

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 130, 21 (2015)	15-Jul-2015

$Q(\beta^-) = -280 \times 10^1$ 10; $S(n) = 8066$ 5; $S(p) = 7095.1$ 17; $Q(\alpha) = 1765.0$ 19 [2012Wa38](#)
 $S(2n) = 14751.8$ 20, $S(2p) = 13043.9$ 10 ([2012Wa38](#)).

First identification of ^{182}W isotope by Aston: Nature 126, 913 (1930).

Other reactions:

$^9\text{Be}(^{208}\text{Pb},X)$ $E=1$ GeV/nucleon: [2002Pf01](#): Measured fragment yield, (fragment) γ coin, deduced isomer (at 2230 keV) half-life and isomer production ratio of 10% 2.

Additional information 1.

Mass measurements: [2012Li52](#), [1977Sh04](#), [1970Mc03](#), [1961De21](#), [1960Bh02](#).

Structure calculations (levels, moments, transition probabilities, high-K isomers, etc.): [2013Zh43](#), [2012Bu01](#), [2012Ze02](#), [2012Zh23](#), [2011Er04](#), [2008Sa21](#), [2003Jo10](#), [1998Sh01](#), [1996Na08](#), [1996Na12](#), [1994Be21](#), [1994Mo07](#), [1993Be25](#), [1991Gr14](#), [1990Ch50](#), [1990Ve01](#), [1989Sa19](#), [1989Ta06](#). Only selected references are given here, consult NSR database at www.nndc.bnl.gov website for more detailed bibliography for theoretical studies on ^{182}W nuclide.

 ^{182}W Levels

Details of the measurements of Half-life (in ns) of the 100.1, 2^+ state:

- Deduced from B(E2) values in Coulomb excitation: 1.44 7 ([1961Ha21](#)), 1.26 11 ([1963Gr04](#)), 1.340 30 ([1968St13](#)), 1.368 29 ([1973Be40](#), earlier value from the same lab is 1.31 15, [1958Mc02](#)), 1.15 12 ([1989Ku04](#)), 1.53 7 ([1991Wu05](#), earlier value is 1.41 9 in [1989Wu04](#)).
- Delayed coincidence method in Coulomb excitation: 1.366 14 ([1961Ke07](#)), 1.43 4 ([1962Bi05](#), earlier value from the same group is 1.55 14, [1959Bi10](#)).
- Pulsed beam: (p,p' γ): 1.372 14 ([1964Sc21](#)).
- Deduced from B(E2) in Muonic atom: 1.343 40 ([1970Hi03](#)).
- Deduced from B(E2) in (e,e'): 1.391 21 ([1987PeZV](#), [1988PeZW](#)).
- Delayed coincidence in ^{182}Ta β^- decay: 1.27 10 ([1955Su64](#), [1954Su10](#)), 1.55 11 ([1963Ba24](#)), 1.26 4 ([1963Fo02](#)), 1.41 6 ([1963Ko02](#)), 1.47 9 ([1964Ro19](#)), 1.4 1 ([1964Be36](#)), 1.39 3 ([1965Do02](#)), 1.37 3 ([1965Me08](#)), 1.45 4 ([1966Bi08](#)), 1.35 7 ([1966Fu03](#)), 1.43 5 ([1966Ra04](#)), 1.48 3 ([1970Ab14](#)), 1.380 20 ([1971Ho14](#)), 1.55 5 ([1973GrXX](#)), 1.380 30 ([1983El02](#)),

Cross Reference (XREF) Flags

A	^{182}Ta β^- decay (114.74 d)	H	$^{180}\text{Hf}(\alpha,2n\gamma)$	O	$^{182}\text{W}(p,p'),(\text{pol } p,p'),(\alpha,\alpha')$
B	Muonic atom	I	$^{180}\text{W}(t,p)$	P	$^{182}\text{W}(d,d')$
C	^{182}Re ε decay (64.2 h)	J	$^{182}\text{W}(\gamma,\gamma):\text{Mossbauer}$	Q	Coulomb excitation
D	^{182}Re ε decay (14.14 h)	K	$^{182}\text{W}(\gamma,\gamma')$	R	$^{183}\text{W}(d,t)$
E	^{186}Os α decay	L	$^{182}\text{W}(e,e')$	S	$^{183}\text{W}({}^3\text{He},\alpha)$
F	^{176}Yb ($^9\text{Be},3n\gamma$)	M	$^{182}\text{W}(n,n'\gamma)$	T	$^{184}\text{W}(p,t)$
G	$^{176}\text{Yb}({}^{13}\text{C},\alpha 3n\gamma)$	N	$^{182}\text{W}(n,n')$	U	$^{186}\text{W}(n,5n\gamma)$

E(level) [†]	J [‡]	T _{1/2}	XREF	Comments
0.0 ^{&}	0 ⁺	stable	ABCDEFGHIJKLMNPQR TU	T _{1/2} : T _{1/2} (α decay) measured limits: $\geq 7.7 \times 10^{21}$ y (2004Co26) with 90% confidence limit. Others: $\geq 1.7 \times 10^{20}$ y (2003Da05 , 2003Bi13 , 1997Ge15 , 1995Ge17), $\geq 2.5 \times 10^{19}$ y (2003Ce01), 1960Be13 . $\langle\langle r^2 \rangle\rangle^{1/2}(\text{rms charge radius}) = 5.3559$ fm 17 (2013An02 , evaluation). $\Delta\langle\langle r^2 \rangle\rangle^{1/2}(^{182}\text{W}-^{180}\text{W}) = 0.068$ fm ² 4 (1994Ji02). $\Delta\langle\langle r^2 \rangle\rangle^{1/2}(^{183}\text{W}-^{182}\text{W}) = 0.052$ fm ² 3 (1994Ji02). $\Delta\langle\langle r^2 \rangle\rangle^{1/2}(^{184}\text{W}-^{182}\text{W}) = 0.099$ fm ² 5 (1994Ji02).

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Adopted Levels, Gammas (continued) ^{182}W Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
100.10598 ^{&} 7	2 ⁺	1.381 ns 10	ABCD FGHIJKLMNOPQRSTU	$\mu=+0.521$ 16 (1968Pe06,2014StZZ) $Q=-2.13$ 35 (1977RuZV,2014StZZ,2013StZZ) $B(E2)\uparrow=4.17$ 6 μ : Mossbauer effect (1968Pe06). Other: +0.528 12 (CEAD,1972Ca12). Q: reorientation method in Coul. Ex. (1977RuZV). $B(E2)$ from Coul. Ex. T _{1/2} : from several weighted averaging methods (weighted average, limitation of statistical weights method (LWM), normalized residuals method (NRM) and Rajeval's technique (RT)) using 26 independent measurements (from 1954 to 1991) of lifetimes from Coulomb excitation, delayed coincidence methods, pulsed beam, (e,e') and muonic atom. The value of χ^2 is ≈ 2.1 for different methods as compared to critical χ^2 of 1.7. All the values used in the averaging procedure are listed above in the header comments of this table 2001Ra27 evaluation (of 27 measurements from 1954 to 1988) gives nearly the same adopted $B(E2)\uparrow=4.20$ 8 and mean lifetime (τ)=1990 ps 20 (T _{1/2} =1.379 ns 14). J ^π : E2 γ to 0 ⁺ .
329.4268 ^{&} 6	4 ⁺	62 ps 3	A CD FGHI LMNOPQRSTU	$\mu=+0.88$ 17 (1972Be94,2014StZZ) $B(E4)=0.077$ 16 (1987PeZV) from (e,e'). μ : IPAC (1972Be94). T _{1/2} : from RDM in Coul. ex. J ^π : $\Delta J=2$, E2 γ to 2 ⁺ .
680.42 ^{&} 5	6 ⁺	8.2 ps 9	A C FGH LMNOPQR TU	$B(E6)=0.012$ 5 (1987PeZV) from (e,e'). T _{1/2} : from RDM in Coul. ex. J ^π : stretched E2 γ to 4 ⁺ .
1135.82 ^a 10	0 ⁺		A I MN P R T	J ^π : L(p,t)=0. Also L(t,p)=0 and E0 transition to 0 ⁺ .
1144.32 ^{&} 12	8 ⁺	2.01 ps 17	FGH LM Q U	$B(E8)=0.00029$ 17 (1987PeZV) from (e,e'). T _{1/2} : from RDM in Coulomb excitation. J ^π : $\Delta J=2$, E2 γ to 6 ⁺ ; band assignment.
1221.4001 ^b 10	2 ⁺	0.434 ps 11	A CD HI MNOPQR T	J ^π : E2 γ to 0 ⁺ . T _{1/2} : from B(E2) in Coulomb excitation. B(E2)(IS)(\uparrow)=0.146 11 ((pol p,p') 1987Ic04). This gives $B(E2)(W.u.)=4.8$ 4 compared to 3.4 from Coul. ex.
1257.4121 ^a 11	2 ⁺	1.71 ps 13	A CD HI MN PQR T	J ^π : E2 γ to 0 ⁺ . T _{1/2} : from B(E2) in Coulomb excitation and adopted branching ratios.
1289.1498 ^c 10	2 ⁻	1.12 ns 4	A CD GH M QR	$\mu=+1.74$ 24 (1973Se14,2014StZZ) μ : IPAC (1973Se14). J ^π : M2 γ to 0 ⁺ . T _{1/2} : from $(\beta)(ce)(t)$ and $\beta\gamma(t)$ in ^{182}Ta β^- decay. Weighted averaging method (normalized residuals) used.
1331.1153 ^b 10	3 ⁺	<0.6 ns	A CD H MN QRS	XREF: N(1309). J ^π : M1+E2 γ s to 2 ⁺ and 4 ⁺ .
1373.8301 ^c 10	3 ⁻	78 ps 10	A CD GH MNOPQ T	T _{1/2} : from $\gamma\gamma(t)$ in ^{182}Ta β^- decay. $\mu=0.96$ 27 (1972He10,2014StZZ) XREF: N(1357). μ : IPAC (1972He10). Other: 2.21 34 (IPAC,1973Se14). J ^π : E3 γ to 0 ⁺ . T _{1/2} : from (ce)(ce)(t) in ^{182}Ta β^- decay.
1442.835 ^b 9	4 ⁺	0.32 ps 3	A CD HI MNOPQR T	J ^π : M1+E2 γ to 4 ⁺ ; E2 γ to 2 ⁺ ; (E1) γ from 5 ⁻ ; band

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Adopted Levels, Gammas (continued) **^{182}W Levels (continued)**

E(level) [†]	J^π [‡]	T _{1/2}	XREF	Comments
1487.5018 ^c 10	4 ⁻	<49 ps	A CD GH MN	assignment. T _{1/2} : from B(E2) in Coul. ex. B(E4)(IS)(↑)=0.0122 25 ((pol,p,p') 1987Ic04) which gives B(E4)(W.u.)=2.0 4. XREF: N(1492).
1510.22 ^a 4	4 ⁺		A C H M R	J^π : M2+E3 γ to 2 ⁺ ; M1+E2 γ from 5 ⁻ .
1553.2240 ^g 10	4 ⁻	1.27 ns 4	A CD GH MN R	T _{1/2} : from (ce)(ce)(t) in ^{182}Ta β^- decay. J^π : E2 γ to 2 ⁺ ; E2+M1 γ to 4 ⁺ ; γ from 5 ⁻ .
1621.284 ^c 21	5 ⁻		C GH Mn p t	T _{1/2} : from $\gamma\gamma(t)$ in ^{182}Ta β^- decay. J^π : M2+E3 γ to 2 ⁺ ; M1+E2 γ from 5 ⁻ .
1623.51 ^b 4	(5) ⁺		C H Mn pQR t	J^π : M1 γ from 6 ⁻ ; E1 γ to 4 ⁺ .
1660.383 ^g 21	5 ⁻		C GH MN P R T	J^π : E1 γ from 6 ⁻ ; band assignment. XREF: N(1678).
1711.99 ^{&} 14	10 ⁺	0.76 ps 7	FGH Q U	J^π : E1+M2 γ to 4 ⁺ ; M1+E2 γ to 5 ⁻ ; M1 γ from 6 ⁻ . T _{1/2} : from RDM in Coulomb excitation.
1756.75 ^h 4	6 ⁺		C GH MN	J^π : $\Delta J=2$, E2 γ to 8 ⁺ ; band assignment. XREF: N(1745).
1765.53 12			M P T	J^π : log $ft=7.4$ from 7 ⁺ , E2 γ to 4 ⁺ .
1768.943 ^g 23	6 ⁻		C GH M RS	J^π : E1+M2 γ to 6 ⁺ ; E2 γ s to 4 ⁻ ; band assignment.
1769.5? ^b 7	(6 ⁺)			E(level): level is suspect since the two γ rays at 1089 and 1440 are associated with the decay of 1769, (6) ⁻ level. J^π : γ to 6 ⁺ ; possible band assignment.
1809.64 ⁱ 7	5 ⁻		C GH n R t	XREF: n(1792).
1810.85 ^c 4	(6) ⁻		C GH n t	J^π : M1 γ to 4 ⁻ ; M1 γ from 6 ⁻ . XREF: n(1792).
1813.4 3			Mn r t	J^π : log $ft=7.4$ from 7 ⁺ ; E2 γ to 4 ⁻ .
1829.53 ^j 3	6 ⁻		C GH RST	XREF: n(1792).
1833.1? 6			M	J^π : γ s to 0 ⁺ and 4 ⁺ .
1855.98 5	(2 ⁺)		D Mn p r t	XREF: M(1856.2). J^π : XREF: M(1856.9).
1856.9 5	1		Mn p r t	J^π : γ s to 0 ⁺ and 2 ⁺ ; $\gamma(\theta)$ in (n,n'γ). J^π : E1 γ to 0 ⁺ .
1871.17 15	1 ⁻		D M	XREF: R(1916).
1887.84 21			M P T	J^π : $\Delta J=2$, E2 γ to 5 ⁻ ; γ to (6) ⁻ ; band assignment.
1917.05 ^g 5	7 ⁻		C GH RS	XREF: R(1923).
1918.6 4	(2 ⁺ to 4 ⁺)		MN R	J^π : γ to 2 ⁺ ; not 0 or 1 from $\gamma(\theta)$ in (n,n'γ). XREF: R(1961).
1959.35 16	(2 ⁺)		M P R T	J^π : $\Delta J=(2)$ γ to 4 ⁺ ; γ to 0 ⁺ .
1960.30 ^j 3	(7) ⁻		C GH	J^π : log $ft=7.1$ from 7 ⁺ ; $\Delta J=2$, E2 γ s to 5 ⁻ .
1960.78 ⁱ 7	6 ⁻		C G M RS	J^π : M1 γ to 5 ⁻ ; log $ft=8.0$ from 7 ⁺ ; possible band assignment.
1971.05 ^h 7	(7) ⁺		C GH R	XREF: R(1966).
1978.36 ^k 4	(7) ⁻		C GH	J^π : log $ft=8.2$ from 7 ⁺ ; M1+E2 γ to 6 ⁺ ; band assignment.
1981.82 25			MN R	J^π : log $ft=7.0$ from 7 ⁺ ; M1+E2 γ to (6) ⁻ ; band assignment. XREF: R(1985).

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Adopted Levels, Gammas (continued) ^{182}W Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
1993.68 ^c 10	(7 ⁻)		GH	J ^π : ΔJ=2 γ to 5 ⁻ ; band assignment.
2016.8 8	(2,3,4) ⁺		M R	J ^π : L(d,t)=1,3 from 1/2 ⁻ ; possible γs to 2 ⁺ and 4 ⁺ . E(level): 2023 7 level in (d,t) is probably not 2023.57, 3 ⁻ level.
2023.57 3	3 ⁻		D Mn	J ^π : M1+E2 γs to 2 ⁻ and 4 ⁻ .
2057.39 5	1 ⁺		D Mn R	J ^π : ΔJ=1 γ to 0 ⁺ ; L(d,t)=1,3 from 1/2 ⁻ target.
2071			R	
2087.43 ^g 7	8 ⁻		GH	J ^π : ΔJ=2 γ to (6 ⁻); band assignment.
2094 10			R T	
2109.96 20	(2 ⁻ ,3 ⁻)		D Mn R t	XREF: t(2117). J ^π : (E2) γ to 4 ⁻ ; (E1+M2) γ to 2 ⁺ .
2114.35 ^j 5	(8) ⁻		C GH	J ^π : E2 γ to (6) ⁻ ; log ft=8.2 from 7 ⁺ ; band assignment.
2116.4 3			D Mn t	XREF: t(2117). J ^π : 0 ⁺ to 4 ⁺ from γ to 2 ⁺ .
2120.25 ^l 7	(8 ⁻)		C GH	J ^π : (M1) γ to (7) ⁻ ; probable bandhead of a 2-qp band.
2131.3 ⁱ 3	(7 ⁻)		GH RS	J ^π : γ to (6) ⁻ ; possible band assignment.
2143.0 10			M p R t	
2147.95 17	(3 ⁻)		D Mn p R t	J ^π : (E1) γ to 4 ⁺ ; (E1+M2) γ to 2 ⁺ .
2173.5 3	(0 ⁺ to 4 ⁺)		D Mn P R t	XREF: t(2175). J ^π : γ to 2 ⁺ . If 2174γ to 0 ⁺ exists, then J ^π =1,2 ⁺ .
2180.4 ^b 8	(8 ⁺)		Q	J ^π : γs to 8 ⁺ and 6 ⁺ ; band assignment.
2184.04 4	(2 ⁻ ,3 ⁻)		D Mn p t	XREF: t(2175). J ^π : (M1) γs to 2 ⁻ and 3 ⁻ .
2204.54 ^k 6	(8) ⁻		C GH	J ^π : M1+E2 γ to (7) ⁻ , log ft=7.5 from 7 ⁺ .
2207.21 16	(3 ⁻)		D Mn p R t	J ^π : (E3) γ to 0 ⁺ and (E1+M2) γ to 4 ⁺ .
2209.07 17	3 ⁻		D Mn p R t	XREF: R(2217). J ^π : E1 γ to 4 ⁺ , log ft=8.3 from 2 ⁺ .
2212.50 ^h 11	(8 ⁺)		GH	J ^π : ΔJ=1 γ to (7) ⁺ ; band assignment.
2225.35 ^c 11	(8) ⁻		GH	J ^π : ΔJ=2 γ to (6) ⁻ , band assignment.
2230.65 ^d 14	(10 ⁺)	1.3 μs I	FGH	%IT=100 J ^π : (M1) γ to 10 ⁺ ; γ to 8 ⁺ ; probable bandhead of a 2-qp band. T _{1/2} : from γ(t); average of 1.2 μs I in ⁹ Be(²⁰⁸ Pb,X) and 1.4 μs I in (α,2nγ).
2240.83 15	(3 ⁺)		D MN R T	J ^π : (M1) γs to 2 ⁺ and 4 ⁺ .
2273.87 ^g 8	9 ⁻		GH	J ^π : ΔJ=2 γ to (7) ⁻ ; γ to (8 ⁻); band assignment.
2274.63 4	(3) ⁻		D Mn R t	XREF: R(2270). J ^π : E1 γ to 2 ⁺ ; (M1) γ to 4 ⁻ .
2283.5 6	1		Mn R t	XREF: R(2284). J ^π : 2283γ(θ) in (n,n'γ).
2301.56 ^j 8	(9 ⁻)		G	J ^π : γs to (7) ⁻ and (8) ⁻ ; band assignment.
2316.1 22	(1,2 ⁺)		D n T	XREF: T(2311). J ^π : γ to 0 ⁺ .
2323.85 ⁱ 21	(8) ⁻		GH	J ^π : γ to (7) ⁻ ; possible band assignment.
2327.91 ^l 10	(9 ⁻)		H	J ^π : ΔJ=1, (M1+E2) γ to (8 ⁻); band assignment.
2328			P	
2331 10			P R T	
2334.26 21			H	J ^π : (7,8,9) from γ to (7) ⁻ .
2360 8			R T	
2372.59 ^{&} 17	12 ⁺	0.38 ps 2	FGH	J ^π : ΔJ=2, E2 γ to 10 ⁺ ; band assignment. T _{1/2} : from B(E2) in Coulomb excitation from 10 ⁺ level.
2376			R	
2382.1 7	1	7.9# fs 11	K N R	J ^π : from γγ(θ).

