^{205}Tl(γ,γ') 1974Ol05,2016Be31

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 166, 1 (2020)	20-Apr-2020

1974Ol05: Gamma-ray source produced by neutron capture on natural iron; Detectors:Ge(Li) with NaI Compton suppression shield; Measured: Eγ, Iγ.

2016Be31: Eγ=7.5 MeV bremsstrahlung from the S-DALINAC accelerator and the Darmstadt High Intensity Photon Setup. Measured Eγ, Iγ, $\gamma(\theta)$ using natural Tl target and 99.9% enriched ^{205}Tl target. The (pol γ,γ') experiment was performed using HIγS facility at TUNL for study of two levels at 4961 and 4968 keV. Deduced integrated σ, widths, B(M1), B(E1), pygmy dipole resonances, reduced excitation probabilities, and dipole strength distribution. Others (the same collaboration): 2015BeZY, 2014Be09.

Others: 1969Mo17, 1969Ra09, 1970Ce01, 1970Mo26, 1972Wo21, 1976Ea02, 1990Be20.

^{205}Tl Levels

E(level)[†]	J$^\pi$[‡b]	$g\Gamma_0^2/\Gamma$[cd]	σ_{int} (eV b)[d]
0	1/2$^+$		
203.85 *12*	3/2$^+$		
619.37 *13*	5/2$^+$		
924.37 *23*	7/2$^+$		
1141.10 *17*	(3/2$^+$)		
1181.2 *3*	(5/2$^+$)		
1219.22 *10*	1/2$^+$		
1340.3 *3*	(3/2$^+$)		
1434.4 *3*	(1/2$^+$)		
1555.16 *22*	(1/2$^+$,3/2$^+$)		
1574.73 *20*	(1/2$^+$,3/2$^+$)		
1866.1 *5*	(5/2$^+$)		
1966.82 *14*	(1/2$^+$,3/2$^+$)		
2002.70 *19*	(3/2$^+$)		
2088.9 *3*	(1/2$^+$,3/2$^+$)		
2098 *4*	3/2$^+$,5/2$^+$		
2163.2 *6*	(1/2$^+$,3/2$^+$)		
2209.5? *7*	(1/2,3/2,5/2,7/2$^+$)		
2220.8 *4*	(1/2$^+$,3/2$^+$)		
2304.4 *4*	(1/2$^+$,3/2$^+$)		
2316.3 *4*	(1/2$^+$,3/2$^+$)		
2555.3 *5*	(1/2$^+$,3/2$^+$)		
2560.2 *4*	(1/2$^+$,3/2$^+$)		
2721.1 *4*	(1/2$^+$,3/2$^+$)		
2750.6 *6*	(1/2$^+$,3/2$^+$)		
2894.4 *4*	(1/2$^+$,3/2$^+$)		
3018.0 *7*	(1/2$^+$,3/2$^+$)		
3177.3 *9*	(1/2$^+$,3/2$^+$)		
3259 *4*	(5/2$^-$)		
3287.6 *7*	(1/2$^+$,3/2$^+$)		
4000.64[#] *20*		0.32 eV *6*	78 *14*
4159.95[#] *20*		0.44 eV *10*	99 *22*
4262.5[#] *4*		0.28 eV *6*	58 *12*
4341.9[#@] *5*		0.12 eV *2*	24 *5*
4348.4[#@&] *4*		0.15 eV *2*	30 *5*
4731.7[#@a] *7*		0.10 eV *2*	17 *4*
4741.5[#] *9*		0.36 eV *7*	61 *12*
4828.2[#] *11*		0.16 eV *4*	27 *7*
4878.5[#] *4*		0.21 eV *4*	34 *6*

Continued on next page (footnotes at end of table)

^{205}Tl(γ,γ') 1974Ol05,2016Be31 (continued)

^{205}Tl Levels (continued)

