

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 109,1383 (2008)	1-Mar-2008

$Q(\beta^-)=34.1$ 24; $S(n)=6536.4$ 5; $S(p)=9300$ 6; $Q(\alpha)=-3533.8$ 16 [2012Wa38](#)

Note: Current evaluation has used the following Q record 34.1 27 6536.4 5 9295 6 -3534 4 [2003Au03](#).

[Additional information 1](#).

 ^{107}Pd Levels

See [1975Re07](#) for Nilsson model with Coriolis coupling applied to regional odd-mass nuclei.

Cross Reference (XREF) Flags

A	^{107}Rh β^- decay (21.7 min)	E	$^{106}\text{Pd}(\text{d,p})$
B	^{107}Pd IT decay (21.3 s)	F	$^{108}\text{Pd}(\text{d,t})$
C	$^{104}\text{Ru}(\alpha, n\gamma)$	G	(HI, $xn\gamma$)
D	$^{106}\text{Pd}(\text{n}, \gamma)$ E=th		

E(level) [†]	J^π [‡]	$T_{1/2}$	XREF	Comments
0.0 [@]	5/2 ⁺	6.5×10 ⁶ y 3	ABC EFG	% β^- =100 $T_{1/2}$: 6.5×10 ⁶ y 3 specific activity (1969Fl04) fission product chem, ms. Other: $\approx 7 \times 10^6$ y (1949Pa17). J^π : L=2 (d,p),(d,t), S(d,t)/S(d,p); 5/2 ⁺ characteristic of odd-mass ^{101}Pd , ^{111}Pd g.s.
115.74 12	1/2 ⁺	0.85 μs 10	A C EF	$T_{1/2}$: from (452 γ)(116 γ)(t) 1969Gr18 . Other: 1978Ho06 . J^π : L=0 (d,p),(d,t). For empirical systematics of regional E2 isomerism between s1/2 and d5/2 states, see 1978Ho06 .
214.6 [#] 3	11/2 ⁻	21.3 s 5	BC EFG	%IT=100 $T_{1/2}$: from 1957St87 . Others: 23 s 2 (1952Fl10), 23 s (1958Sc03). E(level): low-lying 11/2 ⁻ isomerism: 25-ns ^{103}Pd at 785, 36- μs ^{105}Pd at 489, 4.7-min ^{109}Pd at 189, 5.5-h ^{111}Pd at 172. J^π : L=5 (d,p),(d,t), E3(214 γ) to g.s., $T_{1/2}$, configuration=h11/2.
302.78 15	5/2 ⁺		A C EF	J^π : L=2 (d,p),(d,t), S(d,t)/S(d,p).
312.20 ^a 10	7/2 ⁺		A C EFG	J^π : L=4 (d,p),(d,t), 313 γ (θ) in ($\alpha, n\gamma$).
348.18 13			A	
366.8 5	7/2 ⁺		C EF	J^π : L=4 (d,p),(d,t), 367 γ (θ) in ($\alpha, n\gamma$).
381.80 13	3/2 ⁺		A EF	J^π : L=2 (d,p),(d,t), S(d,t)/S(d,p).
392.42 13	7/2 ⁺		A C	J^π : M1 γ to 5/2 ⁺ , log $ft=5.8$ from 7/2 ⁺ .
412 7	1/2 ⁺		EF	J^π : L=0 (d,p),(d,t).
471.21 24	(3/2) ⁺		A C EF	J^π : L=2 (d,p),(d,t), S(d,t)/S(d,p).
567.67 14	5/2 ⁺		A EF	J^π : L=2 (d,p),(d,t), log $ft=6.1$ from 7/2 ⁺ .
670.06 10	5/2 ⁺		A C EF	J^π : L=2 (d,p),(d,t), S(d,t)/S(d,p).
685			E	J^π : tentative L=3.
686.79 [#] 24	15/2 ⁻		C G	J^π : intraband E2 γ decay, 473 γ excitation function.
696.0 5	1/2 ⁺		C EF	J^π : L=0 (d,p),(d,t).
696.33 9	9/2 ⁺		G	
759 7	(3/2) ⁺		EF	J^π : L=2 (d,p),(d,t), S(d,t)/S(d,p).
781 7	1/2 ⁻ , 3/2 ⁻		EF	J^π : L=1 (d,p),(d,t).
809 7	(5/2) ⁺		EF	J^π : L=2 (d,t), L=1,(2) (d,p), S(d,t)/S(d,p).
889 7	1/2 ⁺		EF	J^π : L=0 (d,p),(d,t).
954.85 ^a 17	11/2 ⁺		C G	J^π : E2 to 7/2 ⁺ . Band member.
1023 7	3/2 ⁺ , 5/2 ⁺		EF	J^π : L=2 (d,p),(d,t).

