Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2006

Q(β^-)=−4096 *7*; S(n)=8275 *19*; S(p)=7131 *19*; Q(α)=−1736 *6* 2012Wa38

Note: Current evaluation has used the following Q record −4.20E+3 108273 217133 25−1741 20 2003Au03.

1976Sm06 analyzed (HI,xnγ) results on levels in ^{101}Pd,^{103}Pd,^{105}Pd using the Nilsson model with Coriolis coupling at deformation≈0.12.

^{101}Pd Levels

Cross Reference (XREF) Flags

- A ^{101}Ag ε decay (11.1 min)
- B ^{92}Zr(^{12}C,3nγ)
- C ^{102}Pd(^{3}He,$\alpha\gamma$)
- D ^{102}Pd(d,t)

E(level)	J$^\pi$[†]	$T_{1/2}$	XREF	Comments
0.0[#]	5/2$^+$	8.47 h *6*	ABCD	%ε+%β^+=100 μ=−0.66 *2* (2005St24) μ: from 1986Ni02. $T_{1/2}$: 1972Ny01 from ce(K)(296γ,590γ) decay curves (s) for ten half-lives. Others: 8.5 h *5* (1970Bo22), 8.27 h *9* (1968Pa24), 8.4 h *3* (1965Ev04), 8.5 h *3* (1956Ka25). J$^\pi$: L(d,t)=2, log *ft*=5.9 to 7/2$^+$.
80.3 *1*	(3/2)$^+$	4.8 ns *5*	A C	$T_{1/2}$: tentative assignment (1978Ha11) 80γ(t). J$^\pi$: 80γ is M1+E2; syst with first−excited states of ^{103}Pd,^{105}Pd.
261.0[@] *1*	7/2$^+$		ABCd	J$^\pi$: L(^{3}He,α)=L(d,t)=4. M1 γ to 5/2$^+$.
274.7 *2*	(7/2,9/2$^+$)		A Cd	J$^\pi$: possible ε feeding from 9/2$^+$.
400 *15*	1/2$^+$		D	J$^\pi$: L(d,t)=0.
588.0 *2*	(7/2$^+$)		ABCD	J$^\pi$: L(d,t)=2.
600 *15*	3/2$^+$,5/2$^+$		D	J$^\pi$: L(d,t)=2.
623.6 *2*	(7/2$^+$)		A	J$^\pi$: log *ft*=6.7 from 9/2$^+$, and γ to (3/2)$^+$.
667.3[#] *2*	9/2$^+$		ABC	J$^\pi$: E2 γ to 5/2$^+$, 667$\gamma(\theta)$.
730 *15*	1/2$^+$		D	J$^\pi$: L(d,t)=0.
734.7 *2*	(7/2$^+$)		A	J$^\pi$: log *ft*=6.9 from 9/2$^+$ and γ to (3/2)$^+$.
745 *1*			C	J$^\pi$: γ from 9/2$^+$, γ to 5/2$^+$.
938.9[@] *2*	11/2$^+$		ABC	J$^\pi$: E2 γ to 7/2$^+$, 677$\gamma(\theta)$.
980 *15*	3/2$^+$,5/2$^+$		D	J$^\pi$: L(d,t)=2.
1081.7 *5*	3/2$^+$,5/2$^+$		A D	XREF: D(1060). J$^\pi$: L(d,t)=2, above 1000 keV, (d,t) energies seem 30 keV too low.
1173.9 *2*	(7/2)$^+$		A	J$^\pi$: from γ decay to (3/2)$^+$ state and log *ft*=5.2 via 9/2$^+$ parent.
1199.3 *2*			A	
1205.3 *2*	(7/2$^+$)		A	J$^\pi$: From γ decay to (3/2)$^+$ state and log *ft*=5.6 via 9/2$^+$ parent.
1250 *15*	3/2$^+$,5/2$^+$		D	J$^\pi$: L(d,t)=2, the energy could be higher, see 1081 level.
1265.6 *3*	(11/2$^+$)		AB	J$^\pi$: stretched Q to (7/2$^+$).
1337.4[‡] *1*	11/2$^-$		BCD	XREF: D(1310). J$^\pi$: E1 γ to 9/2$^+$, γ to 11/2$^+$, L(^{3}He,α)=5. E(level): fits regional trends of 11/2$^-$ isomers.
1380 *15*	1/2$^+$		D	J$^\pi$: L(d,t)=0.
1403.5[#] *2*	13/2$^+$		ABC	J$^\pi$: E2 γ to 9/2$^+$, 736$\gamma(\Theta)$.
1534.5 *2*	(7/2$^+$)		A	J$^\pi$: from γ decay to 3/2$^+$ state and log *ft*=6.2 via 9/2$^+$ parent.
1560.5 *3*	(7/2$^+$,9/2$^+$,11/2$^+$)		A	J$^\pi$: log *ft*=5.8 from 9/2$^+$ parent.
1614.6 *6*			A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{101}Pd Levels (continued)