E(level)[†]	$g\Gamma_0^2/\Gamma$[cd]	σ_{int} (eV b)[d]	Comments
4926.6[#] *6*	0.30 eV *6*	48 *9*	
4938.06[#a] *20*	0.55 eV *7*	86 *11*	$g\Gamma_0$=0.79 eV *11*.
4947.1[#] *10*	0.25 eV *5*	40 *8*	
4961.34[#a] *19*	2.00 eV *35*	312 *55*	$g\Gamma_0$=3.30 eV *59* (S-DALINAC experiment) and 2.79 eV *50* in HIγS experiment (2016Be31).
4967.87[#a] *10*	2.46 eV *45*	382 *71*	$g\Gamma_0$=5.9 eV *11* (S-DALINAC experiment) and 4.93 eV *92* in HIγS experiment (2016Be31).
4975.2[#] *6*	0.46 eV *5*	72 *7*	
4994.2[#] *3*	0.27 eV *7*	41 *10*	
5007.6[#] *6*	0.28 eV *5*	42 *7*	
5036.6[#] *6*	0.39 eV *8*	58 *12*	
5071.5[#@&] *5*	0.21 eV *4*	31 *5*	
5123.9[#] *5*	0.33 eV *7*	48 *11*	
5164.7[#&] *7*	0.27 eV *5*	39 *7*	
5211.9[#] *6*	0.57 eV *13*	81 *19*	
5240.5[#] *7*	0.37 eV *11*	52 *15*	
5308.7[#a] *4*	0.37 eV *13*	50 *17*	
5343.7[#@a] *9*	0.29 eV *6*	39 *9*	
5357.4[#] *5*	0.57 eV *14*	76 *18*	
5391.0[#] *4*	0.54 eV *11*	72 *14*	
5406.7[#@] *8*	0.33 eV *5*	48 *7*	
5433.0[#] *6*	0.51 eV *9*	67 *12*	
5451.3[#a] *5*	2.16 eV *27*	280 *35*	
5480.3[#@] *5*	0.70 eV *14*	90 *17*	
5552.7[#@a] *6*	0.69 eV *24*	86 *30*	
5577.2[#@a] *7*	0.35 eV *9*	43 *11*	
5589.7[#] *9*	0.68 eV *15*	84 *18*	
5598.2[#@a] *8*	0.39 eV *12*	47 *14*	
5610.5[#] *6*	1.02 eV *21*	124 *25*	$g\Gamma_0$=1.89 eV *39* (2016Be31).
5619.9[#] *7*	0.88 eV *9*	107 *11*	
5652.4[#] *5*	2.28 eV *36*	274 *44*	
5664.8[#a] *6*	1.73 eV *16*	207 *19*	
5685.7[#] *3*	2.84 eV *46*	337 *55*	$g\Gamma_0$=4.80 eV *80* (2016Be31).
5693.4[#] *9*	0.57 eV *13*	67 *15*	
5737.7[#] *8*	0.68 eV *8*	79 *9*	
5756.0[#] *3*	2.81 eV *26*	325 *30*	$g\Gamma_0$=4.66 eV *71* (2016Be31).
5781.3[#] *5*	0.55 eV *16*	63 *19*	$g\Gamma_0$=2.18 eV *94* (2016Be31).
5797.9[#] *9*	0.94 eV *15*	107 *17*	
5802.9[#a] *6*	0.55 eV *12*	63 *14*	$g\Gamma_0$=1.80 eV *59* (2016Be31).
5811.7[#] *9*	0.39 eV *8*	44 *9*	
5819.8[#] *4*	0.93 eV *9*	105 *11*	
5864.8[#] *9*	0.40 eV *6*	45 *7*	
5878.2[#] *5*	1.05 eV *20*	116 *22*	
5910.6[#] *6*	0.72 eV *10*	79 *11*	
5963.2[#] *9*	0.58 eV *13*	63 *14*	$g\Gamma_0$=1.76 eV *60* (2016Be31).
6060.8[#] *4*	0.46 eV *7*	48 *7*	

Continued on next page (footnotes at end of table)

^{205}Tl(γ,γ') 1974Ol05,2016Be31 (continued)

^{205}Tl Levels (continued)

E(level)[†]	J$^{\pi}$[‡b]	gΓ_0^2/Γ[cd]	σ_{int} (eV b)[d]	Comments
6088.6[#] *5*		0.77 eV *16*	80 *16*	
6109.5[#] *8*		0.63 eV *15*	65 *16*	
6146.9[#] *9*		0.67 eV *10*	68 *10*	
6176.7[#&] *4*		0.58 eV *8*	58 *8*	
6189.0[#&] *6*		0.47 eV *8*	47 *8*	
6213.4[#&] *9*		0.47 eV *17*	46 *17*	
6315.3[#&] *10*		0.39 eV *7*	37 *7*	
6364.7[#&] *6*		0.43 eV *7*	41 *6*	
7251.6 *7*	(3/2$^+$)	0.014 eV *7*		gΓ_0^2/Γ: From Γ_0=0.025 eV *6* and Γ_0/Γ=0.56 *6* in 1972Wo21. E(level): Excited by the 7252-keV γ from ^{63}Cu(n,γ) (1972Wo21).
7646.42 *17*	1/2$^-$	0.43 eV *7*		gΓ_0^2/Γ: From Γ_0=0.57 eV *3* and Γ_0/Γ=0.58 *6* (1972Wo21).

† From a least-squares fit to Eγ in 1974Ol05, unless otherwise stated.
‡ From 1974Ol05.
# From 2016Be31.
@ Possible branching transition (2016Be31).
& Observed only in data taken with the enriched target (2016Be31).
a Single-escape contribution subtracted (2016Be31).
b From 1974Ol05.
c g=(2J+1)/2 for J=1/2 target, where J=spin of the excited state.
d From 2016Be31, unless otherwise stated.

γ(^{205}Tl)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
203.8 *3*	≈19	203.85	3/2$^+$	0	1/2$^+$
415.6 *1*	7.1	619.37	5/2$^+$	203.85	3/2$^+$
^{x}482.1 *9*	4.7				
619.2 *3*	0.4	619.37	5/2$^+$	0	1/2$^+$
646.9 *5*	0.3	1866.1	(5/2$^+$)	1219.22	1/2$^+$
^{x}714.7[&] *5*	0.3				
714.7[&] *5*	0.3	3018.0	(1/2$^+$,3/2$^+$)	2304.4	(1/2$^+$,3/2$^+$)
720.5 *2*	1.2	924.37	7/2$^+$	203.85	3/2$^+$
747.6 *2*	1.7	1966.82	(1/2$^+$,3/2$^+$)	1219.22	1/2$^+$
854.9 *10*	0.6	2721.1	(1/2$^+$,3/2$^+$)	1866.1	(5/2$^+$)
892.4 *8*	0.6	2894.4	(1/2$^+$,3/2$^+$)	2002.70	(3/2$^+$)
937.3 *2*	3.5	1141.10	(3/2$^+$)	203.85	3/2$^+$
^{x}955.6[&] *3*	0.9				
964.6[&] *7*	0.4	2304.4	(1/2$^+$,3/2$^+$)	1340.3	(3/2$^+$)
977.1 *3*	0.8	1181.2	(5/2$^+$)	203.85	3/2$^+$
1001.2 *5*	1.0	2220.8	(1/2$^+$,3/2$^+$)	1219.22	1/2$^+$
1015.5 *5*	0.7	1219.22	1/2$^+$	203.85	3/2$^+$
1078.2 *6*	1.0	2002.70	(3/2$^+$)	924.37	7/2$^+$
1136.3 *3*	2.0	1340.3	(3/2$^+$)	203.85	3/2$^+$
1140.9 *3*	1.6	1141.10	(3/2$^+$)	0	1/2$^+$
1163.4 *4*	0.5	2304.4	(1/2$^+$,3/2$^+$)	1141.10	(3/2$^+$)
1173.0 *20*	0.4	2316.3	(1/2$^+$,3/2$^+$)	1141.10	(3/2$^+$)