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Adopted Levels, Gammas (continued) ^{107}Pd Levels (continued)

E(level) [†]	J ^π [‡]	XREF	Comments
1063.3 6	(13/2 ⁻)	C	J ^π : 376γ(θ), 376γ excitation function in (α,nγ).
1071 7	(5/2) ⁺	EF	J ^π : L=2 (d,p),(d,t), S(d,t)/S(d,p).
1101.99 24	(7/2 ⁺)	A C	J ^π : (M1+E2) γ to 5/2 ⁺ .
1113 10	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
1120 9	1/2 ⁺	F	J ^π : L=0 (d,t).
1148.5? 6		A	
1160 10	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
1167 9	1/2 ⁺	F	J ^π : L=0 (d,t); possible doublet with (d,p) L=2 excitation at 1160 keV.
1214 7	3/2 ⁺ , 5/2 ⁺	EF	J ^π : L=2 (d,t).
1221 7	7/2 ⁺ , 9/2 ⁺	E	J ^π : L=4 (d,p).
1267 9	3/2 ⁺ , 5/2 ⁺	F	J ^π : L=2 (d,t).
1340.3 ^b 5	13/2 ⁺	G	
1347 7	7/2 ⁺ , 9/2 ⁺	E	J ^π : L=4 (d,p).
1353 7	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
1373.82 ^b 13	13/2 ⁺	G	
1402 7	3/2 ⁺ , 5/2 ⁺	EF	J ^π : L=2 (d,t).
1443.10 [#] 24	19/2 ⁻	C G	J ^π : band member.
1451 7		E	
1472.0 6	(3/2 ⁻)	C E	J ^π : L(d,p)=1. γ to 5/2 ⁺ . If (d,p) and β ⁻ decay are populating different levels, then J ^π =1/2 ⁻ , 3/2 ⁻ for E=1473 7 and J ^π =1/2 ⁺ to 9/2 ⁺ for E=1472.3.
1509 7	1/2 ⁺	EF	J ^π : L=0 (d,p),(d,t).
1532 7	1/2 ⁻ , 3/2 ⁻	E	J ^π : L=1 (d,p).
1539 7	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
1572 10	5/2 ⁻ , 7/2 ⁻	E	J ^π : L=3,(4) (d,p); possible doublet with (d,t) L=2 excitation.
1.59×10 ³ 10	3/2 ⁺ , 5/2 ⁺	F	J ^π : L=2 (d,t).
1615 7	3/2 ⁺ , 5/2 ⁺	EF	XREF: F(1632). J ^π : L=2 (d,p).
1670 7	1/2 ⁺	EF	XREF: F(1689). J ^π : L=0 (d,p).
1676.36 ^a 19	15/2 ⁺	G	
1702 7	(5/2 ⁻ , 7/2 ⁻)	E	J ^π : L=(3) (d,p).
1742.05 24	(15/2 ⁺)	G	
1763.4 11	(15/2 ⁺)	C	J ^π : Q to (11/2 ⁺), intraband E2 γ decay.
1790 7	1/2 ⁻ , 3/2 ⁻	EF	XREF: F(1753). J ^π : L=1 (d,p).
1866 7	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
1879 7	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
1954 7		E	
1987 7	5/2 ⁻ , 7/2 ⁻	E	J ^π : L=3 (d,p).
2006 7	5/2 ⁻ , 7/2 ⁻	E	J ^π : L=3 (d,p).
2014 7	1/2 ⁺	E	J ^π : L=0 (d,p).
2072 7	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
2119 7	1/2 ⁺	E	J ^π : L=0 (d,p).
2146.38 ^{@b} 23	17/2 ⁺	G	
2173 7	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
2220 7	5/2 ⁻ , 7/2 ⁻	E	J ^π : L=3 (d,p).
2257 7	1/2 ⁻ , 3/2 ⁻	E	J ^π : L=1 (d,p).
2276 7	1/2 ⁺	E	J ^π : L=0 (d,p).
2283 7	3/2 ⁺ , 5/2 ⁺	E	J ^π : L=2 (d,p).
2323 7	5/2 ⁻ , 7/2 ⁻	E	J ^π : L=3 (d,p).
2336 7	5/2 ⁻ , 7/2 ⁻	E	J ^π : L=3 (d,p).
2348.30 [#] 24	23/2 ⁻	G	
2373.26 ^a 23	19/2 ⁺	G	
2377 7	1/2 ⁻ , 3/2 ⁻	E	J ^π : L=1 (d,p).