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Adopted Levels, Gammas (continued) **^{182}W Levels (continued)**

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
2395 8			R	B(M1)(↑)=0.46 6. B(E1)(↑)= 5.0×10^{-5} 7.
2427 8			R	E(level): multiplet.
2445.98 ^c 15	(9 ⁻)		GH	J ^π : ΔJ=2 γ to (7 ⁻), band assignment.
2452.7 20			R	
2455.74 ^k 12	(9 ⁻)		GH	J ^π : ΔJ=1 γ to (8 ⁻); γ to (7 ⁻); band assignment.
2474.1 7	1@	15# fs 2	K N R	J ^π : from $\gamma\gamma(\theta)$.
				B(M1)(↑)=0.31 5. B(E1)(↑)= 3.5×10^{-5} 5.
2479.83 ^h 13	(9 ⁺)		GH	J ^π : ΔJ=1 γ to (8 ⁺); γ to (7) ⁺ ; band assignment.
2486.89 ^g 10	10 ⁻		GH	J ^π : ΔJ=2 γ to (8 ⁻); γ to (9 ⁻); band assignment.
2492 8			R	
2492.78 ^d 17	(11 ⁺)		FGH	J ^π : ΔJ=1 γ to (10 ⁺); band assignment.
2507.48 ^j 9	(10 ⁻)		G	J ^π : γs to (8) ⁻ and (9 ⁻); band assignment.
2520 10	0 ⁺		n T	J ^π : L(p,t)=0.
2552 10	0 ⁺		n T	J ^π : L(p,t)=0.
2563.94 ^l 12	(10 ⁻)		GH	J ^π : γ to (9 ⁻); band assignment.
2610 10			N P T	XREF: T(2625).
2689 10			T	
2710.93 ^g 11	11 ⁻		GH	J ^π : ΔJ=2 γ to (9 ⁻); γ to (10 ⁻); band assignment.
2725 10	0 ⁺		N P T	XREF: N(2690).
				J ^π : L(p,t)=0.
2730.84 ^k 16	(10 ⁻)		GH	J ^π : ΔJ=1 γ to (9 ⁻); band assignment.
2739.15 ^c 15	(10 ⁻)		GH	J ^π : ΔJ=2 γ to (8 ⁻); band assignment.
2741.66 ^j 12	(11 ⁻)		G	J ^π : ΔJ=2 γ to (9 ⁻); band assignment.
2769.27 ^h 16	(10 ⁺)		GH	J ^π : ΔJ=1 γ to (11 ⁺); γ to (10 ⁺); band assignment.
2775 10			N T	
2775.65 ^d 18	(12 ⁺)		FGH	J ^π : ΔJ=2 γ to (10 ⁺); ΔJ=1 γ to (11 ⁺); band assignment.
2815 10			T	
2823.93 ^l 16	(11 ⁻)		GH	J ^π : ΔJ=1 γ to (10 ⁻); γ to (9 ⁻); band assignment.
2884.1 7	1@	16# fs 2	K	J ^π : from $\gamma\gamma(\theta)$.
				B(M1)(↑)=0.22 3. B(E1)(↑)= 2.4×10^{-5} 3.
2892.1 7	(1)	27# fs 17	K	J ^π : from $\gamma\gamma(\theta)$.
				B(M1)(↑)=0.07 4. B(E1)(↑)= 0.8×10^{-5} 5.
2941.0 20	(1,2 ⁺)		K	J ^π : γ to 0 ⁺ .
2972.49 ^g 13	12 ⁻		G	J ^π : ΔJ=2 γ to (10 ⁻); γ to (11 ⁻); band assignment.
2980.58 ^c 18	(11 ⁻)		GH	J ^π : ΔJ=2 γ to (9 ⁻); band assignment.
2981.33 ^j 12	(12 ⁻)		G	J ^π : γ to (10 ⁻); band assignment.
2996.1 7	1	6.7# fs 13	K	J ^π : from $\gamma\gamma(\theta)$. Possible K=(0) assigned by 1993He15. B(M1)(↑)=0.25 5. B(E1)(↑)= 2.7×10^{-5} 5.
3027.94 ^k 19	(11 ⁻)		GH	J ^π : ΔJ=(1) γ to (10 ⁻); γ to (9 ⁻); band assignment.
3078.25 ^d 19	(13 ⁺)		FGH	J ^π : ΔJ=1 γ to (12 ⁺); ΔJ=2 γ to (11 ⁺); band assignment.
3080.1 7	1@	17# fs 3	K	J ^π : from $\gamma\gamma(\theta)$.
				B(M1)(↑)=0.15 3. B(E1)(↑)= 1.6×10^{-5} 3.
3106.72 ^l 18	(12 ⁻)		GH	J ^π : ΔJ=(1) γ to (11 ⁻); γ to (10 ⁻); band assignment.
3112.89 ^{&} 20	14 ⁺	0.24 ps 4	FGH Q	J ^π : ΔJ=2, (E2) γ to 12 ⁺ ; band assignment. T _{1/2} : from B(E2) in Coul. ex. from 12 ⁺ .
3163.1 7	1@	10.3# fs 14	K	J ^π : from $\gamma\gamma(\theta)$.
				B(M1)(↑)=0.24 3. B(E1)(↑)= 2.6×10^{-5} 4.
3198.1 7	(1,2 ⁺)@	16# fs 3	K	J ^π : (γ, γ') excitation from 0 ⁺ . B(M1)(↑)=0.14 3. B(E1)(↑)= 1.5×10^{-5} 3.

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Adopted Levels, Gammas (continued) ^{182}W Levels (continued)

E(level) [†]	J [‡]	T _{1/2}	XREF	Comments
3224.53 ^g 15	13 ⁻		G	$J^\pi: \Delta J=2 \gamma$ to (11 ⁻); band assignment.
3269.56 ^j 16	(13 ⁻)		G	$J^\pi: \Delta J=2 \gamma$ to (11 ⁻); band assignment.
3319.7 ^c 5	(12 ⁻)		G	$J^\pi: \gamma$ to (10 ⁻); band assignment.
3343.05 ^k 21	(12 ⁻)		G	$J^\pi: \Delta J=(1) \gamma$ to (11 ⁻); γ to (10 ⁻); band assignment.
3365.1 7	1 [@]	11.1 [#] fs 23	K	$J^\pi: \text{from } \gamma\gamma(\theta).$ $B(M1)(\uparrow)=0.17$ 4. $B(E1)(\uparrow)=1.9\times10^{-5}$ 4.
3398.35 ^d 19	(14 ⁺)		FGH	$J^\pi: \Delta J=2 \gamma$ to (12 ⁺); $\Delta J=1 \gamma$ to (13 ⁺); band assignment.
3410.54 ^l 20	(13 ⁻)		G	$J^\pi: \gamma s$ to (11 ⁻) and (12 ⁻); band assignment.
3415.92 ^o 19	(12)		G	$J^\pi: \Delta J=1 \gamma$ to (11 ⁺); band assignment.
3422.1 7	(1,2 ⁺) [@]	10.3 [#] fs 20	K	$J^\pi: (\gamma, \gamma')$ excitation from 0 ⁺ . $B(M1)(\uparrow)=0.19$ 3. $B(E1)(\uparrow)=2.1\times10^{-5}$ 4.
3518.04 ^j 15	(14 ⁻)		G	$J^\pi: \gamma$ to (12 ⁻); band assignment.
3549.99 ^g 17	14 ⁻		G	$J^\pi: \Delta J=2 \gamma$ to (12 ⁻); band assignment.
3567.8 ^c 4	(13 ⁻)		G	$J^\pi: \Delta J=(2) \gamma$ to (11 ⁻); band assignment.
3601.1 7	1 [@]	6.2 [#] fs 12	K	$J^\pi: \text{from } \gamma\gamma(\theta).$ $B(M1)(\uparrow)=0.23$ 4. $B(E1)(\uparrow)=2.5\times10^{-5}$ 5.
3640.0 20	(1,2 ⁺)		K	$J^\pi: \gamma$ to 0 ⁺ .
3677.15 ^o 21	(13)		G	$J^\pi: \gamma$ to (12 ⁺); band assignment.
3727.1 15	(1,2 ⁺)		K	$J^\pi: \gamma$ to 0 ⁺ .
3733.85 ^l 23	(14 ⁻)		G	$J^\pi: \gamma s$ to (12 ⁻) and (13 ⁻); band assignment.
3736.40 ^d 20	(15 ⁺)		FGH	$J^\pi: \gamma s$ to (13 ⁺) and (14 ⁺); band assignment.
3754.89 ^m 21	(15 ⁺)	37 ns 2	FG	$J^\pi: \Delta J=2, (E2) \gamma$ to (13 ⁺); $\Delta J=1 \gamma$ to (14 ⁺); bandhead of configuration=((ν 9/2 ⁺ [624])(ν 7/2 ⁻ [503])8 ⁻)+((π 9/2 ⁻ [514])(π 5/2 ⁺ [402])7 ⁻). Other possible configuration from coupling of $K^\pi=10^+$ neutrons to $K^\pi=5^+$ protons: $\pi 9/2[514]+\pi 1/2[541]$ is less likely. $T_{1/2}$: from $\gamma\gamma(t)$ in ($^{13}\text{C}, \alpha 3n\gamma$). Other: 54 ns 10 in ($^9\text{Be}, 3n\gamma$).
3807.63 ^g 18	15 ⁻		G	$J^\pi: \Delta J=2 \gamma$ to (13 ⁻); band assignment.
3880.06 ^j 19	(15 ⁻)		G	$J^\pi: \Delta J=2 \gamma$ to (13 ⁻); band assignment.
3882.0 20	(1,2 ⁺)		K	$J^\pi: \gamma$ to 0 ⁺ .
3893.69 ^e 23	(16 ⁺)	≤ 7 ns	FG	$J^\pi: (M1) \gamma$ to (15 ⁺); probable bandhead of a 4-qp band. $T_{1/2}$: from $\gamma\gamma(t)$ in ($^9\text{Be}, 3n\gamma$).
3910.09 ^{&} 22	16 ⁺	0.14 ps 3	FG	Q $T_{1/2}$: from B(E2) in Coul. ex. from 14 ⁺ . $J^\pi: \Delta J=2, E2 \gamma$ to 14 ⁺ ; band assignment.
3920.0 20	1		K	$J^\pi: \text{from } \gamma\gamma(\theta).$
3966.25 ^o 23	(14)		G	$J^\pi: \gamma s$ to (12) and (13); band assignment.
4040.6 ^f 3	(17 ⁻)	20 ns 1	FG	$J^\pi: (E1) \gamma$ to (16 ⁺); probable bandhead of a 4-qp band. $T_{1/2}$: from $\gamma\gamma(t)$ in ($^{13}\text{C}, \alpha 3n\gamma$). Other: 17 ns 7 in ($^9\text{Be}, 3n\gamma$).
4074.8 ^l 3	(15 ⁻)		G	$J^\pi: \gamma s$ to (13 ⁻) and (14 ⁻); band assignment.
4078.89 ^m 23	(16 ⁺)		G	$J^\pi: \gamma$ to (15 ⁺); band assignment.
4081.5 ^d 3	(16 ⁺)		G	$J^\pi: \gamma s$ to (14 ⁺) and (15 ⁺); band assignment.
4116.9 ^j 3	(16 ⁻)		G	$J^\pi: \gamma$ to (14 ⁻); band assignment.
4197.1 ^c 4	(15 ⁻)		G	$J^\pi: \gamma s$ to (13 ⁻); band assignment.
4211.1 ^g 3	16 ⁻		G	$J^\pi: \Delta J=2 \gamma$ to (14 ⁻); band assignment.
4218.1 5	(17 ⁺)		F	$J^\pi: \gamma$ to (16 ⁺).
4280.2 ^o 3	(15)		G	$J^\pi: \gamma s$ to (13) and (14); band assignment.
4293.1 ^e 3	(17 ⁺)		G	$J^\pi: \gamma$ to (16 ⁺); band assignment.
4421.5 ^f 3	(18 ⁻)		FG	$J^\pi: \gamma$ to (17 ⁻); band assignment.
4430.5 ^m 3	(17 ⁺)		G	$J^\pi: \gamma s$ to (15 ⁺) and (16 ⁺); band assignment.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) **^{182}W Levels (continued)**

E(level) [†]	J [‡]	T _{1/2}	XREF	Comments	
4453.3 ^d 8	(17 ⁺)		G	J ^π :	γ s to (15 ⁺) and (16 ⁺); band assignment.
4456.2 ^g 3	17 ⁻		G	J ^π :	$\Delta J=2$ γ to (15 ⁻); band assignment.
4569.7 6	(18 ⁺)		F	J ^π :	γ s to (16 ⁺) and (17 ⁺); band assignment.
4570.9 ^j 4	(17 ⁻)		G	J ^π :	γ to (15 ⁻); band assignment.
4690.89 ^{&} 25	18 ⁺		G	J ^π :	$\Delta J=2$ γ to 16 ⁺ ; band assignment.
4711.9 ^e 3	(18 ⁺)		G	J ^π :	γ s to (16 ⁺) and (17 ⁺); band assignment.
4748.0 10	(18 ⁺)	0.088 ps +22-17	F Q	E(level):	this level also seems connected with g.s. band. $T_{1/2}$: from B(E2) in Coul. ex. J ^π : γ to (16 ⁺); Coulomb excited.
4779.6 ^j 4	(18 ⁻)		G	J ^π :	γ to (16 ⁻); band assignment.
4780.4 ⁿ 4	(18)		FG	J ^π :	γ to (17 ⁻); possible configuration=((ν 9/2 ⁺ [624])(ν 11/2 ⁺ [615])10 ⁺) + ((π 9/2 ⁻ [514])(π 7/2 ⁺ [404]))8 ⁻ .
4804.9 ^m 3	(18 ⁺)		G	J ^π :	γ s to (16 ⁺) and (17 ⁺); band assignment.
4820.1 ^f 3	(19 ⁻)		FG	J ^π :	γ s to (17 ⁻) and (18 ⁻); band assignment.
4847.4 ^d 8	(18 ⁺)		G	J ^π :	γ to 16 ⁺ ; band assignment.
4954.8 ^g 11	18 ⁻		G	J ^π :	γ to (16 ⁻); band assignment.
5148.6 ^e 5	(19 ⁺)		G	J ^π :	γ s to (17 ⁺) and (18 ⁺); band assignment.
5170.8 4	19 ⁻		G P	J ^π :	γ to (17 ⁻); band assignment.
5191.8 ⁿ 4	(19)		G	J ^π :	γ to (18); band assignment.
5199.6 ^m 4	(19 ⁺)		G	J ^π :	γ to (18 ⁺); band assignment.
5225.4 ^d 13	(19 ⁺)		G	J ^π :	γ to (17 ⁺); band assignment.
5235.8 ^f 4	(20 ⁻)		FG	J ^π :	γ s to (18 ⁻) and (19 ⁻); band assignment.
5338.6 ^j 11	(19 ⁻)		G	J ^π :	γ to (17 ⁻); band assignment.
5428.6 ^{&} 4	20 ⁺		G	J ^π :	γ to 18 ⁺ ; band assignment.
5618.6 ⁿ 4	(20)		G	J ^π :	γ s to (18) and (19); band assignment.
5666.9 ^f 8	(21 ⁻)		G	J ^π :	γ s to (19 ⁻) and (20 ⁻); band assignment.

[†] From least-squares fit to Eγ data; normalized $\chi^2=0.68$.

[‡] For high-spin ($J>6$) states, ascending spins are assumed with the rise in excitation energy, as expected from yrast type of population of levels in in-beam, heavy-ion γ -ray studies. The transitions involving $\Delta J=2$ from angular distributions are generally treated as E2 from RUL and those with $\Delta J=1$ and significant D+Q admixtures as M1+E2.

Deduced from $\Gamma_{\gamma 0}$ and branching ratio given by [1993He15](#).

@ K=1 assigned by [1993He15](#) from comparison of reduced transition probabilities with Alaga's rules.

& Band(A): $K^\pi=0^+$, g.s. band. Backbending at $\hbar\omega \approx 0.38$ MeV.

^a Band(B): $K^\pi=0^+$ band. [2001Ga02](#), in analysis of β vibration and second 0⁺ states, suggest that excited 0⁺ band in ^{182}W is not a β -vibration.

^b Band(C): $K^\pi=2^+$, γ band.

^c Band(D): $K^\pi=2^-$, octupole band.

^d Band(E): $K^\pi=10^+, \nu 9/2[624] \otimes \nu 11/2[615]$. ($g_K-g_R=0.34$ 4 ([1994Re03](#)), $g_K(\text{exp})=-0.15$ 2).

^e Band(F): $K^\pi=(16^+), 4-\text{qp band}$. $\nu^2(8^-)$: $\nu 9/2[624] \otimes \nu 7/2[503]$; $\pi^2(8^-)$: $\pi 9/2[514] \otimes \pi 7/2[404]$. ($g_K-g_R=0.21$ 19 ([1994Re03](#)), $g_K(\text{exp})=+0.36$ 6). Configuration= $(\nu 9/2^+[624])(\nu 11/2^+[615])10^+ + (\pi 7/2^+[404]) (\pi 5/2^+[402])6^+$ is also proposed by [1994Re03](#).

For $K^\pi=8^-$ neutron configuration, 7/2[514] orbital is excluded by the comparison of experimental g_K and corresponding theoretical value.

^f Band(G): $K^\pi=(17^-), 4-\text{qp band}$. $\nu^2(10^+)$: $\nu 9/2[624] \otimes \nu 11/2[615]$; $\pi^2(7^-)$: $\pi 9/2[514] \otimes \pi 5/2[402]$. ($g_K-g_R=0.30$ 7, 0.18 7 ([1994Re03](#)), $g_K(\text{exp})=+0.46$ 3).

^g Band(H): $K^\pi=4^-, \nu 9/2[624] \otimes \nu 1/2[510]$. $g_K(\text{exp})=+0.05$ 4.

^h Band(I): $K^\pi=6^+, \pi 5/2[402] \otimes \pi 7/2[404]$. $g_K(\text{exp})=+1.11$ 5.

Adopted Levels, Gammas (continued)

 ^{182}W Levels (continued)

ⁱ Band(J): $K^\pi=5^-$, $\nu 9/2[624]\otimes\nu 1/2[510]$.

^j Band(K): $K^\pi=6^-$, $\nu 9/2[624]\otimes\nu 3/2[512]$. $g_K(\text{exp})=+0.01$ 1.

^k Band(L): $K^\pi=7^-$, $\pi 9/2[514]\otimes\pi 5/2[402]$. $g_K(\text{exp})=+1.17$ 7.

^l Band(M): $K^\pi=8^-$, $\nu 9/2[624]\otimes\nu 7/2[503]$. $g_K(\text{exp})=-0.21$ 5 excludes $7/2[514]$ neutron orbital when compared with theoretical value.

^m Band(N): $K^\pi=15^+$, 4-qp band. $\nu^2(8^-)$: $\nu 9/2[624]\otimes\nu 7/2[503]$; $\pi^2(7^-)$: $\pi 9/2[514]\otimes\pi 5/2[402]$. $g_K(\text{exp})=+0.52$ 4. For $K^\pi=8^-$ neutron configuration, $7/2[514]$ orbital is excluded by the comparison of experimental g_K and corresponding theoretical value.

ⁿ Band(O): $K^\pi=18^-$, $\nu_{(10^+)}^2\otimes\pi_{(8^-)}^2$. $\nu^2(10^+)$: $\nu 9/2[624]\otimes\nu 11/2[615]$; $\pi^2(8^-)$: $\pi 9/2[514]\otimes\pi 7/2[404]$. $g_K(\text{exp})\approx+0.32$.

^o Band(P): K=(12) band.

Adopted Levels, Gammas (continued) $\gamma^{(182\text{W})}$

$q_K(E0/E2)$ =ratios of K-conversion intensities of E0 and E2 transitions.

E _f (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α@	I _(γ+ce)	Comments
100.10598	2 ⁺	100.10595 [#] 7	100	0.0	0 ⁺	E2		3.89		B(E2)(W.u.)=136.1 18 α(K)=0.878 13; α(L)=2.28 4; α(M)=0.576 8 α(N)=0.1358 19; α(O)=0.0186 3; α(P)=7.08×10 ⁻⁵ 10
329.4268	4 ⁺	229.3207 [#] 6	100	100.10598	2 ⁺	E2		0.196		B(E2)(W.u.)=196 10 α(K)=0.1167 17; α(L)=0.0605 9; α(M)=0.01497 21 α(N)=0.00354 5; α(O)=0.000505 7; α(P)=9.50×10 ⁻⁶ 14
680.42	6 ⁺	351.02 6	100	329.4268	4 ⁺	E2		0.0538		B(E2)(W.u.)=201 22 α(K)=0.0380 6; α(L)=0.01210 17; α(M)=0.00293 5 α(N)=0.000696 10; α(O)=0.0001027 15; α(P)=3.34×10 ⁻⁶ 5
1135.82	0 ⁺	1035.65 12	100 33	100.10598	2 ⁺	[E2]		0.00420		α(K)=0.00346 5; α(L)=0.000575 8; α(M)=0.0001317 19 α(N)=3.16×10 ⁻⁵ 5; α(O)=5.05×10 ⁻⁶ 7; α(P)=3.21×10 ⁻⁷ 5
		1135.9 2		0.0	0 ⁺	E0		0.84 21		q _K ² (E0/E2)=1.8 7, X(E0/E2)=0.09 4 (2005Ki02 evaluation).
1144.32	8 ⁺	463.9 1	100	680.42	6 ⁺	E2		0.0254		B(E2)(W.u.)=209 18 α(K)=0.0191 3; α(L)=0.00479 7; α(M)=0.001140 16 α(N)=0.000272 4; α(O)=4.11×10 ⁻⁵ 6; α(P)=1.735×10 ⁻⁶ 25
1221.4001	2 ⁺	891.77 10	0.163 7	329.4268	4 ⁺	E2		0.00569		B(E2)(W.u.)=0.0346 18 α(K)=0.00464 7; α(L)=0.000810 12; α(M)=0.000187 3 α(N)=4.47×10 ⁻⁵ 7; α(O)=7.09×10 ⁻⁶ 10; α(P)=4.31×10 ⁻⁷ 6
		1121.290 3	100.0	100.10598	2 ⁺	E2+M1+E0	+30 +6-4			B(E2)(W.u.)=6.74 17 Mult.: E0 component suggested by ce data in ¹⁸² Ta β ⁻ (1990Ka35) and q _K (E0/E2)=0.19 6 (1975We22). δ: 17 +4-3 (1990Ka35).
		1221.395 3	77.27 22	0.0	0 ⁺	E2		0.00305		B(E2)(W.u.)=3.40 9 α(K)=0.00252 4; α(L)=0.000402 6; α(M)=9.15×10 ⁻⁵ 13

