incompatible with ΔJ^π.
858 *1*		3515.9	19/2$^-$	2657.7	15/2$^-$	E_γ: from level-energy difference.
897.2 *7*	12 *2*	2657.7	15/2$^-$	1760.7	11/2$^-$	
897.5 *5*	176 *11*	1966.1	17/2$^+$	1068.5	13/2$^+$	DCO=0.51 *4*
902.8 *5*	6 *2*	3945.7	21/2$^-$	3042.8	17/2$^-$	DCO=0.48 *10*
902.9 *7*	6 *2*	3515.9	19/2$^-$	2612.9	15/2$^-$	
916 *1*	16 *3*	4431.8	23/2$^-$	3515.9	19/2$^-$	DCO=0.51 *8*
916.7 *5*	102 *6*	2564.9	17/2$^-$	1648.1	13/2$^-$	DCO=0.56 *5*
927.2 *5*	13 *4*	3042.8	17/2$^-$	2115.4	13/2$^-$	DCO=0.52 *7*
946 *1*	5.2 *9*	4726.5	25/2$^{(+)}$	3781.3	21/2$^{(+)}$	DCO=0.69 *12*
948.5 *6*	10 *2*	4293.9	23/2$^-$	3345.4	19/2$^-$	DCO=0.47 *25*
951.7 *9*	5 *2*	7848.7	35/2$^+$	6897.3	33/2$^+$	
971.7 *5*	23 *2*	4741.2	25/2$^-$	3769.3	21/2$^-$	DCO=0.55 *6*
987.0 *7*	7.3 *8*	1757.5	13/2$^+$	770.75	11/2$^+$	DCO=1.3 *4*
1002.0 *5*	91 *9*	3113.4	19/2$^-$	2111.4	15/2$^-$	DCO=0.51 *4*
1009.0 *7*	25 *5*	3590.0	21/2$^+$	2581.0	17/2$^+$	DCO=0.40 *6*
1015.6 *5*	7 *1*	4961.6	25/2$^-$	3945.7	21/2$^-$	DCO=0.72 *9*
1019.7 *5*	54 *5*	4132.9	23/2$^-$	3113.4	19/2$^-$	DCO=0.52 *7*
1029.5 *7*	11 *3*	1757.5	13/2$^+$	727.5	9/2$^+$	DCO=0.57 *9*
1029.9 *5*	64 *5*	5163.0	27/2$^-$	4132.9	23/2$^-$	DCO=0.47 *5*
1033.9 *8*		3646.8?		2612.9	15/2$^-$	
1035.6 *5*	81 *6*	2631.6	19/2$^+$	1595.7	15/2$^+$	DCO=0.46 *4*
1050.7 *7*	20 *4*	2581.0	17/2$^+$	1530.0	13/2$^+$	DCO=0.51 *6*
1051.7 *5*	12 *1*	4821.4	25/2$^-$	3769.3	21/2$^-$	DCO=0.59 *8*
1061.8 *5*	73 *5*	3626.8	21/2$^-$	2564.9	17/2$^-$	DCO=0.52 *3*
1062.0 *8*	15 *2*	2819.6	17/2$^+$	1757.5	13/2$^+$	DCO=0.53 *7*
1086.2 *5*	144 *9*	3052.6	21/2$^+$	1966.1	17/2$^+$	DCO=0.51 *3*
1094.9 *8*	17 *6*	4684.9	25/2$^+$	3590.0	21/2$^+$	DCO=0.41 *7*
1108.2 *6*	14 *3*	5539.8	27/2$^-$	4431.8	23/2$^-$	DCO=0.56 *6*
1113.8 *6*	12 *4*	5798.7	29/2$^+$	4684.9	25/2$^+$	DCO=0.39 *6*
1114.6 *6*	28 *3*	4741.2	25/2$^-$	3626.8	21/2$^-$	DCO=0.54 *5*
1133 *1*		4779.8?		3646.8?		
1138.6 *9*	12 *4*	4728.6		3590.0	21/2$^+$	
1151.9 *9*	16 *3*	1530.0	13/2$^+$	378.18	9/2$^+$	DCO=0.60 *15*
1173.8 *6*	45 *5*	5467.4	27/2$^-$	4293.9	23/2$^-$	DCO=0.51 *6*
1178.2 *7*	6 *1*	6139.8	29/2$^-$	4961.6	25/2$^-$	DCO=0.65 *14*
1180.3 *7*	51 *5*	4293.9	23/2$^-$	3113.4	19/2$^-$	DCO=0.55 *7*
1182.8 *6*	36 *4*	5923.9	29/2$^-$	4741.2	25/2$^-$	DCO=0.56 *9*
1195.1 *6*	29 *3*	4821.4	25/2$^-$	3626.8	21/2$^-$	DCO=0.50 *11*
1196.0 *6*	81 *6*	3828.0	23/2$^+$	2631.6	19/2$^+$	DCO=0.51 *7*
1196.2 *6*	58 *5*	6359.4	31/2$^-$	5163.0	27/2$^-$	DCO=0.58 *10*
1202.6 *7*	7 *1*	3769.3	21/2$^-$	2564.9	17/2$^-$	
1203.0 *6*	61 *7*	5031.2	27/2$^+$	3828.0	23/2$^+$	DCO=0.48 *5*
1212.4 *9*	10 *2*	4032.0	(21/2$^+$)	2819.6	17/2$^+$	
1216.2 *7*	12 *2*	5942.8	29/2$^{(+)}$	4726.5	25/2$^{(+)}$	DCO=0.53 *6*
1221.5 *6*	33 *5*	6688.7	31/2$^-$	5467.4	27/2$^-$	DCO=0.63 *17*
1225.2 *7*	31 *3*	6046.9	29/2$^-$	4821.4	25/2$^-$	DCO=0.66 *8*
1228.7 *6*	110 *8*	4281.6	25/2$^+$	3052.6	21/2$^+$	DCO=0.53 *3*
1233.5 *7*	9 *1*	3345.4	19/2$^-$	2111.4	15/2$^-$	
1238 *1*	10 *4*	7036.7	33/2$^+$	5798.7	29/2$^+$	DCO=0.42 *7*
1251.7 *7*	10 *1*	2320.2		1068.5	13/2$^+$	DCO=0.58 *6*
1281.3 *7*	71 *5*	5563.1	29/2$^+$	4281.6	25/2$^+$	DCO=0.55 *5*
1284.7 *6*	32 *6*	6316.7	31/2$^+$	5031.2	27/2$^+$	DCO=0.56 *10*
1290.8 *7*	9 *3*	6830.6	31/2$^-$	5539.8	27/2$^-$	DCO=0.53 *8*