Continued on next page (footnotes at end of table)

^{205}Tl(γ,γ') 1974Ol05,2016Be31 (continued)

γ(^{205}Tl) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
1219.2 *1*	2.9	1219.22	1/2$^+$	0	1/2$^+$	
^{x}1235.2 *3*	1.0					
1351.3 *2*	2.4	1555.16	(1/2$^+$,3/2$^+$)	203.85	3/2$^+$	
1383.5 *2*	2.7	2002.70	(3/2$^+$)	619.37	5/2$^+$	
1419.0 *10*	0.5	2560.2	(1/2$^+$,3/2$^+$)	1141.10	(3/2$^+$)	
1434.5 *3*	1.2	1434.4	(1/2$^+$)	0	1/2$^+$	
1469.5 *3*	0.7	2088.9	(1/2$^+$,3/2$^+$)	619.37	5/2$^+$	
1555.9 *7*	0.4	1555.16	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
1574.7 *2*	1.6	1574.73	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
^{x}1600.2& *8*	0.5					
1600.2& *8*	0.5	2220.8	(1/2$^+$,3/2$^+$)	619.37	5/2$^+$	
1623.6& *8*	0.6	3177.3	(1/2$^+$,3/2$^+$)	1555.16	(1/2$^+$,3/2$^+$)	
1696.8 *5*	0.6	2316.3	(1/2$^+$,3/2$^+$)	619.37	5/2$^+$	
1713.0 *3*	0.7	2894.4	(1/2$^+$,3/2$^+$)	1181.2	(5/2$^+$)	
1763.0& *20*	0.3	1966.82	(1/2$^+$,3/2$^+$)	203.85	3/2$^+$	
1876.6 *9*	0.5	3018.0	(1/2$^+$,3/2$^+$)	1141.10	(3/2$^+$)	
1885.1 *5*	1.1	2088.9	(1/2$^+$,3/2$^+$)	203.85	3/2$^+$	
1941.1 *4*	0.6	2560.2	(1/2$^+$,3/2$^+$)	619.37	5/2$^+$	
1966.9 *2*	3.9	1966.82	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
2002.1 *4*	0.5	2002.70	(3/2$^+$)	0	1/2$^+$	
2005.6 *6*	0.4	2209.5?	(1/2,3/2,5/2,7/2$^+$)	203.85	3/2$^+$	
^{x}2013.9 *5*	0.4					
2088.8 *20*	1.2	2088.9	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
2101.7 *8*	0.8	2721.1	(1/2$^+$,3/2$^+$)	619.37	5/2$^+$	
2111.0& *15*	0.3	2316.3	(1/2$^+$,3/2$^+$)	203.85	3/2$^+$	
2134.0 *16*	0.4	2750.6	(1/2$^+$,3/2$^+$)	619.37	5/2$^+$	
2220.9 *7*	0.6	2220.8	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
^{x}2275.8& *14*	0.3					
2275.8& *14*	0.3	2894.4	(1/2$^+$,3/2$^+$)	619.37	5/2$^+$	
2351.5 *6*	0.9	2555.3	(1/2$^+$,3/2$^+$)	203.85	3/2$^+$	
^{x}2380.5 *7*	0.6					
2518.8 *15*	1.1	2721.1	(1/2$^+$,3/2$^+$)	203.85	3/2$^+$	
2555.0 *20*	1.2	2555.3	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
2557.0 *20*	2.0	2560.2	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
2693.3 *15*	0.5	2894.4	(1/2$^+$,3/2$^+$)	203.85	3/2$^+$	
2720.0 *9*	0.7	2721.1	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
2753.0 *11*	0.4	2750.6	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
3179.3 *15*	0.5	3177.3	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
3288.0 *10*	0.8	3287.6	(1/2$^+$,3/2$^+$)	0	1/2$^+$	
4000.6‡ *2*		4000.64		0	1/2$^+$	W(90°)/W(130°)=1.26 *21*.
4159.9‡ *2*		4159.95		0	1/2$^+$	W(90°)/W(130°)=0.79 *11*.
4262.5‡ *4*		4262.5		0	1/2$^+$	W(90°)/W(130°)=1.33 *26*.
4341.9‡ *5*		4341.9		0	1/2$^+$	W(90°)/W(130°)=1.02 *36*. E_γ: also a possible transition from 4061.1 level.
4342.1‡ *6*		4961.34		619.37	5/2$^+$	
4348.4‡ *4*		4348.4		0	1/2$^+$	E_γ: also a possible transition from 4967.8 level.
4348.4‡ *4*		4967.87		619.37	5/2$^+$	
4359.0 *8*	0.7	7646.42	1/2$^-$	3287.6	(1/2$^+$,3/2$^+$)	
4387 *4*	0.1	7646.42	1/2$^-$	3259	(5/2$^-$)	E_γ,I_γ: From 1969Mo17.
4470.0 *10*	0.6	7646.42	1/2$^-$	3177.3	(1/2$^+$,3/2$^+$)	
4628.0 *10*	0.8	7646.42	1/2$^-$	3018.0	(1/2$^+$,3/2$^+$)	
4731.6‡ *7*		4731.7		0	1/2$^+$	W(90°)/W(130°)=1.29 *57*. E_γ: also a possible transition from 4938.2 level.