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [@]	Comments
1257.4121	2 ⁺	(121.5 2)	0.16 4	1135.82	0 ⁺	[E2]		1.83	$\alpha(\text{N})=2.20\times10^{-5}$ 3; $\alpha(\text{O})=3.53\times10^{-6}$ 5; $\alpha(\text{P})=2.34\times10^{-7}$ 4; $\alpha(\text{IPF})=6.75\times10^{-6}$ 10 $B(\text{E}2)(\text{W.u.})=1.8\times10^2$ 5 $\alpha(\text{K})=0.596$ 9; $\alpha(\text{L})=0.936$ 15; $\alpha(\text{M})=0.236$ 4 $\alpha(\text{N})=0.0556$ 9; $\alpha(\text{O})=0.00765$ 13; $\alpha(\text{P})=4.50\times10^{-5}$ 7 E _γ : B(E2)(W.u.)=200 60 is considered as large and improbable by the evaluators in view of relatively small B(E2)(W.u.) for other transitions from the 1257 level. Thus the presence of this transition is treated as questionable.
928.00 3		40.5 6	329.4268	4 ⁺	E2			0.00524	$B(\text{E}2)(\text{W.u.})=1.73$ 15 $\alpha(\text{K})=0.00429$ 6; $\alpha(\text{L})=0.000738$ 11; $\alpha(\text{M})=0.0001698$ 24 $\alpha(\text{N})=4.07\times10^{-5}$ 6; $\alpha(\text{O})=6.47\times10^{-6}$ 9; $\alpha(\text{P})=3.98\times10^{-7}$ 6 $\delta(\text{M}3/\text{E}2)=+0.04$ 14 ($\gamma\gamma(\theta)$ in ¹⁸² Ta β^- , 1992Ch26). $B(\text{E}2)(\text{W.u.})=0.59$ 10
1157.3 1		42 6	100.10598	2 ⁺	E2+M1+E0	-9 +3-6	0.0092 5		E _γ : from ¹⁸² Re decay (64.0 h). In β^- decay, 1157+1158 doublet is not well resolved; with average energy of the doublet at 1157.510 15, it deviates from level-energy difference by 0.2 keV in β^- decay dataset. I _γ : unweighted average of 48.6 23 (β^- decay) and 35 4 in ε decay (64 h). Other: 72 5 in Coul. ex. is high by \approx 70%. Values from ($\alpha,2n\gamma$) and (n,n'γ) cannot be used as these studies did not account for 1157 being a doublet with the second component from 1487 level. Mult.: E0 component is estimated as 0.5% 1 by the evaluators from comparison of γ-ray intensities and K-shell electron conversion data in 1976He18 . α : based on 0.5% 1 E0 component and $\delta(\text{E}2/\text{M}1)=-9$ +3-6. $B(\text{E}2)(\text{W.u.})=0.93$ 8
1257.407 3		100.00 28	0.0	0 ⁺	E2			0.00289	$\alpha(\text{K})=0.00239$ 4; $\alpha(\text{L})=0.000378$ 6; $\alpha(\text{M})=8.60\times10^{-5}$ 12 $\alpha(\text{N})=2.06\times10^{-5}$ 3; $\alpha(\text{O})=3.33\times10^{-6}$ 5; $\alpha(\text{P})=2.21\times10^{-7}$ 3; $\alpha(\text{IPF})=1.119\times10^{-5}$ 16 $B(\text{E}1)(\text{W.u.})=7.1\times10^{-5}$ 4
1289.1498	2 ⁻	31.7377 5	5.30 13	1257.4121	2 ⁺	E1		1.628	$\alpha(\text{L})=1.259$ 18; $\alpha(\text{M})=0.293$ 4 $\alpha(\text{N})=0.0675$ 10; $\alpha(\text{O})=0.00910$ 13; $\alpha(\text{P})=0.000305$ 5 I _γ : all branchings relative to 1189γ, since efficiency problems at low energies such as 67.7 keV can be problematic. Branching for 31.7γ is from β^- decay. Other: 2.8 6 from ε decay is low by a factor of \approx 2.
		67.74970 [#] 10	260.4 21	1221.4001	2 ⁺	E1		0.202	$B(\text{E}1)(\text{W.u.})=0.000360$ 14 $\alpha(\text{L})=0.1563$ 22; $\alpha(\text{M})=0.0358$ 5 $\alpha(\text{N})=0.00840$ 12; $\alpha(\text{O})=0.001234$ 18; $\alpha(\text{P})=5.51\times10^{-5}$ 8

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E_i (level)	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. ‡	δ^\ddagger	$\alpha @$	Comments	
1289.1498	2 ⁻	959.73 3	2.120 24	329.4268	4 ⁺	E3+M2	-5.5 +19-10	0.0116 7	Mult., δ : RUL(M2)=1 implies $\delta < 0.002$, thus pure E1 is assigned. Experimental limit: $\delta < 0.02$. $B(\text{M2})(\text{W.u.})=0.00016$ <i>11</i> ; $B(\text{E3})(\text{W.u.})=3.44$ <i>16</i> $\alpha(\text{K})=0.0090$ <i>6</i> ; $\alpha(\text{L})=0.00196$ <i>8</i> ; $\alpha(\text{M})=0.000463$ <i>17</i> $\alpha(\text{N})=0.000111$ <i>4</i> ; $\alpha(\text{O})=1.73 \times 10^{-5}$ <i>7</i> ; $\alpha(\text{P})=9.3 \times 10^{-7}$ <i>6</i> δ : other: -4.6 +36-Inf ($\gamma\gamma(\theta)$ in ¹⁸² Ta β^- , 1992Ch26).	
	1189.040 3	100.00 24	100.10598	2 ⁺	E1+M2+E3		0.0047 3		$\delta(\text{M2/E1})=+0.48$ <i>3</i> ; $\delta(\text{E3/E1})=-0.67$ <i>5</i> $B(\text{E1})(\text{W.u.})=1.58 \times 10^{-8}$ <i>13</i> ; $B(\text{M2})(\text{W.u.})=0.012$ <i>2</i> ; $B(\text{E3})(\text{W.u.})=10.6$ <i>13</i> δ : from weighted averages of $\delta(\text{M2/E1})=+0.44$ <i>6</i> , $\delta(\text{E3/E1})=-0.69$ <i>10</i> (1983Ri05); $\delta(\text{M2/E1})=+0.49$ <i>3</i> , $\delta(\text{E3/E1})=-0.64$ <i>5</i> (1972Kr05); $\delta(\text{M2/E1})=0.49$ <i>3</i> , $\delta(\text{E3/E1})=0.72$ <i>7</i> (1972He10).	
11	1289.145 3	8.32 4	0.0	0 ⁺	M2		0.01231		Mult., α : 59% 4 E1, 14% 1 M2 and 27% 3 E3. Conversion coefficient deduced for this admixture from BrIcc code. $B(\text{M2})(\text{W.u.})=0.00460$ <i>17</i> $\alpha(\text{K})=0.01019$ <i>15</i> ; $\alpha(\text{L})=0.001630$ <i>23</i> ; $\alpha(\text{M})=0.000372$ <i>6</i> $\alpha(\text{N})=8.98 \times 10^{-5}$ <i>13</i> ; $\alpha(\text{O})=1.466 \times 10^{-5}$ <i>21</i> ; $\alpha(\text{P})=1.047 \times 10^{-6}$ <i>15</i> ; $\alpha(\text{IPF})=5.96 \times 10^{-6}$ <i>9</i>	
	1331.1153	3 ⁺	1001.700 <i>18</i>	17.95 21	329.4268	4 ⁺	E2+M1	-8.9 +18-21	0.00455 8	$B(\text{M1})(\text{W.u.})>4.1 \times 10^{-8}$; $B(\text{E2})(\text{W.u.})>0.0023$ $\alpha(\text{K})=0.00374$ <i>6</i> ; $\alpha(\text{L})=0.000627$ <i>10</i> ; $\alpha(\text{M})=0.0001438$ <i>23</i> $\alpha(\text{N})=3.45 \times 10^{-5}$ <i>6</i> ; $\alpha(\text{O})=5.51 \times 10^{-6}$ <i>9</i> ; $\alpha(\text{P})=3.48 \times 10^{-7}$ <i>6</i> δ : other: -8.2 +22-42 ($\gamma\gamma(\theta)$ in ¹⁸² Ta β^- , 1992Ch26).
	1231.004 3	100.00 24	100.10598	2 ⁺	E2+M1		-33 +6-9	0.00301	$B(\text{M1})(\text{W.u.})>9.7 \times 10^{-9}$; $B(\text{E2})(\text{W.u.})>0.0046$ $\alpha(\text{K})=0.00249$ <i>4</i> ; $\alpha(\text{L})=0.000395$ <i>6</i> ; $\alpha(\text{M})=9.01 \times 10^{-5}$ <i>13</i> $\alpha(\text{N})=2.16 \times 10^{-5}$ <i>3</i> ; $\alpha(\text{O})=3.48 \times 10^{-6}$ <i>5</i> ; $\alpha(\text{P})=2.31 \times 10^{-7}$ <i>4</i> ; $\alpha(\text{IPF})=7.86 \times 10^{-6}$ <i>11</i> δ : others: +11 +6-3 ($\gamma\gamma(\theta)$ in ¹⁸² Ta β^- , 1992Ch26); -60 +20-100 (1972Kr05).	
	1373.8301	3 ⁻	42.7148 4	3.82 8	1331.1153	3 ⁺	E1		0.720	$B(\text{E1})(\text{W.u.})=0.00028$ <i>4</i> $\alpha(\text{L})=0.557$ <i>8</i> ; $\alpha(\text{M})=0.1286$ <i>18</i> $\alpha(\text{N})=0.0299$ <i>5</i> ; $\alpha(\text{O})=0.00419$ <i>6</i> ; $\alpha(\text{P})=0.0001586$ <i>23</i>
		84.6802 [#] 3	37.82 25	1289.1498	2 ⁻	M1+E2	+0.326 11	7.66	$B(\text{M1})(\text{W.u.})=0.034$ <i>5</i> ; $B(\text{E2})(\text{W.u.})=2.1 \times 10^2$ <i>3</i> $\alpha(\text{K})=5.84$ <i>9</i> ; $\alpha(\text{L})=1.40$ <i>3</i> ; $\alpha(\text{M})=0.331$ <i>8</i>	

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [@]	Comments
1373.8301	3 ⁻	116.4179 [#] 6	6.33 5	1257.4121	2 ⁺	E1		0.253	$\alpha(\text{N})=0.0790$ 18; $\alpha(\text{O})=0.0121$ 3; $\alpha(\text{P})=0.000593$ 9 δ : weighted average of +0.32 3 (1983Ri05), +0.30 2 (1980Sp01), +0.31 5 (1975Qu01), +0.30 2 (1972Kr05), 0.352 3 (1972He10 ,ce data, uncertainty increased to 0.02 in averaging procedure), 0.40 7 (1971Ga37 ,ce data), 0.346 7 (1967Ni03 , ce data, uncertainty increased to 0.02 in averaging procedure). Values with sign are from $\gamma(\theta)$ or $\gamma\gamma(\theta)$ data.
		152.42991 [#] 26	100.0 5	1221.4001	2 ⁺	E1		0.1258	B(E1)(W.u.)=2.3×10 ⁻⁵ 3 $\alpha(\text{K})=0.207$ 3; $\alpha(\text{L})=0.0353$ 5; $\alpha(\text{M})=0.00805$ 12 $\alpha(\text{N})=0.00191$ 3; $\alpha(\text{O})=0.000290$ 4; $\alpha(\text{P})=1.510\times10^{-5}$ 22
12									B(E1)(W.u.)=0.000162 21 $\alpha(\text{K})=0.1038$ 15; $\alpha(\text{L})=0.01703$ 24; $\alpha(\text{M})=0.00387$ 6 $\alpha(\text{N})=0.000919$ 13; $\alpha(\text{O})=0.0001421$ 20; $\alpha(\text{P})=7.85\times10^{-6}$ 11 δ : -0.22 11 (1992Ch26), -0.023 4 (1983Ri05), 0.035 53 (1980Sp01 in ¹⁸² Re decay); +0.014 13 (1975Qu01); all from $\gamma(\theta)$ or $\gamma\gamma(\theta)$. Subshell ratios in ce data (1967Ni03) give pure E1 consistent with RUL(M2)=1 suggests $\delta<0.006$, thus the evaluators assign pure E1.
		1044.42 5	3.41 6	329.4268	4 ⁺	E1+M2(+E3)	0.46 9	0.0051 12	B(E1)(W.u.)=1.42×10 ⁻⁸ 21; B(M2)(W.u.)=(0.013 5) $\alpha(\text{K})=0.0042$ 10; $\alpha(\text{L})=0.00067$ 16; $\alpha(\text{M})=0.00015$ 4 $\alpha(\text{N})=3.7\times10^{-5}$ 9; $\alpha(\text{O})=6.0\times10^{-6}$ 14; $\alpha(\text{P})=4.2\times10^{-7}$ 10 $\delta(\text{M2/E1})=+0.4$ 3, $\delta(\text{E3/E1})=-0.3$ 2 (1972Kr05). $\delta(\text{M2/E1})=+0.36$ 10; $\delta(\text{E3/E1})=-0.28$ 12
		1273.719 3	9.40 5	100.10598	2 ⁺	E1+M2+E3		0.0029 5	B(E1)(W.u.)=1.37×10 ⁻⁸ 20; B(M2)(W.u.)≈8×10 ⁻⁴ ; B(E3)(W.u.)=9 2 Mult., α : 81% 5 E1, 12% 4 M2 and 7% 2 E3. Conversion coefficient deduced for this admixture from BrIcc code. Mult., δ : from $\gamma(\theta)$ and lin pol data of 1983Ri05 , agrees with ce data of 1992Ch26 .
		1373.824 3	3.17 3	0.0	0 ⁺	E3		0.00496	B(E3)(W.u.)=5.8 8 $\alpha(\text{K})=0.00400$ 6; $\alpha(\text{L})=0.000728$ 11; $\alpha(\text{M})=0.0001685$ 24 $\alpha(\text{N})=4.05\times10^{-5}$ 6; $\alpha(\text{O})=6.44\times10^{-6}$ 9; $\alpha(\text{P})=3.97\times10^{-7}$ 6; $\alpha(\text{IPF})=1.252\times10^{-5}$ 18
		1442.835	4 ⁺	1113.410 18	100.0 14	329.4268	4 ⁺	E2+M1(+E0) +5.6 +13-10	0.00376 8 B(E2)(W.u.)=10.3 10 Mult., δ : from ce data in ¹⁸² Ta β^- , 1990Ka35

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E_i (level)	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. [‡]	δ^\ddagger	$\alpha^@$	Comments
1442.835	4 ⁺	1342.730 15	57.7 3	100.10598	2 ⁺	E2		0.00256	suggest M1+E2(+E0) with $\delta(E2/M1)=20$ 13. $\delta(E2/M1)=+1.1$ 2 from $\gamma\gamma(\theta)$ in ¹⁸² Ta β^- (1992Ch26). E0 component is suggested by 1975We22 with $q_K(E0/E2)=0.41$ 9.
1487.5018	4 ⁻	44.66 & 11	1.12 22	1442.835	4 ⁺	[E1]		0.637 10	B(E2)(W.u.)=2.41 23 $\alpha(K)=0.00211$ 3; $\alpha(L)=0.000329$ 5; $\alpha(M)=7.49\times10^{-5}$ 11 $\alpha(N)=1.80\times10^{-5}$ 3; $\alpha(O)=2.90\times10^{-6}$ 4; $\alpha(P)=1.95\times10^{-7}$ 3; $\alpha(IPF)=2.56\times10^{-5}$ 4 I_γ : 93 7 in $(\alpha, 2n\gamma)$ is high by $\approx 60\%$. $\delta(M3/E2)=-0.11$ +4-20 from $\gamma(\theta)$ in ¹⁸² Ta β^- decay is inconsistent with RUL(M3)=10, which suggests that δ should be near zero. $\alpha(K)$ exp in ¹⁸² Re ε decay is consistent with $\delta(M3/E2)=0$ assigned by the evaluators.
13		113.67170 [#] 22	70.0 3	1373.8301	3 ⁻	M1+E2	+0.36 1	3.18	B(E1)(W.u.)>0.00011 $\alpha(L)=0.493$ 8; $\alpha(M)=0.1136$ 18 $\alpha(N)=0.0264$ 5; $\alpha(O)=0.00373$ 6; $\alpha(P)=0.0001436$ 22 B(M1)(W.u.)>0.038; B(E2)(W.u.)>1.5×10 ² $\alpha(K)=2.49$ 4; $\alpha(L)=0.530$ 9; $\alpha(M)=0.1242$ 22 $\alpha(N)=0.0297$ 5; $\alpha(O)=0.00462$ 8; $\alpha(P)=0.000250$ 4 I_γ : 122 10 in $(\alpha, 2n\gamma)$ is high by $\approx 75\%$.
		156.3864 [#] 3	100.0 4	1331.1153	3 ⁺	E1		0.1177	B(E1)(W.u.)>0.00023 $\alpha(K)=0.0972$ 14; $\alpha(L)=0.01590$ 23; $\alpha(M)=0.00362$ 5 $\alpha(N)=0.000858$ 12; $\alpha(O)=0.0001328$ 19; $\alpha(P)=7.38\times10^{-6}$ 11 $\delta(M2/E1)=-0.053$ 4 (1983Ri05 , $\gamma(\theta)$ and lin pol); -0.08 5 (1992Ch26 , $\gamma\gamma(\theta)$); +0.06 +3-6 (1981Ka22 , $\gamma\gamma(\theta)$). But RUL=1 for M2 implies $\delta<0.005$, thus the evaluators assign E1. $\delta(M2/E1)=-0.08$ 5 ($\gamma\gamma(\theta)$ and ce in ¹⁸² Ta β^- , 1992Ch26).
		198.35187 [#] 29	54.84 21	1289.1498	2 ⁻	E2		0.317	B(E2)(W.u.)>68 $\alpha(K)=0.1725$ 25; $\alpha(L)=0.1097$ 16; $\alpha(M)=0.0273$ 4 $\alpha(N)=0.00646$ 9; $\alpha(O)=0.000910$ 13; $\alpha(P)=1.364\times10^{-5}$ 19 $\delta(M3/E2)=+0.067$ 10 from $\gamma(\theta)$ in ¹⁸² Ta β^- , but RUL(M3)=10 suggests $\delta(M3/E2)$ should be near zero. The evaluators assign pure E2.
		1158.1 2	10.8 13	329.4268	4 ⁺	E1		1.38×10^{-3}	B(E1)(W.u.)>6.1×10 ⁻⁸ $\alpha(K)=0.001159$ 17; $\alpha(L)=0.0001632$ 23; $\alpha(M)=3.66\times10^{-5}$ 6

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E_i (level)	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. ‡	δ^\ddagger	$\alpha^@$	Comments
1487.5018	4 ⁻	1387.390 3	2.73 4	100.10598	2 ⁺	E3+M2	2.6 4	0.00554 24	$\alpha(\text{N})=8.79 \times 10^{-6}$ 13; $\alpha(\text{O})=1.432 \times 10^{-6}$ 20; $\alpha(\text{P})=1.021 \times 10^{-7}$ 15; $\alpha(\text{IPF})=7.59 \times 10^{-6}$ 12 $\delta(\text{M2/E1})=-0.01 +2-1$ ($\gamma\gamma(\theta)$ in ¹⁸² Ta β^- , 1992Ch26). I_γ : from ¹⁸² Re decay (64.0 h). $B(\text{M2})(\text{W.u.})>0.0020$; $B(\text{E3})(\text{W.u.})>5.9$ $\alpha(\text{K})=0.00450$ 21; $\alpha(\text{L})=0.00079$ 3; $\alpha(\text{M})=0.000183$ 7 $\alpha(\text{N})=4.39 \times 10^{-5}$ 16; $\alpha(\text{O})=7.0 \times 10^{-6}$ 3; $\alpha(\text{P})=4.50 \times 10^{-7}$ 21; $\alpha(\text{IPF})=1.426 \times 10^{-5}$ 22
1510.22	4 ⁺	830.1 4	17 3	680.42	6 ⁺				E_γ, I_γ : weighted averages taken of data from β^- , ε and (n,n'γ) for all three γ rays from the 1510 level. $\alpha(\text{K})=0.0030$ 4; $\alpha(\text{L})=0.00047$ 5; $\alpha(\text{M})=0.000108$ 11 $\alpha(\text{N})=2.59 \times 10^{-5}$ 25; $\alpha(\text{O})=4.2 \times 10^{-6}$ 5; $\alpha(\text{P})=2.8 \times 10^{-7}$ 4; $\alpha(\text{IPF})=3.11 \times 10^{-6}$ 16
		1180.80 11	100 3	329.4268	4 ⁺	E2+M1	-2.8 10	0.0036 4	$\alpha(\text{K})=0.00193$ 3; $\alpha(\text{L})=0.000298$ 5; $\alpha(\text{M})=6.76 \times 10^{-5}$ 10 $\alpha(\text{N})=1.624 \times 10^{-5}$ 23; $\alpha(\text{O})=2.62 \times 10^{-6}$ 4; $\alpha(\text{P})=1.783 \times 10^{-7}$ 25; $\alpha(\text{IPF})=4.20 \times 10^{-5}$ 6
		1410.13 5	45.8 10	100.10598	2 ⁺	E2		0.00235	
1553.2240	4 ⁻	65.72215 [#] 15	39.8 4	1487.5018	4 ⁻	M1+E2	0.093 6	2.91 5	$B(\text{M1})(\text{W.u.})=0.00624$ 24; $B(\text{E2})(\text{W.u.})=5.2$ 7 $\alpha(\text{L})=2.25$ 4; $\alpha(\text{M})=0.517$ 9 $\alpha(\text{N})=0.1242$ 20; $\alpha(\text{O})=0.0200$ 3; $\alpha(\text{P})=0.001340$ 19
		110.393 12	1.42 4	1442.835	4 ⁺	[E1]		0.290	$B(\text{E1})(\text{W.u.})=4.53 \times 10^{-7}$ 20 $\alpha(\text{K})=0.238$ 4; $\alpha(\text{L})=0.0408$ 6; $\alpha(\text{M})=0.00931$ 13 $\alpha(\text{N})=0.00220$ 3; $\alpha(\text{O})=0.000335$ 5; $\alpha(\text{P})=1.717 \times 10^{-5}$ 24
		179.39381 [#] 25	41.22 19	1373.8301	3 ⁻	M1+E2	+1.3 2	0.62 4	$B(\text{M1})(\text{W.u.})=0.000119$ 24; $B(\text{E2})(\text{W.u.})=2.6$ 4 $\alpha(\text{K})=0.42$ 5; $\alpha(\text{L})=0.149$ 5; $\alpha(\text{M})=0.0363$ 13 $\alpha(\text{N})=0.0086$ 3; $\alpha(\text{O})=0.00126$ 4; $\alpha(\text{P})=3.9 \times 10^{-5}$ 5 I_γ : 35.5 21 from ε decay is quite in agreement. δ: unweighted average of +2.2 2 (1992Ch26), +2.1 +3-2 (1983Ri05), +1.3 5 (1980Sp01), +0.9 4 (1975Qu01), +0.92 +13-7 (1972Kr05), +0.90m +40-23 (1972He10), 0.7 1 (1967Ni03). Weighted average is 1.0 2 but with reduced χ ² =10. Except for 1967Ni03 , all other methods are γ(θ) on oriented nuclei or γγ(θ).
14		222.1085 [#] 3	100.0 3	1331.1153	3 ⁺	E1		0.0480	$B(\text{E1})(\text{W.u.})=3.92 \times 10^{-6}$ 13 $\alpha(\text{K})=0.0399$ 6; $\alpha(\text{L})=0.00630$ 9; $\alpha(\text{M})=0.001429$ 20 $\alpha(\text{N})=0.000340$ 5; $\alpha(\text{O})=5.34 \times 10^{-5}$ 8; $\alpha(\text{P})=3.17 \times 10^{-6}$ 5 δ: +0.007 5 (1972Kr05), +0.027 7 (1992Ch26), -0.12 18 (1975Qu01), pure E1 from subshell data (1967Ni01), as also suggested by RUL for M2.
		264.0740 [#] 3	47.74 19	1289.1498	2 ⁻	E2		0.1254	$B(\text{E2})(\text{W.u.})=0.700$ 23 $\alpha(\text{K})=0.0799$ 12; $\alpha(\text{L})=0.0347$ 5; $\alpha(\text{M})=0.00852$ 12 $\alpha(\text{N})=0.00202$ 3; $\alpha(\text{O})=0.000291$ 4; $\alpha(\text{P})=6.69 \times 10^{-6}$ 10