Continued on next page (footnotes at end of table)

^{40}Ca(^{40}Ca,4pnγ) 2012St19 (continued)

γ(^{75}Kr) (continued)

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Comments
1320.0 *7*	21 *3*	7366.9	33/2⁻	6046.9	29/2⁻	DCO=0.55 *8*
1321.7 *6*	31 *3*	7245.6	33/2⁻	5923.9	29/2⁻	DCO=0.48 *11*
1333.7 *7*	50 *4*	6897.3	33/2⁺	5563.1	29/2⁺	DCO=0.50 *5*
1350.9 *8*	34 *5*	8039.4	35/2⁻	6688.7	31/2⁻	DCO=0.56 *4*
1360 *1*	5 *1*	7499.8	(33/2⁻)	6139.8	29/2⁻	
1367 *1*	8 *3*	8403.7	37/2⁺	7036.7	33/2⁺	DCO=0.42 *11*
1368.5 *7*	45 *6*	7728.1	35/2⁻	6359.4	31/2⁻	DCO=0.54 *4*
1453.7 *8*	20 *2*	8699.3	37/2⁻	7245.6	33/2⁻	DCO=0.57 *6*
1473 *1*	7 *2*	8303.6	35/2⁻	6830.6	31/2⁻	DCO=0.46 *19*
1474.7 *9*	14 *2*	8841.6	37/2⁻	7366.9	33/2⁻	DCO=0.65 *9*
1489.6 *8*	19 *3*	9528.9	39/2⁻	8039.4	35/2⁻	DCO=0.53 *7*
1495.1 *8*	23 *6*	7438.8	(33/2⁺)	5942.8	29/2⁽⁺⁾	
1498.6 *7*	42 *5*	8395.9	37/2⁺	6897.3	33/2⁺	DCO=0.58 *7*
1501.3 *9*	6 *3*	9905.0	(41/2⁺)	8403.7	37/2⁺	
1513 *1*	8.0 *9*	2581.0	17/2⁺	1068.5	13/2⁺	DCO=0.58 *14*
1531.9 *7*	30 *4*	7848.7	35/2⁺	6316.7	31/2⁺	DCO=0.46 *4*
1549.7 *7*	32 *5*	9277.9	39/2⁻	7728.1	35/2⁻	DCO=0.55 *18*
1554 *1*	5 *2*	2820.7	15/2⁻	1266.9	11/2⁻	
1569.1 *8*	22 *3*	9965.0	41/2⁺	8395.9	37/2⁺	DCO=0.51 *5*
1572 *1*	3.5 *8*	9071.8	(37/2⁻)	7499.8	(33/2⁻)	
1583.7 *9*	15 *2*	10283.0	41/2⁻	8699.3	37/2⁻	DCO=0.63 *8*
1621.0 *8*	11 *2*	11149.7	43/2⁻	9528.9	39/2⁻	DCO=0.50 *13*
1642 *1*	6 *3*	11547.1	(45/2⁺)	9905.0	(41/2⁺)	
1655 *3*		7598		5942.8	29/2⁽⁺⁾	
1660 *1*	17 *6*	5942.8	29/2⁽⁺⁾	4281.6	25/2⁺	DCO=0.50 *6*
1662 *1*	8 *2*	10503.6	(41/2⁻)	8841.6	37/2⁻	
1670.0 *9*	3 *1*	9973.7	(39/2⁻)	8303.6	35/2⁻	
1673 *1*	15 *2*	4726.5	25/2⁽⁺⁾	3052.6	21/2⁺	DCO=0.37 *8*
1700 *1*	22 *5*	9138.8	(37/2⁺)	7438.8	(33/2⁺)	
1740.6 *9*	9 *2*	12023.6	45/2⁻	10283.0	41/2⁻	DCO=0.52 *9*
1751.2 *9*	22 *4*	11029.3	43/2⁻	9277.9	39/2⁻	DCO=0.51 *10*
1779 *2*	3.2 *7*	11428.8		9649.7	39/2⁺	
1786 *1*	2.2 *7*	10857.9	(41/2⁻)	9071.8	(37/2⁻)	
1792.3 *9*	19 *5*	10188.2	41/2⁽⁺⁾	8395.9	37/2⁺	DCO=0.47 *13*
1801 *1*	16 *3*	9649.7	39/2⁺	7848.7	35/2⁺	DCO=0.48 *17*
1814.2 *9*	19 *3*	11779.3	45/2⁺	9965.0	41/2⁺	DCO=0.51 *10*
1816 *1*		3781.3	21/2⁽⁺⁾	1966.1	17/2⁺	
1820 *1*	4 *2*	13367	(49/2⁺)	11547.1	(45/2⁺)	
1843 *3*	2.0 *9*	12992.5	47/2⁻	11149.7	43/2⁻	
1861 *1*	1.1 *5*	11834.7	(43/2⁻)	9973.7	(39/2⁻)	
1870 *1*	3 *2*	13019.5	47/2⁻	11149.7	43/2⁻	
1877 *1*	9 *1*	7438.8	(33/2⁺)	5563.1	29/2⁺	
1878 *1*	6 *2*	12381.6	(45/2⁻)	10503.6	(41/2⁻)	
1892 *1*	8 *2*	12080.3	45/2⁽⁺⁾	10188.2	41/2⁽⁺⁾	DCO=0.40 *14*
1945.6 *9*	6 *2*	12133.9	(45/2⁺)	10188.2	41/2⁽⁺⁾	
1963 *1*	8 *1*	12992.5	47/2⁻	11029.3	43/2⁻	DCO=0.6 *2*
1990 *1*	8 *2*	13019.5	47/2⁻	11029.3	43/2⁻	DCO=0.4 *3*
1992 *1*	5 *1*	14015.7	49/2⁻	12023.6	45/2⁻	DCO=0.68 *13*
1994 *1*	2 *1*	15361	(53/2⁺)	13367	(49/2⁺)	
2006 *2*	0.9 *4*	12864	(45/2⁻)	10857.9	(41/2⁻)	
2026 *2*	2.4 *8*	14408	(49/2⁻)	12381.6	(45/2⁻)	
2036 *1*	5 *1*	11685.8	(43/2⁺)	9649.7	39/2⁺	
2087 *1*	5 *2*	14167.3	(49/2⁺)	12080.3	45/2⁽⁺⁾	
2156 *3*	0.5 *3*	15020	(49/2⁻)	12864	(45/2⁻)	
2190 *2*	3.1 *9*	14324	(49/2⁺)	12133.9	(45/2⁺)	