Continued on next page (footnotes at end of table)

^{205}Tl(γ,γ') 1974Ol05,2016Be31 (continued)

γ(^{205}Tl) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J^π_i	E_f	J^π_f	Comments
4731.6[‡] *7*	16[#]	4938.06		203.85	3/2$^+$	
4741.4[‡] *9*		4741.5		0	1/2$^+$	W(90°)/W(130°)=0.76 *17*.
4752.1 *7*	2.2	7646.42	1/2$^-$	2894.4	(1/2$^+$,3/2$^+$)	
4759.3[‡] *7*		4961.34		203.85	3/2$^+$	E_γ: transition confirmed in HIγS experiment.
4764.1[‡] *4*		4967.87		203.85	3/2$^+$	E_γ: transition confirmed in HIγS experiment.
4828.1[‡] *11*		4828.2		0	1/2$^+$	W(90°)/W(130°)=1.25 *48*.
4878.4[‡] *4*		4878.5		0	1/2$^+$	W(90°)/W(130°)=1.20 *38*.
4896.8 *6*	1.6	7646.42	1/2$^-$	2750.6	(1/2$^+$,3/2$^+$)	
4925.0 *5*	3.0	7646.42	1/2$^-$	2721.1	(1/2$^+$,3/2$^+$)	
4926.5[‡] *6*		4926.6		0	1/2$^+$	W(90°)/W(130°)=1.23 *30*.
4938.2[‡] *2*	84[#] *3*	4938.06		0	1/2$^+$	W(90°)/W(130°)=1.19 *17*.
4947.0[‡] *10*		4947.1		0	1/2$^+$	W(90°)/W(130°)=1.21 *37*.
4961.1[‡] *2*	85[#] *3*	4961.34		0	1/2$^+$	I_γ: from HIγS experiment. Other: 78 *2* in S-DALINAC, Darmstadt experiment. W(90°)/W(130°)=0.87 *16*.
4967.8[‡] *1*	71 *2*	4967.87		0	1/2$^+$	I_γ: from HIγS experiment. Other: 65 *2* in S-DALINAC, Darmstadt experiment. W(90°)/W(130°)=0.93 *10*.
4975.1[‡] *6*		4975.2		0	1/2$^+$	W(90°)/W(130°)=1.03 *17*.
4994.1[‡] *3*		4994.2		0	1/2$^+$	W(90°)/W(130°)=0.95 *36*.
5007.5[‡] *6*		5007.6		0	1/2$^+$	W(90°)/W(130°)=1.14 *32*.
5036.5[‡] *6*		5036.6		0	1/2$^+$	W(90°)/W(130°)=0.89 *23*.
5071.4[‡] *5*		5071.5		0	1/2$^+$	W(90°)/W(130°)=1.11 *37*.
5086.5 *8*	3.0	7646.42	1/2$^-$	2560.2	(1/2$^+$,3/2$^+$)	
5091.0 *8*	2.4	7646.42	1/2$^-$	2555.3	(1/2$^+$,3/2$^+$)	
5123.8[‡] *5*		5123.9		0	1/2$^+$	W(90°)/W(130°)=0.76 *32*.
5164.6[‡] *7*		5164.7		0	1/2$^+$	W(90°)/W(130°)=1.27 *31*.
5211.8[‡] *6*		5211.9		0	1/2$^+$	W(90°)/W(130°)=0.77 *33*.
5240.4[‡] *7*		5240.5		0	1/2$^+$	W(90°)/W(130°)=0.66 *20*.
5308.6[‡] *4*		5308.7		0	1/2$^+$	W(90°)/W(130°)=0.94 *25*.
5329.8 *6*	0.9	7646.42	1/2$^-$	2316.3	(1/2$^+$,3/2$^+$)	
5342.2 *6*	0.8	7646.42	1/2$^-$	2304.4	(1/2$^+$,3/2$^+$)	
5343.6[‡] *9*		5343.7		0	1/2$^+$	W(90°)/W(130°)=0.99 *43*.
5343.6[‡] *9*	43[#]	5963.2		619.37	5/2$^+$	
5357.3[‡] *5*		5357.4		0	1/2$^+$	W(90°)/W(130°)=0.84 *13*.
5390.9[‡] *4*		5391.0		0	1/2$^+$	W(90°)/W(130°)=0.90 *21*.
5406.6[@‡] *8*		5406.7		0	1/2$^+$	W(90°)/W(130°)=0.82 *20*.
5406.6[‡] *8*	27[#]	5610.5		203.85	3/2$^+$	
5425.3 *5*	2.4	7646.42	1/2$^-$	2220.8	(1/2$^+$,3/2$^+$)	
5432.9[‡] *6*		5433.0		0	1/2$^+$	W(90°)/W(130°)=0.74 *18*.
5451.2[‡] *5*		5451.3		0	1/2$^+$	W(90°)/W(130°)=0.98 *9*.
5480.2[‡] *5*		5480.3		0	1/2$^+$	W(90°)/W(130°)=0.89 *17*.
5480.2[‡] *5*	23	5685.7		203.85	3/2$^+$	
[x]5483.1 *5*	1.0					
5483.1 *5*	1.0	7646.42	1/2$^-$	2163.2	(1/2$^+$,3/2$^+$)	
5548 *4*	2.7	7646.42	1/2$^-$	2098	3/2$^+$,5/2$^+$	E_γ,I_γ: From 1969Mo17.
5552.6[‡] *6*		5552.7		0	1/2$^+$	W(90°)/W(130°)=1.34 *32*.
5552.6[‡] *6*	22[#]	5756.0		203.85	3/2$^+$	