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

	E _i (level)	J ^π _i	E _γ [†]	I _γ [†]	E _f	J ^π _f	Mult. [‡]	δ [‡]	α [@]	Comments
	1553.2240	4 ⁻	1223.73 11	3.1 4	329.4268	4 ⁺	E1+M2(+E3)	-0.15 +10-25	0.0016 15	B(E1)(W.u.)=7.1×10 ⁻¹⁰ 10; B(M2)(W.u.)=(5.E-5 +7-5) α(K)=0.0013 13; α(L)=1.9×10 ⁻⁴ 20; α(M)=4.2×10 ⁻⁵ 46 α(N)=1.0×10 ⁻⁵ 11; α(O)=1.6×10 ⁻⁶ 18; α(P)=1.2×10 ⁻⁷ 13; α(IPF)=2.7×10 ⁻⁵ 3 E _γ : weighted average from β ⁻ and ε decay. Mult.,δ: from ce data of 1976He18 and γγ(θ) data of 1992Ch26 in ¹⁸² Ta β ⁻ . E3 admixture cannot be ruled out.
	1453.120 6	0.405 14	100.10598	2 ⁺	E3(+M2)		>2.3		0.0048 4	B(E3)(W.u.)=0.017 2 α(K)=0.0039 4; α(L)=0.00068 5; α(M)=0.000156 11 α(N)=3.76×10 ⁻⁵ 25; α(O)=6.0×10 ⁻⁶ 4; α(P)=3.9×10 ⁻⁷ 4; α(IPF)=2.29×10 ⁻⁵ 4 I _γ : other: 27 3 in (α,2ny) is much higher, most likely an impurity or incorrect assignment.
15	1621.284	5 ⁻	111.07 5 133.80 5	4.1 3 49 3	1510.22 1487.5018	4 ⁺ 4 ⁻	M1+E2	+0.39 +4-3	1.96 4	α(K)=1.55 4; α(L)=0.316 10; α(M)=0.0739 24 α(N)=0.0177 6; α(O)=0.00277 8; α(P)=0.000155 4 α(K)=0.0693 10; α(L)=0.01118 16; α(M)=0.00254 4 α(N)=0.000604 9; α(O)=9.39×10 ⁻⁵ 14; α(P)=5.36×10 ⁻⁶ 8 α(K)=0.0951 14; α(L)=0.0447 7; α(M)=0.01101 16 α(N)=0.00261 4; α(O)=0.000374 6; α(P)=7.86×10 ⁻⁶ 11
		178.47 5	45 3	1442.835	4 ⁺	E1			0.0838	
		247.46 5	100 7	1373.8301	3 ⁻	E2			0.1538	
		1291.8 4	4.6 5	329.4268	4 ⁺	E1+M2		0.4 2	0.0027 14	α(K)=0.0022 12; α(L)=3.4×10 ⁻⁴ 19; α(M)=7.7×10 ⁻⁵ 44 α(N)=1.9×10 ⁻⁵ 11; α(O)=3.0×10 ⁻⁶ 17; α(P)=2.2×10 ⁻⁷ 13; α(IPF)=5.0×10 ⁻⁵ 7
		1521.3 4	1.89 20	100.10598	2 ⁺	(E3)			0.00402	α(K)=0.00325 5; α(L)=0.000568 8; α(M)=0.0001309 19 α(N)=3.15×10 ⁻⁵ 5; α(O)=5.03×10 ⁻⁶ 7; α(P)=3.20×10 ⁻⁷ 5; α(IPF)=3.37×10 ⁻⁵ 5
	1623.51	(5) ⁺	943.1 3	14.0 22	680.42	6 ⁺	E2		0.00507	α(K)=0.00415 6; α(L)=0.000711 10; α(M)=0.0001634 23 α(N)=3.92×10 ⁻⁵ 6; α(O)=6.23×10 ⁻⁶ 9; α(P)=3.86×10 ⁻⁷ 6
		1294.0 3	100.0 19	329.4268	4 ⁺	E2(+M1)		>30	0.00274	I _γ : 35 5 in (n,n'γ) is discrepant. α(K)=0.00226 4; α(L)=0.000356 5; α(M)=8.10×10 ⁻⁵ 12

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [‡]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [@]	Comments
16	1660.383	39.1 1	3.7 7	1621.284	5 ⁻	M1+E2	0.061 7	13.6 4	$\alpha(N)=1.94\times10^{-5}$ 3; $\alpha(O)=3.13\times10^{-6}$ 5; $\alpha(P)=2.10\times10^{-7}$ 3; $\alpha(IPF)=1.654\times10^{-5}$ 24
		107.13 5	20.1 15	1553.2240	4 ⁻	M1+E2	-0.8 2	3.54 13	$\alpha(L)=10.53$ 25; $\alpha(M)=2.42$ 6 $\alpha(N)=0.581$ 15; $\alpha(O)=0.0933$ 21; $\alpha(P)=0.00618$ 10 $\alpha(K)=2.3$ 4; $\alpha(L)=0.96$ 15; $\alpha(M)=0.24$ 4 $\alpha(N)=0.056$ 9; $\alpha(O)=0.0081$ 12; $\alpha(P)=0.00022$ 4 I _γ : 55 4 in ($\alpha,2n\gamma$) is discrepant.
		150.25 ^{&} 5	7.3 7	1510.22	4 ⁺	(E1)		0.1305	$\alpha(K)=0.1077$ 16; $\alpha(L)=0.01770$ 25; $\alpha(M)=0.00403$ 6 $\alpha(N)=0.000956$ 14; $\alpha(O)=0.0001476$ 21; $\alpha(P)=8.13\times10^{-6}$ 12 I _γ : 51 10 in ($\alpha,2n\gamma$) is discrepant.
		172.87 5	51 3	1487.5018	4 ⁻	M1+E2	+0.26 1	0.971	$\alpha(K)=0.795$ 12; $\alpha(L)=0.1356$ 20; $\alpha(M)=0.0312$ 5 $\alpha(N)=0.00749$ 11; $\alpha(O)=0.001205$ 17; $\alpha(P)=7.97\times10^{-5}$ 12 I _γ : 137 14 in ($\alpha,2n\gamma$) is discrepant.
		217.55 5	46 3	1442.835	4 ⁺	(E1)		0.0506	$\alpha(K)=0.0420$ 6; $\alpha(L)=0.00664$ 10; $\alpha(M)=0.001508$ 22 $\alpha(N)=0.000359$ 5; $\alpha(O)=5.63\times10^{-5}$ 8; $\alpha(P)=3.33\times10^{-6}$ 5 I _γ : 93 7 in ($\alpha,2n\gamma$) is discrepant.
		286.56 5	100 7	1373.8301	3 ⁻	E2		0.0976	$\alpha(K)=0.0643$ 9; $\alpha(L)=0.0254$ 4; $\alpha(M)=0.00621$ 9 $\alpha(N)=0.001472$ 21; $\alpha(O)=0.000213$ 3; $\alpha(P)=5.47\times10^{-6}$ 8
		1330.9 2	5.3 5	329.4268	4 ⁺	E1+M2	0.5 2	0.0032 14	$\alpha(K)=0.0026$ 11; $\alpha(L)=4.0\times10^{-4}$ 18; $\alpha(M)=9.1\times10^{-5}$ 41 $\alpha(N)=2.19\times10^{-5}$ 98; $\alpha(O)=3.6\times10^{-6}$ 16; $\alpha(P)=2.6\times10^{-7}$ 12; $\alpha(IPF)=6.3\times10^{-5}$ 9
		1560.4 4	1.02 11	100.10598	2 ⁺	(E3)		0.00382	$\alpha(K)=0.00309$ 5; $\alpha(L)=0.000534$ 8; $\alpha(M)=0.0001231$ 18 $\alpha(N)=2.96\times10^{-5}$ 5; $\alpha(O)=4.74\times10^{-6}$ 7; $\alpha(P)=3.03\times10^{-7}$ 5; $\alpha(IPF)=4.10\times10^{-5}$ 6
		567.5 1	100	1144.32	8 ⁺	E2		0.01543	B(E2)(W.u.)=203 19 $\alpha(K)=0.01202$ 17; $\alpha(L)=0.00262$ 4; $\alpha(M)=0.000616$ 9
		313.94 12	7.5 5	1442.835	4 ⁺	E2		0.0743	$\alpha(N)=0.0001472$ 21; $\alpha(O)=2.26\times10^{-5}$ 4; $\alpha(P)=1.106\times10^{-6}$ 16 $\alpha(K)=0.0506$ 8; $\alpha(L)=0.0181$ 3; $\alpha(M)=0.00440$ 7
1765.53	1756.75	1076.4 1	100 3	680.42	6 ⁺	E2+M1	+2.56 +9-8	0.00444	$\alpha(N)=0.001045$ 15; $\alpha(O)=0.0001525$ 22; $\alpha(P)=4.37\times10^{-6}$ 7 $\alpha(K)=0.00368$ 6; $\alpha(L)=0.000592$ 9; $\alpha(M)=0.0001351$ 21 $\alpha(N)=3.24\times10^{-5}$ 5; $\alpha(O)=5.22\times10^{-6}$ 8; $\alpha(P)=3.45\times10^{-7}$ 6 Mult.: no E0 admixture was found in $\gamma(\text{ce})(\theta)$ and ce data of 1975We22 .
		1427.2 1	92.1 17	329.4268	4 ⁺	E2		0.00231	$\alpha(K)=0.00188$ 3; $\alpha(L)=0.000291$ 4; $\alpha(M)=6.60\times10^{-5}$ 10 $\alpha(N)=1.584\times10^{-5}$ 23; $\alpha(O)=2.56\times10^{-6}$ 4; $\alpha(P)=1.744\times10^{-7}$ 25; $\alpha(IPF)=4.67\times10^{-5}$ 7
		434.3 2	48 12	1331.1153	3 ⁺				$\alpha(K)=2.5$ 3; $\alpha(L)=0.78$ 14; $\alpha(M)=0.19$ 4
		544.20 15	100 15	1221.4001	2 ⁺				$\alpha(N)=0.045$ 9; $\alpha(O)=0.0066$ 11; $\alpha(P)=0.00025$ 4
1768.943	6 ⁻	108.58 5	12.6 25	1660.383	5 ⁻	M1+E2	-0.6 2	3.50 13	I _γ : 78 6 in ($\alpha,2n\gamma$) is discrepant.
		145.43 5	11.8 9	1623.51	(5) ⁺	(E1)		0.1420	$\alpha(K)=0.1171$ 17; $\alpha(L)=0.0193$ 3; $\alpha(M)=0.00440$ 7 $\alpha(N)=0.001043$ 15; $\alpha(O)=0.0001608$ 23; $\alpha(P)=8.80\times10^{-6}$ 13 I _γ : 45 10 in ($\alpha,2n\gamma$) is discrepant.

Adopted Levels, Gammas (continued) $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [@]	Comments
		147.71 5	16.2 14	1621.284	5 ⁻	M1+E2	+0.8 2	1.30 9	α(K)=0.94 12; α(L)=0.277 24; α(M)=0.067 7 α(N)=0.0159 15; α(O)=0.00237 18; α(P)=9.1×10 ⁻⁵ 13 I _γ : 49 10 in (α ,2n γ) is discrepant.
215.72 5		12.3 24		1553.2240	4 ⁻	(E2)		0.240	α(K)=0.1376 20; α(L)=0.0776 11; α(M)=0.0192 3

Adopted Levels, Gammas (continued) $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J ^π _i	E _γ [†]	I _γ [†]	E _f	J ^π _f	Mult. [‡]	δ [‡]	α [@]	Comments
1768.943	6 ⁻	281.43 5	100 7	1487.5018	4 ⁻	E2		0.1031	$\alpha(\text{N})=0.00455$ 7; $\alpha(\text{O})=0.000645$ 9; $\alpha(\text{P})=1.106\times10^{-5}$ 16 I _γ : 65 6 in ($\alpha, 2\text{n}\gamma$) is discrepant.
		1088.5 3	3.5 4	680.42	6 ⁺	E1+M2	0.4 2	0.0040 23	$\alpha(\text{K})=0.0033$ 19; $\alpha(\text{L})=5.1\times10^{-4}$ 31; $\alpha(\text{M})=1.17\times10^{-4}$ 70 $\alpha(\text{N})=2.8\times10^{-5}$ 17; $\alpha(\text{O})=4.6\times10^{-6}$ 28; $\alpha(\text{P})=3.3\times10^{-7}$ 20
		1439.3 3	2.81 18	329.4268	4 ⁺	(M2)		0.00930	$\alpha(\text{K})=0.00770$ 11; $\alpha(\text{L})=0.001217$ 17; $\alpha(\text{M})=0.000277$ 4 $\alpha(\text{N})=6.69\times10^{-5}$ 10; $\alpha(\text{O})=1.093\times10^{-5}$ 16; $\alpha(\text{P})=7.84\times10^{-7}$ 11; $\alpha(\text{IPF})=2.33\times10^{-5}$ 4 Mult.: E1+M2 from $\alpha(\text{K})$ exp but ΔJ^{π} requires M2.
1769.5?	(6 ⁺)	1089.0		680.42	6 ⁺				
		1440.1		329.4268	4 ⁺				
1809.64	5 ⁻	188.54 & 5	1.38 14	1621.284	5 ⁻				
		256.42 11	100 8	1553.2240	4 ⁻	M1+E2	+0.037 +6-7	0.336	$\alpha(\text{K})=0.279$ 4; $\alpha(\text{L})=0.0438$ 7; $\alpha(\text{M})=0.00997$ 14 $\alpha(\text{N})=0.00240$ 4; $\alpha(\text{O})=0.000392$ 6; $\alpha(\text{P})=2.80\times10^{-5}$ 4
1810.85	(6) ⁻	42.0		1768.943	6 ⁻				
		187.34 5	18.4 18	1623.51	(5) ⁺	E1+M2	+0.25 +27-20	0.33 66	$\alpha(\text{K})=0.25$ 50; $\alpha(\text{L})=0.06$ 13; $\alpha(\text{M})=0.014$ 30 $\alpha(\text{N})=0.0033$ 73; $\alpha(\text{O})=5.4\times10^{-4}$ 12; $\alpha(\text{P})=3.3\times10^{-5}$ 74
		189.60 7	21.8 18	1621.284	5 ⁻	M1+E2	+0.31 +15-12	0.74 4	$\alpha(\text{K})=0.60$ 4; $\alpha(\text{L})=0.104$ 3; $\alpha(\text{M})=0.0240$ 10 $\alpha(\text{N})=0.00576$ 22; $\alpha(\text{O})=0.000924$ 21; $\alpha(\text{P})=6.0\times10^{-5}$ 5
		323.33 10	100 7	1487.5018	4 ⁻	E2		0.0681	$\alpha(\text{K})=0.0469$ 7; $\alpha(\text{L})=0.01623$ 23; $\alpha(\text{M})=0.00395$ 6 $\alpha(\text{N})=0.000937$ 14; $\alpha(\text{O})=0.0001372$ 20; $\alpha(\text{P})=4.07\times10^{-6}$ 6
1813.4	6 ⁻	524.2 3	100	1289.1498	2 ⁻				
		19.85 10	0.32 11	1809.64	5 ⁻	M1+E2	0.07 2	1.3×10 ² 3	$\alpha(\text{L})=102$ 20; $\alpha(\text{M})=24$ 5 $\alpha(\text{N})=5.7$ 12; $\alpha(\text{O})=0.88$ 15; $\alpha(\text{P})=0.0461$ 10
1829.53	6 ⁻	60.65 10	0.91 23	1768.943	6 ⁻				
		169.15 10	100 7	1660.383	5 ⁻	M1+E2	+0.094 6	1.060	$\alpha(\text{K})=0.879$ 13; $\alpha(\text{L})=0.1405$ 20; $\alpha(\text{M})=0.0320$ 5 $\alpha(\text{N})=0.00771$ 11; $\alpha(\text{O})=0.001256$ 18; $\alpha(\text{P})=8.85\times10^{-5}$ 13
		206.00 5	4.5 5	1623.51	(5) ⁺	E1		0.0581	$\alpha(\text{K})=0.0482$ 7; $\alpha(\text{L})=0.00766$ 11; $\alpha(\text{M})=0.001739$ 25 $\alpha(\text{N})=0.000414$ 6; $\alpha(\text{O})=6.48\times10^{-5}$ 9; $\alpha(\text{P})=3.80\times10^{-6}$ 6
		208.26 5	5.5 5	1621.284	5 ⁻	M1+E2	-1.0 5	0.43 10	$\alpha(\text{K})=0.32$ 11; $\alpha(\text{L})=0.084$ 4; $\alpha(\text{M})=0.0200$ 14 $\alpha(\text{N})=0.0048$ 3; $\alpha(\text{O})=0.000721$ 18; $\alpha(\text{P})=3.1\times10^{-5}$ 12
		276.31 5	77 5	1553.2240	4 ⁻	E2		0.1090	$\alpha(\text{K})=0.0708$ 10; $\alpha(\text{L})=0.0291$ 4; $\alpha(\text{M})=0.00714$ 10

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^{\dagger}	I_γ^{\dagger}	E_f	J_f^π	Mult. [‡]	$\alpha^{@}$	Comments
1829.53	6 ⁻	342.03 10	9.3 7	1487.5018	4 ⁻	E2	0.0579	$\alpha(\text{N})=0.001693$ 24; $\alpha(\text{O})=0.000245$ 4; $\alpha(\text{P})=5.98\times 10^{-6}$ 9 $\alpha(\text{K})=0.0406$ 6; $\alpha(\text{L})=0.01326$ 19; $\alpha(\text{M})=0.00321$ 5 $\alpha(\text{N})=0.000764$ 11; $\alpha(\text{O})=0.0001124$ 16; $\alpha(\text{P})=3.55\times 10^{-6}$ 5 I_γ : 43 4 in ($\alpha, 2\text{n}\gamma$) is discrepant.
1833.1?		1733.0 ^{&} 6	100	100.10598	2 ⁺			
1855.98	(2 ⁺)	598.56 5	100 11	1257.4121	2 ⁺			
		1527.0 ^{&} 10	10 5	329.4268	4 ⁺			E_γ : from (n,n'γ) only. I_γ : 167 40 in (n,n'γ) is discrepant.
		1756.0 2	15 3	100.10598	2 ⁺			$\alpha(\text{K})=0.001162$ 17; $\alpha(\text{L})=0.0001723$ 25; $\alpha(\text{M})=3.89\times 10^{-5}$ 6 $\alpha(\text{N})=9.35\times 10^{-6}$ 13; $\alpha(\text{O})=1.522\times 10^{-6}$ 22; $\alpha(\text{P})=1.073\times 10^{-7}$ 15; $\alpha(\text{IPF})=0.000210$ 3
		1857.3 2	8.0 6	0.0	0 ⁺	(E2)	1.59×10^{-3}	E_γ : from ¹⁸² Re decay only, poor fit; γ not used in the level-scheme fitting procedure. Level-energy difference=1856.1.
1856.9	1	1757.0 6	35 12	100.10598	2 ⁺			
		1856.7 6	100 23	0.0	0 ⁺			
1871.17	1 ⁻	1543 2	≈5	329.4268	4 ⁺	[E3]	0.00391	$\alpha(\text{K})=0.00316$ 5; $\alpha(\text{L})=0.000549$ 8; $\alpha(\text{M})=0.0001265$ 19 $\alpha(\text{N})=3.04\times 10^{-5}$ 5; $\alpha(\text{O})=4.86\times 10^{-6}$ 7; $\alpha(\text{P})=3.11\times 10^{-7}$ 5; $\alpha(\text{IPF})=3.77\times 10^{-5}$ 7
19		1771.0 2	100 10	100.10598	2 ⁺	E1	1.04×10^{-3}	$\alpha(\text{K})=0.000562$ 8; $\alpha(\text{L})=7.77\times 10^{-5}$ 11; $\alpha(\text{M})=1.740\times 10^{-5}$ 25 $\alpha(\text{N})=4.18\times 10^{-6}$ 6; $\alpha(\text{O})=6.84\times 10^{-7}$ 10; $\alpha(\text{P})=4.98\times 10^{-8}$ 7; $\alpha(\text{IPF})=0.000383$ 6
		1871.2 2	90 7	0.0	0 ⁺	E1	1.06×10^{-3}	$\alpha(\text{K})=0.000513$ 8; $\alpha(\text{L})=7.09\times 10^{-5}$ 10; $\alpha(\text{M})=1.587\times 10^{-5}$ 23 $\alpha(\text{N})=3.81\times 10^{-6}$ 6; $\alpha(\text{O})=6.24\times 10^{-7}$ 9; $\alpha(\text{P})=4.55\times 10^{-8}$ 7; $\alpha(\text{IPF})=0.000457$ 7
1887.84		556.7 3	83 25	1331.1153	3 ⁺			
		666.4 4	46 17	1221.4001	2 ⁺			
		1558.5 4	100 25	329.4268	4 ⁺			
1917.05	7 ⁻	106.3 1	8 2	1810.85	(6) ⁻			
		148.2 1	10 2	1768.943	6 ⁻			
		160.20 ^{&} 5		1756.75	6 ⁺			E_γ : from ¹⁸² Re decay only. This γ is considered as suspect by the evaluators since its intensity of 116 7 relative to 100 for 295.7 γ is much too high to have missed detection in in-beam γ -ray study.
		256.5 1	28 4	1660.383	5 ⁻	Q		
		295.63 10	100 14	1621.284	5 ⁻	E2	0.0888	$\alpha(\text{K})=0.0592$ 9; $\alpha(\text{L})=0.0226$ 4; $\alpha(\text{M})=0.00551$ 8 $\alpha(\text{N})=0.001308$ 19; $\alpha(\text{O})=0.000190$ 3; $\alpha(\text{P})=5.06\times 10^{-6}$ 8
1918.6	(2 ⁺ to 4 ⁺)	1818.5 4	100	100.10598	2 ⁺			
1959.35	(2 ⁺)	449.8 3	21 10	1510.22	4 ⁺	(Q)		
		627.5 4	50 14	1331.1153	3 ⁺			
		1629.8 2	100 14	329.4268	4 ⁺			
		1859.1 8	71 24	100.10598	2 ⁺			
		1959.2 ^{&} 10	14 5	0.0	0 ⁺			