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Adopted Levels, Gammas (continued) ^{107}Pd Levels (continued)

E(level) [†]	J^π [‡]	XREF	Comments
2412 7	5/2 ⁻ , 7/2 ⁻	E	J^π : L=3 (d,p).
2491 7		E	
2516 7	1/2 ⁻ , 3/2 ⁻	E	J^π : L=1 (d,p).
2557.12 @ 23	21/2 ⁺	G	
2678 7	1/2 ⁻ , 3/2 ⁻	E	J^π : L=1 (d,p).
2729 7	1/2 ⁻ , 3/2 ⁻	E	J^π : L=1 (d,p).
2751 7	1/2 ⁻ , 3/2 ⁻	E	J^π : L=1 (d,p).
2776 7	1/2 ⁻ , 3/2 ⁻	E	J^π : L=1 (d,p).
2799 7	5/2 ⁻ , 7/2 ⁻	E	J^π : L=3 (d,p).
2812 7	5/2 ⁻ , 7/2 ⁻	E	J^π : L=3 (d,p).
2832 7	1/2 ⁻ , 3/2 ⁻	E	J^π : L=1 (d,p).
2875 7	5/2 ⁻ , 7/2 ⁻	E	J^π : L=3 (d,p).
2888.11 & 24	23/2 ⁺	G	
3009.35 @ 24	25/2 ⁺	G	
3048.8 ^a 4	23/2 ⁺	G	
3305.0 [#] 3	27/2 ⁻	G	
3505.19 & 24	27/2 ⁺	G	
3699.5 ^a 5	27/2 ⁺	G	
3709.3 @ 3	29/2 ⁺	G	
4250.8 [#] 3	31/2 ⁻	G	
4335.7 & 3	31/2 ⁺	G	
4562.3 ^a 5	31/2 ⁺	G	
4735.6 @ 3	33/2 ⁺	G	
5234.3 [#] 4	35/2 ⁻	G	
5439.5 8	(35/2 ⁺)	G	
5602.9 ^a 5	(35/2 ⁺)	G	
6344.4 [#] 5	(39/2 ⁻)	G	
6730.6 ^a 8	(39/2 ⁺)	G	
7637.0 [#] 6	(43/2 ⁻)	G	
9082.6 [#] 7	(47/2 ⁻)	G	
10676.3 [#] 7	(51/2 ⁻)	G	

[†] Level energy from least-squares adjustment.[‡] J^π without comments are based on γ mult and/or band consideration.[#] Band(A): $\nu h11/2$ yrast negative-parity band with $\Delta J=2$.@ Band(B): Band on 21/2⁺ Signature-partner of band on 23/2⁺, configuration= $\nu g_{7/2} \otimes \nu h11/2^2$.& Band(C): Band on 23/2⁺.^a Band(D): decoupled E2 band, configuration= $\nu d5/2 \otimes \nu h11/2^2$.^b Placement though likely, is not certain (1996Po07).