E(level)	J^{π}[†]	XREF	Comments
1816.6[@] *2*	$15/2^+$	B	J^{π}: E2 γ to $13/2^+$, 877$\gamma(\theta)$.
1823.6 *6*		A	
1892.9[‡] *2*	$15/2^-$	BC	J^{π}: E2 γ to $11/2^-$, 555$\gamma(\theta)$.
1932.9 *6*		A	
1981.7? *9*		A	
2041.6 *3*	$(7/2^+,9/2^+,11/2^+)$	A	J^{π}: log *ft*=5.8 from $9/2^+$ parent.
2050 *15*	$1/2^-,3/2^-$	D	J^{π}: L(d,t)=1.
2063.0 *5*	$(15/2^+)$	B	J^{π}: γ's to $13/2^+$, $11/2^+$, stretched Q to $(11/2^+)$.
2141 *2*	$(15/2^+)$	CD	J^{π}: from L(^{3}He,$\alpha\gamma$)=4,5 and L(d,t)=(4,5). γ to $15/2^-$. 1985Sa24 in suggest that the decay only to $15/2^-$ implies a J^{π} higher than that allowed by the L value (via one step process) and that the excitation might proceed by two-step processes; however, if the (d,t) peak corresponds to this level, the agreement in the L values is correct.
2207.5[#] *2*	$17/2^+$	B	J^{π}: E2 γ to $13/2^+$, 804$\gamma(\theta)$.
2220.3 *4*	$(7/2^+,9/2^+)$	A D	XREF: D(2180). J^{π}: γ to $7/2^+$, log *ft*=5.9 from $9/2^+$, L=4 (d,t).
2221 *2*	$7/2^+,9/2,11/2^-$	C	J^{π}: L=(4,5) in (^{3}He,$\alpha\gamma$), γ to $9/2^+$.
2245.4 *8*	(13/2)	B	J^{π}: γ to $11/2^-$, non-yrast member of rotational band (1980Po06).
2265.3 *6*	$(7/2^+,9/2^+,11/2^+)$	A	J^{π}: log *ft*=5.8 from $9/2^+$ parent; however, the feeding is weak.
2290 *15*	$1/2^-,3/2^-$	D	J^{π}: L(d,t)=1.
2291 *1*	(17/2)	B	J^{π}: γ to $13/2^+$, systematics.
2300.2 *6*		AB	
2393.4 *9*	$9/2^+$	A CD	XREF: D(2360). J^{π}: L=4 (^{3}He,α), $7/2^+$ γ to $13/2^+$.
2512.0 *9*	(15/2)	B	J^{π}: γ to $15/2^+$, non-yrast member of rotational band (1980Po06).
2641.1[‡] *3*	$19/2^-$	B	J^{π}: E2 γ to $15/2^-$, 748$\gamma(\theta)$.
2641.2 *3*	$(7/2^+,9/2^+,11/2^+)$	A	J^{π}: log *ft*=5.6 from $9/2^+$ parent; however, the feeding is weak.
2721.0[@] *10*	$19/2^+$	B	J^{π}: E2 γ to $15/2^+$, 904$\gamma(\theta)$.
2802.8 *5*		A	
2864.6[#] *2*	$21/2^+$	B	J^{π}: E2 γ to $17/2^+$, 657$\gamma(\theta)$.
2891.0 *5*		A	
2895.8 *5*	$(7/2^+,9/2^+,11/2^+)$	A	J^{π}: log *ft*=5.3 from $9/2^+$ parent; however, the feeding is weak.
2960.1 *5*	$(7/2^+,9/2^+,11/2^+)$	A	J^{π}: log *ft*=5.6 from $9/2^+$ parent; however, the feeding is weak.
2983 *1*	$(17/2^-)$	B	
3034.6 *7*		B	
3227.5 *5*	$(21/2^+)$	B	J^{π}: γ's to $21/2^+$ and $17/2^+$.
3304.7 *9*	$(7/2^+,9/2^+,11/2^+)$	A	J^{π}: log *ft*=5.6 from $9/2^+$ parent; however, the feeding is weak.
3327.1 *8*	$(19/2^-)$	B	
3404.3 *8*	$(7/2^+,9/2^+,11/2^+)$	A	J^{π}: log *ft*=5.6 from $9/2^+$ parent; however, the feeding is weak.
3532.2[‡] *3*	$23/2^-$	B	J^{π}: E2 γ to $19/2^-$, 891$\gamma(\theta)$.
3625.4[@] *3*	$(23/2)^+$	B	J^{π}: E2 γ to $21/2^+$, 904$\gamma(\theta)$.
3812.0[#] *3*	$25/2^+$	B	J^{π}: E2 γ to $21/2^+$, 947$\gamma(\theta)$.
4443.0[‡] *6*	$27/2^-$	B	J^{π}: E2 γ to $23/2^-$, 910$\gamma(\theta)$.
4896.4[#] *5*	$(29/2^+)$	B	J^{π}: E2 γ to $25/2^+$, 1084$\gamma(\theta)$.
5414.5[‡] *6*	$(31/2^-)$	B	J^{π}: 971 could be an E2.
6488.2 *10*		B	

[†] ΔJ of intraband and interband transitions are deduced from γ-ray linear pol and $\gamma(\theta)$ in (^{12}C,3nγ) study.
[‡] Band(A): ΔJ=2 sequence built on $11/2^-$ state interpreted as Coriolis-decoupled band with K=1/2 dominant.
[#] Band(B): ΔJ=2 sequence built on $5/2^+$ g.s. interpreted as rotation-aligned (n) d5/2 coupled to ^{100}Pd Co.
[@] Band(C): ΔJ=2 sequence built on $7/2^+$ state interpreted as rotation-aligned (n) g7/2 coupled to ^{100}Pd Co.