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	δ [‡]	a [@]	Comments	
1960.30	(7) ⁻	130.81 5	100 7	1829.53	6 ⁻	M1+E2	-0.51 +6-8	2.03 6	$\alpha(\text{K})=1.55\ 8; \alpha(\text{L})=0.369\ 21; \alpha(\text{M})=0.087\ 6$ $\alpha(\text{N})=0.0208\ 13; \alpha(\text{O})=0.00319\ 16; \alpha(\text{P})=0.000154\ 8$	
		149.45 5	12.1 10	1810.85	(6) ⁻	M1+E2	-0.15 +15-18	1.50 6	$\alpha(\text{K})=1.23\ 7; \alpha(\text{L})=0.202\ 14; \alpha(\text{M})=0.046\ 4$ $\alpha(\text{N})=0.0111\ 9; \alpha(\text{O})=0.00180\ 10; \alpha(\text{P})=0.000124\ 8$	
		191.39 5	90 7	1768.943	6 ⁻	M1+E2	-0.23 +6-8	0.734 18	$\alpha(\text{K})=0.604\ 19; \alpha(\text{L})=0.1002\ 18; \alpha(\text{M})=0.0230\ 5$ $\alpha(\text{N})=0.00552\ 11; \alpha(\text{O})=0.000892\ 14; \alpha(\text{P})=6.05\times 10^{-5}\ 20$	
		203.55 5	6.6 7	1756.75	6 ⁺	(E1)		0.0599	$\alpha(\text{K})=0.0497\ 7; \alpha(\text{L})=0.00790\ 11; \alpha(\text{M})=0.00179\ 3$ $\alpha(\text{N})=0.000427\ 6; \alpha(\text{O})=6.68\times 10^{-5}\ 10; \alpha(\text{P})=3.91\times 10^{-6}\ 6$ From $\gamma(\theta)$ in ¹⁸² Re ε decay, 1980Sp01 give $\delta(Q/D)=-17+10-24$ or $+0.06+9-4$; favoring the former value from δ based on ce data of 1971Ga37 . But 1971Ga37 assigned tentative E2 from their ce data. $\delta(M2/E1)=-17+10-24$ is inconsistent with RUL(M2)=1 for $T_{1/2}(1960.30\text{ level})<1$ ns or so. The evaluators assign tentative E1.	
20		299.90 10	20 3	1660.383	5 ⁻	E2		0.0851	I _γ : 52 4 in $(\alpha,2n\gamma)$ is discrepant. $\alpha(\text{K})=0.0570\ 8; \alpha(\text{L})=0.0214\ 3; \alpha(\text{M})=0.00522\ 8$ $\alpha(\text{N})=0.001239\ 18; \alpha(\text{O})=0.000180\ 3; \alpha(\text{P})=4.89\times 10^{-6}\ 7$	
		339.04 10	72 10	1621.284	5 ⁻	E2		0.0594	I _γ : 61 6 in $(\alpha,2n\gamma)$ is discrepant. $\alpha(\text{K})=0.0415\ 6; \alpha(\text{L})=0.01368\ 20; \alpha(\text{M})=0.00332\ 5$ $\alpha(\text{N})=0.000789\ 11; \alpha(\text{O})=0.0001159\ 17; \alpha(\text{P})=3.63\times 10^{-6}\ 5$	
	1960.78	6 ⁻	151.15 5	26 3	1809.64	5 ⁻	M1+E2	0.8 3	1.21 13	$\alpha(\text{K})=0.88\ 17; \alpha(\text{L})=0.25\ 3; \alpha(\text{M})=0.061\ 9$ $\alpha(\text{N})=0.0146\ 20; \alpha(\text{O})=0.00218\ 23; \alpha(\text{P})=8.5\times 10^{-5}\ 19$ $\alpha(\text{K})=0.181\ 3; \alpha(\text{L})=0.0284\ 4; \alpha(\text{M})=0.00646\ 9$ $\alpha(\text{N})=0.001555\ 22; \alpha(\text{O})=0.000254\ 4; \alpha(\text{P})=1.81\times 10^{-5}\ 3$
		300.36 10	100 23	1660.383	5 ⁻	M1+E2	+0.048 26	0.218		
		1279.8 ^{&} 3	3.6 5	680.42	6 ⁺				$\alpha(\text{K})\approx 0.00321; \alpha(\text{L})\approx 0.000536; \alpha(\text{M})\approx 0.0001230$ $\alpha(\text{N})\approx 2.96\times 10^{-5}; \alpha(\text{O})\approx 4.77\times 10^{-6}; \alpha(\text{P})\approx 3.17\times 10^{-7};$ $\alpha(\text{IPF})\approx 5.70\times 10^{-5}$	
		1631.4 ^{&} 5	0.74 14	329.4268	4 ⁺	M2+E3	≈ 2.5	≈ 0.00396		
1971.05	(7) ⁺	214.31 5	100	1756.75	6 ⁺	M1+E2	+0.25 +8-7	0.532 15	$\alpha(\text{K})=0.439\ 14; \alpha(\text{L})=0.0725\ 11; \alpha(\text{M})=0.0166\ 3$ $\alpha(\text{N})=0.00399\ 7; \alpha(\text{O})=0.000645\ 9; \alpha(\text{P})=4.39\times 10^{-5}\ 15$	
1978.36	(7) ⁻	18.05 10	1.9 5	1960.30	(7) ⁻	M1+E2	0.016 5	128 4	$\alpha(\text{L})=99\ 3; \alpha(\text{M})=22.7\ 7$ $\alpha(\text{N})=5.45\ 16; \alpha(\text{O})=0.883\ 24; \alpha(\text{P})=0.0612\ 14$	
		148.86 5	27.2 20	1829.53	6 ⁻	M1+E2	+0.28 +8-6	1.48 4	$\alpha(\text{K})=1.20\ 5; \alpha(\text{L})=0.214\ 8; \alpha(\text{M})=0.0493\ 22$ $\alpha(\text{N})=0.0118\ 5; \alpha(\text{O})=0.00189\ 6; \alpha(\text{P})=0.000121\ 5$	
		209.40 5	7.6 8	1768.943	6 ⁻	M1+E2	-0.28 +23-15	0.56 3	$\alpha(\text{K})=0.46\ 3; \alpha(\text{L})=0.0776\ 15; \alpha(\text{M})=0.0178\ 5$ $\alpha(\text{N})=0.00428\ 10; \alpha(\text{O})=0.000690\ 11; \alpha(\text{P})=4.6\times 10^{-5}\ 4$ I _γ : 33 3 in $(\alpha,2n\gamma)$ is discrepant.	
		221.59 6	100 8	1756.75	6 ⁺	E1		0.0483	$\alpha(\text{K})=0.0401\ 6; \alpha(\text{L})=0.00633\ 9; \alpha(\text{M})=0.001438\ 21$ $\alpha(\text{N})=0.000342\ 5; \alpha(\text{O})=5.37\times 10^{-5}\ 8; \alpha(\text{P})=3.19\times 10^{-6}\ 5$	
		357.04 10	8.4 8	1621.284	5 ⁻	E2		0.0513	$\alpha(\text{K})=0.0364\ 5; \alpha(\text{L})=0.01140\ 16; \alpha(\text{M})=0.00276\ 4$ $\alpha(\text{N})=0.000656\ 10; \alpha(\text{O})=9.68\times 10^{-5}\ 14; \alpha(\text{P})=3.20\times 10^{-6}\ 5$	
1981.82		650.7 3	59 18	1331.1153	3 ⁺					

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [@]	Comments
1981.82		723.8 7	26 9	1257.4121	2 ⁺				
		1653.1 8	82 24	329.4268	4 ⁺				
		1881.8 8	100 18	100.10598	2 ⁺				
		182.8 5	<11	1810.85	(6) ⁻				
1993.68	(7) ⁻	372.4 1	100 17	1621.284	5 ⁻	Q			
		1688.3 & 10	100 33	329.4268	4 ⁺				
		1915.3 & 12	100 33	100.10598	2 ⁺				
2016.8	(2,3,4) ⁺	470.26 5	100 5	1553.2240	4 ⁻	M1+E2	0.6 1	0.055 3	$\alpha(\text{K})=0.0455$ 25; $\alpha(\text{L})=0.0075$ 3; $\alpha(\text{M})=0.00171$ 6
		536.04 5	10.3 16	1487.5018	4 ⁻	M1+E2	0.7 2	0.037 4	$\alpha(\text{N})=0.000412$ 15; $\alpha(\text{O})=6.6\times 10^{-5}$ 3; $\alpha(\text{P})=4.5\times 10^{-6}$ 3
		649.73 5	16.8 24	1373.8301	3 ⁻	M1+E2	0.8 2	0.0219 23	$\alpha(\text{K})=0.031$ 4; $\alpha(\text{L})=0.0051$ 4; $\alpha(\text{M})=0.00116$ 9
		734.53 5	18.7 22	1289.1498	2 ⁻	M1+E2	1.0 3	0.0148 22	$\alpha(\text{N})=0.000279$ 21; $\alpha(\text{O})=4.5\times 10^{-5}$ 4; $\alpha(\text{P})=3.0\times 10^{-6}$ 4
									$\alpha(\text{K})=0.0181$ 19; $\alpha(\text{L})=0.00293$ 24; $\alpha(\text{M})=0.00067$ 6
									$\alpha(\text{N})=0.000161$ 13; $\alpha(\text{O})=2.60\times 10^{-5}$ 22;
									$\alpha(\text{P})=1.76\times 10^{-6}$ 20
2023.57	3 ⁻	800 1	16 4	1257.4121	2 ⁺				$\alpha(\text{K})=0.0122$ 19; $\alpha(\text{L})=0.00199$ 24; $\alpha(\text{M})=0.00045$ 6
		835.98 5	50 5	1221.4001	2 ⁺	(M1+E2)	≈0.8	≈0.01177	$\alpha(\text{N})=0.000109$ 13; $\alpha(\text{O})=1.76\times 10^{-5}$ 22;
		1957.4 2	49 3	100.10598	2 ⁺	(M1+E2)	1.0 +6-4	0.00186 17	$\alpha(\text{P})=1.18\times 10^{-6}$ 19
		2057.4 3	100 8	0.0	0 ⁺	D			$\alpha(\text{K})\approx 0.00979$; $\alpha(\text{L})\approx 0.001538$; $\alpha(\text{M})\approx 0.000350$
2087.43	8 ⁻	170.4 1	20 4	1917.05	7 ⁻				$\alpha(\text{N})\approx 8.42\times 10^{-5}$; $\alpha(\text{O})\approx 1.366\times 10^{-5}$; $\alpha(\text{P})\approx 9.48\times 10^{-7}$
		318.5 1	100 15	1768.943	6 ⁻	Q			$\alpha(\text{K})=0.00131$ 13; $\alpha(\text{L})=0.000193$ 18; $\alpha(\text{M})=4.4\times 10^{-5}$ 4
2109.96	(2 ⁻ ,3 ⁻)	556.7 3	100 28	1553.2240	4 ⁻	(E2)		0.01615	$\alpha(\text{N})=1.05\times 10^{-5}$ 10; $\alpha(\text{O})=1.72\times 10^{-6}$ 17;
		2010.1 3	86 12	100.10598	2 ⁺	(E1+M2)	0.9 +7-4	0.00250 85	$\alpha(\text{P})=1.24\times 10^{-7}$ 13; $\alpha(\text{IPF})=0.000303$ 23
		2109.3 5	<235	0.0	0 ⁺	[M2,E3]		0.00303 80	$\alpha(\text{K})=0.00235$ 66; $\alpha(\text{L})=3.64\times 10^{-4}$ 95; $\alpha(\text{M})=8.3\times 10^{-5}$ 22
		197.4 2	23 7	1917.05	7 ⁻				$\alpha(\text{N})=1.99\times 10^{-5}$ 52; $\alpha(\text{O})=3.25\times 10^{-6}$ 86;
2114.35	(8) ⁻	285.1 10	46 8	1829.53	6 ⁻				$\alpha(\text{P})=2.31\times 10^{-7}$ 68; $\alpha(\text{IPF})=0.000211$ 16
		345.29 15	100 15	1768.943	6 ⁻	E2		0.0564	$\alpha(\text{K})=0.93$ 15; $\alpha(\text{L})=0.22$ 3; $\alpha(\text{M})=0.052$ 8
									$\alpha(\text{N})=0.0124$ 17; $\alpha(\text{O})=0.00190$ 19; $\alpha(\text{P})=9.2\times 10^{-5}$ 17
21									$\alpha(\text{K})=0.0396$ 6; $\alpha(\text{L})=0.01283$ 18; $\alpha(\text{M})=0.00311$ 5

Adopted Levels, Gammas (continued) **$\gamma(^{182}\text{W})$ (continued)**

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. [‡]	δ^\ddagger	$\alpha^@$	Comments
2116.4		2016.3 3	100	100.10598	2 ⁺				$\alpha(N)=0.000739~11; \alpha(O)=0.0001087~16;$ $\alpha(P)=3.47\times 10^{-6}~5$
2120.25	(8 ⁻)	160.1 1	100 18	1960.30	(7) ⁻	(M1)		1.243	$\alpha(K)=1.032~15; \alpha(L)=0.1633~23;$ $\alpha(M)=0.0372~6$ $\alpha(N)=0.00896~13; \alpha(O)=0.001461~21;$ $\alpha(P)=0.0001040~15$
2131.3	(7 ⁻)	290.5 1 362.4 3	35 6 100	1829.53 1768.943	6 ⁻ 6 ⁻				
2143.0		1813.6& 10	100	329.4268	4 ⁺				
2147.95	(3 ⁻)	817.0 10 1818.7 2	12 4 92 8	1331.1153 329.4268	3 ⁺ 4 ⁺			1.05×10^{-3}	$E_\gamma:$ from (n,n'γ) only. $\alpha(K)=0.000538~8; \alpha(L)=7.44\times 10^{-5}~11;$ $\alpha(M)=1.664\times 10^{-5}~24$ $\alpha(N)=4.00\times 10^{-6}~6; \alpha(O)=6.54\times 10^{-7}~10;$ $\alpha(P)=4.77\times 10^{-8}~7; \alpha(IPF)=0.000418~6$ $I_\gamma:$ 222 33 in (n,n'γ) is discrepant.
22		2047.4 3	100 8	100.10598	2 ⁺	(E1+M2)	1.0 +10 ⁻⁵	0.00258 89	$\alpha(K)=0.00183~84; \alpha(L)=2.8\times 10^{-4}~13;$ $\alpha(M)=6.3\times 10^{-5}~30$ $\alpha(N)=1.51\times 10^{-5}~72; \alpha(O)=2.5\times 10^{-6}~12;$ $\alpha(P)=1.80\times 10^{-7}~85; \alpha(IPF)=3.9\times 10^{-4}~12$
		2148& 3	24 5	0.0	0 ⁺	[E3]		0.00218	$\alpha(K)=0.001633~24; \alpha(L)=0.000259~4;$ $\alpha(M)=5.90\times 10^{-5}~9$ $\alpha(N)=1.419\times 10^{-5}~21; \alpha(O)=2.30\times 10^{-6}~4;$ $\alpha(P)=1.573\times 10^{-7}~23; \alpha(IPF)=0.000209~3$
2173.5	(0 ⁺ to 4 ⁺)	952.3 6 2073.3 3	42 12 100 23	1221.4001 100.10598	2 ⁺ 2 ⁺				
2180.4	(8 ⁺)	2174& 1036.0 1500.0	<23 1144.32 680.42	0.0 8 ⁺ 6 ⁺					$E_\gamma:$ from (n,n'γ) only.
2184.04	(2 ⁻ ,3 ⁻)	810.24 5	18.2 21	1373.8301	3 ⁻	(M1)		0.01639	$\alpha(K)=0.01371~20; \alpha(L)=0.00208~3;$ $\alpha(M)=0.000470~7$ $\alpha(N)=0.0001132~16; \alpha(O)=1.85\times 10^{-5}~3;$ $\alpha(P)=1.343\times 10^{-6}~19$ $\alpha(K)=0.01068~15; \alpha(L)=0.001613~23;$ $\alpha(M)=0.000365~6$ $\alpha(N)=8.79\times 10^{-5}~13; \alpha(O)=1.440\times 10^{-5}~21;$ $\alpha(P)=1.045\times 10^{-6}~15$
		894.85 5	100 8	1289.1498	2 ⁻	(M1)		0.01276	
2204.54	(8) ⁻	2084.0 3 226.19 5	3.1 3 100	100.10598 1978.36	2 ⁺ (7) ⁻	M1+E2	+0.15 2	0.468	$\alpha(K)=0.388~6; \alpha(L)=0.0620~9;$ $\alpha(M)=0.01414~20$ $\alpha(N)=0.00341~5; \alpha(O)=0.000554~8;$ $\alpha(P)=3.89\times 10^{-5}~6$

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [@]	Comments
2207.21	(3 ⁻)	1877.6 2	58 18	329.4268	4 ⁺	(E1+M2)	-0.28 6	0.00134 12	$\alpha(\text{K})=0.00076$ 11; $\alpha(\text{L})=0.000110$ 17; $\alpha(\text{M})=2.5\times10^{-5}$ 4 $\alpha(\text{N})=6.0\times10^{-6}$ 10; $\alpha(\text{O})=9.7\times10^{-7}$ 16; $\alpha(\text{P})=7.1\times10^{-8}$ 11; $\alpha(\text{IPF})=0.000438$ 12
		2106.8 5	<250	100.10598	2 ⁺				
	2207.7 3	100 9		0.0	0 ⁺	(E3)		0.00209	$\alpha(\text{K})=0.001548$ 22; $\alpha(\text{L})=0.000244$ 4; $\alpha(\text{M})=5.56\times10^{-5}$ 8 $\alpha(\text{N})=1.336\times10^{-5}$ 19; $\alpha(\text{O})=2.17\times10^{-6}$ 3; $\alpha(\text{P})=1.488\times10^{-7}$ 21; $\alpha(\text{IPF})=0.000229$ 4
2209.07	3 ⁻	835.9 6	33 11	1373.8301	3 ⁻			1.06×10 ⁻³	E_{γ} : from (n,n'γ) only. $\alpha(\text{K})=0.000509$ 8; $\alpha(\text{L})=7.04\times10^{-5}$ 10; $\alpha(\text{M})=1.575\times10^{-5}$ 22 $\alpha(\text{N})=3.78\times10^{-6}$ 6; $\alpha(\text{O})=6.19\times10^{-7}$ 9; $\alpha(\text{P})=4.52\times10^{-8}$ 7; $\alpha(\text{IPF})=0.000463$ 7
		1879.6 2	21 6	329.4268	4 ⁺	E1			
	2108.9 4	100 17	100.10598	2 ⁺					
	2208.8 6	78 17		0.0	0 ⁺	[E3]		0.00209	$\alpha(\text{K})=0.001546$ 22; $\alpha(\text{L})=0.000244$ 4; $\alpha(\text{M})=5.55\times10^{-5}$ 8 $\alpha(\text{N})=1.335\times10^{-5}$ 19; $\alpha(\text{O})=2.16\times10^{-6}$ 3; $\alpha(\text{P})=1.487\times10^{-7}$ 21; $\alpha(\text{IPF})=0.000230$ 4
									E_{γ} : from (n,n'γ) only.
2212.50	(8 ⁺)	241.5 1	100 15	1971.05	(7) ⁺	D+Q			
		454.9 4	15 5	1756.75	6 ⁺				
2225.35	(8 ⁻)	414.5 1	100	1810.85	(6) ⁻	Q			
2230.65	(10 ⁺)	518.5 1	100 13	1711.99	10 ⁺	(M1)		0.0514	B(M1)(W.u.)=7.0×10 ⁻⁸ 13 $\alpha(\text{K})=0.0429$ 6; $\alpha(\text{L})=0.00659$ 10; $\alpha(\text{M})=0.001495$ 21 $\alpha(\text{N})=0.000360$ 5; $\alpha(\text{O})=5.89\times10^{-5}$ 9; $\alpha(\text{P})=4.24\times10^{-6}$ 6
		1086.5 1	69 7	1144.32	8 ⁺	[E2]		0.00382	B(E2)(W.u.)=1.9×10 ⁻⁶ 3 $\alpha(\text{K})=0.00315$ 5; $\alpha(\text{L})=0.000517$ 8; $\alpha(\text{M})=0.0001183$ 17 $\alpha(\text{N})=2.84\times10^{-5}$ 4; $\alpha(\text{O})=4.54\times10^{-6}$ 7; $\alpha(\text{P})=2.93\times10^{-7}$ 4
									I_{γ} : 116 13 in (α ,2ny) is discrepant.
2240.83	(3 ⁺)	1911.8 2	100 17	329.4268	4 ⁺	(M1)		0.00230	$\alpha(\text{K})=0.001659$ 24; $\alpha(\text{L})=0.000245$ 4; $\alpha(\text{M})=5.52\times10^{-5}$ 8 $\alpha(\text{N})=1.330\times10^{-5}$ 19; $\alpha(\text{O})=2.18\times10^{-6}$ 3; $\alpha(\text{P})=1.602\times10^{-7}$ 23; $\alpha(\text{IPF})=0.000322$ 5
		2140.3 2	87 15	100.10598	2 ⁺	(M1)		0.00197	$\alpha(\text{K})=0.001265$ 18; $\alpha(\text{L})=0.000186$ 3; $\alpha(\text{M})=4.19\times10^{-5}$ 6 $\alpha(\text{N})=1.010\times10^{-5}$ 15; $\alpha(\text{O})=1.658\times10^{-6}$ 24; $\alpha(\text{P})=1.219\times10^{-7}$ 17; $\alpha(\text{IPF})=0.000464$ 7
2273.87	9 ⁻	186.5 1	16.7 19	2087.43	8 ⁻				
		356.8 1	100 15	1917.05	7 ⁻	Q			