Continued on next page (footnotes at end of table)

$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19 (continued)

$\gamma(^{75}Kr)$ (continued)

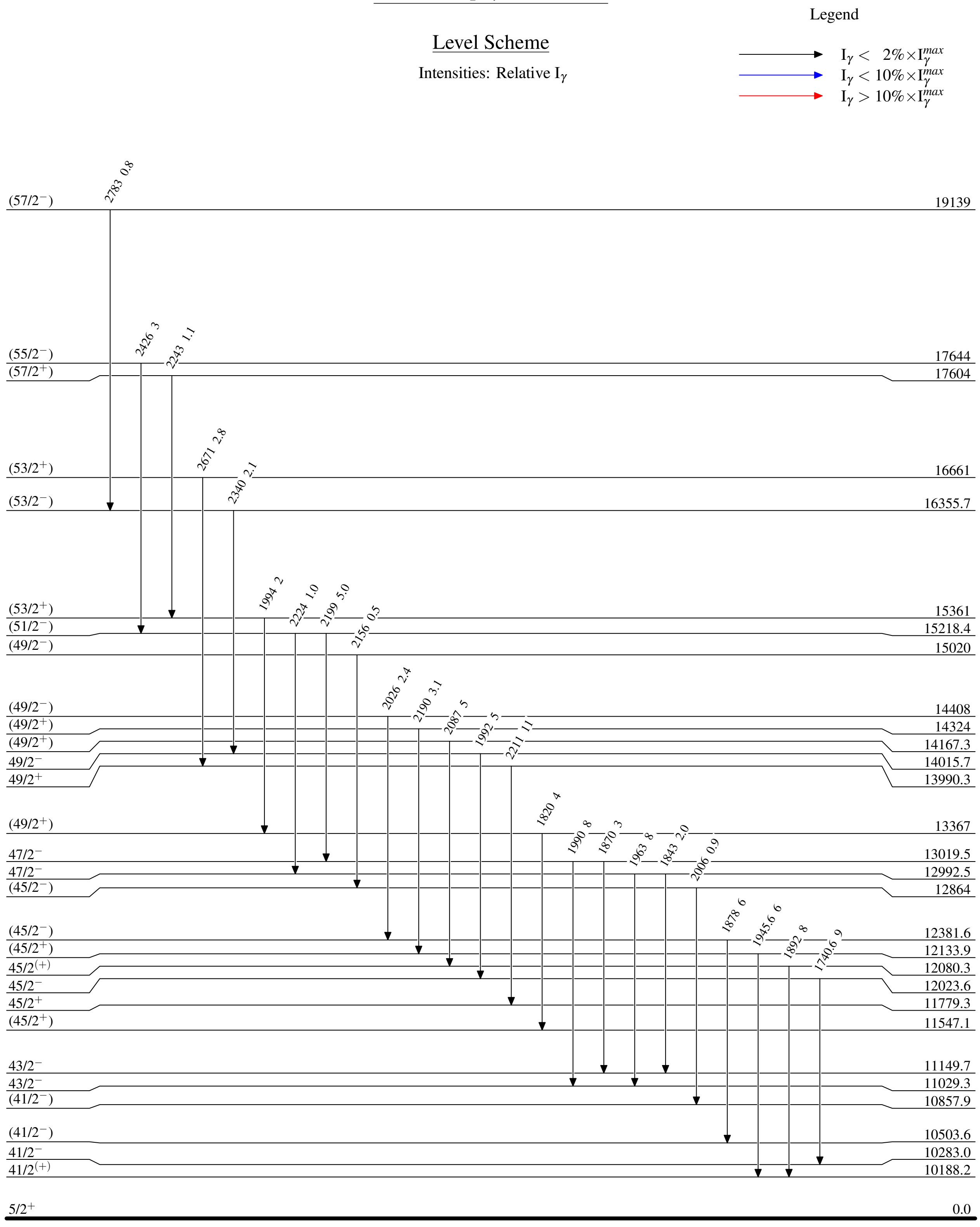
E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
2199 *1*	5.0 *9*	15218.4	(51/2$^-$)	13019.5	47/2$^-$	
2211 *1*	11 *2*	13990.3	49/2$^+$	11779.3	45/2$^+$	DCO=0.41 *15*
2224 *4*	1.0 *7*	15218.4	(51/2$^-$)	12992.5	47/2$^-$	
2243 *1*	1.1 *7*	17604	(57/2$^+$)	15361	(53/2$^+$)	
2340 *1*	2.1 *6*	16355.7	(53/2$^-$)	14015.7	49/2$^-$	
2426 *3*	3 *1*	17644	(55/2$^-$)	15218.4	(51/2$^-$)	
2671 *2*	2.8 *6*	16661	(53/2$^+$)	13990.3	49/2$^+$	
2783 *2*	0.8 *2*	19139	(57/2$^-$)	16355.7	(53/2$^-$)	

† Branching ratio of 0.26 *2* for 171.3γ and 0.74 *6* for 358.5γ listed in table I of 2012St19 are incorrect since intensity of 179.0γ is not considered. See 1998Sk01 for correct branching ratios.

