Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 110,265 (2009)	15-Nov-2008

Q(β^-)=−7279 *15*; S(n)=8342 *13*; S(p)=3305 *22*; Q(α)=5412 *10* 2012Wa38

Note: Current evaluation has used the following Q record −7312 198337 143301 225416 10 2003Au03.

Q(α): α decay feeds the 1/2$^-$ 102 level of ^{175}Os. There is a problem of discrepant Eα measurements for ^{179}Pt α decay: [Eα data are: 5150 *10* (1966Si08; identification based on systematics of (HI,xnγ) excitation functions; $T_{1/2}$=33 s *2*), 5200 *10* (1970Ha18; daughter in mass separated source), 5194 *10* (1979Ha10; daughter in mass separated Hg source), 5156 *3* (1982Bo04 using calibration which incorporated the 1966Si08 datum; identified from Eα; $T_{1/2}$=54 s *4*), and 5161 or 5201 (1980Da09; identified from Eα; ΔE unstated)]. However, the adopted $T_{1/2}$=21.2 s *4* raises doubts about the identity of the α group observed by 1982Bo04 (Eα and $T_{1/2}$ are close to values for ^{180}Pt), and suggests that $T_{1/2}$ from 1966Si08 is also a little high, possibly due to difficulty resolving ^{180}Pt and ^{179}Pt α groups in that experiment. The average Eα from 1970Ha18 and 1979Ha10 (5197 *7*) gives Q(α)=5418 *7*, and HF=0.96 *15* for ^{179}Pt α decay (cf. HF=0.55 *9* based on Eα from 1966Si08) for a transition for which HF≈2 is expected (assuming $r_0(^{175}Os)$=1.536 *24*, the weighted average of $r_0(^{174}Os)$=1.54 *3* and $r_0(^{176}Os)$=1.53 *4* from 1998Ak04).

For isotope shift and hfs data, see 1999Le52 and 1999Sa40.

^{179}Pt Levels

Cross Reference (XREF) Flags

A ^{183}Hg α decay
B ^{155}Gd(^{28}Si,4nγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[@]	1/2$^-$[#]	21.2 s *4*	AB	%ε+%β^+=99.76 *3*; %α=0.24 *3* μ=+0.43 *3* (1999Le52) μ: From LASER resonance ionization spectroscopy; result also reported in 1999Sa40, 1999Ro28, 2000Le40, 2000Sa58 and 2001Sa44. $\Delta\langle r^2\rangle(^{194}Pt,^{179}Pt)$=−0.335 *21* (1999Le52; also reported in 1999Ro28, 1999Sa40 and 2000Le40). $\langle r^2\rangle^{1/2}$(charge)=5.392 *6* (2004An14). $T_{1/2}$: from 1993Me13. Others: 54 s *4* (1982Bo04) and 33 s *2* (1966Si08). See also the comment above on Q(α). %α: weighted average of 0.27 *4* (1970Ha18) and 0.21 *4* (1980Sc09).
71.4[&] *10*	3/2$^-$[#]		A	
87.4[@] *10*	5/2$^-$[#]		AB	
144.8[b]	(7/2$^-$)		B	
241.2[&] *14*	7/2$^-$[#]		A	
255.5[a]	(9/2$^-$)		B	
277.2[@]	9/2$^-$[#]		B	
298.5[c]	(9/2$^+$)		B	
355.8[d]	(11/2$^+$)		B	
391.4[b]	(11/2$^-$)		B	
417.5[c]	(13/2$^+$)		B	
548.4[a]	(13/2$^-$)		B	
556.9[@]	13/2$^-$[#]		B	
582.3[d]	(15/2$^+$)		B	
680.6[c]	(17/2$^+$)		B	
727.3[b]	(15/2$^-$)		B	
910.2[@]	17/2$^-$[#]		B	

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Adopted Levels, Gammas (continued)