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [‡]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [@]	Comments
2274.63	(3) ⁻	787.11 5	86 16	1487.5018	4 ⁻	(M1)		0.01763	$\alpha(\text{K})=0.01474\ 21; \alpha(\text{L})=0.00224\ 4; \alpha(\text{M})=0.000506\ 7$ $\alpha(\text{N})=0.0001219\ 17; \alpha(\text{O})=2.00\times10^{-5}\ 3; \alpha(\text{P})=1.446\times10^{-6}$ 21
		900.80 5	100 17	1373.8301	3 ⁻	(M1+E2)	≈0.5	≈0.01116	I _γ : 15 8 in (n,n'γ) is discrepant. $\alpha(\text{K})\approx0.00932; \alpha(\text{L})\approx0.001427; \alpha(\text{M})\approx0.000324$ $\alpha(\text{N})\approx7.79\times10^{-5}; \alpha(\text{O})\approx1.271\times10^{-5}; \alpha(\text{P})\approx9.06\times10^{-7}$
		2175.2 3	13.2 19	100.10598	2 ⁺	E1		1.14×10 ⁻³	$\alpha(\text{K})=0.000402\ 6; \alpha(\text{L})=5.53\times10^{-5}\ 8; \alpha(\text{M})=1.238\times10^{-5}\ 18$ $\alpha(\text{N})=2.97\times10^{-6}\ 5; \alpha(\text{O})=4.87\times10^{-7}\ 7; \alpha(\text{P})=3.57\times10^{-8}\ 5;$ $\alpha(\text{IPF})=0.000671\ 10$
2283.5	1	909.7 6	64 29	1373.8301	3 ⁻				
		2283.5 10	100 29	0.0	0 ⁺				
2301.56	(9) ⁻	181.3 10	18 9	2120.25	(8) ⁻				
		187.6 3	36 9	2114.35	(8) ⁻				
		214.2 10	<27	2087.43	8 ⁻				
		341.3 1	109 46	1960.30	(7) ⁻				
		384.4 1	100 18	1917.05	7 ⁻				
2316.1	(1,2) ⁺	2216 3	≈275	100.10598	2 ⁺				
		2316 3	100 20	0.0	0 ⁺				
2323.85	(8) ⁻	406.8 2	100	1917.05	7 ⁻				
2327.91	(9) ⁻	207.4 2	73 15	2120.25	(8) ⁻	(M1+E2)		0.44 17	$\alpha(\text{K})=0.33\ 18; \alpha(\text{L})=0.085\ 7; \alpha(\text{M})=0.0203\ 24$ $\alpha(\text{N})=0.0048\ 6; \alpha(\text{O})=0.00073\ 3; \alpha(\text{P})=3.1\times10^{-5}\ 19$
		213.6 1	100 16	2114.35	(8) ⁻				
2334.26		355.9 2	100	1978.36	(7) ⁻				
2372.59	12 ⁺	660.6 1	100	1711.99	10 ⁺	E2		0.01085	B(E2)(W.u.)=191 10 $\alpha(\text{K})=0.00862\ 12; \alpha(\text{L})=0.001719\ 24; \alpha(\text{M})=0.000401\ 6$ $\alpha(\text{N})=9.60\times10^{-5}\ 14; \alpha(\text{O})=1.494\times10^{-5}\ 21; \alpha(\text{P})=7.98\times10^{-7}$ 12
2382.1	1	2282 1	142 20	100.10598	2 ⁺				
		2382 1	100	0.0	0 ⁺				
2445.98	(9) ⁻	452.3 1	100	1993.68	(7) ⁻	Q			
2455.74	(9) ⁻	251.2 1	100 14	2204.54	(8) ⁻	(D+Q)			
		477.1 10	<7	1978.36	(7) ⁻				
2474.1	1	2374 1	66 14	100.10598	2 ⁺				
		2474 1	100	0.0	0 ⁺				
2479.83	(9) ⁺	267.3 1	100 18	2212.50	(8) ⁺	D+Q			
		508.8 2	29 6	1971.05	(7) ⁺				
2486.89	10 ⁻	213.0 1	25 3	2273.87	9 ⁻				
		399.5 2	100 19	2087.43	8 ⁻	Q			
2492.78	(11) ⁺	262.1 1	100	2230.65	(10 ⁺)	D+Q			
2507.48	(10) ⁻	205.8 2	30 10	2301.56	(9) ⁻				
		233.8 10	<20	2273.87	9 ⁻				
		387.1 2	120 60	2120.25	(8) ⁻				
		393.4 2	60 10	2114.35	(8) ⁻				

Adopted Levels, Gammas (continued)

 $\gamma^{(182\text{W})}$ (continued)

E_i (level)	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. [‡]	$\alpha^@$	Comments
2507.48	(10 ⁻)	420.0 1	100 20	2087.43	8 ⁻			
2563.94	(10 ⁻)	236.0 1	100 16	2327.91	(9 ⁻)			
		443.8 2	<8	2120.25	(8 ⁻)			
2710.93	11 ⁻	224.0 1	24 3	2486.89	10 ⁻			
		437.1 1	100 18	2273.87	9 ⁻	Q		
2730.84	(10 ⁻)	275.1 1	100 14	2455.74	(9 ⁻)	(D+Q)		
		526.2 10	<14	2204.54	(8 ⁻)			
2739.15	(10 ⁻)	513.8 1	100	2225.35	(8 ⁻)	Q		
2741.66	(11 ⁻)	440.1 1	100 18	2301.56	(9 ⁻)	Q		
		467.7 5	35 6	2273.87	9 ⁻			
2769.27	(10 ⁺)	289.4 1	100	2479.83	(9 ⁺)	D+Q		
		557.6 5	39 4	2212.50	(8 ⁺)			
2775.65	(12 ⁺)	282.8 1	100	2492.78	(11 ⁺)	D+Q		
		545.1 2	18 3	2230.65	(10 ⁺)	Q		
2823.93	(11 ⁻)	260.0 1	100	2563.94	(10 ⁻)	D+Q		
		496.0 5	48 5	2327.91	(9 ⁻)			
2884.1	1	2784 1	40 11	100.10598	2 ⁺			
		2884 1	100	0.0	0 ⁺			
2892.1	(1)	2792 1	150 90	100.10598	2 ⁺			
		2892 1	100	0.0	0 ⁺			
2941.0	(1,2 ⁺)	2941 2	100	0.0	0 ⁺			
2972.49	12 ⁻	261.6 2	20 5	2710.93	11 ⁻			
		485.6 1	100 20	2486.89	10 ⁻	Q		
2980.58	(11 ⁻)	534.6 1	100	2445.98	(9 ⁻)	Q		
2981.33	(12 ⁻)	473.8 1	100 19	2507.48	(10 ⁻)			
		494.6 2	38 6	2486.89	10 ⁻			
2996.1	1	2896 1	168 35	100.10598	2 ⁺			
		2996 1	100	0.0	0 ⁺			
3027.94	(11 ⁻)	297.1 1	100	2730.84	(10 ⁻)	(D+Q)		
		575.2 20	24 11	2455.74	(9 ⁻)			
3078.25	(13 ⁺)	302.5 1	100	2775.65	(12 ⁺)	D+Q		$I\gamma(586\gamma)/I\gamma(302)=1.6$ 7 in $(\alpha,2n\gamma)$.
		585.8 2	47 9	2492.78	(11 ⁺)	Q		
3080.1	1	2980 1	61 18	100.10598	2 ⁺			
		3080 1	100	0.0	0 ⁺			
3106.72	(12 ⁻)	282.8 1	100	2823.93	(11 ⁻)	(D+Q)		
		542.5 5	53 6	2563.94	(10 ⁻)			
3112.89	14 ⁺	740.3 1	100	2372.59	12 ⁺	(E2)	0.00843	$B(E2)(W.u.)=1.7\times 10^2$ 3 $\alpha(K)=0.00678$ 10; $\alpha(L)=0.001277$ 18; $\alpha(M)=0.000297$ 5 $\alpha(N)=7.10\times 10^{-5}$ 10; $\alpha(O)=1.114\times 10^{-5}$ 16; $\alpha(P)=6.29\times 10^{-7}$ 9
3163.1	1	3063 1	54 12	100.10598	2 ⁺			
		3163 1	100	0.0	0 ⁺			

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	α @	Comments
3198.1	(1,2 ⁺)	3098 1	59 21	100.10598	2 ⁺			
		3198 1	100	0.0	0 ⁺			If E2, B(E2)(W.u.)=0.67×10 ⁻⁵ 16.
3224.53	13 ⁻	513.6 1	100	2710.93	11 ⁻	Q		
3269.56	(13 ⁻)	527.9 1	100	2741.66	(11 ⁻)	Q		
3319.7	(12 ⁻)	580.6 4	100	2739.15	(10 ⁻)			
3343.05	(12 ⁻)	315.1 1	100 14	3027.94	(11 ⁻)	(D+Q)		
		612.6 10	43 29	2730.84	(10 ⁻)			
3365.1	1	3265 1	63 17	100.10598	2 ⁺			
		3365 1	100	0.0	0 ⁺			
3398.35	(14 ⁺)	320.0 1	100	3078.25	(13 ⁺)	D+Q		
		622.7 1	61 18	2775.65	(12 ⁺)	Q		
3410.54	(13 ⁻)	303.8 1	100 13	3106.72	(12 ⁻)			
		586.8 5	88 13	2823.93	(11 ⁻)			
3415.92	(12)	923.1 1	100	2492.78	(11 ⁺)	D+Q		
3422.1	(1,2 ⁺)	3322 1	53 15	100.10598	2 ⁺			
		3422 1	100	0.0	0 ⁺			If E2, B(E2)(W.u.)=0.76×10 ⁻⁵ 17.
3518.04	(14 ⁻)	536.7 1	100 20	2981.33	(12 ⁻)			
		545.7 5	40 10	2972.49	12 ⁻			
3549.99	14 ⁻	568.6 & 10	<22	2981.33	(12 ⁻)			
		577.5 1	100 22	2972.49	12 ⁻	Q		
3567.8	(13 ⁻)	587.2 3	100	2980.58	(11 ⁻)	(Q)		
3601.1	1	3501 1	77 19	100.10598	2 ⁺			
		3601 1	100	0.0	0 ⁺			
3640.0	(1,2 ⁺)	3640 2		0.0	0 ⁺			
3677.15	(13)	261.2 1	100 14	3415.92	(12)			
		901.8 3	21 7	2775.65	(12 ⁺)			
3727.1	(1,2 ⁺)	3627 2		100.10598	2 ⁺			
		3727 2		0.0	0 ⁺			
3733.85	(14 ⁻)	323.3 1	71 10	3410.54	(13 ⁻)			
		627.4 5	100 14	3106.72	(12 ⁻)			
3736.40	(15 ⁺)	338.0 1	100	3398.35	(14 ⁺)			
		658.2 1	94 20	3078.25	(13 ⁺)			
3754.89	(15 ⁺)	(19)	≈0.2	3736.40	(15 ⁺)	[M1]	107.1	B(M1)(W.u.)≈9.8×10 ⁻⁷ α(L)=82.8 12; α(M)=18.9 3 α(N)=4.56 7; α(O)=0.741 11; α(P)=0.0526 8 I _γ : from $\gamma\gamma$ data, I(γ +ce) branching is ≈10%.
		356.5 1	100 17	3398.35	(14 ⁺)	(M1+E2)	0.095 44	B(M1)(W.u.)=13.0×10 ⁻⁶ 23 α(K)=0.076 40; α(L)=0.015 4; α(M)=0.0034 7 α(N)=0.00082 16; α(O)=0.00013 4; α(P)=7.3×10 ⁻⁶ 42
		676.8 2	57 13	3078.25	(13 ⁺)	(E2)	0.01028	B(E2)(W.u.)=0.00053 15 α(K)=0.00819 12; α(L)=0.001612 23; α(M)=0.000376 6 α(N)=8.99×10 ⁻⁵ 13; α(O)=1.402×10 ⁻⁵ 20; α(P)=7.58×10 ⁻⁷ 11
3807.63	15 ⁻	583.1 1	100	3224.53	13 ⁻	Q		

Adopted Levels, Gammas (continued)

 $\gamma(^{182}\text{W})$ (continued)

E_i (level)	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. [‡]	$\alpha^@$	Comments
3880.06	(15 ⁻)	610.5 1	100	3269.56	(13 ⁻)	Q		
3882.0	(1,2 ⁺)	3782 ² & 2		100.10598	2 ⁺			
		3882 2		0.0	0 ⁺			
3893.69	(16 ⁺)	138.8 1	100	3754.89	(15 ⁺)	(M1)	1.86	$B(M1)(W.u.)>0.00041$ $\alpha(K)=1.545\ 22$; $\alpha(L)=0.245\ 4$; $\alpha(M)=0.0558\ 8$ $\alpha(N)=0.01344\ 19$; $\alpha(O)=0.00219\ 4$; $\alpha(P)=0.0001559\ 22$
3910.09	16 ⁺	797.2 1	100	3112.89	14 ⁺	E2	0.00719	$B(E2)(W.u.)=2.0\times 10^2\ 5$ $\alpha(K)=0.00582\ 9$; $\alpha(L)=0.001061\ 15$; $\alpha(M)=0.000246\ 4$ $\alpha(N)=5.88\times 10^{-5}\ 9$; $\alpha(O)=9.27\times 10^{-6}\ 13$; $\alpha(P)=5.40\times 10^{-7}\ 8$
3920.0	1	3920 2	100	0.0	0 ⁺			
3966.25	(14)	289.1 1	100 50	3677.15	(13)			
		550.3 10	25 13	3415.92	(12)			
4040.6	(17 ⁻)	146.9 1	100	3893.69	(16 ⁺)	(E1)	0.1384	$B(E1)(W.u.)=2.92\times 10^{-6}\ 15$ $\alpha(K)=0.1141\ 16$; $\alpha(L)=0.0188\ 3$; $\alpha(M)=0.00428\ 6$ $\alpha(N)=0.001015\ 15$; $\alpha(O)=0.0001566\ 23$; $\alpha(P)=8.59\times 10^{-6}\ 13$
4074.8	(15 ⁻)	340.9 2	75 25	3733.85	(14 ⁻)			
		664.2 5	100 25	3410.54	(13 ⁻)			
4078.89	(16 ⁺)	324.0 1	100	3754.89	(15 ⁺)			
4081.5	(16 ⁺)	345.1 2	60 20	3736.40	(15 ⁺)			
		683.2 3	100 40	3398.35	(14 ⁺)			
4116.9	(16 ⁻)	598.9 2	100	3518.04	(14 ⁻)			
4197.1	(15 ⁻)	629.3 2	100	3567.8	(13 ⁻)			
4211.1	16 ⁻	661.1 2	100	3549.99	14 ⁻	Q		
4218.1	(17 ⁺)	324.4 5	100	3893.69	(16 ⁺)			
4280.2	(15)	314.0 1	100 67	3966.25	(14)			
		603.1 10	33 17	3677.15	(13)			
4293.1	(17 ⁺)	399.4 1	100	3893.69	(16 ⁺)			
4421.5	(18 ⁻)	380.9 1	100	4040.6	(17 ⁻)			
4430.5	(17 ⁺)	351.6 1	100 18	4078.89	(16 ⁺)			
		675.5 11	18 9	3754.89	(15 ⁺)			
4453.3	(17 ⁺)	371.3 10	<33	4081.5	(16 ⁺)			
		717.3 10	100 33	3736.40	(15 ⁺)			
4456.2	17 ⁻	648.6 2	100	3807.63	15 ⁻	Q		
4569.7	(18 ⁺)	351.6 5	100 32	4218.1	(17 ⁺)			
		676.1 7	24 8	3893.69	(16 ⁺)			
4570.9	(17 ⁻)	690.8 3	100	3880.06	(15 ⁻)			
4690.89	18 ⁺	780.8 1	100	3910.09	16 ⁺	Q		
4711.9	(18 ⁺)	418.8 1	100 18	4293.1	(17 ⁺)			
		818.1 6	64 27	3893.69	(16 ⁺)			
4748.0	(18 ⁺)	837.9 9	100	3910.09	16 ⁺	[E2]	0.00648	$B(E2)(W.u.)=2.5\times 10^2\ +5-7$ $\alpha(K)=0.00526\ 8$; $\alpha(L)=0.000940\ 14$; $\alpha(M)=0.000217\ 3$ $\alpha(N)=5.20\times 10^{-5}\ 8$; $\alpha(O)=8.22\times 10^{-6}\ 12$; $\alpha(P)=4.88\times 10^{-7}\ 7$
4779.6	(18 ⁻)	662.7 2	100	4116.9	(16 ⁻)			

Adopted Levels, Gammas (continued) **$\gamma^{(182\text{W})}$ (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
4780.4	(18)	739.8 2	100	4040.6	(17 ⁻)	5191.8	(19)	411.4 2	100	4780.4	(18)
4804.9	(18 ⁺)	374.5 2	100 25	4430.5	(17 ⁺)	5199.6	(19 ⁺)	394.7 2	100	4804.9	(18 ⁺)
		725.7 5	50 25	4078.89	(16 ⁺)	5225.4	(19 ⁺)	772.1 10	100	4453.3	(17 ⁺)
4820.1	(19 ⁻)	398.5 1	100	4421.5	(18 ⁻)	5235.8	(20 ⁻)	415.6 2	100 25	4820.1	(19 ⁻)
		779.9 3	24 11	4040.6	(17 ⁻)			814.8 4	75 25	4421.5	(18 ⁻)
4847.4	(18 ⁺)	765.9 10	100 33	4081.5	(16 ⁺)	5338.6	(19 ⁻)	767.7 10	100	4570.9	(17 ⁻)
		937.3 10	67 33	3910.09	16 ⁺	5428.6	20 ⁺	737.7 2	100	4690.89	18 ⁺
4954.8	18 ⁻	743.7 10	100	4211.1	16 ⁻	5618.6	(20)	426.7 2	100	5191.8	(19)
5148.6	(19 ⁺)	436.6 9	100 25	4711.9	(18 ⁺)			838.4 5	50	4780.4	(18)
		855.5 4	<50	4293.1	(17 ⁺)	5666.9	(21 ⁻)	431.2 10	100	5235.8	(20 ⁻)
5170.8	19 ⁻	714.6 3	100	4456.2	17 ⁻			846.7 10	100	4820.1	(19 ⁻)

[†] The adopted values represent weighted averages from different studies. The intensities are known with high precision in ¹⁸²Ta β^- decay, thus values from this decay are preferred when available. In cases where large discrepancies are found, those values were not considered in deducing averages. In (α ,2ny), many such cases are noted where the relative branching ratios are discrepant, generally being much higher than in other studies. For gammas from high-spin levels above 2500 keV, gamma-ray energies and intensities are almost entirely from ¹⁷⁶Yb(¹³C, α 3ny) dataset since this dataset provides the most complete set of values.

[‡] From ce and angular distribution/correlation studies in ¹⁸²Ta decay, ¹⁸²Re decay and in-beam γ -ray studies.