Adopted Levels, Gammas (continued)

$\gamma(^{107}\text{Pd})$									
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	$I_\gamma^\#$	E_f	J_f^π	Mult. [†]	δ	$\alpha^@$	Comments
115.74	1/2 ⁺	115.65 20	100	0.0	5/2 ⁺	E2		0.841	B(E2)(W.u.)=0.58 7
214.6	11/2 ⁻	214.9 5	100	0.0	5/2 ⁺	E3		0.455	Mult.: from $\alpha(\text{K})\text{exp}$ in β^- decay. B(E3)(W.u.)=0.00272 8
302.78	5/2 ⁺	302.77 20	100	0.0	5/2 ⁺	M1			Mult.: from $\alpha(\text{K})\text{exp}$ in IT decay.
312.20	7/2 ⁺	312.21 20	100	0.0	5/2 ⁺	M1(+E2)	-0.05 +2-3		
348.18		232.37 20	9.3 14	115.74	1/2 ⁺				
		348.21 20	100 7	0.0	5/2 ⁺				
366.8	7/2 ⁺	366.8 5	100	0.0	5/2 ⁺	(M1+E2)	-0.16 +10-8		
381.80	3/2 ⁺	266.06 20	43 3	115.74	1/2 ⁺				
		381.86 20	100 8	0.0	5/2 ⁺				
392.42	7/2 ⁺	80.1 3	0.57 12	312.20	7/2 ⁺				
		392.47 20	100 7	0.0	5/2 ⁺				
471.21	(3/2) ⁺	471.2 3	100	0.0	5/2 ⁺				
567.67	5/2 ⁺	96.6 5	≈0.8	471.21	(3/2) ⁺				
		175.3 5	6 1	392.42	7/2 ⁺				
		219.4 5	8.7 17	348.18					
		451.88 20	44 4	115.74	1/2 ⁺				
670.06	5/2 ⁺	567.70 20	100 7	0.0	5/2 ⁺				
		102.4 5	≈0.9	567.67	5/2 ⁺				
		198.7 5	1.8 4	471.21	(3/2) ⁺				
		277.58 20	75 6	392.42	7/2 ⁺				
		288.28 20	32 3	381.80	3/2 ⁺				
		321.84 20	100 7	348.18					
		357.84 20	18 2	312.20	7/2 ⁺				
		367.31 20	85 6	302.78	5/2 ⁺				
		554.4 3	3.5 3	115.74	1/2 ⁺				
		670.05 20	98 7	0.0	5/2 ⁺	(M1+E2)	-0.10 +8-11		
686.79	15/2 ⁻	472.2 2	100	214.6	11/2 ⁻	E2			
696.0	1/2 ⁺	393.1 5	100	302.78	5/2 ⁺				
696.33	9/2 ⁺	384.1 1	53 8	312.20	7/2 ⁺				
		696.3 1	100 25	0.0	5/2 ⁺	Q			
954.85	11/2 ⁺	258.0 3	3.4 8	696.33	9/2 ⁺	M1+E2	<0.15		
		562.7 5	27.8 9	392.42	7/2 ⁺	E2			
		642.8 2	100 5	312.20	7/2 ⁺	E2			
1063.3	(13/2 ⁻)	376.5 5	100	686.79	15/2 ⁻	(M1+E2)	+0.6 6		
1101.99	(7/2 ⁺)	431.7 5	29 7	670.06	5/2 ⁺				
		709.5 5	84 7	392.42	7/2 ⁺				
		720.4 6	15 3	381.80	3/2 ⁺				
		753.8 8	15 3	348.18					
		789.9 4	100 8	312.20	7/2 ⁺	(M1+E2)	-1.8 12		