^{179}Pt Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
925.6[d]	(19/2+)	B	2434.3[d]	(31/2+)	B	4019.5		B
926.8[a]	(17/2−)	B	2458.0[a]	(29/2−)	B	4144.0[@]	(41/2−)[#]	B
1050.4[c]	(21/2+)	B	2616.3[c]	(33/2+)	B	4476.8[d]	(43/2+)	B
1139.6[b]	(19/2−)	B	2746.9[b]	(31/2−)	B	4571.5[a]	(41/2−)	B
1339.0[@]	21/2−[#]	B	2950.9[@]	(33/2−)[#]	B	4729.5[c]	(45/2+)	B
1358.2[d]	(23/2+)	B	3059.8[d]	(35/2+)	B	4799.8[@]	(45/2−)[#]	B
1375.1[a]	(21/2−)	B	3098.7[a]	(33/2−)	B	5264.1[d]	(47/2+)	B
1503.0[c]	(25/2+)	B	3266.6[c]	(37/2+)	B	5504.1[@]	(49/2−)[#]	B
1618.9[b]	(23/2−)	B	3341.2		B	5526.3[c]	(49/2+)	B
1830.8[@]	25/2−[#]	B	3359.7		B	6255.5[@]	(53/2−)[#]	B
1864.7[d]	(27/2+)	B	3533.7[@]	(37/2−)[#]	B	6367.1[c]	(53/2+)	B
1888.2[a]	(25/2−)	B	3741.4[d]	(39/2+)	B	7253.0?[c]	(57/2+)	B
2026.9[c]	(29/2+)	B	3815.5[a]	(37/2−)	B	8174.8?[c]	(61/2+)	B
2157.6[b]	(27/2−)	B	3969.1		B			
2375.1[@]	(29/2−)[#]	B	3973.2[c]	(41/2+)	B			

† From least-squares fit to Eγ, allowing 1 keV uncertainty in Eγ data for which the authors did not state an uncertainty, and omitting the 355.3γ (from 910 level) because its Eγ may have been misprinted.

‡ Based on rotational band structure observed in ^{155}Gd(^{28}Si,4nγ), except as noted, also taking into account measured DCO ratios and assuming J^π=1/2− and 5/2− for the first two members of the 1/2[521], α=+1/2 band.

Member of band whose bandhead J^π and configuration are established by low α hindrance factor (HF<4) for the 5904α transition to the bandhead (g.s.) from 1/2− ^{183}Hg g.s. (configuration=1/2[521]). Configuration assignment supported by decoupling parameter (+0.73). Consequently, definite J^π has been assigned for J≤25/2 (i.e., up to the first band crossing).

@ Band(A): 1/2[521], α=+1/2 band. g.s. band. Band parameters: A=12.9, a=+0.73 (J=1/2 and 5/2, and J=3/2 and 7/2 from signature partner band). Alignment gain: 7.0ħ. Band crossing at ħω=0.28 MeV (1990MaYY).

& Band(a): 1/2[521], α=−1/2 band.

a Band(B): 5/2[512], α=+1/2 band. Alignment gain: 5.1ħ. Band crossing at ħω=0.30 MeV (1990MaYY).

b Band(b): 5/2[512], α=−1/2 band. 1990MaYY, in (^{28}Si,4nγ), included the 3341, 3360, 3969 and 4020 levels also in this band, but the evaluator does not adopt that assignment because it leads to an energy progression that seems inconsistent with the structure of the lower part of the band; the relevant transition multipolarities are unknown.

c Band(C): 7/2[633], α=+1/2 band.

d Band(c): 7/2[633], α=−1/2 band. Band crossing at ħω>0.4 MeV (1990MaYY).

γ(^{179}Pt)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.&	α[a]
71.4	3/2−	71.4[@] *10*	100	0.0	1/2−	[M1]	3.15 *14*
87.4	5/2−	87.4[@] *10*	100	0.0	1/2−	[E2]	8.6 *5*
241.2	7/2−	153.8[@]	100	87.4	5/2−	[M1]	1.95
255.5	(9/2−)	110.7	100	144.8	(7/2−)		
277.2	9/2−	190.0	100	87.4	5/2−	(E2)‡	0.428
298.5	(9/2+)	153.7	100	144.8	(7/2−)	D+Q	
391.4	(11/2−)	135.9	36 *3*	255.5	(9/2−)	(M1)	2.77
		246.6	100 *3*	144.8	(7/2−)		
417.5	(13/2+)	119.0	100	298.5	(9/2+)		
548.4	(13/2−)	157.0	29.1 *20*	391.4	(11/2−)	(M1)	1.84
		292.9	100.0 *10*	255.5	(9/2−)		

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Adopted Levels, Gammas (continued)