Continued on next page (footnotes at end of table)

^{205}Tl(γ,γ′) 1974Ol05,2016Be31 (continued)

γ(^{205}Tl) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Comments
5557.4 *5*	3.2	7646.42	1/2⁻	2088.9	(1/2⁺,3/2⁺)	
5577.1[‡] *7*		5577.2		0	1/2⁺	W(90°)/W(130°)=1.42 *49*.
5577.1[‡] *7*	50[#]	5781.3		203.85	3/2⁺	
5589.6[‡] *9*		5589.7		0	1/2⁺	W(90°)/W(130°)=0.76 *13*.
5598.1[‡] *8*		5598.2		0	1/2⁺	W(90°)/W(130°)=0.96 *47*.
5598.1[‡] *8*	39[#]	5802.9		203.85	3/2⁺	
5610.4[‡] *8*	73[#] *2*	5610.5		0	1/2⁺	W(90°)/W(130°)=0.87 *21*.
5619.8[‡] *7*		5619.9		0	1/2⁺	W(90°)/W(130°)=0.94 *18*.
5643.4 *5*	3.2	7646.42	1/2⁻	2002.70	(3/2⁺)	
5652.3[‡] *5*		5652.4		0	1/2⁺	W(90°)/W(130°)=0.82 *8*.
5664.7[‡] *6*		5664.8		0	1/2⁺	W(90°)/W(130°)=0.94 *14*.
5679.9 *4*	6.7	7646.42	1/2⁻	1966.82	(1/2⁺,3/2⁺)	
5686.2[‡] *3*	77 *2*	5685.7		0	1/2⁺	W(90°)/W(130°)=0.89 *8*.
5693.3[‡] *9*		5693.4		0	1/2⁺	W(90°)/W(130°)=0.92 *34*.
5737.6[‡] *8*		5737.7		0	1/2⁺	W(90°)/W(130°)=0.90 *17*.
5755.8[‡] *3*	78[#] *7*	5756.0		0	1/2⁺	W(90°)/W(130°)=0.89 *7*.
5781.4[‡] *6*	50[#] *7*	5781.3		0	1/2⁺	W(90°)/W(130°)=0.86 *20*.
5797.8[‡] *9*		5797.9		0	1/2⁺	W(90°)/W(130°)=0.76 *15*.
5803.8[‡] *9*	61[#] *7*	5802.9		0	1/2⁺	W(90°)/W(130°)=0.79 *28*.
5811.6[‡] *9*		5811.7		0	1/2⁺	W(90°)/W(130°)=1.12 *40*.
5819.7[‡] *4*		5819.8		0	1/2⁺	W(90°)/W(130°)=1.07 *15*.
5864.7[‡] *9*		5864.8		0	1/2⁺	W(90°)/W(130°)=0.92 *26*.
5878.1[‡] *5*		5878.2		0	1/2⁺	W(90°)/W(130°)=0.81 *10*.
5910.5[‡] *6*		5910.6		0	1/2⁺	W(90°)/W(130°)=0.93 *13*.
5963.8[‡] *18*	57[#] *6*	5963.2		0	1/2⁺	W(90°)/W(130°)=0.69 *14*.
6060.7[‡] *4*		6060.8		0	1/2⁺	W(90°)/W(130°)=0.86 *17*.
6071.2 *8*	1.4	7646.42	1/2⁻	1574.73	(1/2⁺,3/2⁺)	
6088.5[‡] *5*		6088.6		0	1/2⁺	W(90°)/W(130°)=0.74 *15*.
6091.9 *7*	0.8	7646.42	1/2⁻	1555.16	(1/2⁺,3/2⁺)	
6109.4[‡] *8*		6109.5		0	1/2⁺	W(90°)/W(130°)=0.70 *23*.
6146.8[‡] *9*		6146.9		0	1/2⁺	W(90°)/W(130°)=0.82 *13*.
6176.6[‡] *4*		6176.7		0	1/2⁺	W(90°)/W(130°)=0.87 *19*.
6188.9[‡] *6*		6189.0		0	1/2⁺	W(90°)/W(130°)=0.82 *21*.
6212.5 *8*	1.2	7646.42	1/2⁻	1434.4	(1/2⁺)	
6213.3[‡] *9*		6213.4		0	1/2⁺	W(90°)/W(130°)=0.51 *15*.
6305.0 *7*	0.8	7646.42	1/2⁻	1340.3	(3/2⁺)	
6315.2[‡] *10*		6315.3		0	1/2⁺	W(90°)/W(130°)=0.85 *26*.
6364.6[‡] *6*		6364.7		0	1/2⁺	W(90°)/W(130°)=1.01 *29*.
6427 *4*	0.6	7646.42	1/2⁻	1219.22	1/2⁺	E_γ,I_γ: From 1969Mo17.
6505.1 *4*	3.7	7646.42	1/2⁻	1141.10	(3/2⁺)	
7047		7251.6	(3/2⁺)	203.85	3/2⁺	
7252		7251.6	(3/2⁺)	0	1/2⁺	
7442.0 *20*	0.7	7646.42	1/2⁻	203.85	3/2⁺	
7645.8 *4*	59.5	7646.42	1/2⁻	0	1/2⁺	

[†] From 1974Ol05, unless otherwise stated. ΔIγ<10% for strongest transitions.