$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19

Level Scheme

Intensities: Relative I_γ

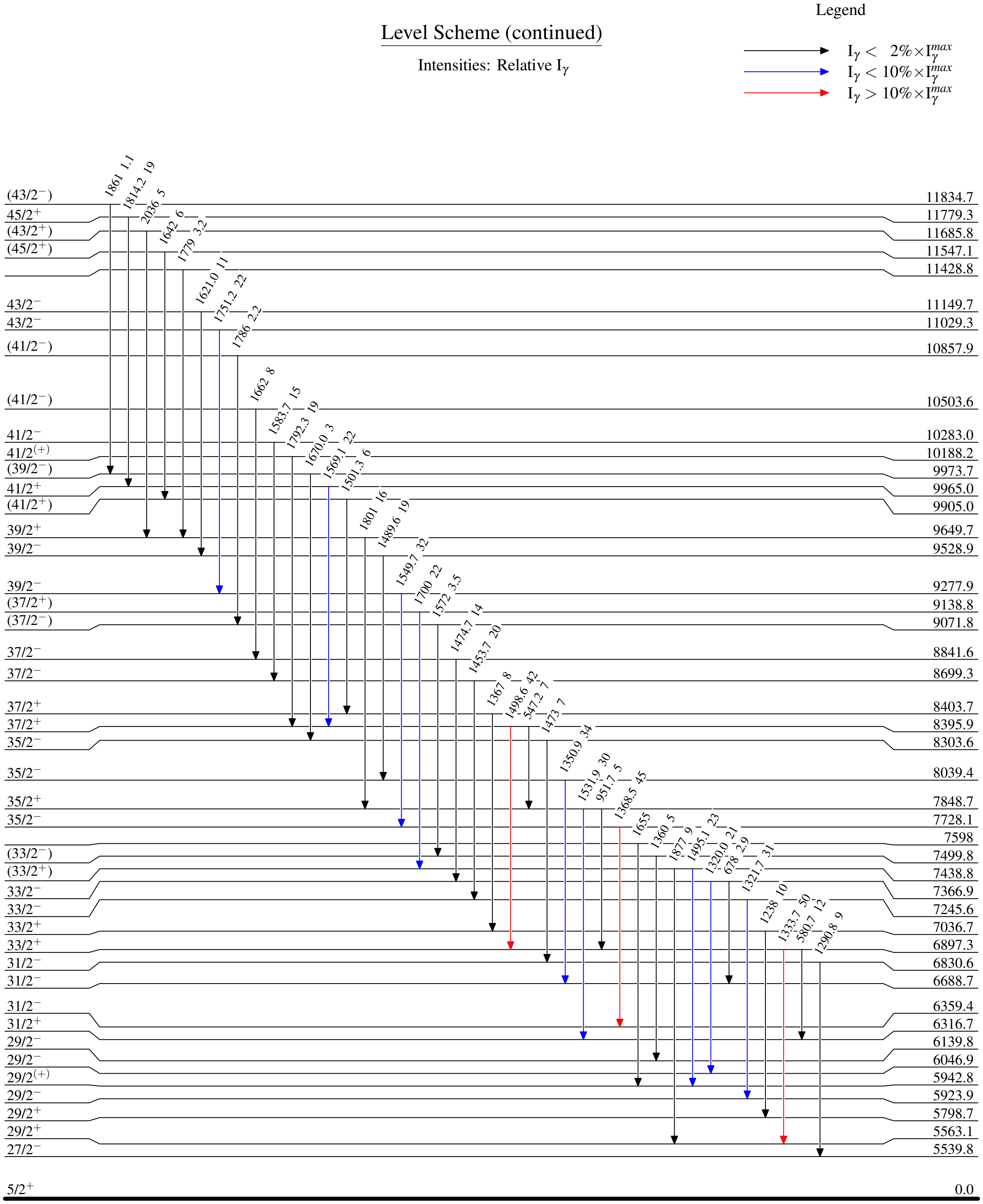


$^{75}_{36}Kr_{39}$

^{40}Ca(^{40}Ca,4pnγ) 2012St19

Level Scheme (continued)