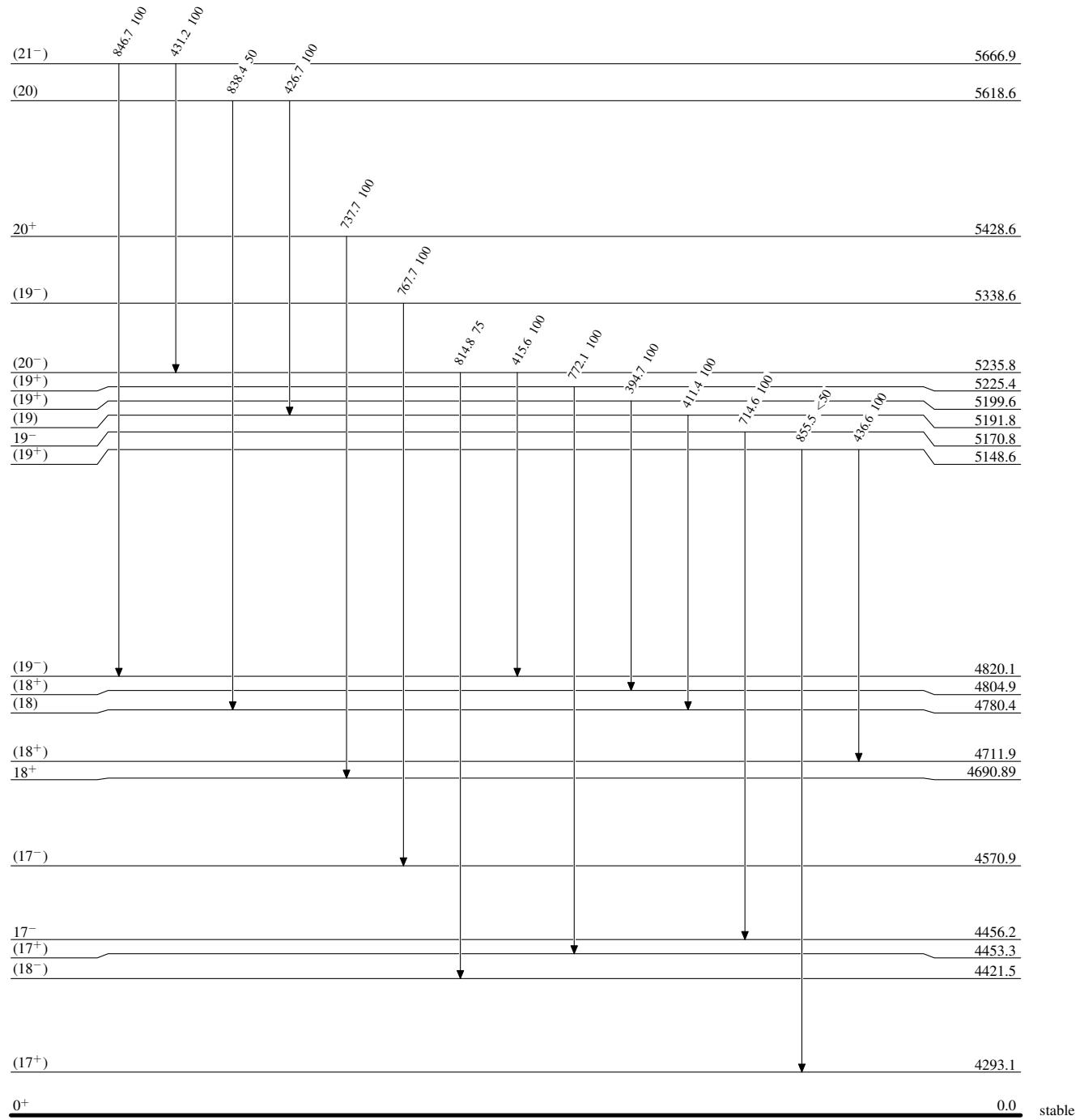
[#] From evaluation by [2000He14](#).

[@] Theoretical values from BrIcc v2.3b (16-Dec-2014) [2008Ki07](#), “Frozen Orbitals” approximation. If mixing ratio δ is not given, it was assumed as 1.0 for E2/M1 and E3/M2 and 0.10 for others.

[&] Placement of transition in the level scheme is uncertain.

Adopted Levels, GammasLevel Scheme

Intensities: Relative photon branching from each level

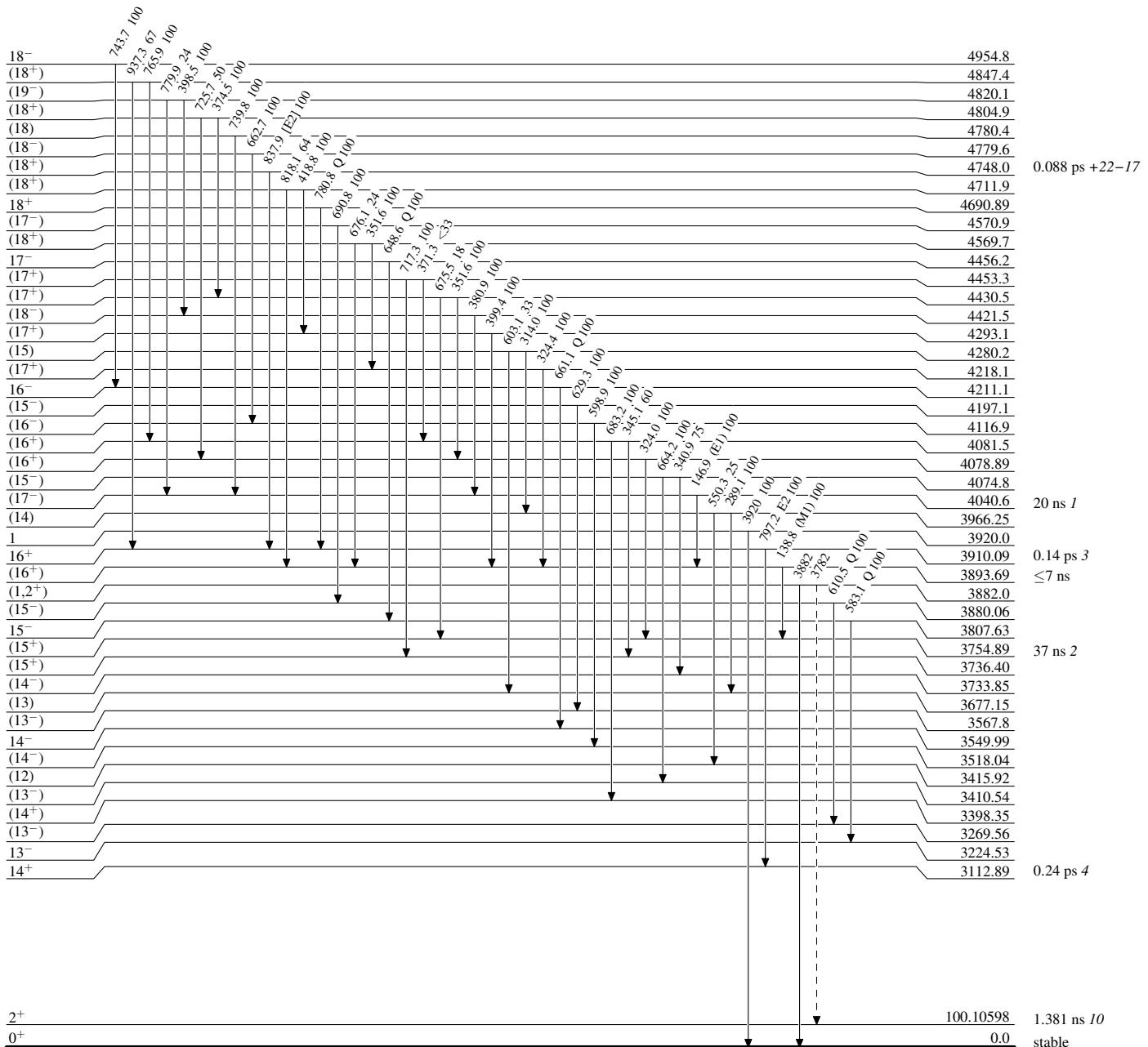


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

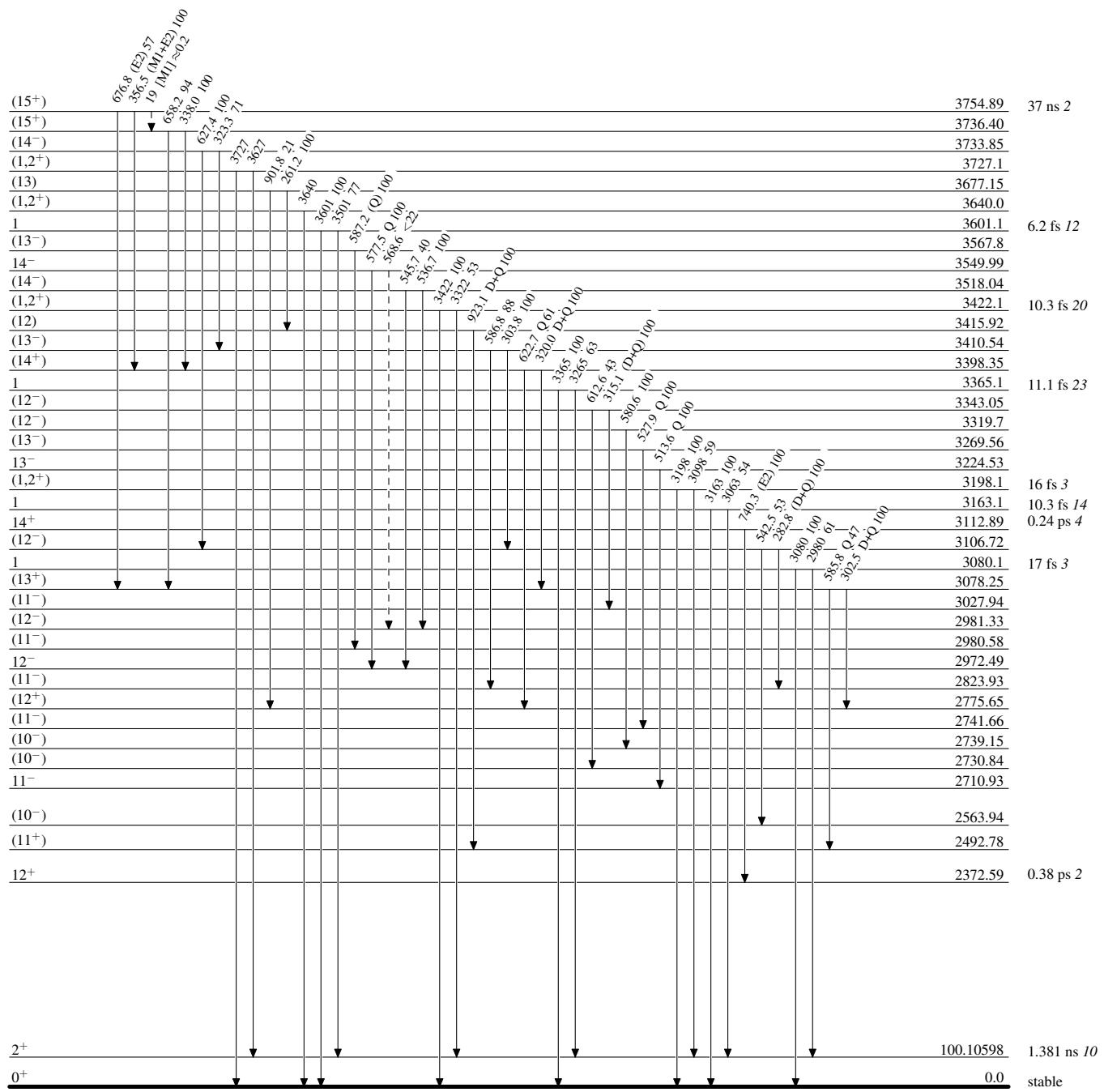
- - - - - γ Decay (Uncertain)

Adopted Levels, Gammas

Legend

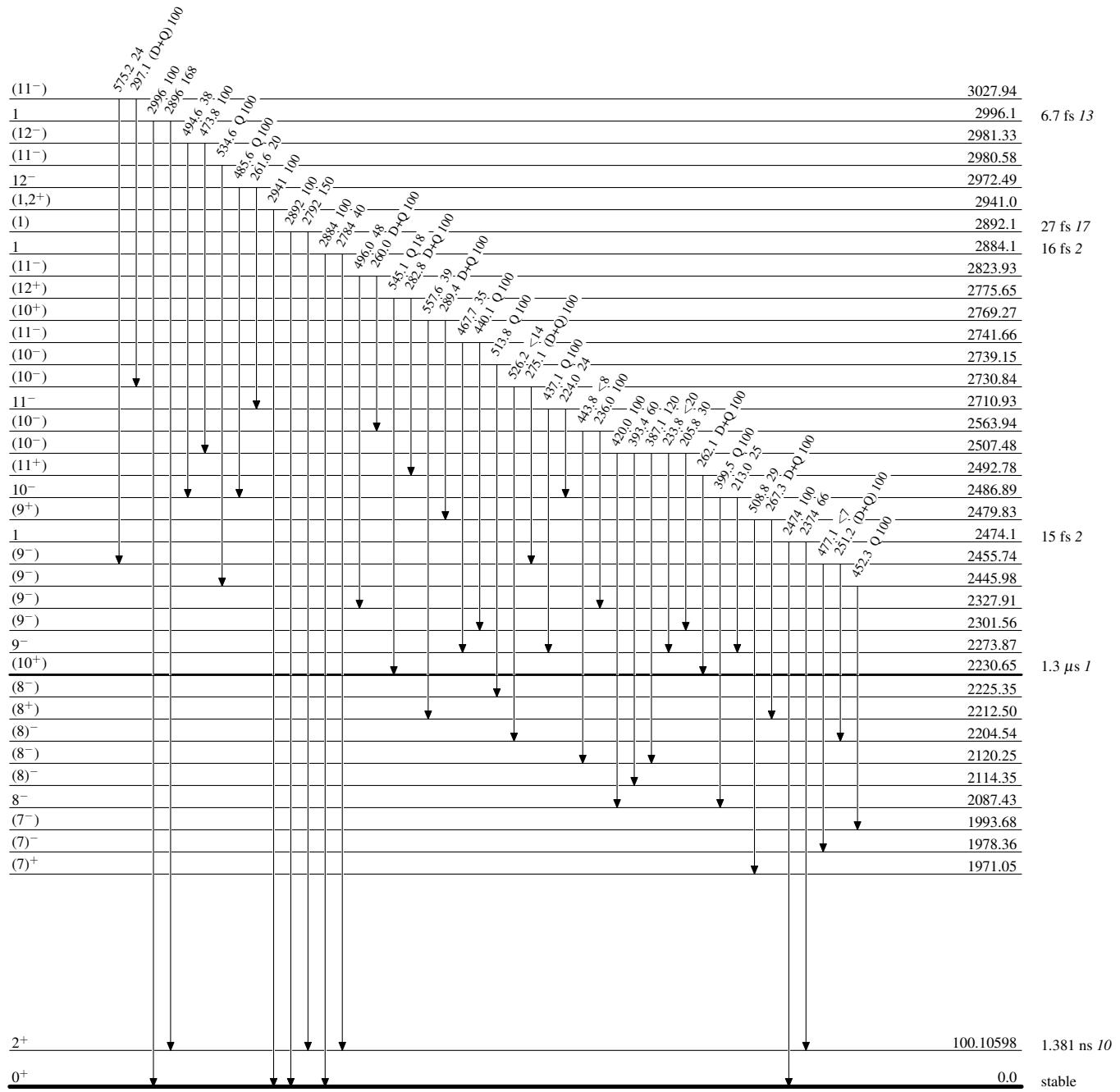
Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - ► γ Decay (Uncertain)

Adopted Levels, GammasLevel Scheme (continued)

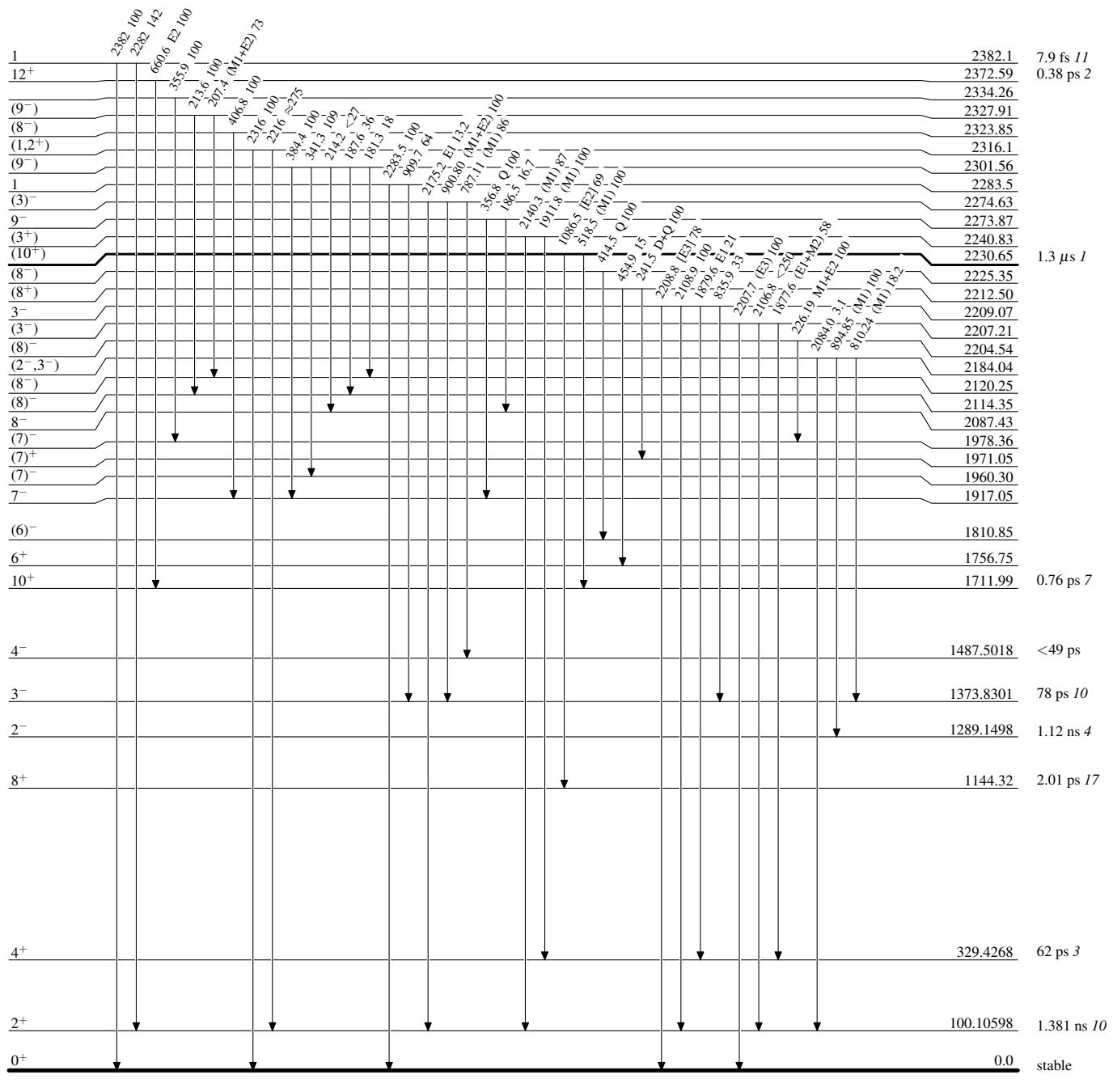
Intensities: Relative photon branching from each level