γ(^{179}Pt) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]
556.9	13/2⁻	279.7	100	277.2	9/2⁻		
582.3	(15/2⁺)	164.8	100.0 *13*	417.5	(13/2⁺)	(M1)	1.607
		226.5	93.3 *9*	355.8	(11/2⁺)	E2[‡]	0.237
680.6	(17/2⁺)	98.3	4.4 *4*	582.3	(15/2⁺)		
		263.1	100.0 *6*	417.5	(13/2⁺)	E2[‡]	0.1468
727.3	(15/2⁻)	178.9	23.8 *11*	548.4	(13/2⁻)	(M1)	1.276
		335.9	100.0 *9*	391.4	(11/2⁻)		
910.2	17/2⁻	355.3[#]	100.0 *6*	556.9	13/2⁻	(E2)	0.0605
		361.8	30.2 *9*	548.4	(13/2⁻)		
925.6	(19/2⁺)	245.0	51.0 *10*	680.6	(17/2⁺)		
		343.3	100.0 *6*	582.3	(15/2⁺)	(E2)	0.0666
926.8	(17/2⁻)	199.5	72 *3*	727.3	(15/2⁻)	(M1)	0.940
		369.9	100.0 *15*	556.9	13/2⁻	[E2]	0.0541
		378.4		548.4	(13/2⁻)		
1050.4	(21/2⁺)	124.8	5.4 *3*	925.6	(19/2⁺)	(M1)	3.54
		369.8	100.0 *2*	680.6	(17/2⁺)		
1139.6	(19/2⁻)	212.8	14.7 *7*	926.8	(17/2⁻)	(M1+E2)	0.54 *25*
		412.3	100.0 *12*	727.3	(15/2⁻)		
1339.0	21/2⁻	428.8	100.0	910.2	17/2⁻	(E2)	0.0364
1358.2	(23/2⁺)	307.8	34.0 *8*	1050.4	(21/2⁺)	(M1+E2)	0.19 *10*
		432.6	100.0 *13*	925.6	(19/2⁺)	(E2)	0.0356
1375.1	(21/2⁻)	235.5		1139.6	(19/2⁻)		
		448.3		926.8	(17/2⁻)		
1503.0	(25/2⁺)	144.8[b]	3.84 *23*	1358.2	(23/2⁺)		
		452.6	100.0 *10*	1050.4	(21/2⁺)		
1618.9	(23/2⁻)	243.8		1375.1	(21/2⁻)		
		479.3	100.0 *13*	1139.6	(19/2⁻)	(E2)	0.0275
1830.8	25/2⁻	491.8	100	1339.0	21/2⁻	(E2)	0.0258
1864.7	(27/2⁺)	361.7		1503.0	(25/2⁺)		
		506.5	100.0 *7*	1358.2	(23/2⁺)	(E2)	0.0240
1888.2	(25/2⁻)	513.1	100	1375.1	(21/2⁻)		
2026.9	(29/2⁺)	162.2[b]		1864.7	(27/2⁺)		
		523.9	100.0 *15*	1503.0	(25/2⁺)	(E2)	0.0221
2157.6	(27/2⁻)	269.4	100 *25*	1888.2	(25/2⁻)		
		538.7		1618.9	(23/2⁻)		
2375.1	(29/2⁻)	544.3	100	1830.8	25/2⁻	(E2)	0.0202
2434.3	(31/2⁺)	407.4	35.1 *9*	2026.9	(29/2⁺)		
		569.6	100.0 *9*	1864.7	(27/2⁺)		
2458.0	(29/2⁻)	569.8	100	1888.2	(25/2⁻)		
2616.3	(33/2⁺)	589.4	100	2026.9	(29/2⁺)		
2746.9	(31/2⁻)	288.9	100 *26*	2458.0	(29/2⁻)		
		589.2		2157.6	(27/2⁻)		
2950.9	(33/2⁻)	575.8	100	2375.1	(29/2⁻)	(E2)	0.01770
3059.8	(35/2⁺)	625.5	100	2434.3	(31/2⁺)		
3098.7	(33/2⁻)	640.7	100	2458.0	(29/2⁻)		
3266.6	(37/2⁺)	650.3	100	2616.3	(33/2⁺)		
3341.2		594.3	100	2746.9	(31/2⁻)		
3359.7		612.8	100	2746.9	(31/2⁻)		
3533.7	(37/2⁻)	582.8	100	2950.9	(33/2⁻)		
3741.4	(39/2⁺)	681.6	100	3059.8	(35/2⁺)		
3815.5	(37/2⁻)	716.8	100	3098.7	(33/2⁻)		
3969.1		609.4	100	3359.7			
3973.2	(41/2⁺)	706.6	100	3266.6	(37/2⁺)		
4019.5		678.3	100	3341.2			

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Adopted Levels, Gammas (continued)