Intensities: Relative I_γ

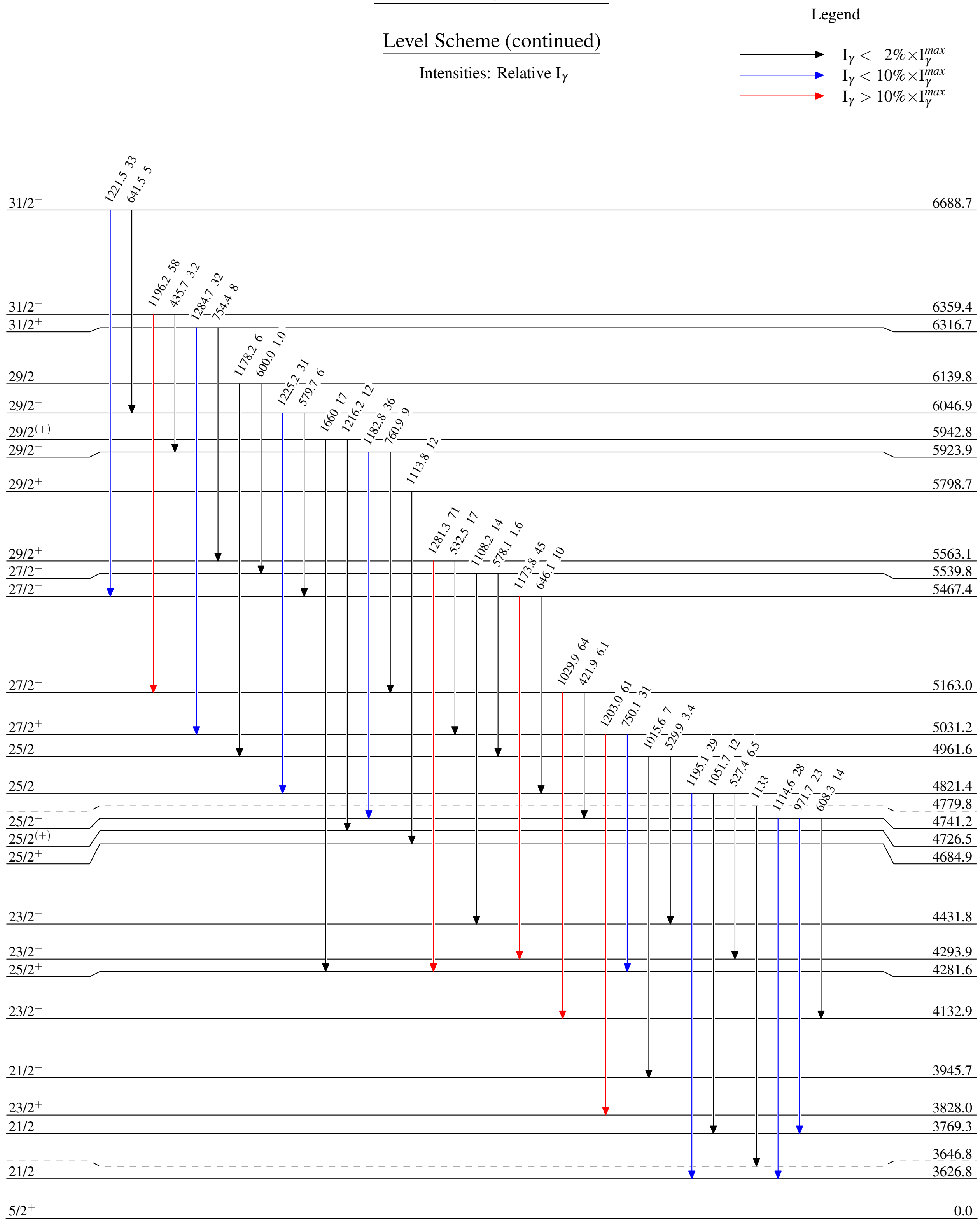


$^{75}_{36}Kr_{39}$

$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19

Level Scheme (continued)

Intensities: Relative I_γ

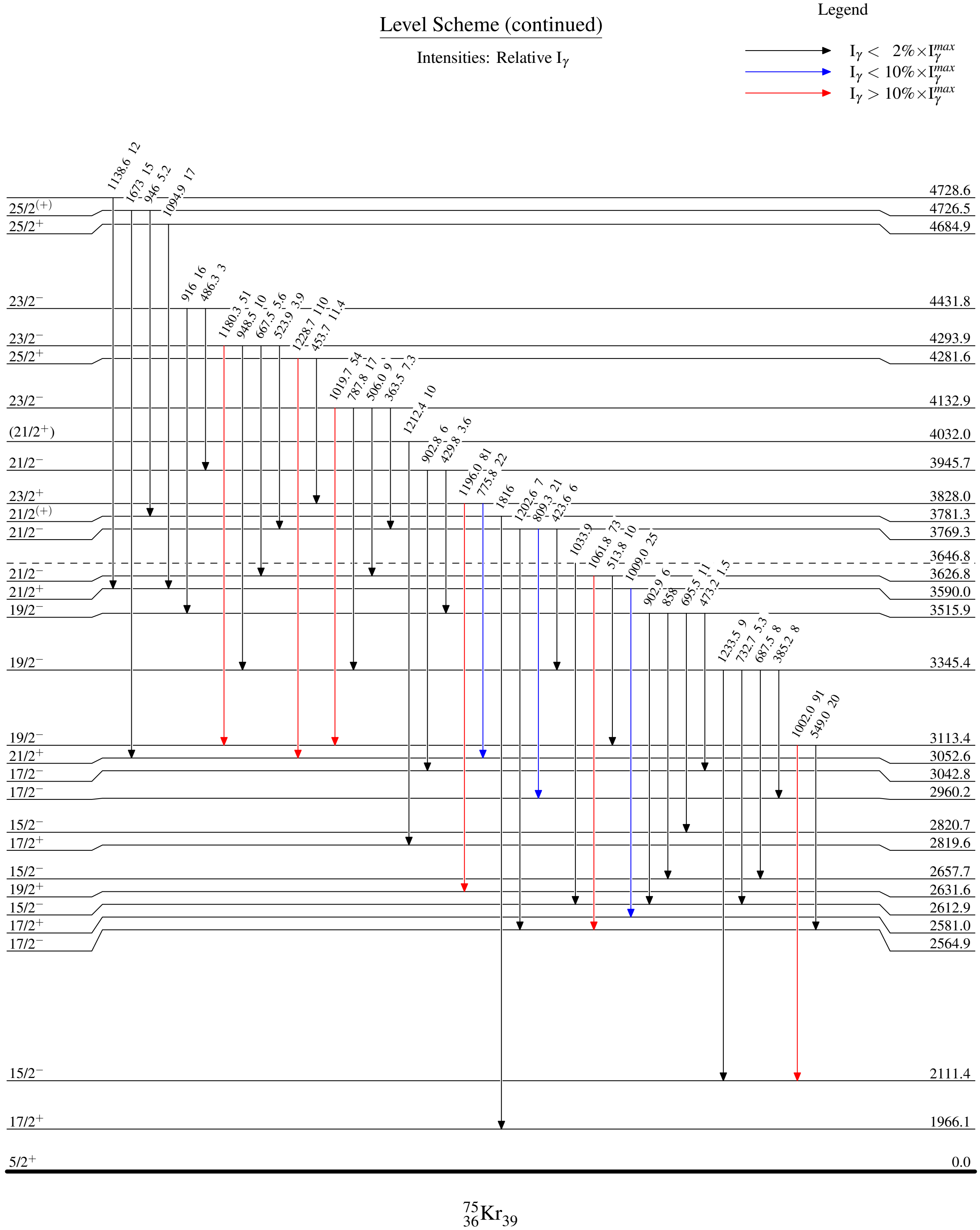


$^{75}_{36}Kr_{39}$

$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19

Level Scheme (continued)