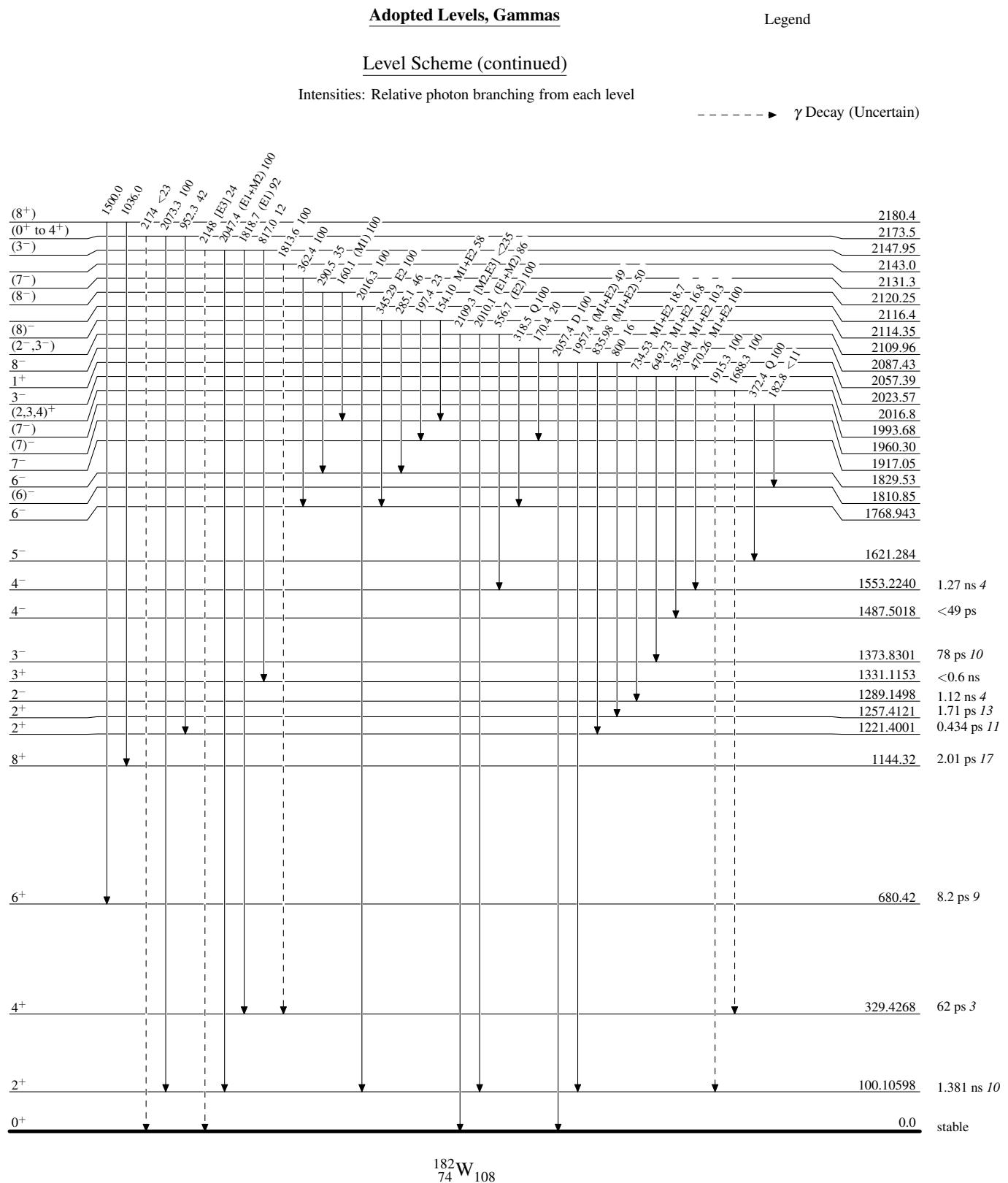


Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



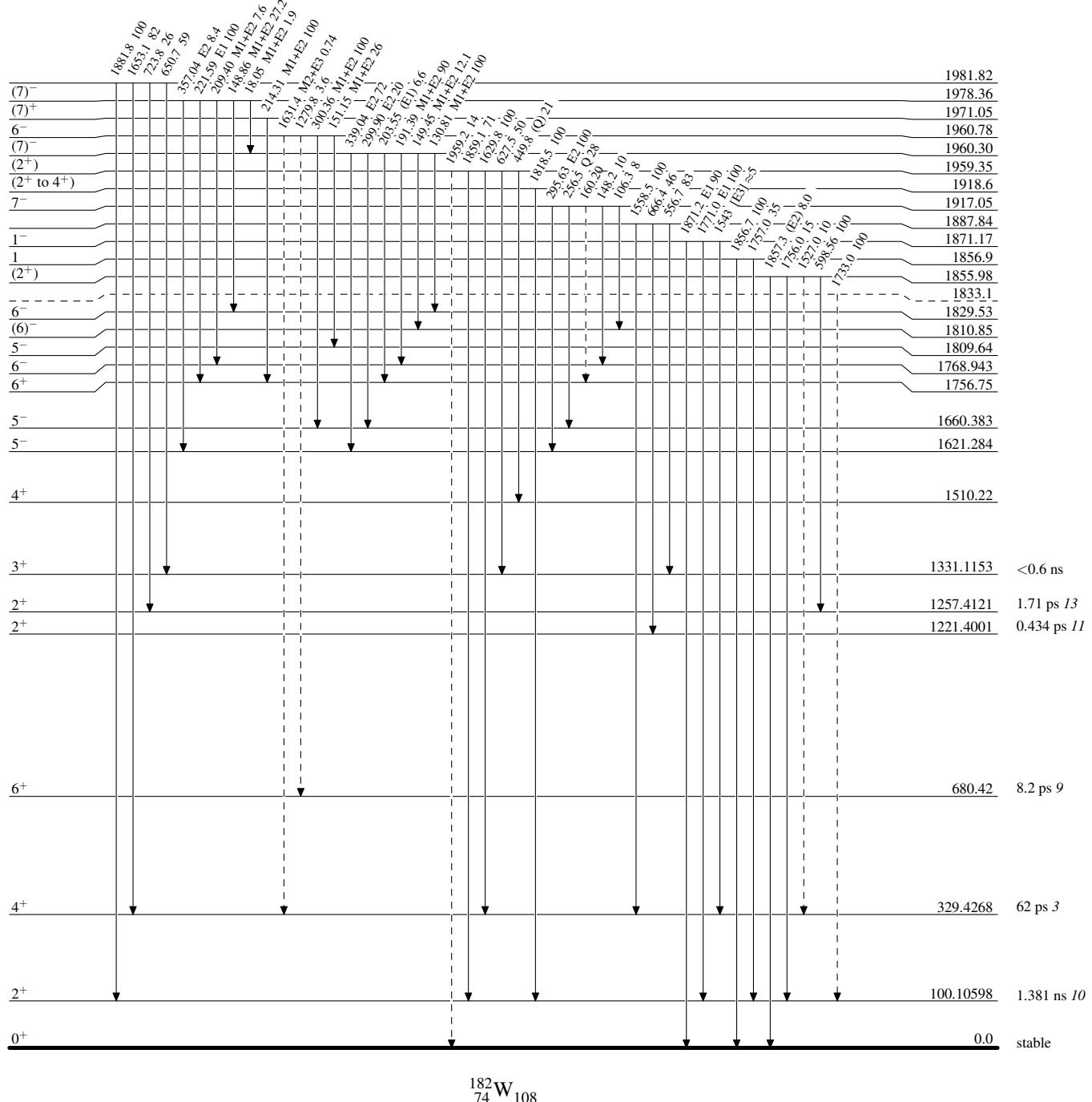


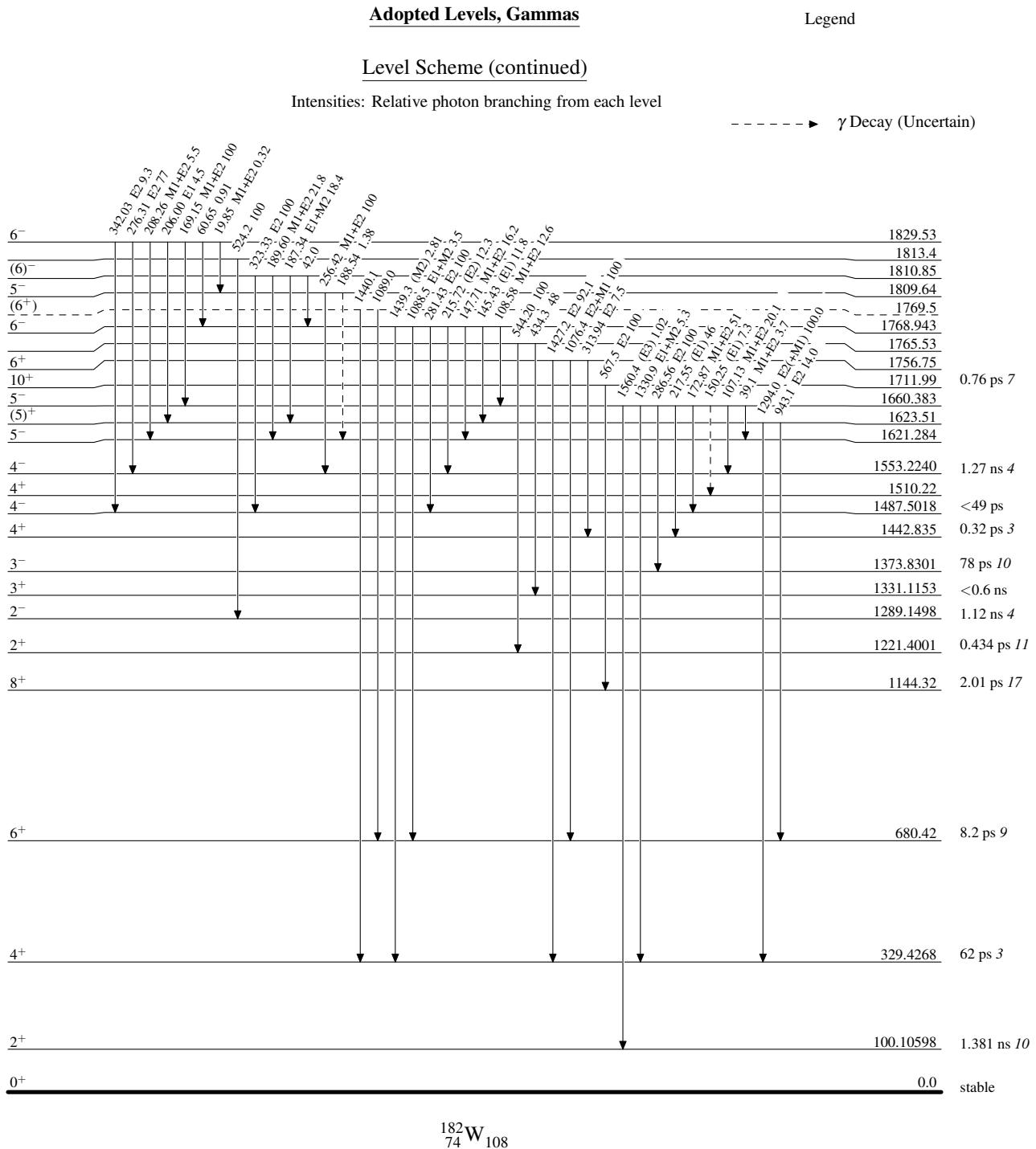
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)

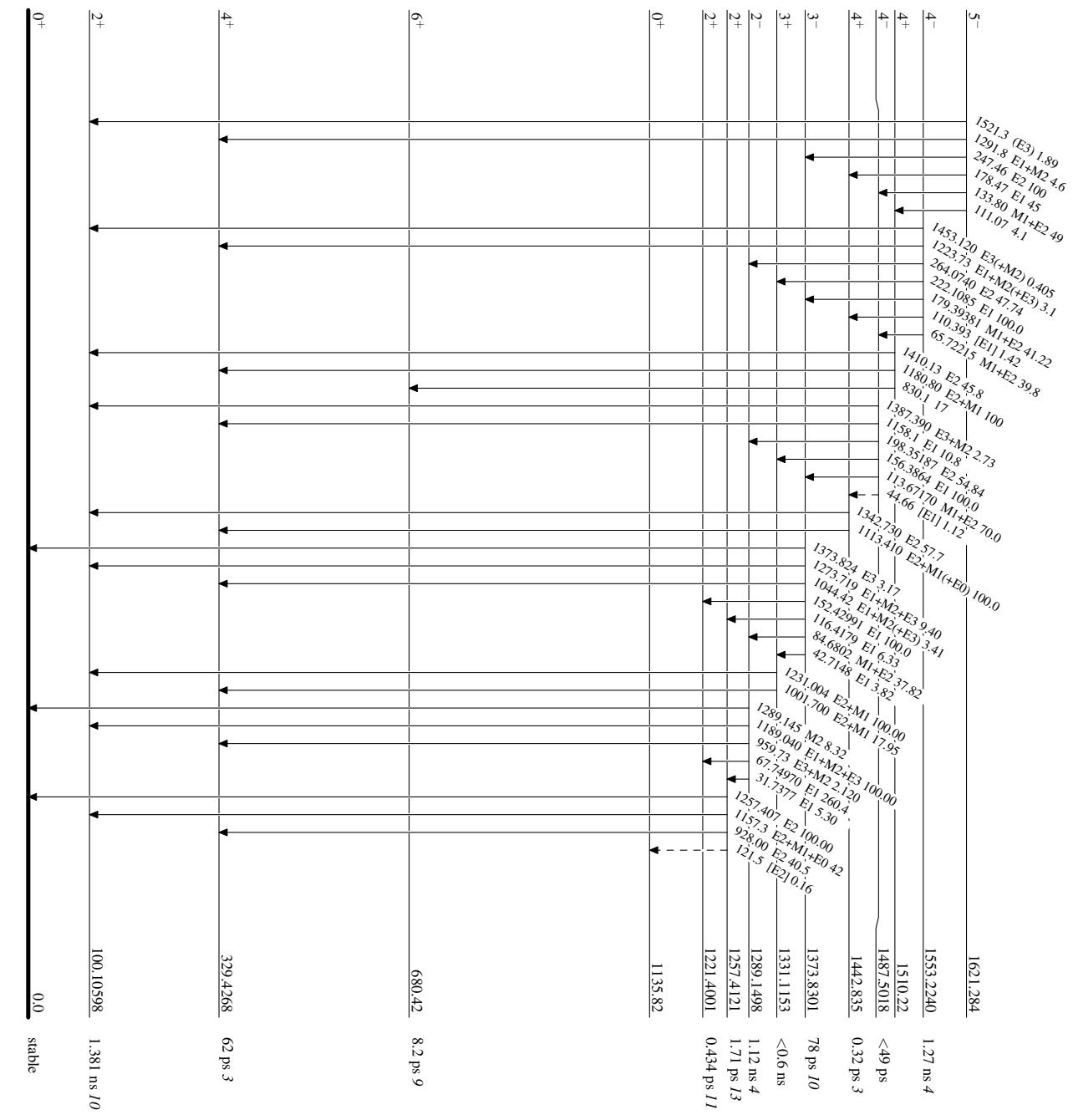


Adopted Levels, Gammas

Legend

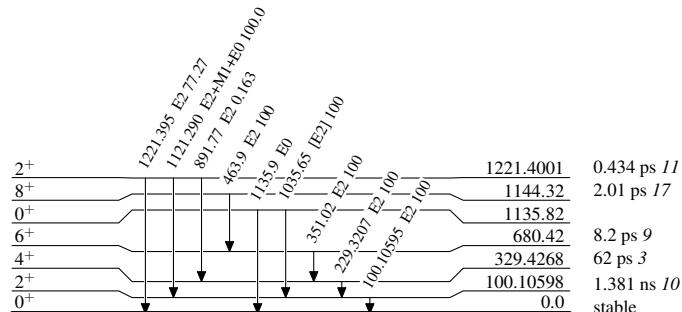
Level Scheme (continued)

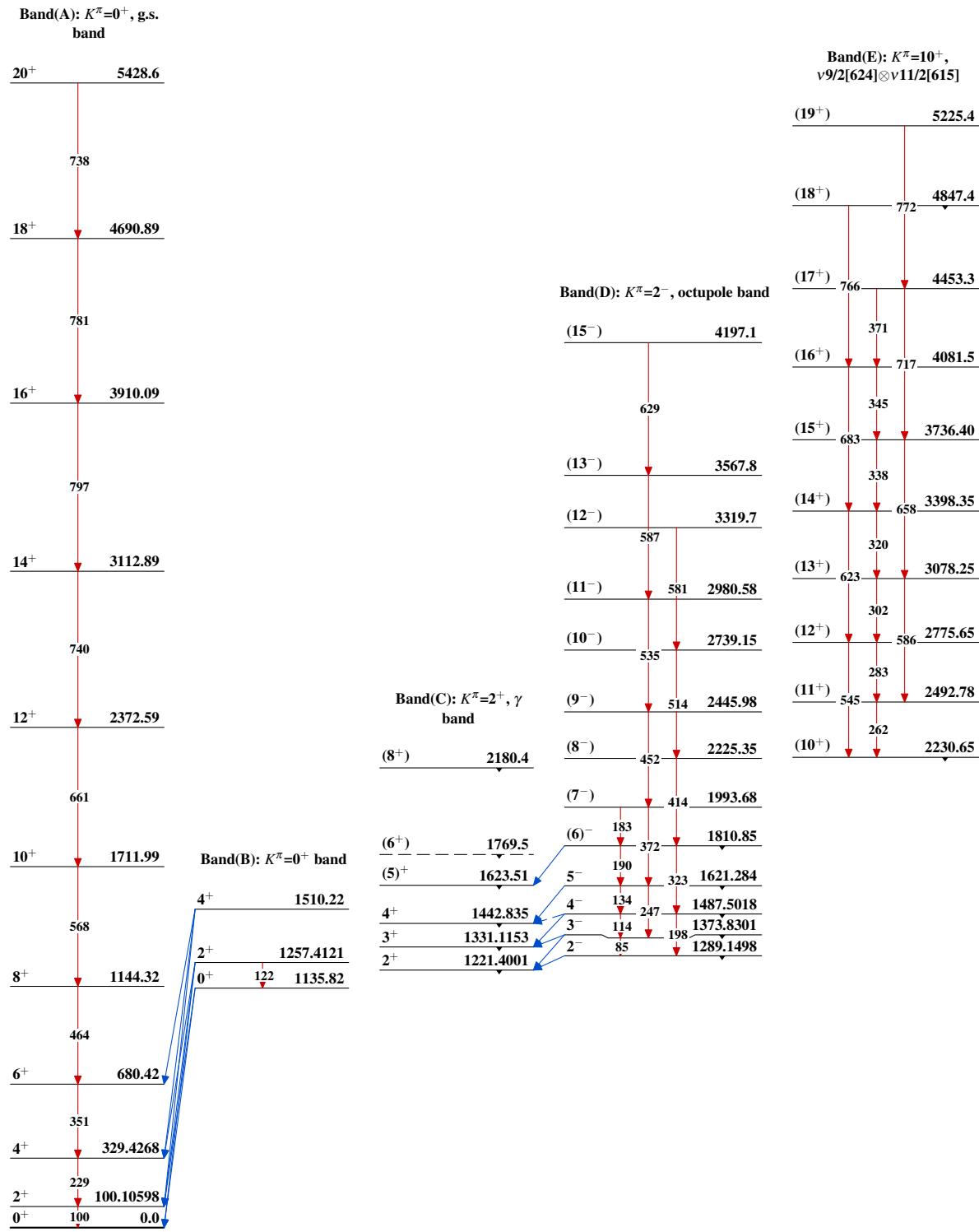
— — — — ► γ Decay (Uncertain)



Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level

 $^{182}_{74}\text{W}_{108}$

Adopted Levels, Gammas

Adopted Levels, Gammas (continued)Band(G): $K^\pi=(17^-), 4\text{-qp band}$ Band(F): $K^\pi=(16^+), 4\text{-qp band}$ (19⁺) 5148.6(18⁺) 4711.9(17⁺) 4293.1(16⁺) 3893.69(21⁻)

5666.9

431

847

5235.8

416

815

4820.1

398

780

4421.5

381

4040.6

(17⁻)Band(H): $K^\pi=4^-$,
 $\nu 9/2[624] \otimes \nu 1/2[510]$ 18⁻

4954.8

744

4456.2

16⁻

4211.1

649

15⁻

3807.63

661

14⁻

3549.99

583

13⁻

3224.53

514

12⁻

2972.49

262

11⁻

2710.93

486

10⁻

2486.89

224

9⁻

2273.87

213

8⁻

2087.43

186

7⁻

1917.05

170

6⁻

1768.943

148

5⁻

1660.383

109

4⁻

1553.2240

Band(I): $K^\pi=6^+$,
 $\pi 5/2[402] \otimes \pi 7/2[404]$ (10⁺)

2769.27

289

558

2479.83

(9⁺)

2212.50

267

509

(8⁺)

2323.85

242

455

(7⁺)

2131.3

214

1971.05

214

1756.75

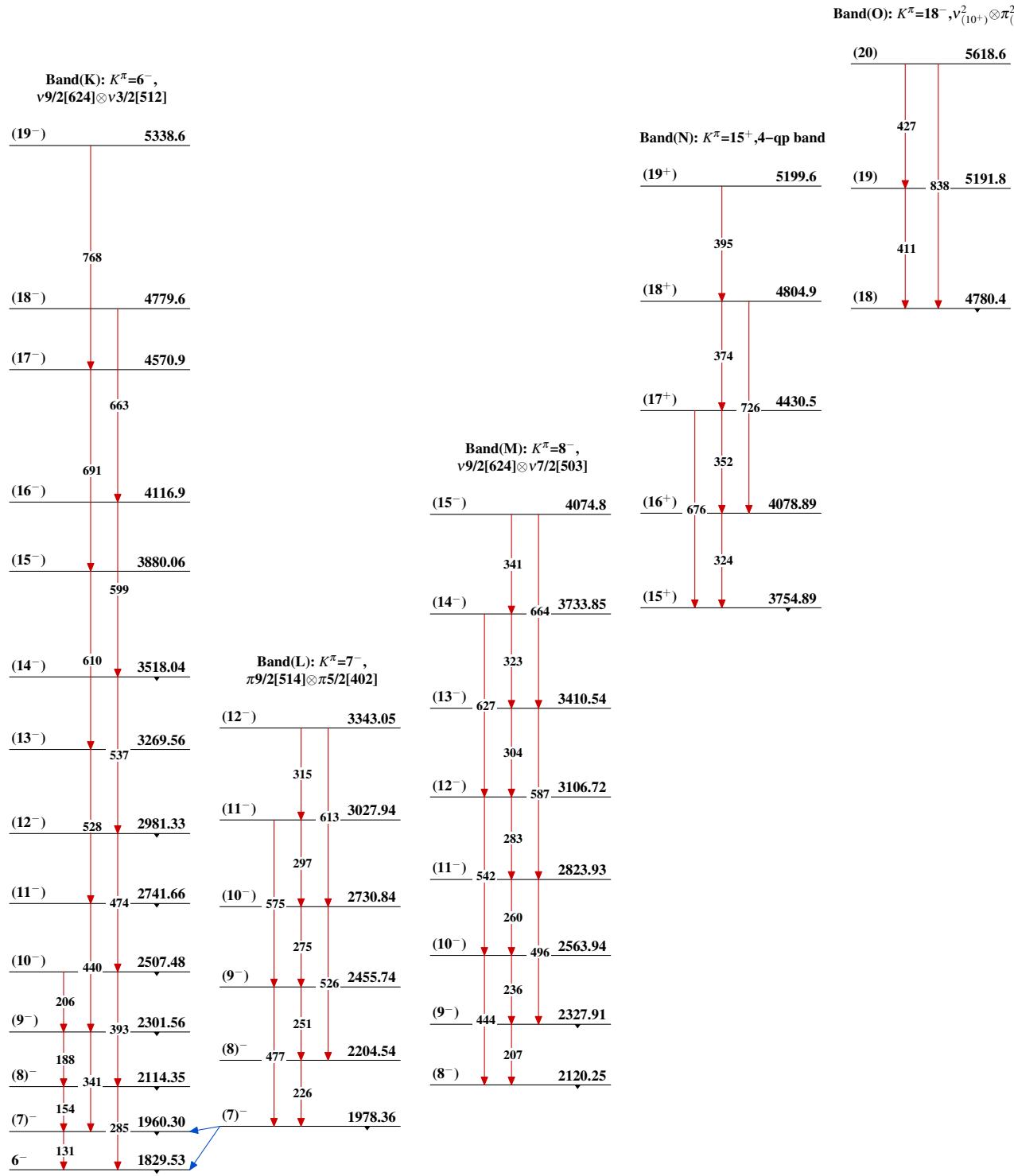
151

1809.64

1960.78

151

1809.64

Adopted Levels, Gammas (continued)

Adopted Levels, Gammas (continued)

Band(P): K=(12) band