γ(^{179}Pt) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
4144.0	(41/2$^-$)	610.3	100	3533.7	(37/2$^-$)	5504.1	(49/2$^-$)	704.3	100	4799.8	(45/2$^-$)
4476.8	(43/2$^+$)	735.4	100	3741.4	(39/2$^+$)	5526.3	(49/2$^+$)	796.8	100	4729.5	(45/2$^+$)
4571.5	(41/2$^-$)	756.0	100	3815.5	(37/2$^-$)	6255.5	(53/2$^-$)	751.4	100	5504.1	(49/2$^-$)
4729.5	(45/2$^+$)	756.3	100	3973.2	(41/2$^+$)	6367.1	(53/2$^+$)	840.8	100	5526.3	(49/2$^+$)
4799.8	(45/2$^-$)	655.8	100	4144.0	(41/2$^-$)	7253.0?	(57/2$^+$)	885.9[b]	100	6367.1	(53/2$^+$)
5264.1	(47/2$^+$)	787.3	100	4476.8	(43/2$^+$)	8174.8?	(61/2$^+$)	921.8[b]	100	7253.0?	(57/2$^+$)

† From ^{155}Gd(^{28}Si,4nγ), except as noted.
‡ Q or (Q) from DCO ratio in (^{28}Si,4nγ); not M2 from RUL based on <140 ns time window for γγ coin.
# 2 keV higher than expected from level energy difference; possible misprint.
@ From α decay.
& From DCO ratios in (^{28}Si,4nγ), assigning Δπ=(no) to intraband transitions, except as noted.
[a] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[b] Placement of transition in the level scheme is uncertain.

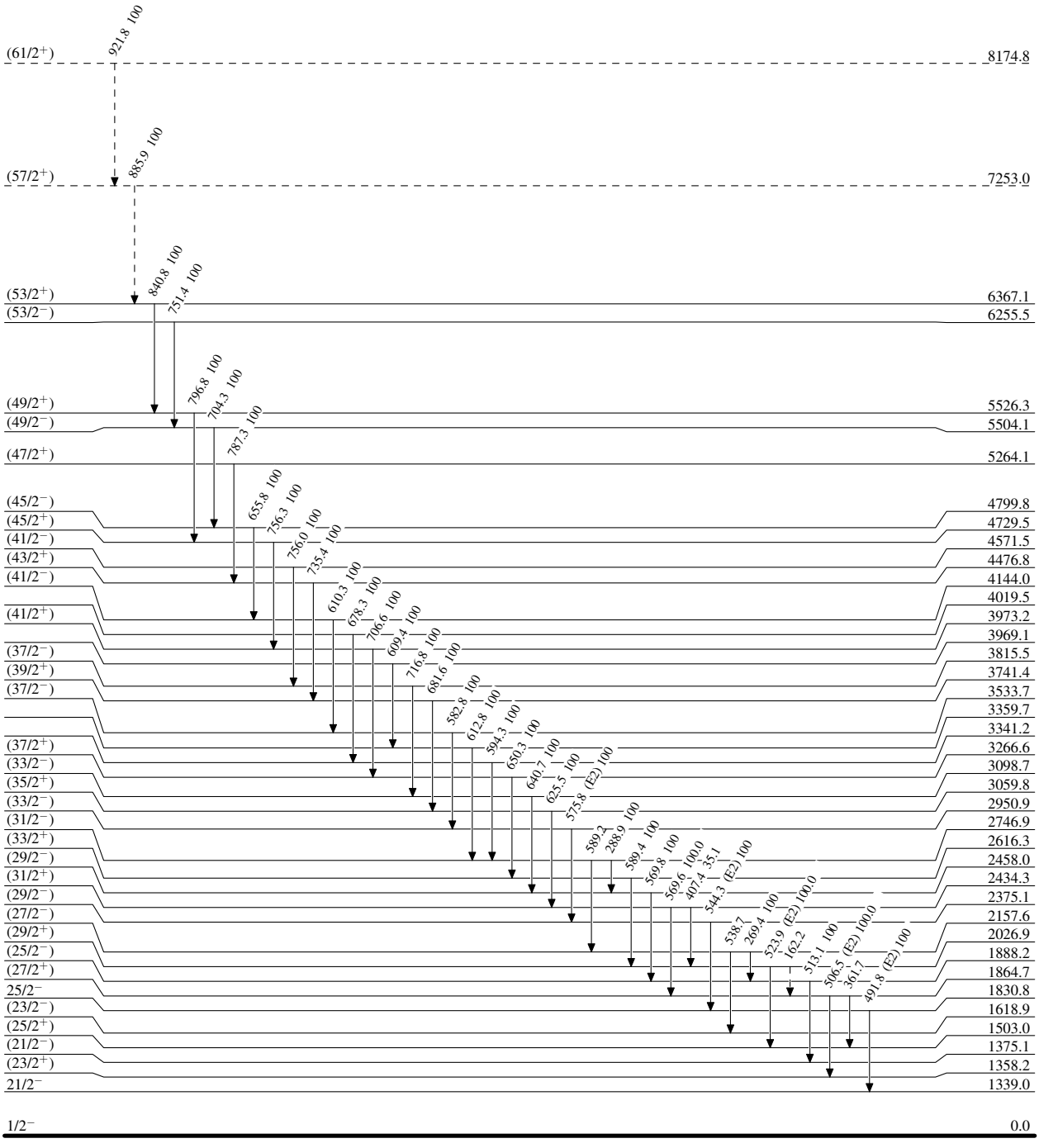
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{179}_{78}Pt_{101}$