Intensities: Relative I_γ

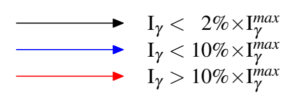


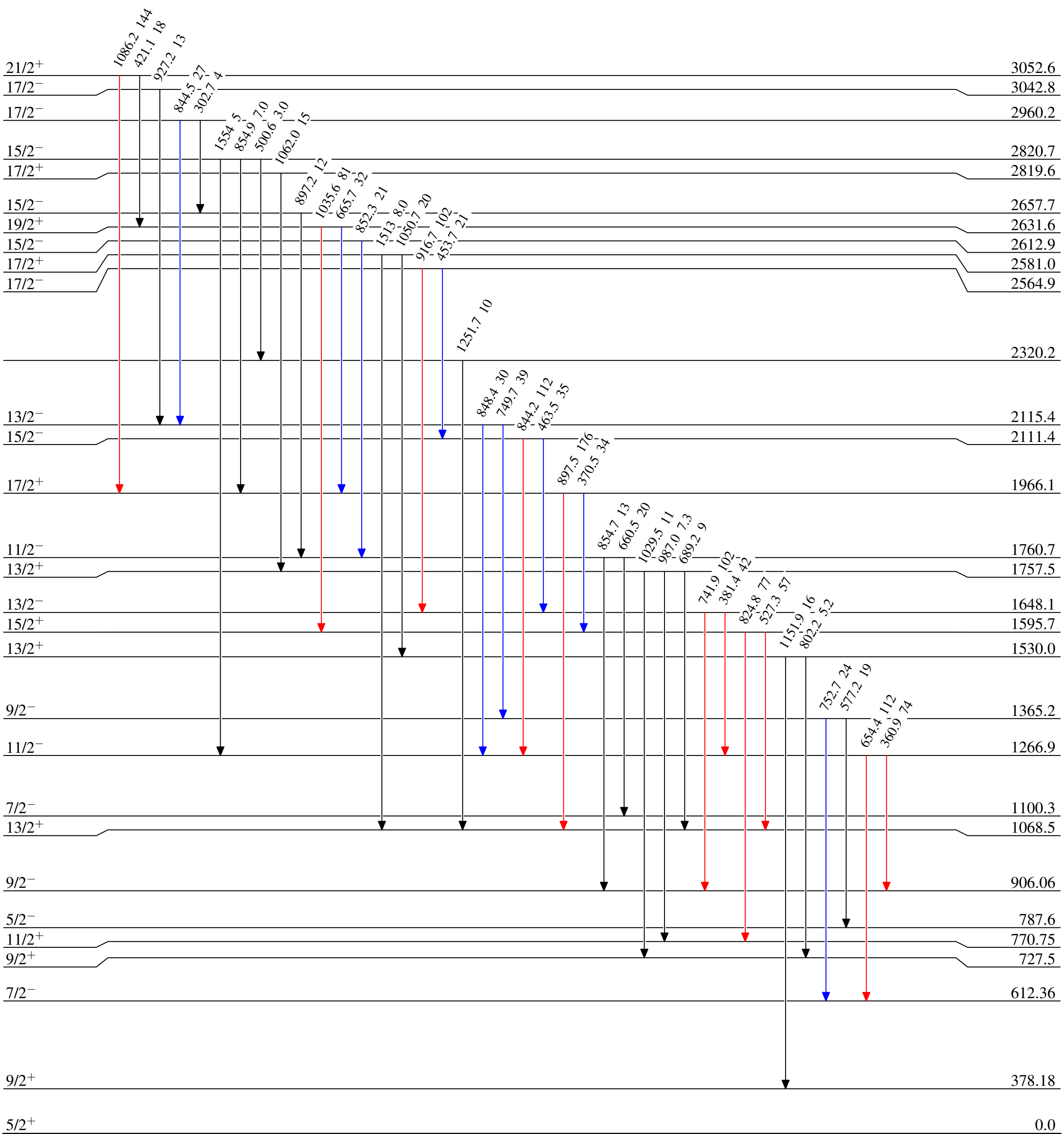
$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19

Level Scheme (continued)