Adopted Levels, Gammas (continued)

γ(^{101}Pd)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ	α#	Comments
80.3	$(3/2)^+$	80.26 *12*	100	0.0	$5/2^+$	M1+E2	+0.41 *+11−12*		B(M1)(W.u.)=0.0037 *6*; B(E2)(W.u.)=9.E+1 *5*
261.0	$7/2^+$	180.5 *5*	0.5 *2*	80.3	$(3/2)^+$				
		260.97 *5*	100 *20*	0.0	$5/2^+$	M1		0.028	
274.7	$(7/2,9/2^+)$	274.68 *15*	100	0.0	$5/2^+$				
588.0	$(7/2^+)$	326.91 *15*	18.9 *16*	261.0	$7/2^+$				I_γ: from ε decay. Iγ=33 in (^{12}C,3nγ). Also placed from 1266 in (^{12}C,3nγ). If branching is correct, then Iγ(327γ from 588 in ε decay)=17.4 *16*.
		507.6 *4*	20 *5*	80.3	$(3/2)^+$				
		588.00 *15*	100 *5*	0.0	$5/2^+$				
623.6	$(7/2^+)$	543.32 *15*	100 *7*	80.3	$(3/2)^+$				
		623.58 *15*	33.4 *23*	0.0	$5/2^+$				
667.3	$9/2^+$	406.29 *5*	7.1 *9*	261.0	$7/2^+$	M1(+E2)	+0.05 *5*		
		667.23 *5*	100 *3*	0.0	$5/2^+$	E2			
734.7	$(7/2^+)$	459.9 *3*	11.3 *16*	274.7	$(7/2,9/2^+)$				
		654.4 *2*	48 *3*	80.3	$(3/2)^+$				
		734.7 *2*	100 *8*	0.0	$5/2^+$				
745		484 *1*	100	261.0	$7/2^+$				
938.9	$11/2^+$	271.7 *1*	5 *3*	667.3	$9/2^+$				
		677.9 *1*	100 *11*	261.0	$7/2^+$	E2			
1081.7	$3/2^+,5/2^+$	494.0 *5*	100 *20*	588.0	$(7/2^+)$				
		806.9 *5*	40 *12*	274.7	$(7/2,9/2^+)$				
1173.9	$(7/2)^+$	439.2 *2*	31.9 *11*	734.7	$(7/2^+)$				
		506.6 *3*	6.5 *12*	667.3	$9/2^+$				
		550.2 *2*	4.4 *5*	623.6	$(7/2^+)$				
		585.9 *4*	12 *3*	588.0	$(7/2^+)$				
		899.4 *2*	5.4 *6*	274.7	$(7/2,9/2^+)$				
		912.9 *2*	6.5 *6*	261.0	$7/2^+$				
		1093.6 *2*	29.4 *12*	80.3	$(3/2)^+$				
		1173.9 *2*	100 *3*	0.0	$5/2^+$				
1199.3		532.0 *3*	23 *4*	667.3	$9/2^+$				
		575.6 *2*	26 *3*	623.6	$(7/2^+)$				
		611.3 *2*	48 *5*	588.0	$(7/2^+)$				
		938.3 *2*	100 *8*	261.0	$7/2^+$				
1205.3	$(7/2^+)$	470.6 *3*	12 *2*	734.7	$(7/2^+)$				
		537.9 *2*	53 *3*	667.3	$9/2^+$				
		581.3 *5*	8 *2*	623.6	$(7/2^+)$				
		617.6 *3*	6 *2*	588.0	$(7/2^+)$				
		930.5 *3*	12 *2*	274.7	$(7/2,9/2^+)$				
		944.3 *2*	44 *4*	261.0	$7/2^+$				
		1125.3 *3*	16 *3*	80.3	$(3/2)^+$				
		1205.3 *2*	100 *4*	0.0	$5/2^+$				

$^{101}_{46}Pd_{55}$-3

Adopted Levels, Gammas (continued)

γ(^{101}Pd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ	Comments
1265.6	(11/2$^+$)	327 *1*	11 *1*	938.9	11/2$^+$			I_γ: from Iγ/Iγ(598+678) in (^{12}C,3nγ) and adopted Iγ(598+678γ′s).
		598.2 *2*	53 *4*	667.3	9/2$^+$			
		677.7 *2*	100 *9*	588.0	(7/2$^+$)	Q		
1337.4	11/2$^-$	398.56 *7*	6.0 *22*	938.9	11/2$^+$			
		670.17 *5*	100 *9*	667.3	9/2$^+$	E1		
1403.5	13/2$^+$	138 *1*	2.1 *2*	1265.6	(11/2$^+$)			
		464.5 *2*	9 *3*	938.9	11/2$^+$	(M1+E2)	+0.18 *12*	
		736.3 *2*	100 *10*	667.3	9/2$^+$	E2		
1534.5	(7/2$^+$)	799.7 *3*	67 *6*	734.7	(7/2$^+$)			
		867.2 *3*	63 *14*	667.3	9/2$^+$			
		910.8 *5*	14 *6*	623.6	(7/2$^+$)			
		1454.0 *3*	100 *18*	80.3	(3/2)$^+$			
1560.5	(7/2$^+$,9/2$^+$,11/2$^+$)	386.7 *4*	21 *3*	1173.9	(7/2)$^+$			
		825.9 *3*	22 *4*	734.7	(7/2$^+$)			
		893.2 *2*	100 *9*	667.3	9/2$^+$			
		1299.5 *2*	83 *7*	261.0	7/2$^+$			
1614.6		1353.6 *3*	100	261.0	7/2$^+$			
1816.6	15/2$^+$	877.67 *5*	100	938.9	11/2$^+$	E2		
1823.6		420.1 *4*	100	1403.5	13/2$^+$			
1892.9	15/2$^-$	490 *1*	6.4 *7*	1403.5	13/2$^+$			
		555.54 *5*	100 *10*	1337.4	11/2$^-$	E2		
1932.9		1671.9 *4*	100	261.0	7/2$^+$			
1981.7?		577.9 *5*	100	1403.5	13/2$^+$			
2041.6	(7/2$^+$,9/2$^+$,11/2$^+$)	1306.7 *5*	100 *14*	734.7	(7/2$^+$)			
		1418.1 *2*	57 *11*	623.6	(7/2$^+$)			
		2041.8 *2*	84 *6*	0.0	5/2$^+$			
2063.0	(15/2$^+$)	660.0 *7*	13.6 *14*	1403.5	13/2$^+$			
		797.0 *7*	100 *10*	1265.6	(11/2$^+$)	Q		
2207.5	17/2$^+$	390.90 *7*	6 *3*	1816.6	15/2$^+$	(M1+E2)	−0.02 *4*	
		804.02 *5*	100 *8*	1403.5	13/2$^+$	E2		
2220.3	(7/2$^+$,9/2$^+$)	1632.9 *6*	100 *33*	588.0	(7/2$^+$)			
		1959.0 *3*	52 *17*	261.0	7/2$^+$			
2221	7/2$^+$,9/2,11/2$^-$	1554 *1*	100	667.3	9/2$^+$			
2245.4	(13/2)	908.0 *7*	100	1337.4	11/2$^-$			
2265.3	(7/2$^+$,9/2$^+$,11/2$^+$)	1326.1 *5*	100 *15*	938.9	11/2$^+$			
		1641.8 *3*	24 *5*	623.6	(7/2$^+$)			
2291	(17/2)	887	100	1403.5	13/2$^+$			
2300.2		1632.8 *4*	100 *5*	667.3	9/2$^+$			
2393.4	9/2$^+$	988 *2*	8 *4*	1403.5	13/2$^+$			E_γ: the evaluator assumes that the 2396 in (^{3}He,αγ) corresponds to the 2393 level in ε decay. So the 991,1457,1729,1808 are