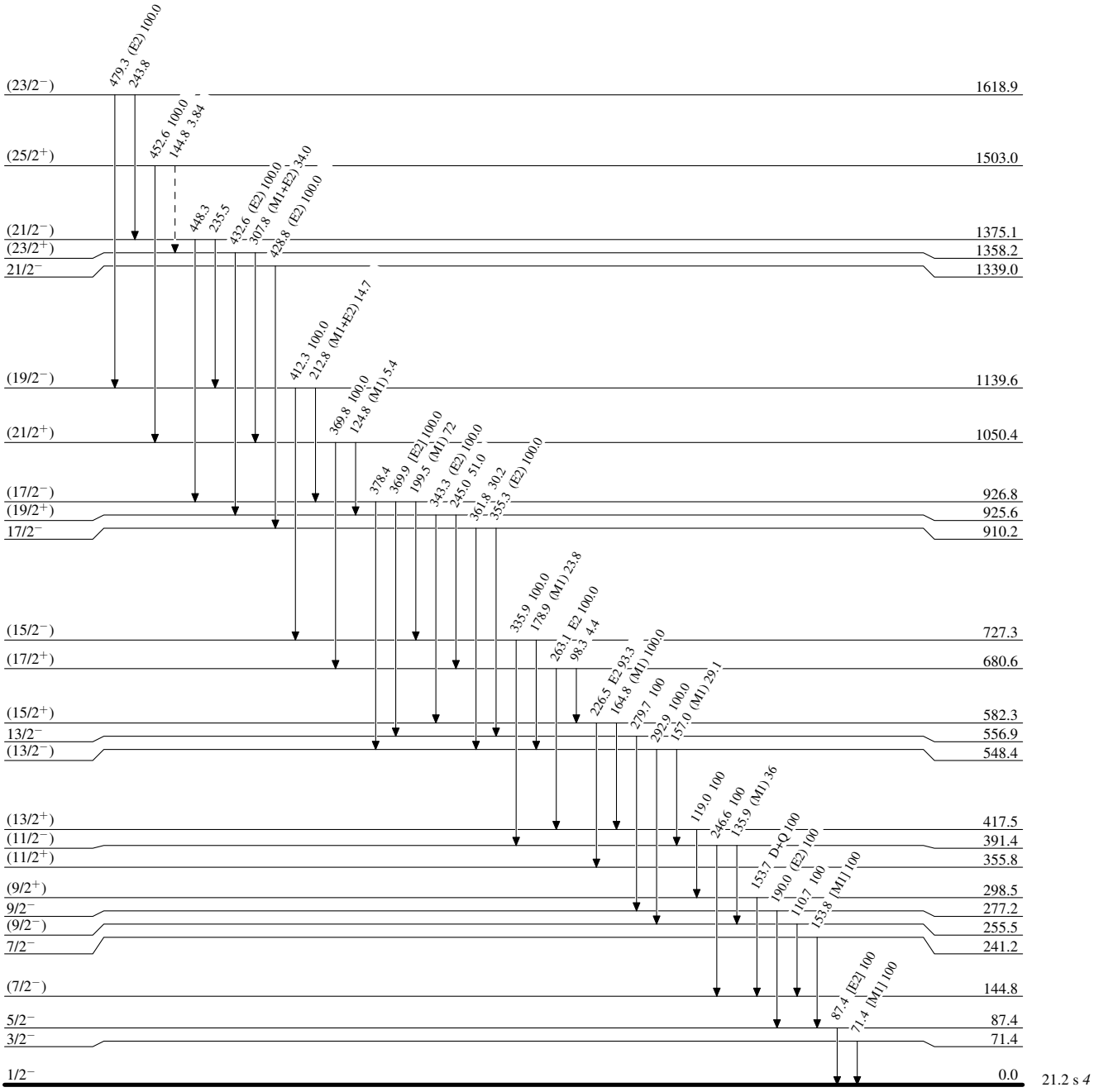
Adopted Levels, Gammas

Legend

Level Scheme (continued)

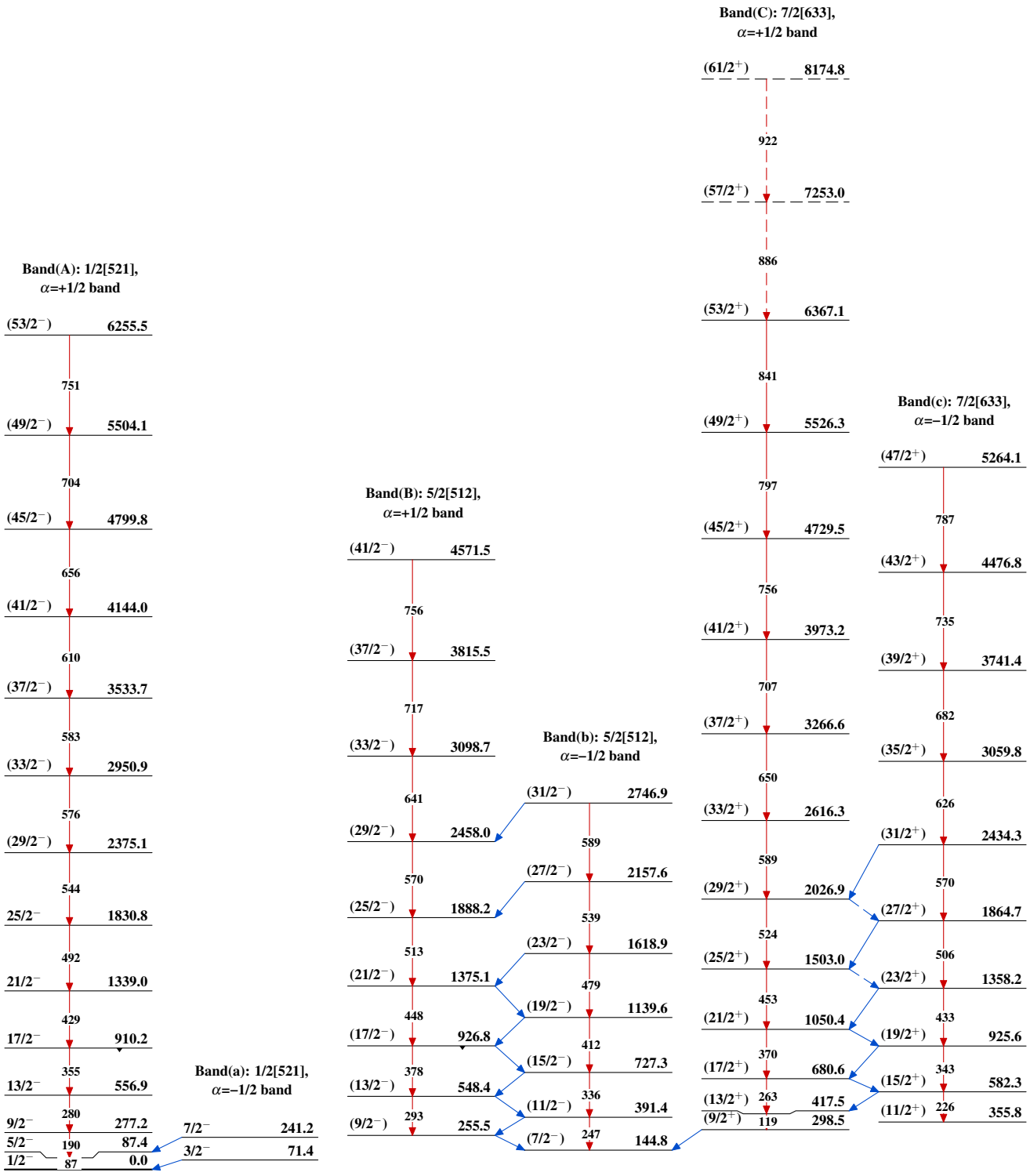
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{179}_{78}Pt_{101}$

Adopted Levels, Gammas



$^{179}_{78}Pt_{101}$