Intensities: Relative I_γ

Legend



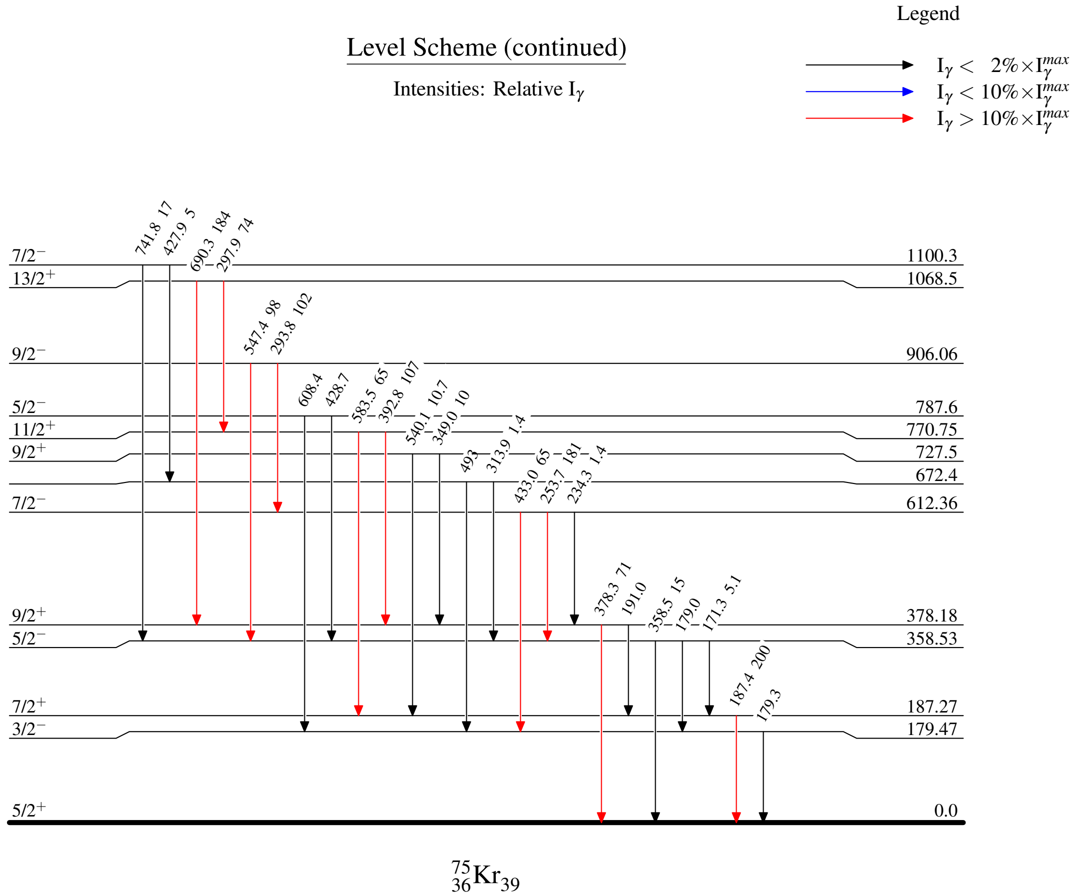


$^{75}_{36}Kr_{39}$

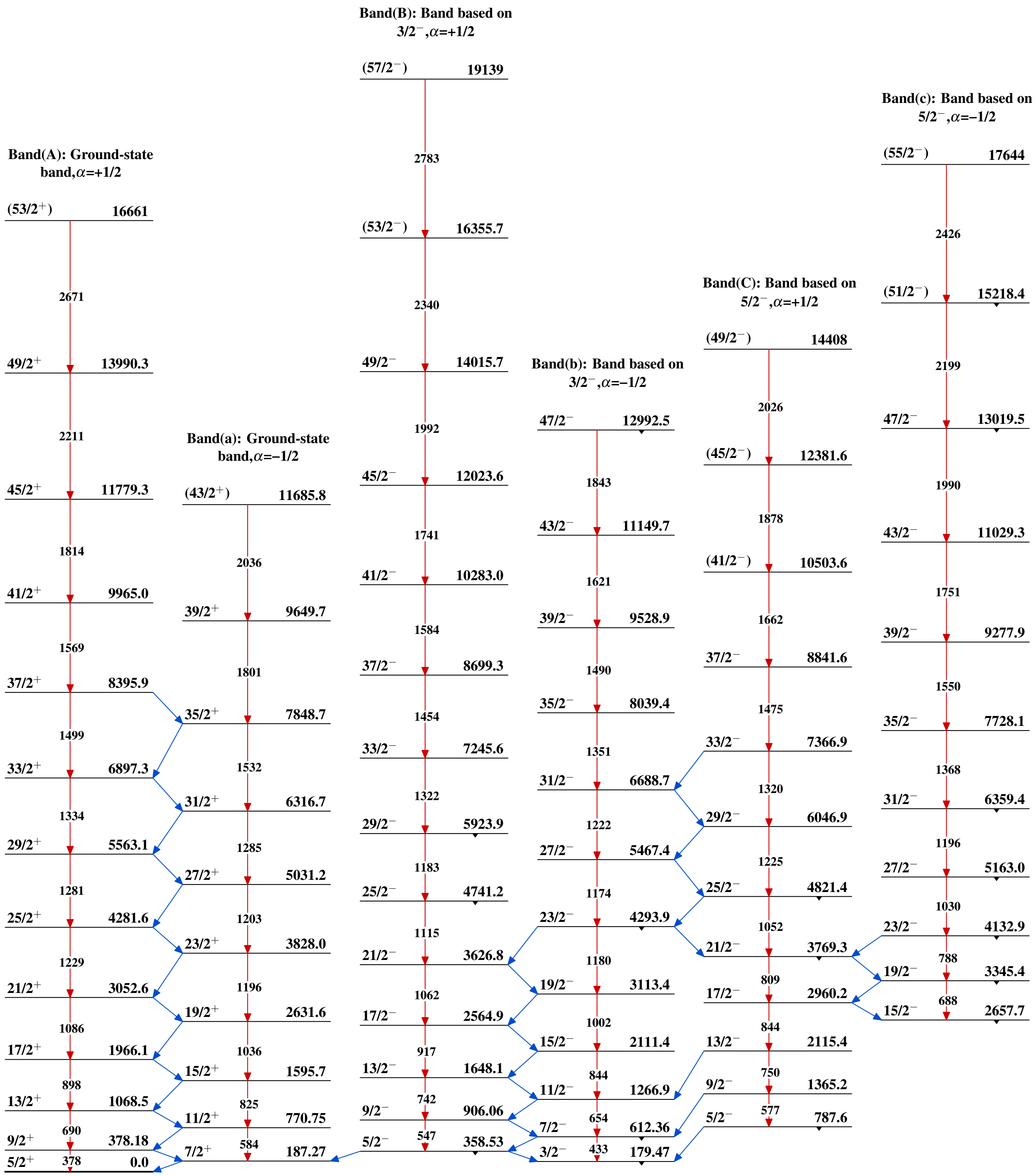
$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19

Level Scheme (continued)