Adopted Levels, Gammas (continued) $\gamma(^{107}\text{Pd})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\ddagger$	$I_\gamma^\#$	E_f	J_f^π	Mult. [†]	δ
1101.99	(7/2 ⁺)	1101.9 10	12 3	0.0	5/2 ⁺		
1148.5?		836.5 10	38 8	312.20	7/2 ⁺		
		845.4 10	64 8	302.78	5/2 ⁺		
		1148.5 10	100 11	0.0	5/2 ⁺		
1340.3	13/2 ⁺	644.2 3	100	696.33	9/2 ⁺		
1373.82	13/2 ⁺	677.5 1	100	696.33	9/2 ⁺	E2	
1443.10	19/2 ⁻	756.39 1	100	686.79	15/2 ⁻	E2	
1472.0	(3/2 ⁻)	1169.2 5	100	302.78	5/2 ⁺		
1676.36	15/2 ⁺	721.5 1	100	954.85	11/2 ⁺	E2	
1742.05	(15/2 ⁺)	368.2 2	50 10	1373.82	13/2 ⁺	D	
		402 1	100 10	1340.3	13/2 ⁺		
1763.4	(15/2 ⁺)	808.5	100	954.85	11/2 ⁺	E2	
2146.38	17/2 ⁺	772.6 3	100 10	1373.82	13/2 ⁺	E2	
		805.8 7	25 7	1340.3	13/2 ⁺		
2348.30	23/2 ⁻	905.1 1	100	1443.10	19/2 ⁻	E2	
2373.26	19/2 ⁺	696.9 2	100	1676.36	15/2 ⁺	E2	
2557.12	21/2 ⁺	410.8 1	25.8 16	2146.38	17/2 ⁺	E2	
		1114.1 1	100 6	1443.10	19/2 ⁻	E1(+M2)	-0.05 11
2888.11	23/2 ⁺	330.8 3	91 27	2557.12	21/2 ⁺	M1(+E2)	-0.1 2
		514.8 2	100 9	2373.26	19/2 ⁺	E2	
3009.35	25/2 ⁺	452.2 1	100 4	2557.12	21/2 ⁺	E2	
		661.1 1	11 3	2348.30	23/2 ⁻	D(+Q)	-0.15 +25-35
3048.8	23/2 ⁺	675.7 3	100	2373.26	19/2 ⁺	E2	
3305.0	27/2 ⁻	956.7 1	100	2348.30	23/2 ⁻	E2	
3505.19	27/2 ⁺	495.9 1	75 8	3009.35	25/2 ⁺	M1+E2	0.30 15
		617.1 1	100 33	2888.11	23/2 ⁺	E2	
3699.5	27/2 ⁺	650.8 3	100 12	3048.8	23/2 ⁺		
		689.7 7	100 20	3009.35	25/2 ⁺	M1(+E2)	-0.13 26
3709.3	29/2 ⁺	699.8 1	100	3009.35	25/2 ⁺	E2	
4250.8	31/2 ⁻	945.8 1	100	3305.0	27/2 ⁻	E2	
4335.7	31/2 ⁺	626.2 2	48 8	3709.3	29/2 ⁺	M1+E2	1.2 7
		831.6 4	100 16	3505.19	27/2 ⁺	E2	
4562.3	31/2 ⁺	862.8 1	100	3699.5	27/2 ⁺	E2	
4735.6	33/2 ⁺	1026.3 1	100	3709.3	29/2 ⁺	E2	
5234.3	35/2 ⁻	983.5 2	100	4250.8	31/2 ⁻	E2	
5439.5	(35/2 ⁺)	704 1	33 13	4735.6	33/2 ⁺		
		1104 1	100 25	4335.7	31/2 ⁺		
5602.9	(35/2 ⁺)	1040.6 2	100	4562.3	31/2 ⁺	E2	
6344.4	(39/2 ⁻)	1110.1 3	100	5234.3	35/2 ⁻	E2	
6730.6	(39/2 ⁺)	1127.6 6	100	5602.9	(35/2 ⁺)	E2	
7637.0	(43/2 ⁻)	1292.6 3	100	6344.4	(39/2 ⁻)		

Adopted Levels, Gammas (continued)