Continued on next page (footnotes at end of table)

^{205}Tl(γ,γ') 1974Ol05,2016Be31 (continued)

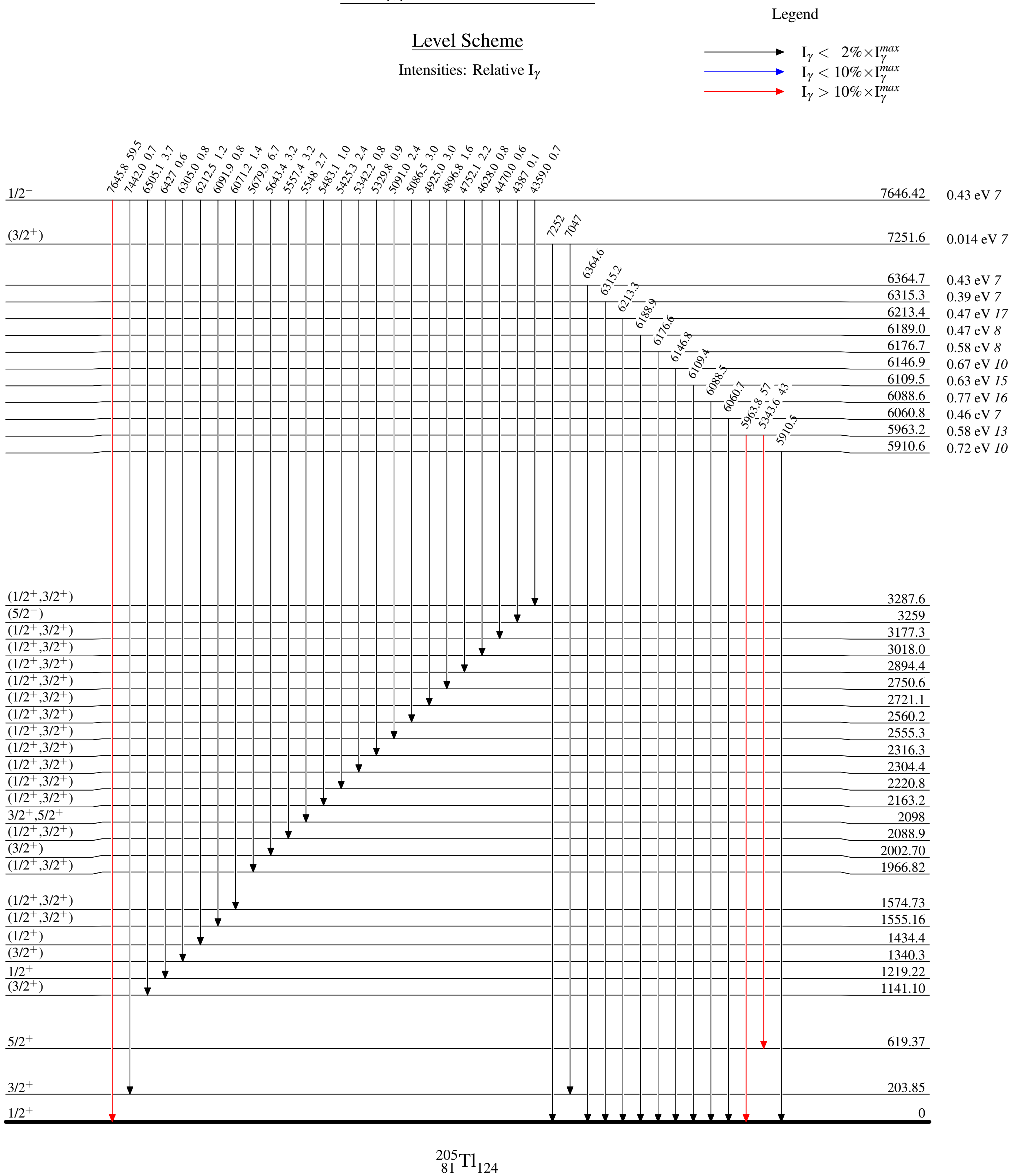
γ(^{205}Tl) (continued)

‡ From 2016Be31, based on level-energy differences.
# Branching intensity from 2016Be31.
@ Multiply placed.
& Placement of transition in the level scheme is uncertain.
^{x} γ ray not placed in level scheme.

^{205}Tl(γ,γ') 1974Ol05,2016Be31

Level Scheme

Intensities: Relative I_γ



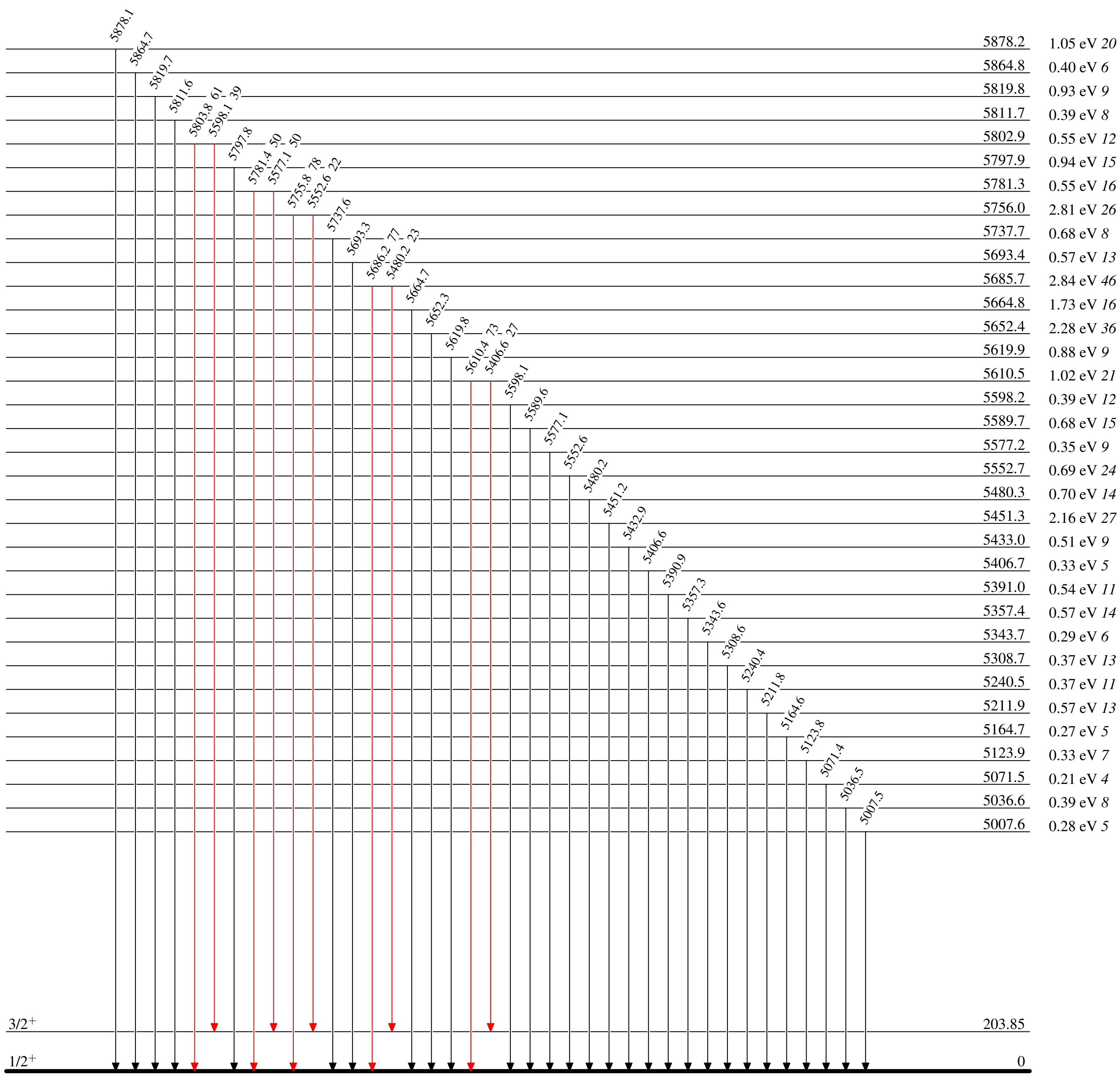
^{205}Tl(γ,γ') 1974Ol05,2016Be31

Level Scheme (continued)

Intensities: Relative I_γ

Legend

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

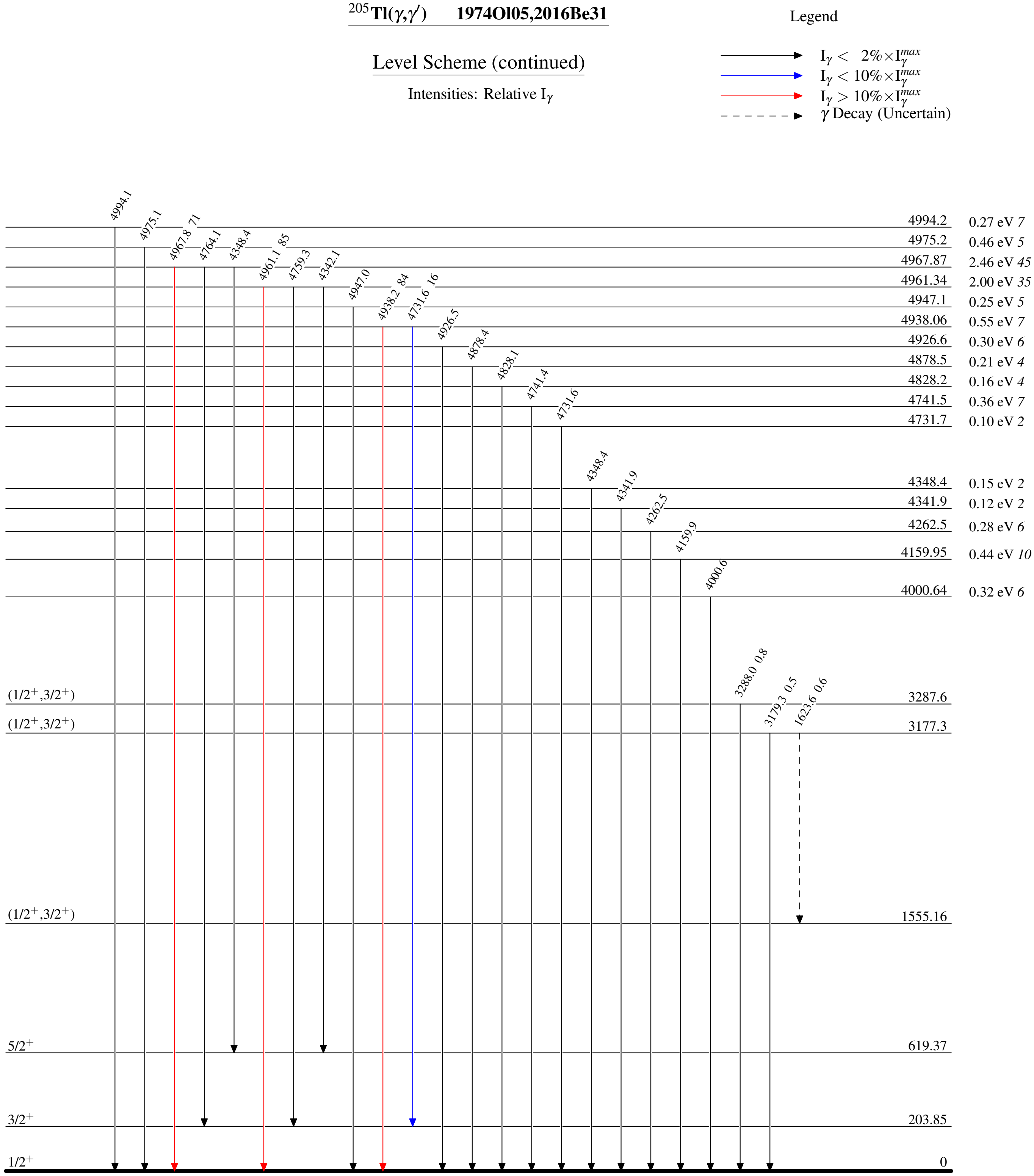


$^{205}_{81}Tl_{124}$

^{205}Tl(γ,γ') 1974Ol05,2016Be31

Level Scheme (continued)

Intensities: Relative I_γ

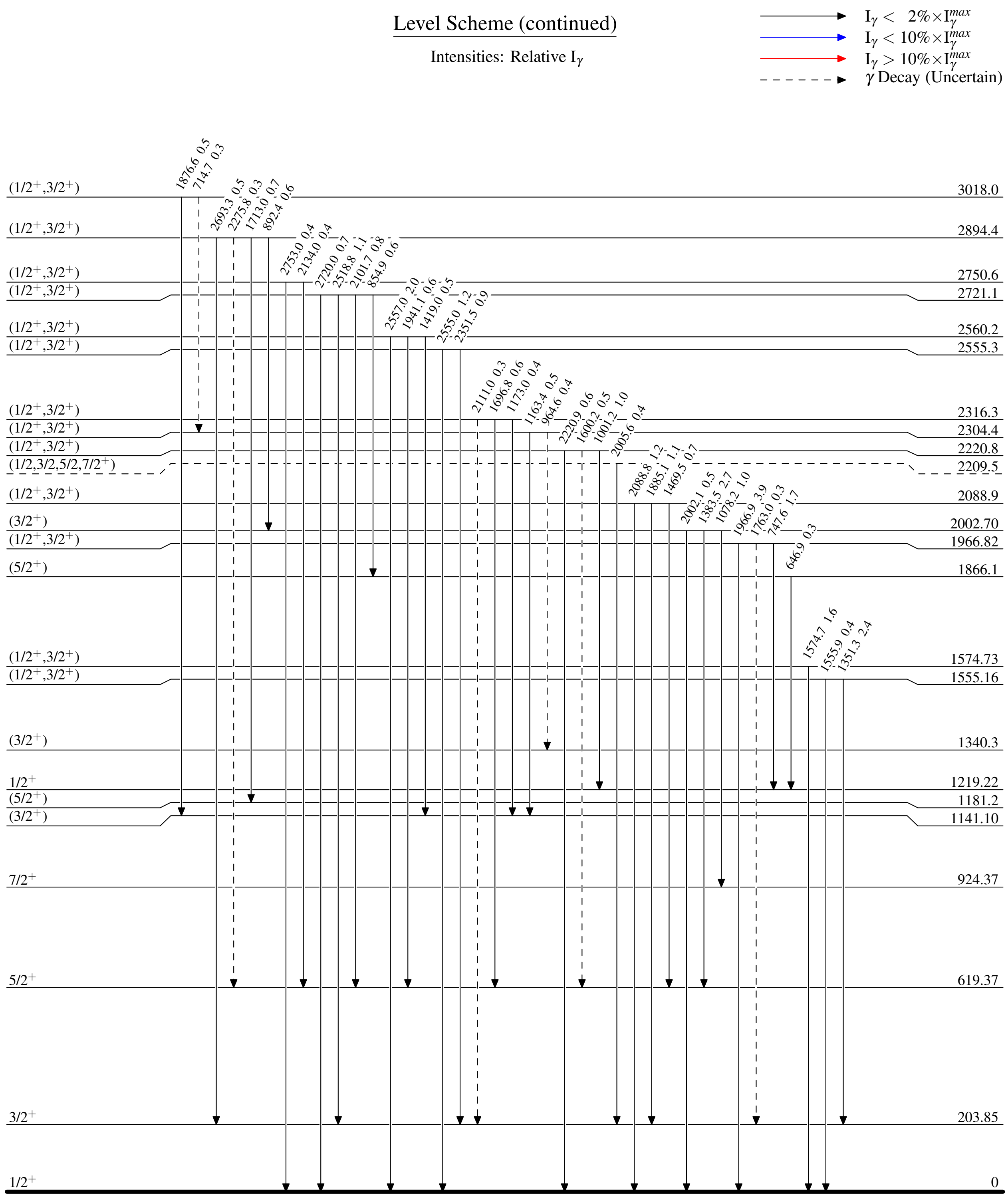


$^{205}_{81}Tl_{124}$

^{205}Tl(γ,γ′) 1974Ol05,2016Be31

Level Scheme (continued)

Intensities: Relative I_γ



$^{205}_{81}Tl_{124}$

^{205}Tl(γ,γ′) 1974Ol05,2016Be31

Level Scheme (continued)

Intensities: Relative I_γ