Intensities: Relative I_γ

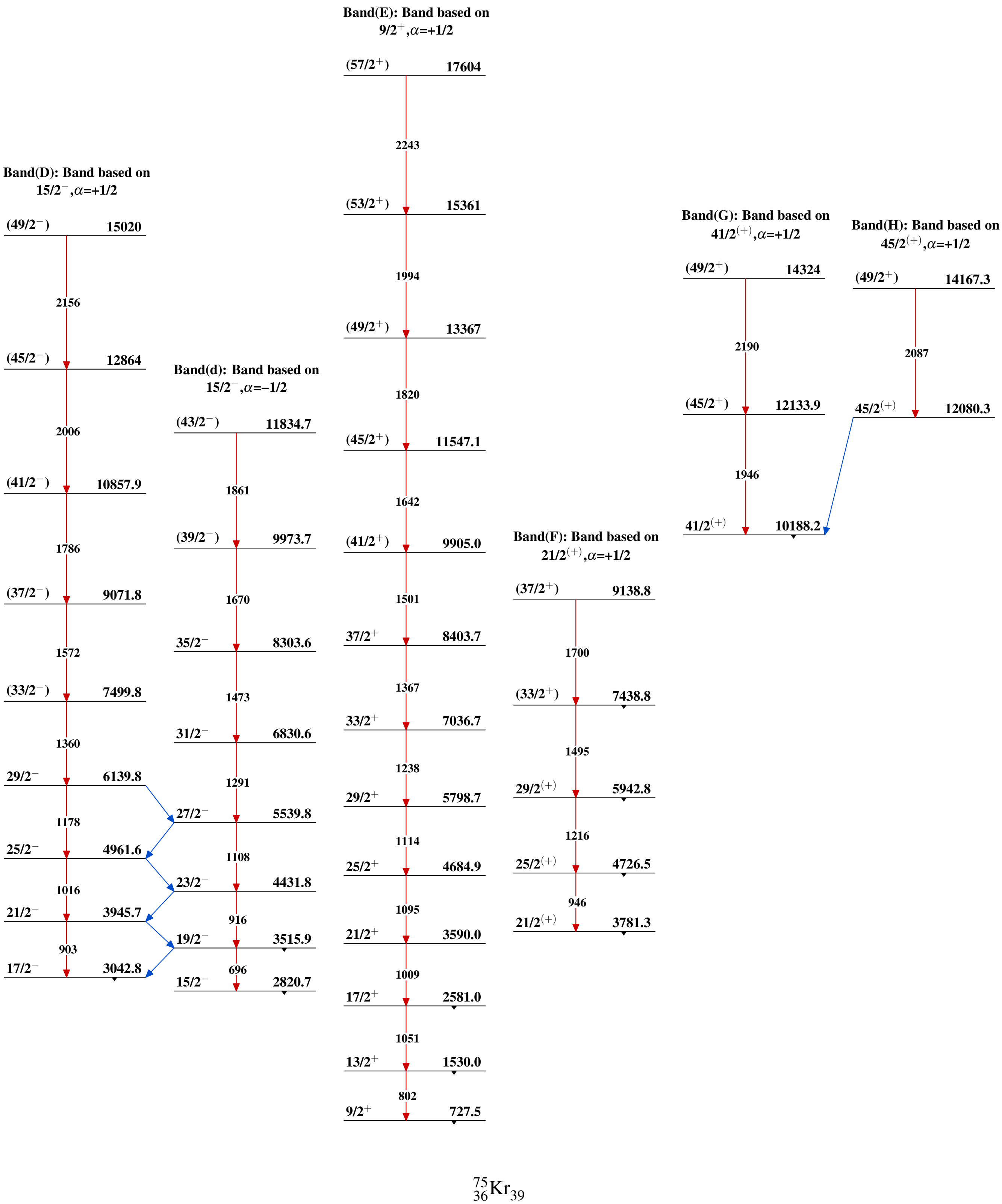


$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19

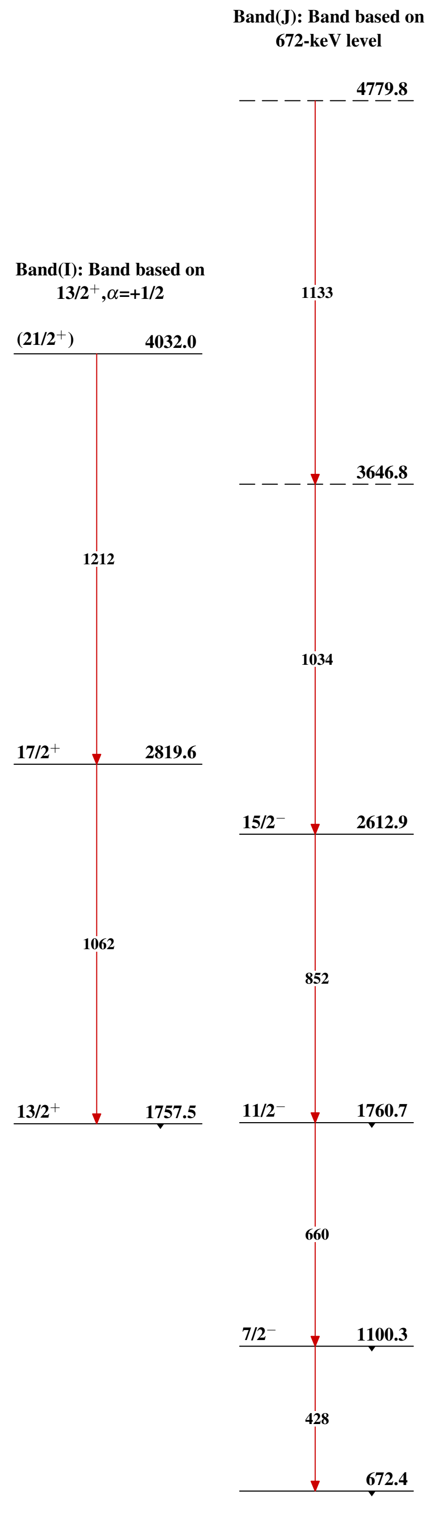


$^{75}_{36}Kr_{39}$

$^{40}Ca(^{40}Ca,4pn\gamma)$ 2012St19 (continued)



^{40}Ca(^{40}Ca,4pnγ) 2012St19 (continued)



$^{75}_{36}Kr_{39}$