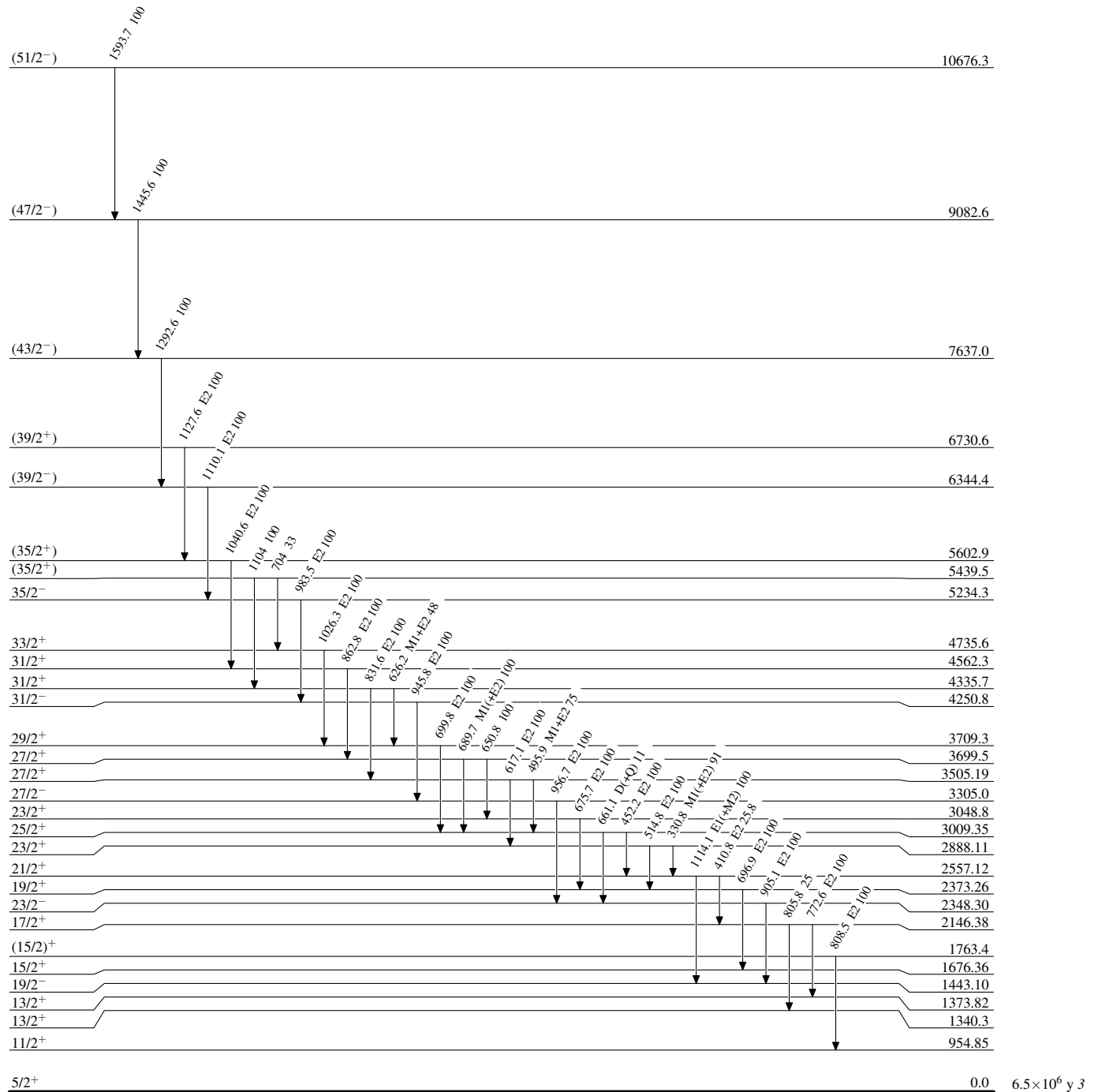
$\gamma(^{107}\text{Pd})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ ‡	I_γ #	E_f	J_f^π
9082.6	(47/2 ⁻)	1445.6 3	100	7637.0	(43/2 ⁻)
10676.3	(51/2 ⁻)	1593.7 3	100	9082.6	(47/2 ⁻)

† From $\gamma(\theta)$ in $^{104}\text{Ru}(\alpha, n\gamma)$ and adopted J^π 's, except where noted.
‡ From $^{107}\text{Rh} \beta^-$, $^{104}\text{Ru}(\alpha, n\gamma)$, $^{106}\text{Pd}(\text{d}, \text{p})$ and $(\text{HI}, \text{xn}\gamma)$.
Relative photon branching from each level.
@ 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.