Adopted Levels, Gammas (continued)

γ(^{101}Pd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ	Comments
								lowered by 3 keV to agree with the ε decay Eγ value for 2131.8.
2393.4	9/2$^+$	1454 *2*	26 *8*	938.9	11/2$^+$			
		1726 *2*	9 *5*	667.3	9/2$^+$			
		1805 *2*	16 *8*	588.0	(7/2$^+$)			
		2131.8 *4*	100 *20*	261.0	7/2$^+$	D+Q	+0.34 *+3−5*	
2512.0	(15/2)	619.0 *7*		1892.9	15/2$^-$			
2641.1	19/2$^-$	748.2 *2*	100 *11*	1892.9	15/2$^-$	E2		
2641.2	(7/2$^+$,9/2$^+$,11/2$^+$)	2053.1 *3*	100	588.0	(7/2$^+$)			
2721.0	19/2$^+$	904.4 *10*	100	1816.6	15/2$^+$	E2		
2802.8		1399.3 *5*	100	1403.5	13/2$^+$			
2864.6	21/2$^+$	657.07 *5*	100	2207.5	17/2$^+$	E2		
2891.0		1487.5 *4*	100	1403.5	13/2$^+$			
2895.8	(7/2$^+$,9/2$^+$,11/2$^+$)	2307.8 *3*	100 *17*	588.0	(7/2$^+$)			
		2635.1 *5*	47 *7*	261.0	7/2$^+$			
2960.1	(7/2$^+$,9/2$^+$,11/2$^+$)	2699.1 *3*	100	261.0	7/2$^+$			
2983	(17/2$^-$)	1090	100	1892.9	15/2$^-$			
3034.6		170.0 *7*	100	2864.6	21/2$^+$			
3227.5	(21/2$^+$)	363 *1*		2864.6	21/2$^+$			
		1020 *1*		2207.5	17/2$^+$			
3304.7	(7/2$^+$,9/2$^+$,11/2$^+$)	1901.2 *5*	100	1403.5	13/2$^+$			
3327.1	(19/2$^-$)	686 *1*	100	2641.1	19/2$^-$			
3404.3	(7/2$^+$,9/2$^+$,11/2$^+$)	3143.3 *8*	100	261.0	7/2$^+$			
3532.2	23/2$^-$	891.04 *5*	100	2641.1	19/2$^-$	E2		
3625.4	(23/2)$^+$	904.4 *10*	100	2721.0	19/2$^+$	E2		
3812.0	25/2$^+$	947.47 *5*	100	2864.6	21/2$^+$	E2		
4443.0	27/2$^-$	910.78 *10*	100	3532.2	23/2$^-$	(E2)		
4896.4	(29/2$^+$)	1084.4 *2*	100	3812.0	25/2$^+$	(E2)		
5414.5	(31/2$^-$)	971.56 *10*	100	4443.0	27/2$^-$			
6488.2		1073.7 *5*	100	5414.5	(31/2$^-$)			

[†] Weighted average of all available data.

[‡] From ^{101}Ag ε decay and ^{92}Zr(^{12}C,3nγ).

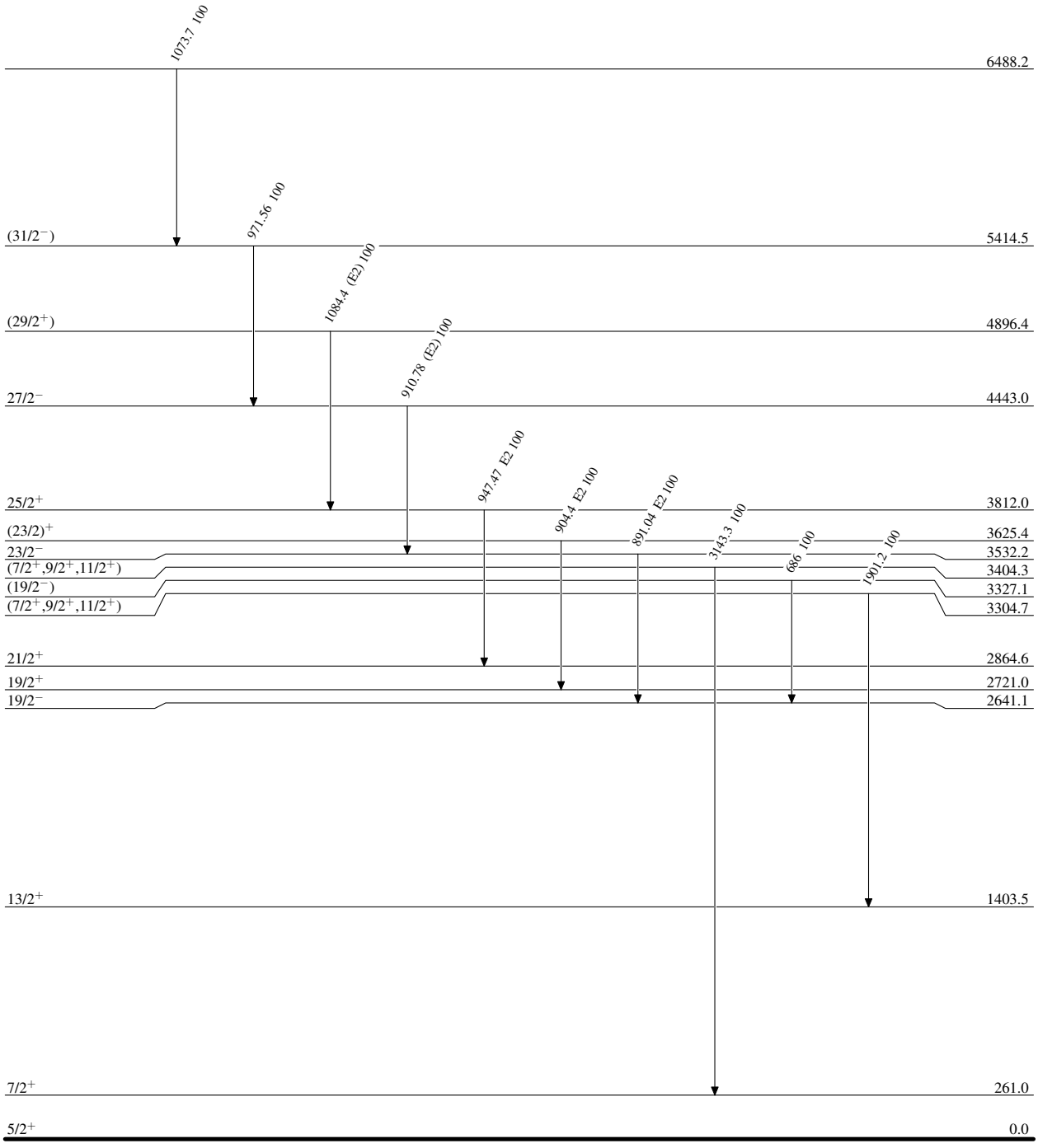
[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

$^{101}_{46}Pd_{55}$-5

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

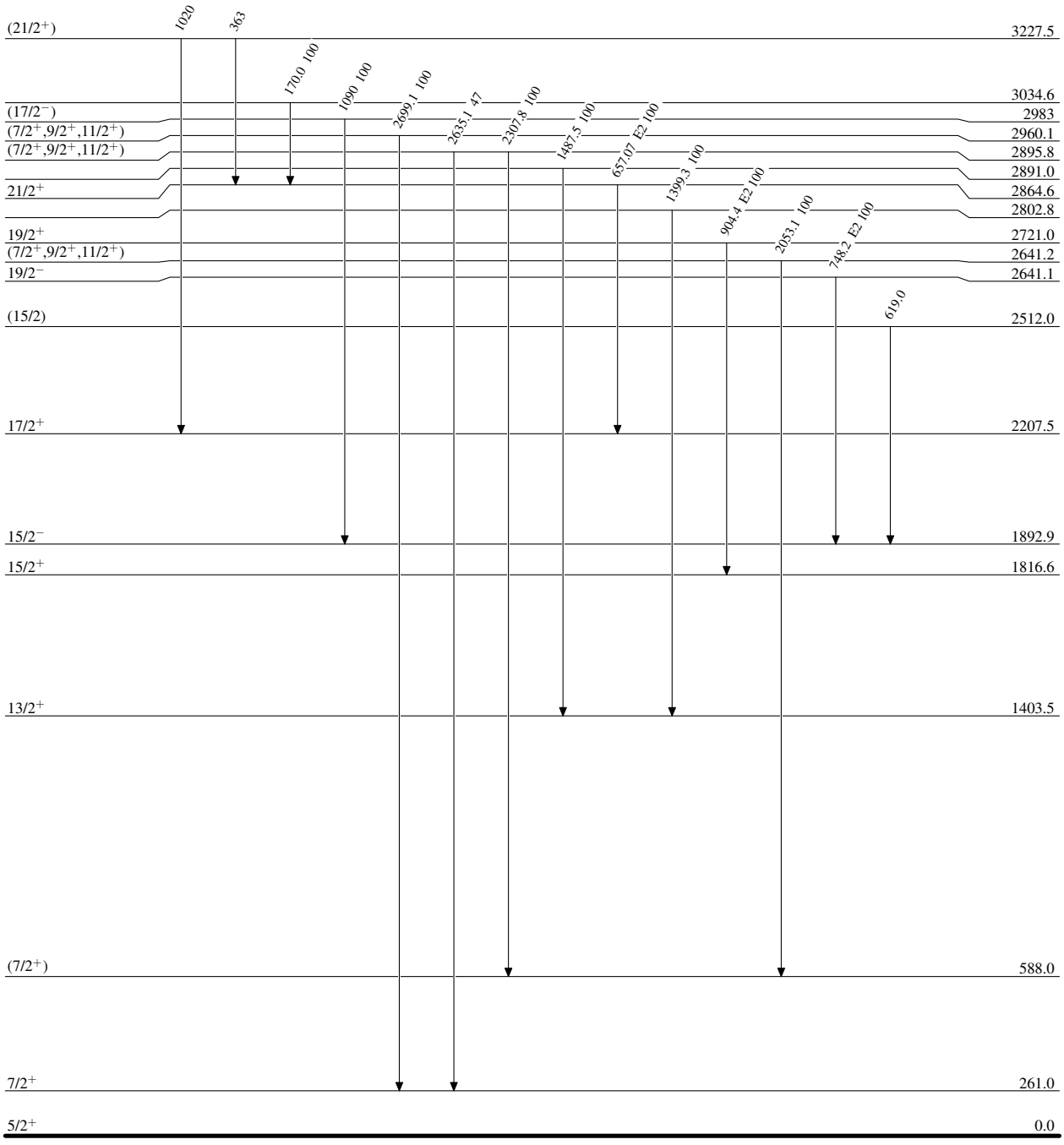


$^{101}_{46}Pd_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

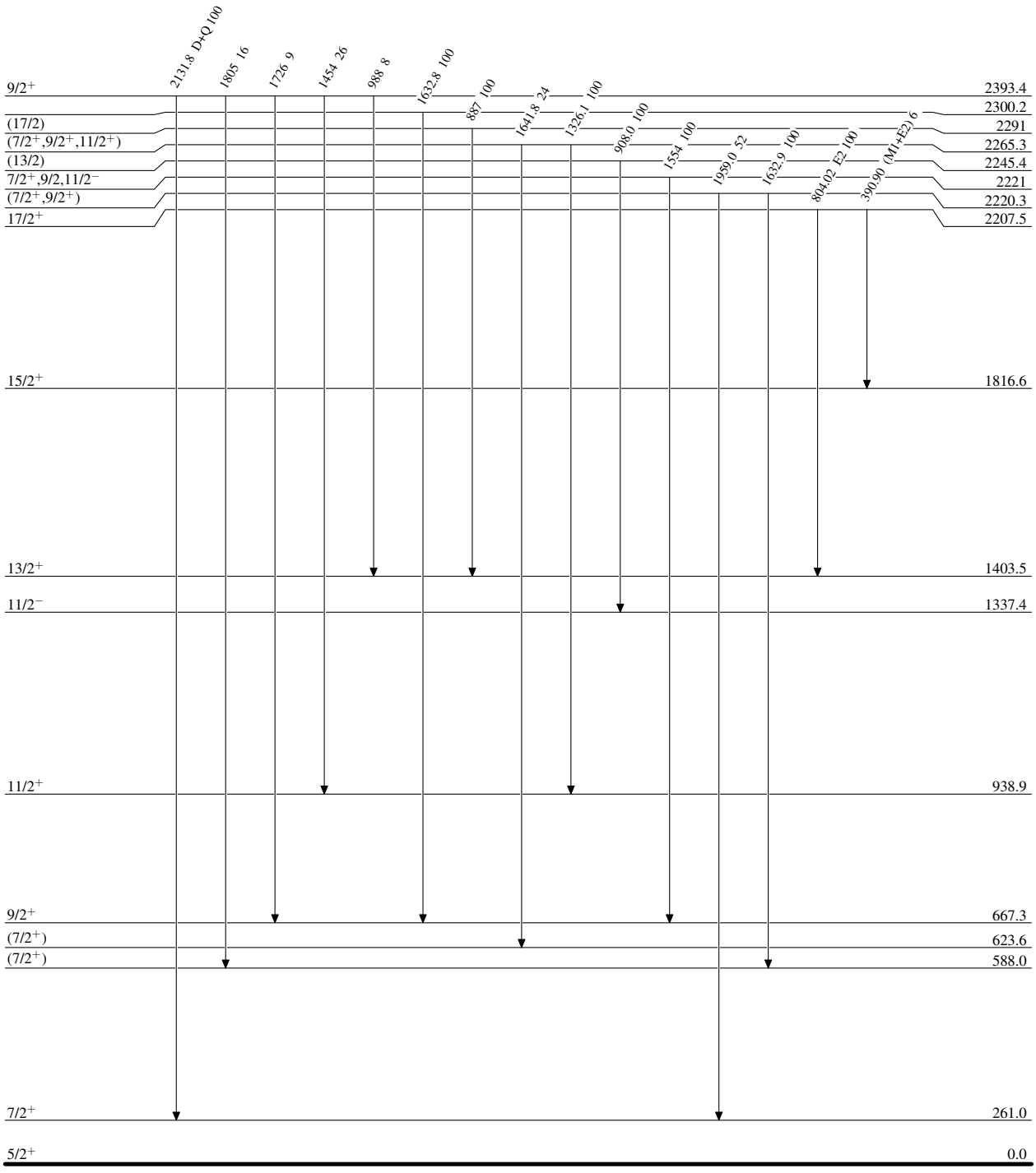


$^{101}_{46}Pd_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

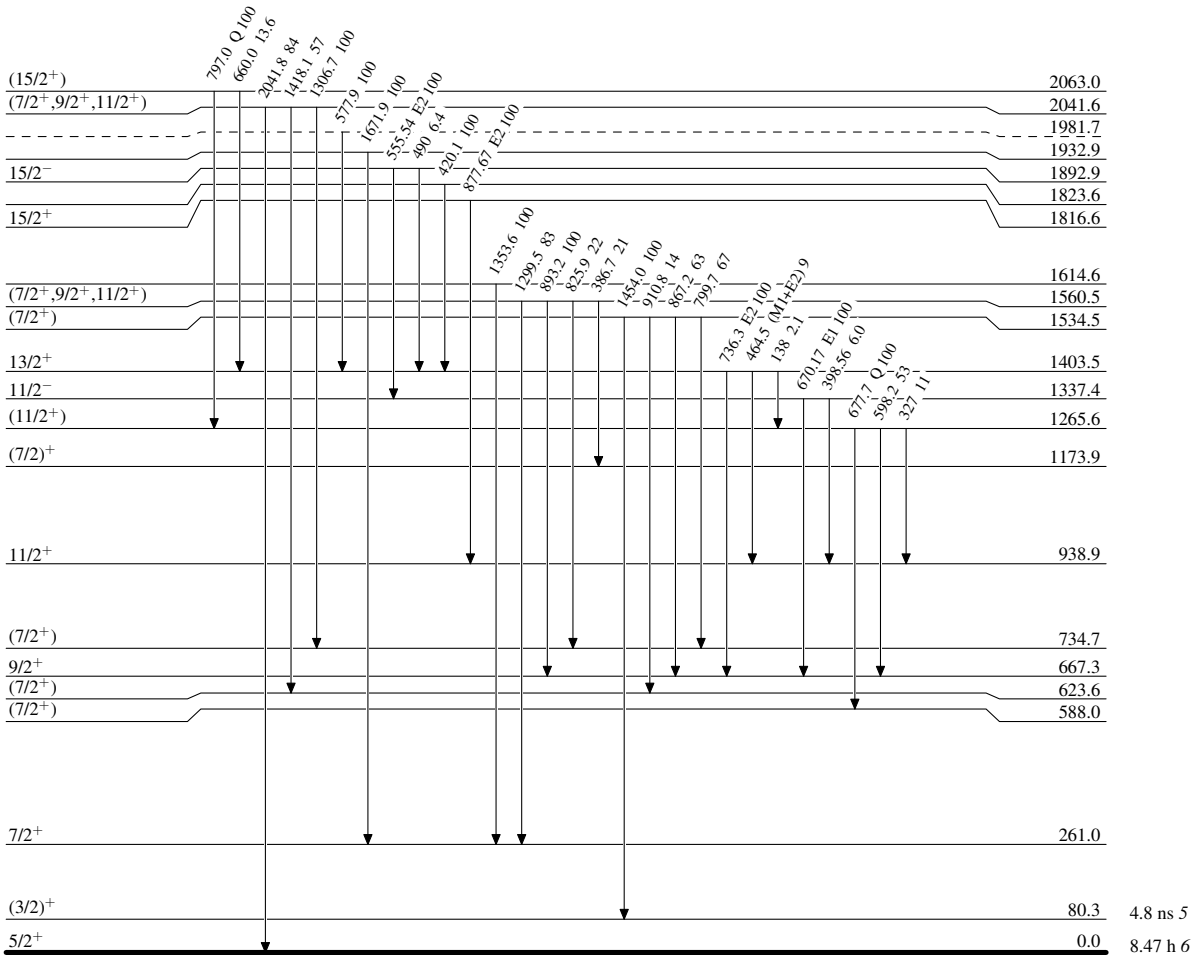


$^{101}_{46}Pd_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

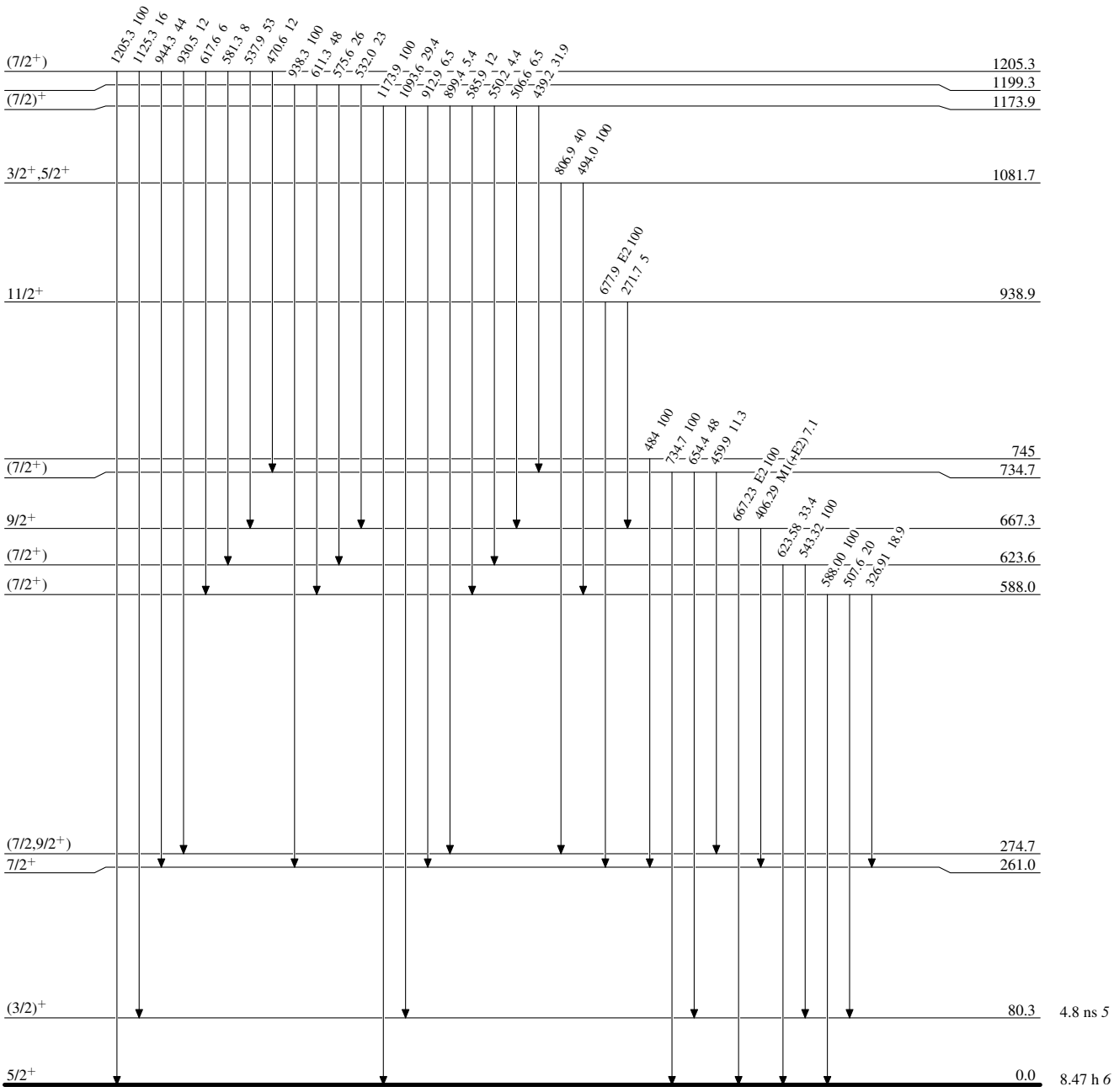


$^{101}_{46}Pd_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

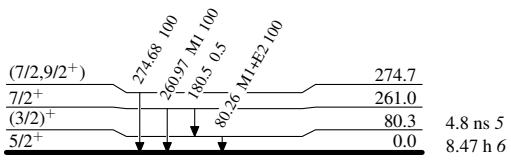


$^{101}_{46}Pd_{55}$

Adopted Levels, Gammas

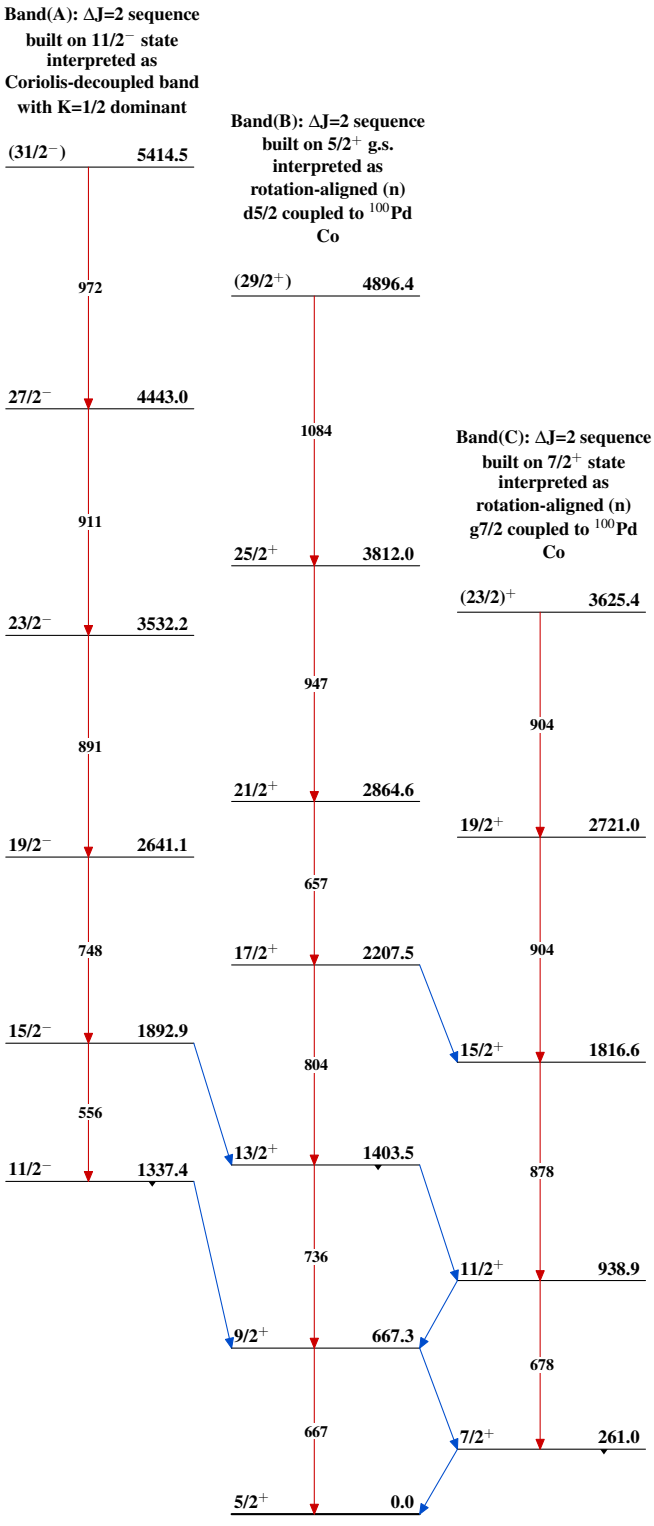
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{101}_{46}Pd_{55}$

Adopted Levels, Gammas



$^{101}_{46}Pd_{55}$