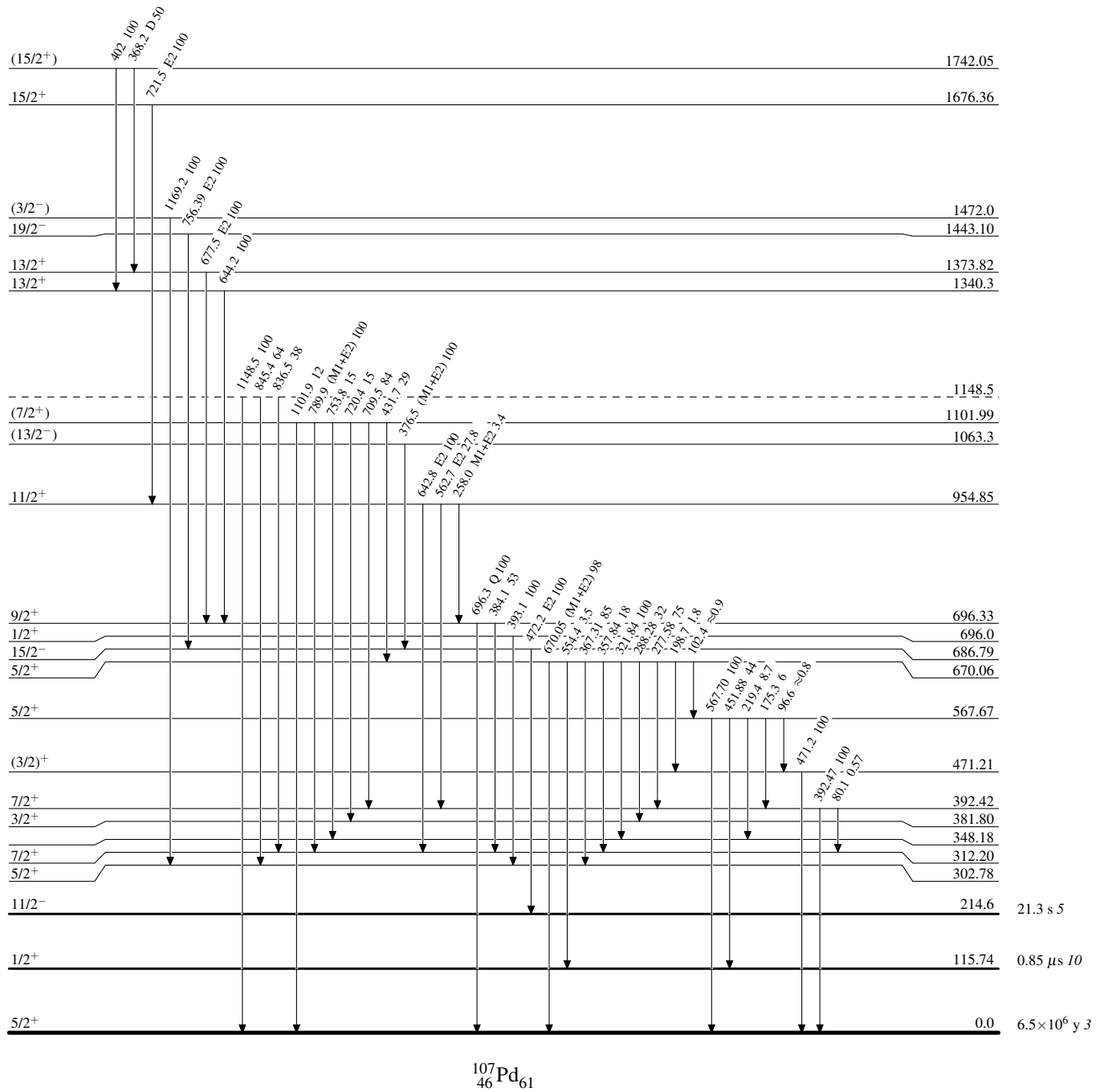
Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level



Adopted Levels, GammasLevel Scheme (continued)

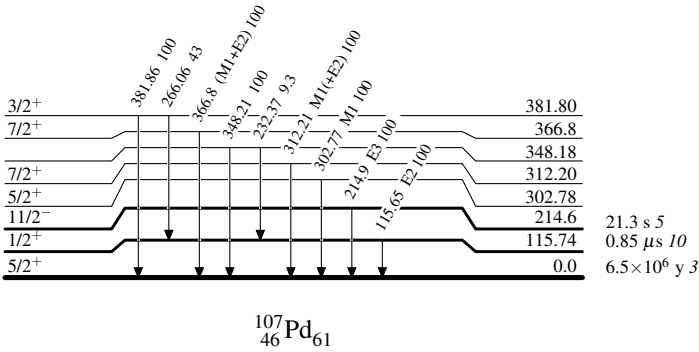
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas