Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia, A. Chakraborty	NDS 197,1 (2024)	31-May-2024

Q(β^-)=−6141.60 *20*; S(n)=11319.3 *4*; S(p)=5594.75 *7*; Q(α)=−10415.6 *1* 2021Wa16

Other reaction:
^{30}Si(p,n): 2002Or05.

^{30}P Levels

Cross Reference (XREF) Flags

A	^{30}S ε decay	E	^{28}Si(α,d),(^{3}He,p)	I	^{30}Si(^{3}He,t) E=30 MeV
B	^{31}Cl εp decay	F	^{29}Si(p,γ),^{27}Al(α,nγ)	J	^{31}P(π^+,π^+n),(π^-,π^-n)
C	^{16}O(^{16}O,pnγ)	G	^{29}Si(d,n) E=6,8 MeV	K	^{31}P(^{3}He,α)
D	^{28}Si(^{3}He,pγ)	H	^{29}Si(^{3}He,d)	L	^{32}S(d,α),(pol d,α)

E(level)†	J$^\pi$@&	T$_{1/2}$#	XREF	Comments
0	1$^+$[a]	2.500 min *2*	ABCDEFGHIJKL	%ε+%β^+=100 J$^\pi$: from non-nuclear measurement (atomic and molecular beam) −1968Ph02, parity=U in (pol d,α) (1975Bo46). T$_{1/2}$: weighted average of 2.498 min *4* (1980Wi13 − ^{30}S ε+β^+ decay), 2.497 min *5* (1963Mc02), 2.501 min *2* (2018Ia01). Others: 2.9 m (1937Me02), 3.25 m (1934Cu01,1934Cu02).
677.11 *10*	0$^+$	93 fs *10*	A DEFGHIJKL	T=1 J$^\pi$: L=0 in (^{3}He,t), Log *ft*=3.49 from (J$^\pi$=0$^+$) in ^{30}S ε+β^+ decay.
708.70 *7*	1$^+$	34 ps *2*	A CDEFGHIJKL	J$^\pi$: L=2 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46), L=0 in (α,d). T$_{1/2}$: weighted average of 33 ps *2* (^{16}O,pnγ) and 37 ps *3* ((p,γ),(α,4nγ)).
1454.28 *5*	2$^+$	5.3 ps *11*	CDEFGHIJKL	J$^\pi$: L=2 in (^{3}He,t), parity=N in (pol d,α) (1975Bo46).
1973.34 *8*	3$^+$	1.8 ps *4*	CDEFGHI KL	J$^\pi$: L=2 in (^{3}He,α) and (^{3}He,d), parity=U in (pol d,α) (1975Bo46), stretched ΔJ=2 E2 γ to 1$^+$. T$_{1/2}$: unweighted average of 1.46 ps *13* from (^{16}O,pnγ) and 2.17 ps *24* from (p,γ).
2538.87 *18*	3$^+$	151 fs *14*	CDEFGHI KL	J$^\pi$: L=2 in (α,d) and L=4 in (^{3}He,t); parity=U in (pol d,α) (1975Bo46).
2723.64 *25*	2$^+$	110 fs *10*	DEFGHI KL	J$^\pi$: L=2 in (^{3}He,t), parity=N in (pol d,α) (1975Bo46).
2839.39 *8*	3$^+$	570 fs *130*	CDEF HIJKL	J$^\pi$: L=2 in (α,d) and L=4 in (^{3}He,t); parity=U in (pol d,α).
2937.55 *9*	2$^+$	49 fs *3*	DEFGHIJKL	T=1 J$^\pi$: L=2 in (^{3}He,t), parity=(N) in (pol d,α) (1975Bo46). T$_{1/2}$: Other: 62.4 fs *83* (1979AlZY − τ=90 fs *12* − the lifetime is not reported lated in 1982Al22).
3019.8 *8*	1$^+$	2 fs *1*	A DEFGHI KL	J$^\pi$: L=2 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46), Log *ft*=3.6 from (J$^\pi$=0$^+$) in ^{30}S ε+β^+ decay.
3305.8 *6*	(3$^+$)		D H	J$^\pi$: (3$^+$) proposed in 2014Mc08,2014McZZ (^{3}He,pγ) − γ to 1$^+$. In 1976Dy01 (^{3}He,d), (1$^+$) was proposed based on $\sigma(\theta)$ and fittings. γ from (5)$^+$ at 6178.4.
3734.06 *20*	1$^+$	27 fs *5*	DEFGHI KL	J$^\pi$: L=2 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46), L=0+2 in (d,n) and (^{3}He,α). Tentative L=(1) in (α,d) is inconsistent with J$^\pi$=1$^+$.
3835.85 *18*	2$^+$	32 fs *6*	DEFGHI KL	J$^\pi$: L=2 in (^{3}He,t), parity=N in (pol d,α) (1975Bo46), M1+E2 γ to 1$^+$. L=(1) in (α,d),(^{3}He,p) is inconsistent for parity.
3928.66 *22*	3$^+$	79 fs *14*	DEF HI L	J$^\pi$: L=4 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46), γ to 2$^+$. L=1 in (^{3}He,d) is inconsistent with J$^\pi$=3$^+$.
4143.7 *5*	2$^-$	25 fs *2*	CDEFGHI KL	J$^\pi$: L=3 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46), γ to 1$^+$.
4182.92 *19*	2$^+$	2.2 fs *6*	CDEF HI KL	T=1

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Adopted Levels, Gammas (continued)

^{30}P Levels (continued)

E(level)[†]	Jπ[@&]	$T_{1/2}$[#]	XREF	Comments
				Jπ: L=2 in (^{3}He,α) and in (^{3}He,d), parity=(N) in (pol d,α) (1975Bo46), γ to 0^+.
4231.92 *12*	4^-	1.3 ps *7*	CDEFGHI KL	Jπ: L=3 in (^{3}He,α) and (d,n), spin=4 from γ(θ) in 1969Ha50 (p,γ).
4298.9 *4*	4^+	100 fs *18*	DEF HI KL	Jπ: L=4 in (^{3}He,t), E2 γ, ΔJ=2, to 2^+.
4344.07 *19*	5^+	123 fs *11*	CDEF HI L	Jπ: L=6 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46), E2 γ, ΔJ=2, to 3^+.
4423.0 *11*	2^+	30 fs *4*	CDEF HI KL	Jπ: L=2 in (^{3}He,t), parity=N in (pol d,α) (1975Bo46).
4468.56 *10*	0^+	1.9 fs *3*	CDEFGHI KL	T=1 Jπ: L=0 in (^{3}He,t) and spin=0 from 5467γ-4468γ cascade (6921-4468-0 levels) (1969Ha50 – (p,γ)).
4502.66 *10*	1^+	4.1 fs *15*	CDEFGHI L	T=1 Jπ: L=2 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46), and M1+E2 γ to 1^+.
4626.01 *11*	3^-	172 fs *14*	CDEFGHI KL	Jπ: L=3 in (^{3}He,t), parity=N in (pol d,α) (1975Bo46).
4736.11 *21*	3^+	51 fs *7*	CDEF HI KL	Jπ: L=4 in (^{3}He,t) and L=2 in (α,d), parity=U in (pol d,α) (1975Bo46). L=(3) in (α,d),(^{3}He,p) is inconsistent for parity.
4925.9 *3*	3^-	260 ps *35*	CDEFGHI KL	Jπ: L=3 in (^{3}He,α) and (d,n), γ to 2^+ and 4^+.
4937.8 *6*	1	4.6 fs *14*	D F H KL	Jπ: from γ(θ) in 1969Ha50 (p,γ).
4946.3 *5*	(1^+)	4.3 fs *11*	CDEF I L	Jπ: L=(0+2) in (^{3}He,p), parity=U in (pol d,α) (1975Bo46), γ to 3^+ and 0^+.
5026.3 *3*	(4^-)		CDE HI L	Jπ: L=5 in (^{3}He,t), parity=(U) in (pol d,α) (1975Bo46).
5206.8[‡] *1*	3^+	15 fs *4*	CDEF I KL	T=0 Jπ: L=2 in (^{3}He,α) and L=4 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46).
5229.9 *5*	(4^-)		CDEF HI L	Jπ: from (^{16}O,pnγ) in 2007Ra20 (DCO and pol measurements – data not listed).
5411.2 *3*	2^-		CDEFGHI KL	Jπ: L=1 in (^{3}He,d) and L=3 in (^{3}He,α), parity=U in (pol d,α) (1975Bo46).
5506.6 *3*	$1^{(-)}$	3.8 fs *9*	CDEF Hi KL	T=0 Jπ: 1^- in (p,γ) 2000Gr19, based on angular distributions of feeding transition, no arguments were provided for the negative parity assignment. L=2 in (^{3}He,d) and parity=U in (pol d,α) (1975Bo46) for doublet – assumed by the evaluators for the 5508.80 keV level. γ to 0^+; 1^+; and 2^+.
5508.80 *18*	(3^+)	10 fs *5*	D FG i	T=1 Jπ: L=2 in (^{3}He,d) and parity=U in (pol d,α) (1975Bo46) for doublet, D and D(+Q) γ to 3^+ and 2^+, respectively. γ(θ) data of 4054.3γ D(+Q) indicate a ΔJ=1 transition: A_2=−0.24 *4*, A_4=+0.09 *5* (2020Lo11 – (^{3}He,pγ)).
5573.5 *5*	$(1,2)^+$	6 fs *1*	CD F HI L	T=1 XREF: L(5594). Jπ: L=2+4 in (^{3}He,t) for doublet 5576 and 5599 keV levels; γ to 1^+ and 2^+.
5595.7 *3*	(4^+)		De	Jπ: Q γ, ΔJ=2, to 2^+.
5599.28 *22*	4^+		CDe I K	Jπ: L=2+4 in (^{3}He,t) for doublet 5576 and 5597 keV levels, parity=N in (pol d,α) (1975Bo46).
5701.2 *3*	1^+	11 fs *3*	CDEF I KL	T=0 Jπ: L=0 in (^{3}He,α), D+Q γ, ΔJ=1, to 2^+.
5715.7 *5*	$(5)^+$		D I	Jπ: L=2+6 in (^{3}He,t) for doublet 5701 and 5716 keV levels, parity=U in (pol d,α) (1975Bo46). Spin parity of (5^+) in 2014McZZ was proposed based on 3742.1γ to 3^+, assuming the same level at 5719 in (^{3}He,t).
5718.0 *5*	(1^-)		CD H L	E(level): weighted average of 5719 *5* (^{3}He,t) and 5711 *5* (^{3}He,d).

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Adopted Levels, Gammas (continued)

^{30}P Levels (continued)

E(level)†	Jπ@&	$T_{1/2}$#	XREF	Comments
				Jπ: in (^{3}He,pγ) (2020Lo11), based on 5039.4γ placement to 0^+.
5788.5 *5*	$(3,4)^+$		D I L	Jπ: L=4 in (^{3}He,t), (D,Q) γ to 2^+.
5809.7 *4*	$(3,5)^+$		DE HI KL	E(level): from (^{3}He,d).
				Jπ: L=4 in (^{3}He,t), parity=U in (pol d,α) (1975Bo46).
5895.5 *5*			DEF kL	XREF: E(5883).
				Jπ: $1^+,2^+,3^+$ from L=2 in (^{3}He,t). γ to 0^+ favors $(1,2)^+$ (2022Do04 (p,γ)), 2020Lo11 (^{3}He,pγ) γ to 0^+ not reported and based on γ to (4), 3^+ has been proposed. Additional experimental data are needed.
5908.2 *5*	2^-		D FGHI kL	XREF: I(5896).
				Jπ: L=1 in (^{3}He,d) and L=3 in (^{3}He,t).
5934.37 *20*	4^+		D F I K	XREF: I(5928).
				Jπ: 2996.6γ Q, ΔJ=2, to 2^+. In 2014McZZ, suggested Jπ is (3^+) based on 1590γ as Q transition to 5^+. The evaluators adopt the proposed assignment in 2020Lo11 based on γ(θ) and DCO measurements.
5993 *5*	$(0,1,2)^-$		GHI	XREF: I(6000).
				E(level),Jπ: from (^{3}He,d) and L=1 in (^{3}He,d).
5996.6 *3*	1^+		D F KL	Jπ: L=2 in (^{3}He,α), parity=U in (pol d,α), γ to 0^+.
6004.6 *20*	(3^+)		D F	T=0,1
				Jπ: 3^+ in (p,γ) 2000Gr19, based on angular distributions and RUL of feeding γs.
6050 *10*	$(0^+,1)^c$		KL	E(level): From (^{3}He,α).
6051 *5*	$3^+,4^+,5^+$		I	T=1
				Jπ: L=4 in (^{3}He,t).
6093.77 *12*	$3^{(-)}$	4.4 fs *10*	DEFGHI KL	T=1
				XREF: E(6089).
				Jπ: L=3 in (^{3}He,pγ) and L=2 in (d,n) implies positive parity; γ to 2^+ and 2^- and 3^- and 4^-.
6178.49 *16*	$(5)^+$		D HI L	E(level): weighted average of 6177 keV *5* (^{3}He,t) and 6179 keV *5* (^{3}He,d).
				Jπ: L=6 in (^{3}He,pγ), (D) γ to 4^- and (Q) γ to (3^+).
6229.1 *4*	$(3,5)^+$		DEF HI L	Jπ: L=4 in (^{3}He,pγ), parity=U in (pol d,α).
6269.2 *5*	$(1^+,2)^c$		D F HI L	T=1
				Jπ: γs to 1^+; 2^+; and 3^+. L=2 in (^{3}He,pγ). Unnatural parity in (pol d,α). In 1969Ha50 (p,γ), Jπ=2^- based on polarization measurement of 4295.7γ as E1+M2 to 3^+. The level expected to be a analog state of ^{30}Si at 5614.05, Jπ=2^+, is inconsistent with the assignment in 1969Ha50. Spectroscopic factor in 1976Dy01 (^{3}He,d) suggest L=1.
6292.5 *4*	(3,4,5)		De hI	Jπ: (D) γ to (4^-).
6299.45 *22*	$(3)^+$		DeF h L	T=0
				Jπ: M1+E2 γ to 2^+.
6363 *9*	$4^-,5^-,6^-$		I L	E(level): unweighted average of 6354 *5* from (^{3}He,t) E=30 MeV and 6372 *6* from (d,α).
				Jπ: L=5 in (^{3}He,t).
6471.0 *6*	$(2^-,3)$		DE I	Jπ: L=(3,4) in (α,d), γ to (1^+). Other: L=6,(7) in (^{3}He,t) would yield $(5^+,6^-)$ does not support γ to (1^+).
6482.0 *20*	1^{+c}		D F H L	T=0
				Jπ: parity=U in (pol d,α).
6521.2 *11*	$(1,2)^+$		D F HI L	T=0
				Jπ: L=2 in (^{3}He,t), γ to 1^+.
6597.7 *5*	3^+		D F HI L	T=1
				XREF: L(6610).
				Jπ: L=4 in (^{3}He,t), parity=U in (pol d,α), 4623.9γ D+Q to 3^+.
6654.2 *9*			D H	T=1

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Adopted Levels, Gammas (continued)

^{30}P Levels (continued)

E(level)[†]	Jπ[@&]	$T_{1/2}$[#]	XREF	Comments
6670.4 *12*	$(2^-,3^+)$		DEF HI L	T=0 XREF: E(6661)H(6674). Jπ: L=4 in (^{3}He,t) for doublet (6654 and 6670), parity=U in (pol d,α), D+Q γ to 2^+, D γ to 2^-, γ to 1^+.
6788.9 *6*			DE HI L	XREF: E(6775). E(level): weighted average of 6789 keV *5* (^{3}He,t) and 6787 keV *5* (^{3}He,d).
6853.9[‡] *5*	1^+	25 eV	F HI L	T=0 Jπ: L=2 in (^{3}He,t), parity=U in (pol d,α), γ to 0^+.
6873.01 *12*	3^+	3 eV	D F I	T=0 XREF: I(6881). Jπ: L=4 in (^{3}He,t) for doublet (6872.9 and 6877); 3568γ (D), ΔJ=0, to (3^+).
6877[‡] *1*	2^-	3.1 keV	FGH L	Jπ: L=1 in (d,n) for doublet (6872.9 and 6877), γ to 3^+.
6922.6 *14*	1^-	5.4 keV	DEFGHI L	T=0 XREF: E(6916)L(6927). Jπ: L=1 in (d,n) and (^{3}He,t); γ-rays to 0^+ and 2^+.
6978.5 *7*	$(3^+,4^+)$		D F I	T=0 XREF: I(6981). Jπ: from γ-ray feeding 2^+, and 3^+, and 5^+ states. L=6 in (^{3}He,t) presumably associated with this level – for which γ to 2^+ would be a less likely placement for the lowest possible $J^\pi=5^+$.
6980.8 *7*	(1,2,3)		D	Jπ: γ to 1 and (1^+) and (3^+).
7015.8 *13*	2^-	0.70 keV	D FGHI	T=0 Jπ: L=3 in (^{3}He,t), L=1 in (d,n), E1 γ to 1^+.
7043.8 *21*	$(2,3,4)^-$	20 eV	deF	T=0 Jπ: D+Q γ to 3^-, γ to 2^- and 3^+.
7051.5 *5*	4^-	45 eV	deF I	T=1 Jπ: L=5 in (^{3}He,t); 2025.3γ (D), ΔJ=0, to (4^-).
7120.3 *5*	$2^+,3^+$		D FG I	T=0 XREF: G(7048). Jπ: γ to 1^+, and 2^+, and 3^+, and 4^+. L=2 in (d,n).
7181.8 *13*	$1^{(-)}$	15 keV	DEF HI	T=1 XREF: E(7180). Jπ: L=1 in (^{3}He,d), γ-rays to 1^+, and 0^+, and 2^- states. L=2 in (^{3}He,t) implies positive parity.
7202.72 *22*	$(6^+,7^+)$	9.4 ps *12*	CDE Hi	E(level),Jπ: from (^{16}O,pnγ); if γ to 5^+ is M1 – would favor 6^+. $T_{1/2}$: from (^{16}O,pnγ). 7^+ in (α,d) (1982De29).
7203.0[‡] *5*	(2^+)	30 eV	F i	T=0 Jπ: D+Q γ to 2^+, γ to 0^+ and 3^+. L=1 in (^{3}He,d) inconsistent for parity.
7207.5[‡] *5*	0^+	50 eV	F	T=1 Jπ: L=0 in (p,γ),(p,pγ) resonances – 1992Fr10.
7223.3[‡] *5*	2^-	4.5 keV	F HI	T=1 Jπ: L=3 in (^{3}He,t) and L=1 in (p,γ),(p,pγ) resonances – 1992Fr10.
7282.0[‡] *5*	$(3)^+$	1 eV	e Hi	T=0 Jπ: L=2 for doublet in (^{3}He,t); D+Q γ to 3^+.
7286.8 *5*	2^+	7 eV	DeF i	T=1 Jπ: L=2 for doublet in (^{3}He,t); D+Q γ to 1^+ and 3^+.
7304.9[‡] *5*	2^-	60 eV	D F hI	T=0 Jπ: L=1 in (p,γ),(p,pγ) resonances – 1992Fr10, γ to 3^+ and 1^+. Other: L=2 in (^{3}He,t) is inconsistent for parity.

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Adopted Levels, Gammas (continued)

^{30}P Levels (continued)

E(level)[†]	J$^{\pi}$[@&]	T$_{1/2}$[#]	XREF	Comments
7306.1 *6*	2$^-$	45 eV	D F h	T=0 J$^{\pi}$: L=3 in (p,γ),(p,pγ) resonances – 1992Fr10, γ to 1$^+$ and 2$^+$.
7324.9 *20*	1$^-$	16.5 keV	D F HI	T=1 XREF: I(7314). J$^{\pi}$: L=1 in (p,γ),(p,pγ) resonances (1992Fr10), D γ, ΔJ=1, to 2$^+$.
7346.7 *8*	5$^+$,6$^+$		DE I	J$^{\pi}$: L=6 in (^{3}He,t), γ to 4$^+$.
7372.6 *6*			D hI	
7382.9 *20*	(2$^+$,3$^+$)		D F hI	T=1 XREF: I(7390). J$^{\pi}$: γ to 1$^+$ and 4$^+$.
7475.2 *20*	(2,3,4)		D H	J$^{\pi}$: γ to 3$^-$.
7496.3 *13*	1$^+$	3.5 keV	D F I	T=1 XREF: I(7486). J$^{\pi}$: L=0 in (p,γ),(p,pγ) resonances (1992Fr10), D+Q to 2$^+$.
7561.0 *7*	3$^+$	40 eV	D F hI	XREF: I(7550). J$^{\pi}$: L=2 in (p,γ),(p,pγ) resonances (1992Fr10), D+Q γ to 2$^+$ and 4$^-$; γ to 1$^+$.
7562.5[‡] *5*	2$^+$	25 eV	F h	T=1 J$^{\pi}$: L=2 in (p,γ),(p,pγ) resonances (1992Fr10), D+Q γ to 1$^+$, and 2$^+$, and 3$^+$.
7581.2 *11*	2$^-$	0.17 keV	D F HI	T=0 J$^{\pi}$: L=3 in (p,γ),(p,pγ) resonances (1992Fr10), γ to 1$^+$.
7601.3 *9*	(1,2)$^+$	0.26 keV	D F HI	T=1 J$^{\pi}$: L=2 in (p,γ),(p,pγ) resonances (1992Fr10), D+Q γ to 1$^+$, γ to 0$^+$.
7638.0 *7*	(3$^+$)	<3 eV	D F	T=1 J$^{\pi}$: D+Q γ to 2$^+$ and 3$^+$, γ to 1$^+$. Other: Q γ to 2$^+$ in 2020Lo11 (^{3}He,pγ) suggests 4$^+$.
7644.3 *6*	(3$^+$)	65 eV	D F hi	T=0 J$^{\pi}$: D+Q γ to 2$^+$ and 3$^+$; γ to 1$^+$.
7647 *10*	(4,5,6)$^-$		hi	T=1 E(level),J$^{\pi}$: from (^{3}He,t), L=5 in (^{3}He,t).
7687.2 *7*	(3$^+$)	<3 eV	D F HI	T=0 J$^{\pi}$: γ to 1$^+$, 4$^-$, 4$^+$, 5$^+$, 2$^-$ states. L=6 in (^{3}He,t) is inconsistent with this assignment, probably corresponds to a different level.
7742[‡] *3*	1$^-$	52 keV	F	J$^{\pi}$: L=1 in (p,γ),(p,pγ) resonances (1992Fr10), γ to 0$^+$ and 2$^+$.
7749.3[‡] *5*	1$^+$	0.53 keV	F h	T=0 J$^{\pi}$: L=0 in (p,γ),(p,pγ) resonances (1992Fr10), D and D+Q γ to 2$^+$, γ to 0$^+$.
7752.7[‡] *5*	(3$^+$)	<3 eV	F HI	T=1 XREF: I(7765). J$^{\pi}$: D+Q γ to 3$^+$ and 4$^+$, γ to 1$^+$. L=4 in (^{3}He,t) probably for a doublet/triplet.
7757.0 *8*	(2$^+$,3$^+$)[*b*]	<4 eV	D F hI	T=1 J$^{\pi}$: D+Q γ to 2$^+$ and 3$^+$, γ to 1$^+$. L=4 in (^{3}He,t) probably for a doublet/triplet.
7786.4[‡] *5*	2$^-$,3$^-$,4$^-$	17 eV	F	J$^{\pi}$: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
7797.8 *21*	2$^-$,3$^-$,4$^-$	10 eV	D F	J$^{\pi}$: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
7826.3[‡] *5*	2$^-$	50 eV	F I	T=0 J$^{\pi}$: L=3 in (p,γ),(p,pγ) resonances (1992Fr10), γ to 1$^+$.
7873.7[‡] *5*	(3)$^-$	20 eV	F	J$^{\pi}$: L=3 in (p,γ),(p,pγ) resonances (1992Fr10), γ to 4$^+$ and 2$^+$.
7883.8[‡] *5*	4$^+$		F	J$^{\pi}$: D+Q γ to 5$^+$ and 3$^+$.
7891.8 *20*	2$^-$	70 keV	D F HI	J$^{\pi}$: L=1 in (p,γ),(p,pγ) resonances (1992Fr10), γ to 3$^+$.
7920.3 *11*	(3$^+$)		D F	T=0

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Adopted Levels, Gammas (continued)

^{30}P Levels (continued)

E(level)†	Jπ@&	$T_{1/2}$#	XREF	Comments
				Jπ: γ to 1^+ and 5^+.
7920.4 *8*	2^+*b*	0.38 keV	D F	T=0 Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10), D+Q γ to 1^+ and 3^+.
7922‡ *1*	(4^+)		F	Jπ: D+Q γ to 3^+, γ to 5^+ and 2^+.
7932‡ *3*	$(0)^+$	28 keV	F I	Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10).
7997.0 *7*	1^+	1.0 keV	D F	T=1 XREF: D(7972). Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10), γ to 0^+.
8001‡ *1*	1^-	4.8 keV	F	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10), γ to 0^+.
8007.4‡ *5*	(2^+)	0.65 keV	F	T=1 Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10), D+Q γ to 1^+. Additional D+Q γ to 4^+ is inconsistent for this assignment. A tentative J^π assginment is made by the evaluators.
8012.2 *9*	$(2)^+$	0.16 keV	D F	T=0 Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10), D+Q γ to 1^+ and (3^+).
8032‡ *3*	2^-,(1^-)*d*	50 eV	F I	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8053 *3*			F	
8096 *3*	1^+*d*	7.4 keV	F I	XREF: I(8105). Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10) and L=2 in (^{3}He,t) probably for a doublet (8096 and 8107).
8107‡ *3*	2^+*d*	0.28 keV	F H	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8151 *3*			F	
8166 *3*	1^-*d*	1.7 keV	F	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8181‡ *3*	1^+*d*	18 keV	F I	Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10).
8187 *3*	3^-*d*	0.70 keV	F	Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
8206‡ *3*	4^-*d*	40 eV	F hi	Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
8207‡ *3*	0^+*d*	13 keV	F hi	Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10).
8209‡ *3*	0^-*d*	30 keV	F hi	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10). Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8248.3 *6*	4^-,5^-		D I	Jπ: L=5 in (^{3}He,t) yields 4^-,5^-,6^-. Spin 6 omitted based on γ to the level with $J^\pi=(2^-,3)$.
8271 *3*			F	
8276‡ *3*	2^-*d*	60 eV	F hI	Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10). 3^- in (^{3}He,t).
8278‡ *3*	2^+*d*	1.3 keV	F h	T=1 Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8319 *3*	1^+*d*	6.0 keV	F	Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10).
8350‡ *3*	4^-*d*	0.17 keV	F hi	Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
8351‡ *3*			F hi	
8352‡ *3*	2^-*d*	2.4 keV	F hi	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8386 *3*	3^+*d*	0.10 keV	F	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8398 *3*	2^+*d*	0.24 keV	F I	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8409‡ *3*	3^-*d*	65 eV	F I	XREF: I(8442). Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
8426 *3*			F	
8432‡ *3*	2^+*d*	1.35 keV	F	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8451‡ *3*	1^+*d*	2.3 keV	F	Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10).
8484‡ *3*	$(4)^-$*d*	0.13 keV	F I	Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10). Other Jπ: 3^+,$(4,5,6)^-$ in (^{3}He,t). Evaluators list as tentative.
8497 *3*	1^-*d*	37 keV	F	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{30}P Levels (continued)

E(level)[†]	Jπ[@&]	$T_{1/2}$[#]	XREF	Comments
8519 *3*	0^{-}[d]	200 keV	F	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8526[‡] *3*	$(3,4,5)^{+}$		F I	Jπ: L=4 in (^{3}He,t), if not for doublet.
8530[‡]			F I	
8557 *3*	1^{-}[d]	25 keV	F	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8570[‡] *3*			F i	
8582[‡] *3*	2^{+}[d]	0.44 keV	F i	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8619 *3*	2^{+}[d]	0.50 keV	F	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8621[‡] *3*	1^{+}[d]	4.0 keV	F H	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8632[‡] *3*	4^{-}[d]	0.45 keV	F HI	Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
8642 *3*		0.63 keV	F	
8647 *3*	3^{+}[d]	70 eV	F	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8662[‡] *3*	2^{-}[d]	3.95 keV	F I	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8669 *3*	2^{-}[d]	1.5 keV	F	Jπ: L=1 in (p,γ),(p,pγ) resonances (1992Fr10).
8708 *3*	1^{+}[d]	28 keV	F	Jπ: L=0 in (p,γ),(p,pγ) resonances (1992Fr10).
8730[‡] *3*	4^{-}[d]	0.30 keV	F I	Jπ: L=3 in (p,γ),(p,pγ) resonances (1992Fr10).
8755 *3*	(1^{+})[d]	3.0 keV	F	Jπ: L=2 in (p,γ),(p,pγ) resonances (1992Fr10).
8820 *10*			I	

[†] From a least-squares fit to Eγ, except otherwise noted.
[‡] From (p,γ),(α,4nγ) dataset.
[#] Half-life or Γ_{p0}, from ^{29}Si(p,γ),^{27}Al(α,nγ), except otherwise noted.
[@] From 1975Bo46, based on analyzing power. The reported U=unnatural and N=natural parities are listed in the comments.
[&] The parity=N and parity=U as made in the comments correspond to natural and unnatural parities, respectively.
[a] From L=0 in (^{3}He,d) and/or (d,n) and/or (^{3}He,t), targets ^{29}Si ($J^{\pi}=1/2^{+}$) or ^{30}Si($J^{\pi}=0^{+}$); and a weaker/stronger ^{30}S($J^{\pi}=0^{+}$) $\varepsilon+\beta^{+}$ decay feeding.
[b] From γ-ray feedings.
[c] From analyzing power in (pol d,α).
[d] From L value in (p,γ),(p,pγ) resonances (1992Fr10), listed in comments, and as assigned by the authors.

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$

Additional information 1.

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
677.11	0^+	677.1 *1*	100	0	1^+	D[be]			E_γ: other: 678 *2* (1966Ga16 – ^{30}S $\varepsilon+\beta^+$ decay).
708.70	1^+	708.7 *1*	100	0	1^+	M1+E2[cf]	+0.28 *+29−22*		B(M1)(W.u.)=0.00169 *+15−32*; B(E2)(W.u.)=1.2 *+29−11* δ: from (^{16}O,pnγ). Other δ: 1.0 *+34−8* (p,γ).
1454.28	2^+	745.6 *4*	7.5 *25*	708.70	1^+				E_γ: weighted average of 746 *1* from (^{16}O,pnγ) and 745.5 *4* from (^{3}He,pγ). I_γ: unweighted average of 9.9 *5* from (^{3}He,pγ) and 5.00 *8* from (p,γ).
		1454.24 *5*	100.0 *8*	0	1^+	M1+E2[e]	−0.22 *2*	6.64×10^{-5} *9*	B(M1)(W.u.)=0.00120 *+32−21*; B(E2)(W.u.)=0.127 *+43−29* α(K)=1.306×10^{-5} *18*; α(L)=9.72×10^{-7} *14*; α(M)=7.39×10^{-8} *10* α(IPF)=5.23×10^{-5} *8*
1973.34	3^+	519[‡] *1*	<6.8	1454.28	2^+				
		1264.5 *3*	100.0 *12*	708.70	1^+	E2[cg]		4.41×10^{-5} *6*	α(K)=2.118×10^{-5} *30*; α(L)=1.578×10^{-6} *22*; α(M)=1.198×10^{-7} *17* α(IPF)=2.127×10^{-5} *30* B(E2)(W.u.)=10.1 *+31−17* E_γ: weighted average of 1265 *1* from (^{16}O,pnγ) and 1264.4 *3* from (^{3}He,pγ). Mult.,δ: E2+M3 and δ=+0.01 *2* in (p,γ).
		1973.24 *9*	70.9 *9*	0	1^+	E2[g]		3.11×10^{-4} *4*	α(K)=8.63×10^{-6} *12*; α(L)=6.42×10^{-7} *9*; α(M)=4.88×10^{-8} *7* α(IPF)=0.000301 *4* B(E2)(W.u.)=0.77 *+24−13* E_γ: weighted average of 1974 *1* from (^{16}O,pnγ) and 1973.23 *9* from (^{3}He,pγ). Mult.,δ: E2+M3 and δ=−0.02 *3* in (p,γ).
2538.87	3^+	565[‡] *1*	0.79 *5*	1973.34	3^+				
		1830.2 *5*	3.23 *10*	708.70	1^+	[E2]		2.43×10^{-4} *3*	α(K)=9.93×10^{-6} *14*; α(L)=7.39×10^{-7} *10*; α(M)=5.61×10^{-8} *8* α(IPF)=0.0002323 *33* B(E2)(W.u.)=1.02 *+11−9*
		2538.8 *5*	100.0 *10*	0	1^+	(E2)[g]		5.82×10^{-4} *8*	α(K)=5.56×10^{-6} *8*; α(L)=4.14×10^{-7} *6*; α(M)=3.14×10^{-8} *4* α(IPF)=0.000576 *8* B(E2)(W.u.)=6.2 *+6−5* Mult.,δ: (E2+M3) and δ=−0.02 *3* in (p,γ).
2723.64	2^+	2014.8 *5*	2.56[h] *21*	708.70	1^+				I_γ: other: 28.2 *3* (^{3}He,pγ).

$^{30}_{15}P_{15}$-8

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ †	I_γ [a]	E_f	J_f^π	Mult. [a]	δ [a]	α [i]	Comments
2723.64	2+	2723.5 *3*	100.0 *9*	0	1+	M1+E2 [e]	+3.0 *4*	6.55×10^{-4} *10*	B(M1)(W.u.)=9.7×10^{-4} *+30−21*; B(E2)(W.u.)=5.4 *5* α(K)=4.93×10^{-6} *7*; α(L)=3.66×10^{-7} *5*; α(M)=2.78×10^{-8} *4* α(IPF)=0.000650 *10*
2839.39	3+	1385.1 *1*	48.6 *10*	1454.28	2+	M1+E2 [d]	+12 *+6−3*	6.94×10^{-5} *10*	α(K)=1.734×10^{-5} *24*; α(L)=1.292×10^{-6} *18*; α(M)=9.81×10^{-8} *14* α(IPF)=5.06×10^{-5} *7* B(M1)(W.u.)=2.5×10^{-5} *+24−14*; B(E2)(W.u.)=8.8 *+26−17* I_γ: Other: 87.8 *41* (^{3}He,pγ).
		2130.6 *1*	100.0 *15*	708.70	1+	E2 [bdg]		3.86×10^{-4} *5*	α(K)=7.52×10^{-6} *11*; α(L)=5.59×10^{-7} *8*; α(M)=4.25×10^{-8} *6* α(IPF)=0.000378 *5* B(E2)(W.u.)=2.1 *+6−4*
		2839.3 *2*	43.6 *10*	0	1+	[E2] [g]		7.18×10^{-4} *10*	α(K)=4.63×10^{-6} *6*; α(L)=3.45×10^{-7} *5*; α(M)=2.62×10^{-8} *4* α(IPF)=0.000713 *10* B(E2)(W.u.)=0.22 *+7−4* I_γ: Other: 16.3 *41* (^{3}He,pγ).
2937.55	2+	964.2 *2*	0.77 *13*	1973.34	3+				I_γ: weighted average of 1.5 *4* from (^{3}He,pγ) and 0.75 *7* from (p,γ).
		1483.1 *3*	100.0 *11*	1454.28	2+	(M1+E2) [f]	+4.1 *+17−9*	9.70×10^{-5} *16*	α(K)=1.490×10^{-5} *22*; α(L)=1.109×10^{-6} *17*; α(M)=8.43×10^{-8} *13* α(IPF)=8.09×10^{-5} *14* B(M1)(W.u.)=0.0034 *+20−16* Mult.: from decay scheme, D+Q in (p,γ),(α,nγ). B(E2)(W.u.)=121 *8* exceeds RUL=100.
		2228.7 *1*	12.27 *20*	708.70	1+	M1 [bd]		3.47×10^{-4} *5*	α(K)=6.36×10^{-6} *9*; α(L)=4.73×10^{-7} *7*; α(M)=3.59×10^{-8} *5* α(IPF)=0.000340 *5* B(M1)(W.u.)=0.00219 *+15−13* I_γ: weighted average of 16 *4* from (^{3}He,pγ) and 12.27 *20* from (p,γ). Mult.,δ: D+Q and δ=0.0 *+2−3* in (p,γ).
		2260.4 *3*	73.6 *9*	677.11	0+	E2 [bd]		4.49×10^{-4} *6*	α(K)=6.78×10^{-6} *9*; α(L)=5.04×10^{-7} *7*; α(M)=3.83×10^{-8} *5* α(IPF)=0.000442 *6* B(E2)(W.u.)=11.5 *7* I_γ: Other: 64.1 *21* (^{3}He,pγ).
		2937.5 *5*	40.5 *5*	0	1+	M1+E2 [d]	−0.3 *2*	6.50×10^{-4} *17*	α(K)=4.18×10^{-6} *6*; α(L)=3.11×10^{-7} *5*; α(M)=2.36×10^{-8} *4* α(IPF)=0.000646 *17* B(M1)(W.u.)=0.00290 *+27−41*; B(E2)(W.u.)=0.14 *+20−12* I_γ: Other: 32 *3* (^{3}He,pγ).

$^{30}_{15}P_{15}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
3019.8	1^+	2342.3[j] *8*	100	677.11	0^+	M1+E2[e]		0.00044 *5*	α(K)=6.13×10^{-6} *26*; α(L)=4.56×10^{-7} *20*; α(M)=3.46×10^{-8} *15* α(IPF)=0.00044 *5* B(M1)(W.u.)=0.9 *+8−3* if M1. B(E2)(W.u.)=7×10^2 *+6−3* exceeds RUL=100 if E2.
3305.8	(3^+)	2594 *3*	100	708.70	1^+				
3734.06	1^+	796.5[@]	15.0 *10*	2937.55	2^+				
		2279.7[@]	19.6 *12*	1454.28	2^+				I_γ: Other: 39 *13* (^{3}He,pγ).
		3056.8[@]	64.0 *20*	677.11	0^+				
		3733.8 *2*	100.0 *20*	0	1^+	D+Q[f]			
3835.85	2^+	898.2 *2*	100.0 *14*	2937.55	2^+	M1+E2[df]	−0.12 *3*		B(M1)(W.u.)=0.66 *+15−11*; B(E2)(W.u.)=55 *+36−25*
		2381.5[@]	14.1 *6*	1454.28	2^+				I_γ: Other: 27 *7* (^{3}He,pγ).
		3127.2 *3*	27.0 *8*	708.70	1^+	M1+E2[d]	−3.6 *+5−8*	8.34×10^{-4} *12*	α(K)=3.97×10^{-6} *6*; α(L)=2.95×10^{-7} *4*; α(M)=2.241×10^{-8} *31* α(IPF)=0.000830 *12* B(M1)(W.u.)=3.1×10^{-4} *+13−11*; B(E2)(W.u.)=1.90 *+44−31*
3928.66	3^+	991.1 *3*	100.0 *14*	2937.55	2^+	M1[bed]			B(M1)(W.u.)=0.200 *+44−30*
		2474.4 *4*	42.9 *14*	1454.28	2^+	M1[bd]		4.50×10^{-4} *6*	α(K)=5.40×10^{-6} *8*; α(L)=4.01×10^{-7} *6*; α(M)=3.05×10^{-8} *4* α(IPF)=0.000445 *6* B(M1)(W.u.)=0.0055 *+12−9* I_γ: Other: 59 *6* (^{3}He,pγ).
4143.7	2^-	1206.1[@]	1.49 *11*	2937.55	2^+	[E1]		7.36×10^{-5} *10*	α(K)=1.139×10^{-5} *16*; α(L)=8.48×10^{-7} *12*; α(M)=6.44×10^{-8} *9* α(IPF)=6.13×10^{-5} *9*
		2170[‡] *1*		1973.34	3^+			7.64×10^{-4} *11*	α(K)=4.53×10^{-6} *6*; α(L)=3.37×10^{-7} *5*; α(M)=2.56×10^{-8} *4* α(IPF)=0.000759 *11* E_γ: A closer Eγ=2174.5 *18* has been placed from 5907 in (p,γ),(α,nγ), the level not reported in (^{16}O,pnγ).
		2689[‡] *1*	8.6 *5*	1454.28	2^+				I_γ: Other: 23 *7* (^{3}He,pγ).
		3435[‡] *1*	4.7 *3*	708.70	1^+	[E1]		1.45×10^{-3} *2*	α(K)=2.476×10^{-6} *35*; α(L)=1.840×10^{-7} *26*; α(M)=1.398×10^{-8} *20* α(IPF)=0.001446 *20* I_γ: Other: 20 *7* (^{3}He,pγ).
		4144[‡] *1*	100 *1*	0	1^+	E1		1.73×10^{-3} *2*	α(K)=1.971×10^{-6} *28*; α(L)=1.464×10^{-7} *21*; α(M)=1.113×10^{-8} *16* α(IPF)=0.001733 *24* Mult.,δ: E1+M2 and δ=−0.01 *1* in (p,γ).

$^{30}_{15}P_{15}$-10

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
4182.92	2+	1643.9 *5*	8.3 *4*	2538.87	3+				I_γ: Other: 5.3 *13* (^{3}He,pγ).
		2209[‡] *1*	4.6 *3*	1973.34	3+				
		2728.5[@]	3.3 *4*	1454.28	2+				
		3474.3 *3*	100.0 *12*	708.70	1+	M1+E2[d]		0.00092 *7*	α(K)=3.32×10^{-6} *8*; α(L)=2.47×10^{-7} *6*; α(M)=1.88×10^{-8} *5* α(IPF)=0.00091 *7* B(M1)(W.u.)=0.18 *+7−4* if M1, B(E2)(W.u.)=70 *+25−15* if E2.
		3505.6[@]	1.6 *3*	677.11	0+	[E2]		9.98×10^{-4} *14*	α(K)=3.34×10^{-6} *5*; α(L)=2.485×10^{-7} *35*; α(M)=1.889×10^{-8} *26* α(IPF)=0.000994 *14* B(E2)(W.u.)=1.07 *+45−29*
		4182.7 *3*	13.8 *4*	0	1+	M1[d]		1.09×10^{-3} *2*	α(K)=2.503×10^{-6} *35*; α(L)=1.860×10^{-7} *26*; α(M)=1.414×10^{-8} *20* α(IPF)=0.001082 *15* B(M1)(W.u.)=0.014 *+5−3* Mult.,δ: D+Q and δ=−0.1 *+2−1* in (p,γ).
4231.92	4−	1392.6 *2*	3.6 *14*	2839.39	3+	E1[bd]		1.97×10^{-4} *3*	α(K)=8.90×10^{-6} *12*; α(L)=6.62×10^{-7} *9*; α(M)=5.03×10^{-8} *7* α(IPF)=0.0001874 *26* B(E1)(W.u.)=5×10^{-6} *+5−3*
		1693.0 *3*	33.0 *10*	2538.87	3+	E1		4.25×10^{-4} *6*	B(E1)(W.u.)=2.7×10^{-5} *+24−10* α(K)=6.51×10^{-6} *9*; α(L)=4.84×10^{-7} *7*; α(M)=3.68×10^{-8} *5* α(IPF)=0.000418 *6* Mult.,δ: E1+M2 and δ=−0.00 *2* in (p,γ).
		2258.6 *3*	100.0 *14*	1973.34	3+	E1+M2[e]	+0.05 *2*	8.21×10^{-4} *12*	B(E1)(W.u.)=3.4×10^{-5} *+30−12*; B(M2)(W.u.)=0.08 *+12−5* α(K)=4.30×10^{-6} *6*; α(L)=3.19×10^{-7} *5*; α(M)=2.427×10^{-8} *35* α(IPF)=0.000816 *12*
		4232[‡&] *1*		0	1+				
4298.9	4+	1759.9[@]	23 *7*	2538.87	3+				
		2844.1 *12*	100 *7*	1454.28	2+	E2[bd]		7.21×10^{-4} *10*	α(K)=4.62×10^{-6} *6*; α(L)=3.44×10^{-7} *5*; α(M)=2.61×10^{-8} *4* α(IPF)=0.000716 *10* B(E2)(W.u.)=4.5 *+11−7*
4344.07	5+	1804.9 *3*	5.3 *4*	2538.87	3+	E2[bd]		2.31×10^{-4} *3*	α(K)=1.020×10^{-5} *14*; α(L)=7.59×10^{-7} *11*; α(M)=5.76×10^{-8} *8* α(IPF)=0.0002205 *31* B(E2)(W.u.)=2.18 *+28−24*
		2370.3 *3*	100.0 *21*	1973.34	3+	E2[bgd]		5.02×10^{-4} *7*	α(K)=6.25×10^{-6} *9*; α(L)=4.65×10^{-7} *7*; α(M)=3.53×10^{-8} *5* α(IPF)=0.000495 *7* B(E2)(W.u.)=10.5 *+11−9*

$^{30}_{15}P_{15}$-11

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
4423.0	2+	3714.0[@]	4.30 *20*	708.70	1+	M1+E2[d]	−3.3 *+9−19*	1.06×10^{-3} *2*	α(K)=3.06×10^{-6} *4*; α(L)=2.273×10^{-7} *32*; α(M)=1.728×10^{-8} *25* α(IPF)=0.001058 *17* B(M1)(W.u.)=5.0×10^{-5} *+40−27*; B(E2)(W.u.)=0.182 *+30−27*
		4422.7 *11*	100.0 *10*	0	1+	M1+E2[d]	−10 *+1−2*	1.32×10^{-3} *2*	α(K)=2.385×10^{-6} *33*; α(L)=1.772×10^{-7} *25*; α(M)=1.347×10^{-8} *19* α(IPF)=0.001317 *18* B(M1)(W.u.)=8.0×10^{-5} *+24−25*; B(E2)(W.u.)=1.91 *+29−23*
4468.56	0+	3759.6[@]	6.5 *9*	708.70	1+				
		4468.2 *1*	100.0 *22*	0	1+				
4502.66	1+	3048.3 *12*	100.0 *18*	1454.28	2+	M1(+E2)[de]	−0.03 *+1−2*	6.84×10^{-4} *10*	α(K)=3.94×10^{-6} *6*; α(L)=2.93×10^{-7} *4*; α(M)=2.224×10^{-8} *31* α(IPF)=0.000680 *10* B(M1)(W.u.)=0.11 *+6−3*; B(E2)(W.u.)=0.05 *+11−3*
		3793.7[@]	6.3 *5*	708.70	1+				
		4502.3 *1*	71.4 *18*	0	1+	M1+E2[df]	−0.09 *4*	1.19×10^{-3} *2*	α(K)=2.263×10^{-6} *32*; α(L)=1.682×10^{-7} *24*; α(M)=1.278×10^{-8} *18* α(IPF)=0.001192 *17* B(M1)(W.u.)=0.023 *+13−6*; B(E2)(W.u.)=0.04 *+6−3* I_γ: Other: 14 *8* (^{3}He,pγ).
4626.01	3−	1688.4 *1*	52.3 *14*	2937.55	2+	E1[bed]		4.21×10^{-4} *6*	α(K)=6.54×10^{-6} *9*; α(L)=4.87×10^{-7} *7*; α(M)=3.70×10^{-8} *5* α(IPF)=0.000414 *6* B(E1)(W.u.)=2.47×10^{-4} *+23−19*
		2652.5 *2*	26.8 *9*	1973.34	3+	E1[bd]		1.06×10^{-3} *2*	α(K)=3.45×10^{-6} *5*; α(L)=2.56×10^{-7} *4*; α(M)=1.947×10^{-8} *27* α(IPF)=0.001055 *15* B(E1)(W.u.)=3.26×10^{-5} *+31−27*
		3171.6 *6*	100.0 *18*	1454.28	2+	E1[e]		1.33×10^{-3} *2*	B(E1)(W.u.)=7.1×10^{-5} *6* α(K)=2.74×10^{-6} *4*; α(L)=2.033×10^{-7} *28*; α(M)=1.545×10^{-8} *22* α(IPF)=0.001327 *19* Mult.,δ: E1+M2 and δ=+0.01 *2* in (p,γ).
4736.11	3+	1716.3[@]	2.9 *3*	3019.8	1+	[E2]		1.92×10^{-4} *3*	α(K)=1.123×10^{-5} *16*; α(L)=8.36×10^{-7} *12*; α(M)=6.35×10^{-8} *9* α(IPF)=0.0001802 *25* B(E2)(W.u.)=2.6 *+5−4*
		1798.5 *2*	100.0 *15*	2937.55	2+	M1(+E2)[de]	+0.02 *3*	1.75×10^{-4} *3*	α(K)=9.01×10^{-6} *13*; α(L)=6.70×10^{-7} *9*; α(M)=5.09×10^{-8} *7* α(IPF)=0.0001653 *23* B(M1)(W.u.)=0.049 *+9−7*

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
4736.11	3+	3281.5 *9*	18.5 *8*	1454.28	2+				
		4027.1[@]	11.4 *6*	708.70	1+	[E2]		1.18×10^{-3} *2*	α(K)=2.73×10^{-6} *4*; α(L)=2.026×10^{-7} *28*; α(M)=1.540×10^{-8} *22* α(IPF)=0.001179 *17* B(E2)(W.u.)=0.143 *+25−19*
		4735.7[@]	18.0 *8*	0	1+	[E2]		1.41×10^{-3} *2*	α(K)=2.168×10^{-6} *30*; α(L)=1.611×10^{-7} *23*; α(M)=1.225×10^{-8} *17* α(IPF)=0.001409 *20* B(E2)(W.u.)=0.100 *+17−13*
4925.9	3−	627.0[j] *3*	8.6 *20*	4298.9	4+	(E1)[d]			B(E1)(W.u.)=7.8×10^{-7} *+21−19*
		693.8 *3*	100 *3*	4231.92	4−	M1+E2[de]	+0.29 *4*		B(M1)(W.u.)=1.94×10^{-4} *+31−24*; B(E2)(W.u.)=0.16 *+5−4* δ: Other: +0.30 *+46−20* (^{16}O,pnγ).
		3470.4 *13*	11.7 *6*	1454.28	2+				Iγ: weighted average of 15 *5* from (^{3}He,pγ) and 11.6 *6* from (p,γ). Mult.: (Q) in (^{3}He,pγ) is not consistent for 3− to 2+.
		4926[‡&] *1*		0	1+				
4937.8	1	2000.2[@]	22.0 *12*	2937.55	2+				
		4260.5 *6*	100 *4*	677.11	0+				
4946.3	(1+)	2972.5 *10*	10.2 *7*	1973.34	3+	[E2]		7.77×10^{-4} *11*	α(K)=4.31×10^{-6} *6*; α(L)=3.20×10^{-7} *4*; α(M)=2.435×10^{-8} *34* α(IPF)=0.000773 *11* B(E2)(W.u.)=9.5 *+34−20*
		4268.8[@]	100 *4*	677.11	0+	[M1]		1.11×10^{-3} *2*	α(K)=2.434×10^{-6} *34*; α(L)=1.809×10^{-7} *25*; α(M)=1.375×10^{-8} *19* α(IPF)=0.001112 *16* B(M1)(W.u.)=0.060 *+21−12*
5026.3	(4−)	1720.3 *6*	58 *9*	3305.8	(3+)				
		2186.8 *7*	64 *24*	2839.39	3+				
		3053.3 *13*	100 *15*	1973.34	3+				
		3568[&] *3*	82 *9*	1454.28	2+	(Q)[b]			
5206.8	3+	4497.8[@]	31.6 *13*	708.70	1+	[E2]		1.34×10^{-3} *2*	α(K)=2.330×10^{-6} *33*; α(L)=1.731×10^{-7} *24*; α(M)=1.316×10^{-8} *18* α(IPF)=0.001340 *19* B(E2)(W.u.)=0.89 *+33−19*
		5206.3[@]	100 *3*	0	1+	[E2]		1.54×10^{-3} *2*	α(K)=1.905×10^{-6} *27*; α(L)=1.415×10^{-7} *20*; α(M)=1.076×10^{-8} *15* α(IPF)=0.001541 *22* B(E2)(W.u.)=1.35 *+49−29*
5229.9	(4−)	2389.8 *9*	52 *4*	2839.39	3+				
		2690.9[@]	48 *4*	2538.87	3+				
		3256.6 *5*	100 *8*	1973.34	3+				

$^{30}_{15}P_{15}$-13

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ †	I_γ [a]	E_f	J_f^π	Mult. [a]	δ [a]	α [i]	Comments
5411.2	2⁻	2473.7 *5*	76 *17*	2937.55	2⁺				I_γ: other: 100 *17* (^{3}He,pγ).
		2571.7 *6*	100 *15*	2839.39	3⁺				I_γ: other: 53 *27* (^{3}He,pγ).
		2872.1 *12*		2538.87	3⁺	(D) [b]			
		3437.6 *5*	75 *15*	1973.34	3⁺	(D) [b]			I_γ: weighted average of 90 *23* from (^{3}He,pγ) and 68 *15* from (p,γ).
5506.6	1(−)	2568.9 [@]	2.50 *20*	2937.55	2⁺	[E1]		1.01×10^{-3} *1*	α(K)=3.60×10^{-6} *5*; α(L)=2.67×10^{-7} *4*; α(M)=2.031×10^{-8} *28* α(IPF)=0.001006 *14* B(E1)(W.u.)=2.6×10^{-4} *+9−5*
		4829.1 *3*	100 *3*	677.11	0⁺	[E1]		1.97×10^{-3} *3*	α(K)=1.645×10^{-6} *23*; α(L)=1.222×10^{-7} *17*; α(M)=9.29×10^{-9} *13* α(IPF)=0.001970 *28* B(E1)(W.u.)=0.00157 *+48−30*
		5506.1 [@]	1.7 *3*	0	1⁺	[E1]		2.17×10^{-3} *3*	α(K)=1.414×10^{-6} *20*; α(L)=1.051×10^{-7} *15*; α(M)=7.98×10^{-9} *11* α(IPF)=0.002167 *30* B(E1)(W.u.)=1.8×10^{-5} *+7−5*
5508.80	(3⁺)	3535.2 *2*	92.3 *19*	1973.34	3⁺	(M1) [b]		8.68×10^{-4} *12*	α(K)=3.17×10^{-6} *4*; α(L)=2.357×10^{-7} *33*; α(M)=1.792×10^{-8} *25* α(IPF)=0.000865 *12* B(M1)(W.u.)=0.024 *+21−8* I_γ: other: 100 *25* (^{3}He,pγ).
		4054.3 *3*	100.0 *19*	1454.28	2⁺	(M1(+E2)) [e]	−0.06 *5*	1.05×10^{-3} *2*	α(K)=2.61×10^{-6} *4*; α(L)=1.943×10^{-7} *27*; α(M)=1.477×10^{-8} *21* α(IPF)=0.001045 *15* B(M1)(W.u.)=0.017 *+15−6* I_γ: other: 75 *11* (^{3}He,pγ).
5573.5	(1,2)⁺	627.0 [j] *3*		4946.3	(1⁺)	(D,Q) [b]			I_γ: other: 100 *21* (^{3}He,pγ).
		1737.5 [@]	3.5 *5*	3835.85	2⁺				
		1839.3 [@]	3.2 *6*	3734.06	1⁺				
		4122.5 *21*	23.8 *16*	1454.28	2⁺				
		4866.6 *13*	100 *3*	708.70	1⁺	D [e f]			I_γ: other: 89 *11* (^{3}He,pγ). Mult.,δ: D+Q and δ=−0.05 *5* in (p,γ).
		5572.8 [@]	28.6 *16*	0	1⁺				
5595.7	(4⁺)	569.3 *5*	33 [h] *3*	5026.3	(4⁻)	D [b]			
		2659 *4*	13.3 [h] *18*	2937.55	2⁺				
		2756.1 *13*	20 [h] *7*	2839.39	3⁺				

$^{30}_{15}P_{15}$-14

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
5595.7	(4$^+$)	2872.1 *14*	100[h] *8*	2723.64	2$^+$	Q[b]			
		3056.9 *3*		2538.87	3$^+$	[e]			
5599.28	4$^+$	2661.6 *2*	100	2937.55	2$^+$				
5701.2	1$^+$	1518.4 *4*	17.7 *12*	4182.92	2$^+$	M1+E2[e]	+1.3 *+38−8*	1.00×10^{-4} *13*	α(K)=1.35×10^{-5} *10*; α(L)=1.00×10^{-6} *8*; α(M)=7.6×10^{-8} *6* α(IPF)=8.6×10^{-5} *11* B(M1)(W.u.)=0.028 *+37−22*; B(E2)(W.u.)=1.0×10^2 *+6−7* I_γ: other: 9.9 *9* (^{3}He,pγ). Mult.: from decay scheme, D+Q in (p,γ),(α,nγ). B(E2)(W.u.)=1.0×10^2 *+6−7* upper bound exceeds RUL=100.
		2763.4 *4*	100 *5*	2937.55	2$^+$	M1[bed]		5.70×10^{-4} *8*	α(K)=4.56×10^{-6} *6*; α(L)=3.39×10^{-7} *5*; α(M)=2.58×10^{-8} *4* α(IPF)=0.000565 *8* B(M1)(W.u.)=0.071 *+27−16*
		2977.2[@]	6.3 *8*	2723.64	2$^+$				
		3161.6 *19*	9.3 *9*	2538.87	3$^+$	[E2][g]		8.58×10^{-4} *12*	α(K)=3.91×10^{-6} *5*; α(L)=2.91×10^{-7} *4*; α(M)=2.211×10^{-8} *31* α(IPF)=0.000853 *12* B(E2)(W.u.)=2.1 *+8−5*
5715.7	(5)$^+$	3742.1[&] *5*	100	1973.34	3$^+$	(Q)[b]			
5718.0	(1$^-$)	5039.4 *18*		677.11	0$^+$	D[e]			
5788.5	(3,4)$^+$	1860.7 *7*	100[h] *60*	3928.66	3$^+$	(D)[b]			
		2851 *2*	12[h] *3*	2937.55	2$^+$				
		3064.3 *11*	97[h] *6*	2723.64	2$^+$				
		4334 *2*	94[h] *15*	1454.28	2$^+$	(D,Q)[b]			
5809.7	(3,5)$^+$	1463.8[j] *6*	11 *5*	4344.07	5$^+$				
		3270.9 *7*	43 *6*	2538.87	3$^+$	[e]			
		3837.2 *5*	100 *23*	1973.34	3$^+$	[e]			
5895.5		869.0 *5*	10[h] *4*	5026.3	(4$^-$)				
		1715.4 *17*	33.8[h] *20*	4182.92	2$^+$	(D+Q)[eb]			E_γ: weighted average of 1714.7 *17* (^{3}He,pγ) and 1716.1 *17* (p,γ). I_γ: Other: 83 *15* (^{3}He,pγ).
		2959.7 *12*	100.0 *21*	2937.55	2$^+$	(D+Q)[be]			E_γ: weighted average of 2959.3 *14* (^{3}He,pγ) and 2960.0 *12* (p,γ).
		3354.4[#] *23*	2.6 *3*	2538.87	3$^+$				
		5180.7[#] *24*	5.5 *7*	708.70	1$^+$				

$^{30}_{15}P_{15}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
5895.5		5217.9[#] *20*	2.0 *3*	677.11	0^+			
		5894.9[@]	≤1.0	0	1^+			
5908.2	2^-	1407.2[#] *18*	0.19 *2*	4502.66	1^+			
		1764.9[#] *19*	0.18 *2*	4143.7	2^-			
		2073.0[#] *20*	0.35 *5*	3835.85	2^+			
		2174.5[#] *18*	0.91 *4*	3734.06	1^+			
		2967.3[#] *23*	11.2 *7*	2937.55	2^+			
		3183.4[#] *24*	0.91 *7*	2723.64	2^+			
		4452.1[#] *19*	7.2 *5*	1454.28	2^+			E_γ: other: 4451 *2* (^{3}He,pγ).
		5198.7 *16*	11.2 *7*	708.70	1^+	D[e]		E_γ: weighted average of 5199.4 *10* (^{3}He,pγ) and 5195.2 *22* (p,γ).
		5905.4[#] *12*	100.0 *11*	0	1^+			
5934.37	4^+	1590.2 *2*	100.0 *24*	4344.07	5^+	D+Q[be]		
		2996.6 *6*	30.2 *17*	2937.55	2^+	Q[bg]		
		3095.0 *4*	28.3 *17*	2839.39	3^+			
		3395.1[@]	5.0 *10*	2538.87	3^+			
		3960.8 *4*	73.8 *24*	1973.34	3^+	D+Q[e]	−2.0 +*5*−*9*	
5996.6	1^+	1527.3[#] *16*	1.4 *2*	4468.56	0^+			
		2974.7[#] *19*	3.4 *3*	3019.8	1^+			
		3056.9[#] *20*	2.9 *3*	2937.55	2^+			
		4542.0[@]	≤0.5	1454.28	2^+			
		5287.6 *3*	47.0 *24*	708.70	1^+			E_γ: weighted average of 5287.6 *2* (^{3}He,pγ) and 5285.8 *15* (p,γ).
		5318.8 *7*	100 *4*	677.11	0^+			E_γ: weighted average of 5319.1 *6* (^{3}He,pγ) and 5317.0 *15* (p,γ).
		5994.6[#] *14*	5.8 *6*	0	1^+			
6004.6	(3^+)	3165 *2*	29 *3*	2839.39	3^+			I_γ: other: 28 *2* (^{3}Ne,pγ) if Iγ(3467)=26, otherwise 100 *8*.
		3280.6[@]	40 *3*	2723.64	2^+			
		3465.5[@]	26 *3*	2538.87	3^+	D+Q[f]		
		4031.0[@]	100 *6*	1973.34	3^+			
		4550.0[@]	91 *6*	1454.28	2^+			
6093.77	$3^{(-)}$	1467.7 *1*	100 *4*	4626.01	3^-	D[bf]		
		1861.8 *1*	70.0 *20*	4231.92	4^-	D[b]		
		1950.0[@]	21.2 *14*	4143.7	2^-			
		3156.0[@]	5.6 *8*	2937.55	2^+			
		3369.7[@]	3.0 *8*	2723.64	2^+			
6178.49	$(5)^+$	1946.5 *1*	100 *12*	4231.92	4^-	(D)[be]		

$^{30}_{15}P_{15}$-16

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
6178.49	(5)$^+$	2872.1 *12*	33 *7*	3305.8	(3$^+$)	(Q)[b]			
6229.1	(3,5)$^+$	1930.0[@]	17 *3*	4298.9	4$^+$				
		2300.4 *5*	100 *8*	3928.66	3$^+$	(D,Q)[b]			
		3689.8[@]	11 *3*	2538.87	3$^+$				
		4255.5 *7*	28 *5*	1973.34	3$^+$				I_γ: other: 54 *11* (^{3}He,pγ).
6269.2	(1$^+$,2)	3249.4[@]		3019.8	1$^+$				
		3429.8[@]	11	2839.39	3$^+$				
		3545.3 *4*	74	2723.64	2$^+$				
		3730.3[@]	65	2538.87	3$^+$				
		4295.7[@]	100	1973.34	3$^+$	D+Q	−0.05 *3*	1.79×10^{-3} *3*	α(K)=1.892×10^{-6} *27*; α(L)=1.405×10^{-7} *20*; α(M)=1.068×10^{-8} *15* α(IPF)=0.001790 *25* Mult.: E1+M2 in 1969Ha50. See the comments for J^π(6269.2).
6292.5	(3,4,5)	696.8 *3*	21[h] *8*	5595.7	(4$^+$)				
		1266.1 *5*	100[h] *13*	5026.3	(4$^-$)	(D)[b]			
6299.45	(3)$^+$	2116.4[@]	25	4182.92	2$^+$	M1+E2	+0.04 *2*	3.01×10^{-4} *4*	α(K)=6.91×10^{-6} *10*; α(L)=5.14×10^{-7} *7*; α(M)=3.90×10^{-8} *5* α(IPF)=0.000294 *4* Mult.: from (p,γ),(α,nγ).
		3361.7 *2*	100	2937.55	2$^+$	M1(+E2)	+0.02 *2*	8.05×10^{-4} *11*	α(K)=3.41×10^{-6} *5*; α(L)=2.535×10^{-7} *35*; α(M)=1.927×10^{-8} *27* α(IPF)=0.000801 *11* Mult.,δ: from (p,γ),(α,nγ).
6471.0	(2$^-$,3)	1525.3 *5*	13[h] *11*	4946.3	(1$^+$)				
		1543.9 *8*	100[h] *7*	4925.9	3$^-$				
		4495.2 *15*	2.3[h] *8*	1973.34	3$^+$				
6482.0	1$^+$	2013.4[@]	43	4468.56	0$^+$				
		2299 *2*	30	4182.92	2$^+$				
		5804.3[@]	100	677.11	0$^+$				
6521.2	(1,2)$^+$	2018.5[@]	100	4502.66	1$^+$	D+Q	+0.03 *2*		Mult.: from (p,γ),(α,nγ).
		3583.4[@]	42	2937.55	2$^+$	D+Q	−0.10 *+5−6*		
		3982 *1*	46	2538.87	3$^+$	D+Q	+5 *+3−1*		
6597.7	3$^+$	2299 *2*	2.6 *6*	4298.9	4$^+$				I_γ: Other: 14 *4* (^{3}He,pγ).
		2365.7 *6*	3.3 *6*	4231.92	4$^-$				I_γ: Other: 5.5 *14* (^{3}He,pγ).
		2668.8 *7*	5.9 *8*	3928.66	3$^+$	D+Q			I_γ: Other: 18 *8* (^{3}He,pγ). δ: +9 +∞−5.

$^{30}_{15}P_{15}$-17

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ †	I_γ [a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
6597.7	3+	3758.0@	12.5 *13*	2839.39	3+	D+Q	+0.3 *1*	
		4623.9@	100 *6*	1973.34	3+	D+Q	+0.45 *5*	
6654.2		2028.1 *9*	100	4626.01	3−			
6670.4	(2−,3+)	1097.0@	5.6 *6*	5573.5	(1,2)+	D		Mult.,δ: D+Q and δ=−0.0 *1* in (p,γ).
		1163.8@	1.3 *4*	5506.6	1(−)			
		2044.2@	3.1 *4*	4626.01	3−			
		2438.3@	3.1 *4*	4231.92	4−			
		2487.2@	36.5 *19*	4182.92	2+	D		Mult.,δ: D+Q and δ=−0.00 *2* in (p,γ).
		2526.5@	13.5 *10*	4143.7	2−			
		2834.3@	2.5 *4*	3835.85	2+	D+Q	+1.7 *+15−6*	
		2936.1@	12.5 *17*	3734.06	1+			
		3650.3@	0.40 *20*	3019.8	1+			
		3732.5@	100 *6*	2937.55	2+	D+Q	+0.04 *+1−2*	
		3830.7 *12*	1.20 *20*	2839.39	3+			
		3946.2@	6.7 *6*	2723.64	2+	D+Q		δ: −30 *+20−∞*.
		4696.6@	4.0 *6*	1973.34	3+			
		5215.5@	1.00 *20*	1454.28	2+			
6788.9		2162.3 *11*	100[h] *30*	4626.01	3−			
		4815.3 *7*	49[h] *30*	1973.34	3+			
6853.9	1+	2351.1@	2.80 *10*	4502.66	1+	D		Mult.,δ: D+Q and δ=−0.0 *2* in (p,γ).
		2385.2@	6.6 *3*	4468.56	0+			
		2430.8@	0.21 *4*	4423.0	2+			
		2925.1@	0.30 *10*	3928.66	3+			
		3833.8@	0.20 *4*	3019.8	1+			
		3916.1@	21.5 *10*	2937.55	2+	D		Mult.,δ: D+Q and δ=−0.0 *2* in (p,γ).
		4129.7@	3.00 *10*	2723.64	2+	D+Q	+1.8 *+34−9*	
		4314.7@	0.50 *10*	2538.87	3+			
		4880.1@	0.50 *10*	1973.34	3+			
		6144.5@	1.10 *10*	708.70	1+			
		6176.1@	100 *4*	677.11	0+			
		6853.1@	3.9 *3*	0	1+			
6873.01	3+	1364.1@	4.9 *3*	5508.80	(3+)	D+Q	+1.4 *+4−3*	
		2641.3 *3*	4.6 *3*	4231.92	4−			I_γ: other: 97 *11* (^{3}He,pγ).

$^{30}_{15}P_{15}$-18

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
6873.01	3+	2689.8[@]	13.0 *8*	4182.92	2+				
		2729.1[@]	4.1 *3*	4143.7	2−				
		2944.2[@]	3.2 *3*	3928.66	3+				
		3568 *2*	30[h] *5*	3305.8	(3+)	(D)[b]			I_γ: if Iγ(4899)=37.3, otherwise 81 *14* for Iγ(4899)=100.
		3935.1[@]	78 *3*	2937.55	2+	D+Q	−0.05 *2*		
		4033.2[@]	5.9 *5*	2839.39	3+				
		4148.7[@]	20.3 *11*	2723.64	2+	D(+Q)	+0.01 *+3−2*		
		4899.2 *1*	37.3 *19*	1973.34	3+				
		5418.1[@]	100 *5*	1454.28	2+				
6877	2−	2694[@]	1.60 *10*	4182.92	2+				
		2733[@]	1.20 *10*	4143.7	2−				
		3857[@]	6.4 *4*	3019.8	1+				
		3939[@]	3.2 *3*	2937.55	2+				
		4037[@]	3.1 *3*	2839.39	3+				
		4153[@]	5.3 *4*	2723.64	2+				
		5422[@]	9.6 *7*	1454.28	2+				
		6168[@]	3.2 *3*	708.70	1+				
		6876[@]	100 *4*	0	1+				
6922.6	1−	2419.8[@]	4.3 *5*	4502.66	1+				
		2453.9[@]	20.6 *16*	4468.56	0+	E1[b]		9.43×10^{-4} *13*	α(K)=3.82×10^{-6} *5*; α(L)=2.84×10^{-7} *4*; α(M)=2.160×10^{-8} *30* α(IPF)=0.000939 *13*
		2778.8[@]	2.4 *3*	4143.7	2−				
		3086.6[@]	0.80 *20*	3835.85	2+				
		3984.8 *14*	2.1 *5*	2937.55	2+				
		4198.4[@]	1.1 *3*	2723.64	2+				
		5467.8[@]	14.3 *16*	1454.28	2+	D+Q			
		6244.8[@]	100 *8*	677.11	0+				
		6921.7[@]	12.7 *16*	0	1+				
6978.5	(3+,4+)	1044.1[@]	15.4 *17*	5934.37	4+				
		1471.8[@]	100 *7*	5506.6	1(−)	D+Q	−6 *+2−4*		
		1951.9 *11*	35[h] *13*	5026.3	(4−)	(D)[b]			I_γ: if Iγ(4439)=17.4, otherwise 100 *37*.
		2634.3[@]	8.3 *13*	4344.07	5+				

$^{30}_{15}P_{15}$-19

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
6978.5	$(3^+,4^+)$	3049.7[@]	16.5 *20*	3928.66	3^+				
		4040.7[@]	3.3 *11*	2937.55	2^+				
		4254.3[@]	17.4 *22*	2723.64	2^+				
		4439.3 *7*	17.4 *22*	2538.87	3^+				I_γ: other: 49 *3* (^{3}He,pγ), if Iγ(1951.9)=100.
		5004.7[@]	33 *4*	1973.34	3^+				
		5523.7[@]	8.3 *20*	1454.28	2^+				
6980.8	(1,2,3)	1474.3 *7*	11 *3*	5506.6	$1^{(-)}$				
		2032 *2*	100 *55*	4946.3	(1^+)				
		3676 *2*	3.4 *11*	3305.8	(3^+)				
7015.8	2^-	2389.7[@]	10.0 *7*	4626.01	3^-				
		2513.0[@]	87 *3*	4502.66	1^+	E1		9.77×10^{-4} *14*	α(K)=3.70×10^{-6} *5*; α(L)=2.75×10^{-7} *4*; α(M)=2.092×10^{-8} *29* α(IPF)=0.000973 *14*
		2832.7[@]	6.7 *3*	4182.92	2^+				
		2872.0[@]	38.0 *17*	4143.7	2^-	M1		6.14×10^{-4} *9*	α(K)=4.30×10^{-6} *6*; α(L)=3.20×10^{-7} *4*; α(M)=2.430×10^{-8} *34* α(IPF)=0.000609 *9*
		3281.5 *12*	5.7 *3*	3734.06	1^+				
		3995.7[@]	34.0 *17*	3019.8	1^+				
		4291.6[@]	2.3 *3*	2723.64	2^+				
		4476.6[@]	13.0 *7*	2538.87	3^+				
		5042.0[@]	1.20 *20*	1973.34	3^+				
		6306.4[@]	35.0 *20*	708.70	1^+				
		7014.9[@]	100 *3*	0	1^+				
7043.8	$(2,3,4)^-$	950.0[@]	42.4 *25*	6093.77	$3^{(-)}$	D+Q	−0.07 *+3−4*		
		1039.2 *4*	12.4 *12*	6004.6	(3^+)				
		1535.0[@]	8.8 *9*	5508.80	(3^+)				
		2900.0[@]	53 *3*	4143.7	2^-				
		4204.1[@]	14.7 *15*	2839.39	3^+				
		4504.6[@]	100 *6*	2538.87	3^+				
		5070.0[@]	62 *3*	1973.34	3^+				
7051.5	4^-	2025.3 *5*		5026.3	(4^-)	(D)[b]			
		2125.3 *5*	32.1 *15*	4925.9	3^-	M1+E2		0.00034 *4*	α(K)=7.2×10^{-6} *4*; α(L)=5.36×10^{-7} *27*; α(M)=4.07×10^{-8} *20* α(IPF)=0.00034 *4*

$^{30}_{15}P_{15}$-20

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
7051.5	4^-	2425.4[@]	29.4 *11*	4626.01	3^-	M1+E2		0.00048 *5*	α(K)=5.79×10^{-6} *23*; α(L)=4.30×10^{-7} *17*; α(M)=3.27×10^{-8} *13* α(IPF)=0.00047 *5*
		2819.4[@]	100 *4*	4231.92	4^-	M1		5.93×10^{-4} *8*	α(K)=4.42×10^{-6} *6*; α(L)=3.29×10^{-7} *5*; α(M)=2.498×10^{-8} *35* α(IPF)=0.000588 *8*
		3122.6[@]	2.54 *12*	3928.66	3^+				
		4211.7[@]	7.1 *4*	2839.39	3^+				
		4512.2[@]	7.1 *4*	2538.87	3^+				
		5077.6[@]	14.4 *6*	1973.34	3^+	E1		2.04×10^{-3} *3*	α(K)=1.552×10^{-6} *22*; α(L)=1.153×10^{-7} *16*; α(M)=8.76×10^{-9} *12* α(IPF)=0.002041 *29*
		5596.6[@&]	0.23 *3*	1454.28	2^+				
7120.3	$2^+,3^+$	1525.3 *5*	23[h] *5*	5595.7	(4^+)				
		1613.7[@]	3.6 *4*	5506.6	$1^{(-)}$				
		4181.4 *6*	100 *6*	2937.55	2^+	(D)[b]			
		4581.1[@]	4.0 *7*	2538.87	3^+				
		5146.5[@]	8.9 *11*	1973.34	3^+				
		7119.4[@]	22 *3*	0	1^+				
7181.8	$1^{(-)}$	1463.8[j] *6*		5718.0	(1^-)				
		3037.9[@]	3.2 *4*	4143.7	2^-				
		3447.5[@]	5.7 *6*	3734.06	1^+				
		4161.7[@]	20.6 *15*	3019.8	1^+				
		6472.4[@]	100 *6*	708.70	1^+				
		6503.9[@]	23.2 *17*	677.11	0^+	D			
		7180.9[@]	60 *4*	0	1^+				
7202.72	$(6^+,7^+)$	2858.5 *1*	100	4344.07	5^+	(D,Q)[b]			Mult.: in (^{16}O,pnγ), preliminary data of pol=−0.48 *22* indicates 2858γ of M1 character.
7203.0	(2^+)	1198.4[@]	0.30 *10*	6004.6	(3^+)				
		1696.4[@]	5.50 *20*	5506.6	$1^{(-)}$				
		2780.2[@]	0.30 *10*	4423.0	2^+				
		4265.1[@]	100 *5*	2937.55	2^+	D+Q	−0.06 *+3−4*		
		4478.8[@]	1.70 *10*	2723.64	2^+				
		4663.7[@]	0.20 *5*	2538.87	3^+				

$^{30}_{15}P_{15}$-21

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	α[i]	Comments
7203.0	(2$^+$)	5229.2[@]	1.20 *10*	1973.34	3$^+$				
		5748.1[@]	2.30 *20*	1454.28	2$^+$				
		6493.6[@]	4.4 *6*	708.70	1$^+$				
		6525.1[@]	0.30 *10*	677.11	0$^+$				
7207.5	0$^+$	1698.7[@]	21.8 *10*	5508.80	(3$^+$)				
		2269.6[@]	4.3 *3*	4937.8	1				
		3473.2[@]	5.1 *4*	3734.06	1$^+$				
		4187.4[@]	100 *4*	3019.8	1$^+$				
		6498.1[@]	8.1 *13*	708.70	1$^+$				
7223.3	2$^-$	2597.2[@]	19.8 *9*	4626.01	3$^-$	D			Mult.,δ: D+Q and δ=−0.00 *+3−2* in (p,γ).
		3079.4[@]	100 *4*	4143.7	2$^-$	M1+E2	−0.06 *2*	6.97×10^{-4} *10*	α(K)=3.88×10^{-6} *5*; α(L)=2.88×10^{-7} *4*; α(M)=2.191×10^{-8} *31* α(IPF)=0.000693 *10*
		3489.0[@]	4.90 *20*	3734.06	1$^+$				
		4203.2[@]	9.6 *6*	3019.8	1$^+$				
		4383.6[@]	2.60 *20*	2839.39	3$^+$				
		4684.0[@]	1.70 *20*	2538.87	3$^+$				
		5249.5[@]	1.90 *20*	1973.34	3$^+$				
		5768.4[@]	10.0 *6*	1454.28	2$^+$				
		6513.9[@]	23.0 *13*	708.70	1$^+$	D			
		7222.4[@]	40.6 *19*	0	1$^+$	D			
7282.0	(3)$^+$	1708.6[@]	1.40 *10*	5573.5	(1,2)$^+$	D+Q	+0.18 *9*		
		3098.9[@]	30.4 *13*	4182.92	2$^+$	D+Q	−0.07 *+2−1*		
		3446.0[@]	0.4 *7*	3835.85	2$^+$				
		4344.1[@]	100 *4*	2937.55	2$^+$				
		4442.3[@]	7.3 *4*	2839.39	3$^+$	D+Q	+1.4 *+4−3*		
		4557.8[@]	10.9 *4*	2723.64	2$^+$	D+Q	−3.8 *+6−7*		
		4742.7[@]	11.6 *4*	2538.87	3$^+$	D+Q	−0.23 *8*		
		5827.1[@]	60.0 *22*	1454.28	2$^+$				
7286.8	2$^+$	2079.5[@]	8.0 *3*	5206.8	3$^+$	D+Q	+0.06 *3*		
		2342.3[j] *8*	29.1 *11*	4946.3	(1$^+$)	D+Q	−0.4 *1*		I_γ: Other: 100 *6* (^{3}He,pγ).
		2550.2[@]	11 *6*	4736.11	3$^+$	D+Q	+0.06 *3*		
		2863.3[@]	100 *3*	4423.0	2$^+$	D+Q	−0.05 *1*		
		3357.5 *4*	1.60 *10*	3928.66	3$^+$				I_γ: Other: 100 *24* (^{3}He,pγ).

$^{30}_{15}P_{15}$-22

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ †	I_γ [a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7286.8	2+	3450.4 @	8.3 *3*	3835.85	2+	D+Q	−0.07 *4*	
		3552.1 @	16.9 *9*	3734.06	1+			
		4348.5 @	1.50 *20*	2937.55	2+			
		4562.8 @	33.1 *14*	2723.64	2+	D(+Q)	+0.01 *2*	
		5831.5 @	9.7 *6*	1454.28	2+	D+Q	+2.3 *+5−3*	
		6576.9 @	5.7 *3*	708.70	1+	D(+Q)	+0.01 *7*	
		6608.5 @	6.6 *3*	677.11	0+			
		7285.5 @	54.3 *23*	0	1+	D+Q	+0.06 *1*	
7304.9	2−	2802.1 @	100 *5*	4502.66	1+			
		3121.8 @	27.3 *18*	4182.92	2+			
		3161.0 @	5.9 *5*	4143.7	2−			
		3570.6 @	30.9 *18*	3734.06	1+			
		4367.0 @	84 *4*	2937.55	2+			
		4465.2 @	15.9 *9*	2839.39	3+			
		4580.7 @	1.4 *5*	2723.64	2+			
		4765.6 @	4.1 *5*	2538.87	3+			
		5331.1 @	91 *5*	1973.34	3+			
		5850.0 @	4.1 *5*	1454.28	2+			
		6595.4 @	82 *5*	708.70	1+			
		7304.0 @	5.0 *9*	0	1+			
7306.1	2−	1036.3 @	3.8 *5*	6269.2	(1+,2)			
		1212.3 *6*	10.0 *5*	6093.77	3(−)			I_γ: Other: 69 *10* (^{3}He,pγ).
		1587.6 *12*	1.4 [h] *6*	5718.0	(1−)			I_γ: if Iγ(3470.4)=11.8 (^{3}He,pγ), otherwise 23 *10* for Iγ(3470.4)=100.
		2569.5 @	2.0 *3*	4736.11	3+			
		2882.6 @	1.8 *3*	4423.0	2+			
		3073.6 @	2.8 *3*	4231.92	4−			
		3122.6 @	12.0 *8*	4182.92	2+			
		3161.8 @	2.0 *3*	4143.7	2−			
		3470.4 *13*	11.8 *13*	3835.85	2+	D [b]		I_γ: other: 100 *21* (^{3}He,pγ).
		4367.8 @	100 *5*	2937.55	2+			
		4466.0 @	11.8 *8*	2839.39	3+			
		4582.1 @	8.8 *8*	2723.64	2+			
		5331.9 @	50.0 *25*	1973.34	3+			

$^{30}_{15}P_{15}$-23

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ †	I_γ [a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7306.1	2⁻	5850.8@	31.3 *18*	1454.28	2⁺			
		6596.2@	1.5 *3*	708.70	1⁺			
7324.9	1⁻	2822.1@	67 *6*	4502.66	1⁺			
		3141.8@	4.5 *15*	4182.92	2⁺			
		3181.0@	7.9 *18*	4143.7	2⁻			
		4387 *2*	91 *6*	2937.55	2⁺	D[b]		
		5870.0@	33 *6*	1454.28	2⁺			
		7323.9@	100 *9*	0	1⁺			
7346.7	5⁺,6⁺	1747.4 *7*	100	5599.28	4⁺	(D,Q)[b]		
7372.6		1463.8[j] *6*	24 *5*	5908.2	2⁻			
		1584.5 *5*	100 *11*	5788.5	(3,4)⁺	(D)[b]		
7382.9	(2⁺,3⁺)	1448.4@	10.2 *6*	5934.37	4⁺			
		1874.0@	4.00 *20*	5508.80	(3⁺)			
		4445 *2*	100 *5*	2937.55	2⁺	D[b]		
		4658.7@	2.3 *4*	2723.64	2⁺			
		5928.0@	1.9 *4*	1454.28	2⁺			
		7381.9@	2.4 *4*	0	1⁺			
7475.2	(2,3,4)	2849 *2*	100	4626.01	3⁻			
7496.3	1⁺	1778.3 *7*	100	5718.0	(1⁻)			
		2993.5@	16.0 *10*	4502.66	1⁺	D+Q	−2 *+1−21*	
		3027.6@	10.0 *8*	4468.56	0⁺			
		3313.2@	45.8 *21*	4182.92	2⁺	D+Q		δ: −6 *+4−∞*.
		3352.4@	1.3 *4*	4143.7	2⁻			
		4558.4@	100 *5*	2937.55	2⁺	D+Q		δ: +12 *+∞−10*.
		4772.3@	2.5 *4*	2723.64	2⁺			
		6041.4@	2.7 *6*	1454.28	2⁺			
		6818.4@	27.1 *21*	677.11	0⁺			
		7495.3@	3.1 *6*	0	1⁺			
7561.0	3⁺	1556.3@	33.5 *17*	6004.6	(3⁺)	D+Q	+1.6 *2*	
		1626.4@	52.2 *25*	5934.37	4⁺	D+Q	−0.68 *+5−4*	
		1987.5@	100 *4*	5573.5	(1,2)⁺	D+Q	−0.04 *+2−1*	
		2052.0@	30.4 *17*	5508.80	(3⁺)			
		3137.7@	3.0 *4*	4423.0	2⁺			

$^{30}_{15}P_{15}$-24

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f	Mult.[a]	δ[a]
7561.0	3^+	3216.6[@]	2.6 *4*	4344.07	5^+		
		3261.9 *5*	4.8 *4*	4298.9	4^+		
		3328.5[@]	2.0 *3*	4231.92	4^-	D+Q	+2.0 *3*
		3377.7[@]	100 *4*	4182.92	2^+	D+Q	−0.08 *+1−2*
		3417.0[@]	2.3 *4*	4143.7	2^-		
		3826.6[@]	37.8 *22*	3734.06	1^+		
		4623.0[@]	49.1 *25*	2937.55	2^+	D+Q	+0.06 *4*
		4836.6[@]	4.8 *4*	2723.64	2^+		
		5021.6[@]	5.7 *9*	2538.87	3^+		
		6851.4[@]	6.5 *9*	708.70	1^+		
7562.5	2^+	1263.2[@]	2.0 *5*	6299.45	$(3)^+$		
		1861.2[@]	59 *3*	5701.2	1^+	D+Q	+0.1 *1*
		2055.8[@]	100 *5*	5506.6	$1^{(-)}$	D+Q	+0.12 *5*
		2355.6[@]	15.5 *10*	5206.8	3^+		
		2624.6[@]	24.5 *15*	4937.8	1		
		2826.3[@]	34.5 *20*	4736.11	3^+	D+Q	+0.03 *3*
		3139.3[@]	5.2 *5*	4423.0	2^+	D+Q	+1.3 *+9−5*
		3379.4[@]	1.9 *3*	4182.92	2^+		
		3633.7[@]	6.0 *5*	3928.66	3^+	D+Q	+0.1 *+1−2*
		3726.4[@]	44.0 *25*	3835.85	2^+	D+Q	−0.09 *+3−4*
		4542.3[@]	9.5 *10*	3019.8	1^+	D(+Q)	−0.1 *1*
		4624.6[@]	9.5 *10*	2937.55	2^+		
		4838.2[@]	6.0 *5*	2723.64	2^+		
		5023.2[@]	17.0 *10*	2538.87	3^+		
		6107.6[@]	85 *5*	1454.28	2^+	D+Q	+0.09 *6*
		6853.0[@]	17.5 *15*	708.70	1^+		
		6884.6[@]	8.0 *10*	677.11	0^+		
		7561.5[@]	56 *4*	0	1^+	D+Q	+0.05 *2*
7581.2	2^-	1487.3[@]	100 *6*	6093.77	$3^{(-)}$		
		1646.6[@&]	3.6 *6*	5934.37	4^+		
		2007.7[@]	5.8 *6*	5573.5	$(1,2)^+$		
		2955.0 *11*	1.1 *3*	4626.01	3^-	(D)[b]	
		3349.0[@]	3.1 *3*	4231.92	4^-		

From ENSDF

$^{30}_{15}P_{15}$-25

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7581.2	2^-	3397.9[@]	3 *3*	4182.92	2^+			
		3437.2[@]	4.2 *8*	4143.7	2^-			
		3652.3[@]	5.3 *6*	3928.66	3^+			
		3745.0[@]	7.8 *6*	3835.85	2^+			
		4643.2[@]	50 *3*	2937.55	2^+			
		4856.8[@]	61 *3*	2723.64	2^+	D+Q		
		5041.8[@]	9.2 *8*	2538.87	3^+			
		5607.2[@]	11.7 *11*	1973.34	3^+			
		6126.2[@]	10.0 *17*	1454.28	2^+			
		7580.1[@]	3.6 *6*	0	1^+			
7601.3	$(1,2)^+$	2092.3[@]	2.20 *10*	5508.80	(3^+)	D+Q	+0.02 *+3−4*	
		2654.9 *7*	100	4946.3	(1^+)			
		3098.3[@]	0.60 *10*	4502.66	1^+			
		3418.1[@]	3.90 *20*	4182.92	2^+	D+Q	+2.1 *2*	
		4581.0[@]	0.30 *10*	3019.8	1^+			
		4663.3[@]	100 *5*	2937.55	2^+	D+Q	+2.4 *1*	
		4877.1[@]	1.10 *10*	2723.64	2^+			
		5061.8[@]	1.30 *10*	2538.87	3^+			
		6146.2[@]	0.50 *10*	1454.28	2^+			
		6891.7[@]	1.40 *10*	708.70	1^+			
		6923.2[@]	0.30 *10*	677.11	0^+			
		7600.2[@]	3.00 *20*	0	1^+	D+Q	+8 *2*	
7638.0	(3^+)	1338.5[@]	1.10 *10*	6299.45	$(3)^+$			
		2431.1[@]	1.60 *20*	5206.8	3^+			
		2901.7[@]	32.2 *16*	4736.11	3^+	D+Q	−0.17 *5*	
		3214.8[@]	14.1 *8*	4423.0	2^+	D+Q	−5 *+1−2*	
		3339.0[@]	4.6 *3*	4298.9	4^+			
		3405.9[@]	8.9 *5*	4231.92	4^-			
		3454.8[@]	13.2 *8*	4182.92	2^+	D+Q	−2.4 *+3−4*	
		3709.1[@]	2.70 *20*	3928.66	3^+			
		3801.9 *6*	31.9 *16*	3835.85	2^+	D+Q[e]	−0.04 *3*	Mult.: other: Q in 2020Lo11 (^{3}He,pγ).
		4700.1[@]	13.5 *8*	2937.55	2^+			
		4798.2[@]	14.6 *8*	2839.39	3^+			

$^{30}_{15}P_{15}$-26

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7638.0	(3^+)	4913.7[@]	22.4 *14*	2723.64	2^+			
		5098.7[@]	100 *5*	2538.87	3^+			
		5664.1[@]	4.6 *3*	1973.34	3^+			
		6183.0[@]	1.9 *3*	1454.28	2^+			
		7637.0[@]	4.3 *5*	0	1^+			
7644.3	(3^+)	1345.0[@]	1.10 *10*	6299.45	$(3)^+$			
		2437.6[@]	2.50 *20*	5206.8	3^+			
		2908.2[@]	35.0 *19*	4736.11	3^+			
		3018.4[@]	1.30 *10*	4626.01	3^-			
		3221.3[@]	16.6 *9*	4423.0	2^+	D+Q	−3.0 *2*	
		3345.5[@]	3.00 *20*	4298.9	4^+			
		3412.4[@]	5.3 *3*	4231.92	4^-			
		3461.3 *7*	13.4 *6*	4182.92	2^+	D+Q	−7 *1*	I_γ: other: 21 *2* (^{3}He,pγ), if Iγ(4706)=32.2, otherwise 64 *7* for Iγ(4706)=100.
		3500.6[@]	1.00 *10*	4143.7	2^-			
		3808.4[@]	38.10 *19*	3835.85	2^+	D+Q	−0.07 *2*	
		4706 *1*	32.2 *16*	2937.55	2^+	D+Q	−2.4 *+2−1*	I_γ: other: 100 *13* (^{3}He,pγ).
		4804.7[@]	19.7 *9*	2839.39	3^+	D+Q	−0.17 *7*	
		4920.2[@]	32.5 *19*	2723.64	2^+	D		Mult.,δ: D+Q and δ=−0.00 *2* in (p,γ).
		5105.2[@]	100 *6*	2538.87	3^+			
		5670.6[@]	8.4 *6*	1973.34	3^+			
		6935.0[@]	0.80 *20*	708.70	1^+			
7687.2	(3^+)	1458.3 *8*	6.2 *8*	6229.1	$(3,5)^+$	(D)[b]		
		1778.8 *7*	5.8[h] *19*	5908.2	2^-			I_γ: if Iγ(1459)=6.2, otherwise 97 *31* for Iγ(1459)=100.
		2180.6[@]	1.2 *3*	5506.6	$1^{(-)}$			
		2276.0[@]	6.3 *7*	5411.2	2^-			
		2457.3[@]	28.3 *17*	5229.9	(4^-)			
		2659 *4*	5.5 *6*	5026.3	(4^-)			I_γ: if Iγ(1459)=6.2, otherwise 89 *9* for Iγ(1459)=100.
		3343.0[@]	100 *7*	4344.07	5^+			
		3388.3[@]	19.0 *15*	4298.9	4^+			
		3455.2[@]	1.5 *3*	4231.92	4^-			
		7686.2[@]	4.2 *7*	0	1^+			
7742	1^-	4722[@]	11.6 *16*	3019.8	1^+			
		4804[@]	30 *3*	2937.55	2^+			

$^{30}_{15}P_{15}$-27

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ †	I_γ [a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7742	1⁻	6287@	41 *5*	1454.28	2⁺			
		7032@	51 *5*	708.70	1⁺			
		7064@	35 *5*	677.11	0⁺			
		7741@	100 *8*	0	1⁺			
7749.3	1⁺	3246.5@	5.4 *6*	4502.66	1⁺	D		Mult.,δ: D+Q and δ=−0.0 *3* in (p,γ).
		3280.6@	3.7 *4*	4468.56	0⁺			
		4729.1@	4.2 *4*	3019.8	1⁺	D+Q	+1.0 *+12−5*	
		4811.4@	100 *6*	2937.55	2⁺	D		Mult.,δ: D+Q and δ=−0.0 *2* in (p,γ).
		5025.0@	2.4 *4*	2723.64	2⁺	D+Q		δ: +1 +∞−1.
		6294.3@	3.0 *4*	1454.28	2⁺			
		7039.7@	1.5 *3*	708.70	1⁺			
		7071.3@	23.9 *15*	677.11	0⁺			
		7748.2@	6.4 *7*	0	1⁺			
7752.7	(3⁺)	1818.2@	100 *8*	5934.37	4⁺	D(+Q)	+0.05 *7*	
		2243.8@	20.0 *18*	5508.80	(3⁺)	D+Q	−1.2 *3*	
		3823.8@	3.8 *8*	3928.66	3⁺			
		3916.6@	11.3 *13*	3835.85	2⁺			
		4814.8@	7.5 *13*	2937.55	2⁺			
		5213.3@	16.0 *18*	2538.87	3⁺			
		5778.8@	22.5 *25*	1973.34	3⁺	D+Q	−0.2 *1*	
		6297.7@	53 *5*	1454.28	2⁺			
		7043.1@	4.0 *10*	708.70	1⁺			
		7751.6@	13.5 *20*	0	1⁺			
7757.0	(2⁺,3⁺)	2809.1 *9*		4946.3	(1⁺)			I_γ: 100 *15* (^{3}He,pγ).
		3253.8@	1.00 *20*	4502.66	1⁺			
		3333.5@	2.0 *4*	4423.0	2⁺	D+Q	−0.07 *+8−9*	
		3830.7 *12*		3928.66	3⁺	D+Q	−0.2 *+1−2*	I_γ: 69 *31*, if Iγ(2809)=100.
		4818.7@	1.0 *4*	2937.55	2⁺			
		4916.9@	14.3 *16*	2839.39	3⁺	D(+Q)	+0.04 *9*	
		5032.6@	100 *10*	2723.64	2⁺	D(+Q)	−0.01 *+1−2*	
		5217.3@	3.7 *6*	2538.87	3⁺	D+Q	−0.4 *2*	
		5782.8@	25.5 *20*	1973.34	3⁺	D+Q	−0.26 *6*	
		6301.7@	45 *4*	1454.28	2⁺	D		Mult.,δ: D+Q and δ=−0.00 *2* in (p,γ).

$^{30}_{15}P_{15}$-28

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7757.0	$(2^+,3^+)$	7755.6[@]	1.2 *4*	0	1^+			
7786.4	$2^-,3^-,4^-$	1781.7[@]	33 *3*	6004.6	(3^+)			
		3642.5[@]	8.020	4143.7	2^-			
		3857.5[@]	22 *3*	3928.66	3^+			
		4946.6[@]	73 *7*	2839.39	3^+			
		5247.0[@]	100 *7*	2538.87	3^+			
		5812.5[@]	97 *7*	1973.34	3^+			
7797.8	$2^-,3^-,4^-$	754.0 *3*	100	7043.8	$(2,3,4)^-$	D[b]		
7826.3	2^-	3643.1[@]	100 *7*	4182.92	2^+			
		3682.4[@]	3.7 *9*	4143.7	2^-			
		4806.1[@]	3.3 *13*	3019.8	1^+			
		4888.3[@]	32 *4*	2937.55	2^+			
		6371.3[@]	46 *4*	1454.28	2^+			
7873.7	$(3)^-$	1939.2[@]	39 *3*	5934.37	4^+			
		2364.8[@]	33 *3*	5508.80	(3^+)			
		2947.7[@]	27 *3*	4925.9	3^-			
		3137.4[@]	17.9 *24*	4736.11	3^+			
		3641.6[@]	100 *9*	4231.92	4^-			
		5334.3[@]	39 *6*	2538.87	3^+			
		5899.8[@]	33 *6*	1973.34	3^+			
		6418.7[@]	15 *3*	1454.28	2^+			
7883.8	4^+	3460.6[@]	4.2 *9*	4423.0	2^+			
		3539.5[@]	70 *6*	4344.07	5^+	D+Q	+0.04 *+3−2*	
		3584.8[@]	14.8 *15*	4298.9	4^+	D+Q	+0.7 *+5−4*	
		3954.9[@]	6.4 *12*	3928.66	3^+			
		4047.7[@]	10.9 *15*	3835.85	2^+			
		5044.0[@]	100 *6*	2839.39	3^+	D+Q	+0.24 *+2−3*	
		5159.5[@]	5.5 *12*	2723.64	2^+			
		5344.4[@]	52 *3*	2538.87	3^+	D		Mult.,δ: D+Q and δ=−0.01 *3* in (p,γ).
		5909.8[@]	18.8 *24*	1973.34	3^+			
		6428.8[@]	21.2 *24*	1454.28	2^+			
7891.8	2^-	3747.9[@]	2.0 *3*	4143.7	2^-			

$^{30}_{15}P_{15}$-29

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7891.8	2^-	4871.6[@]	2.8 *5*	3019.8	1^+			
		5052 *2*	100	2839.39	3^+			
		7182.2[@]	10.6 *10*	708.70	1^+			
		7890.7[@]	100 *7*	0	1^+			
7920.3	(3^+)	3184[j] *1*	2.2 *4*	4736.11	3^+			
		3576.0[@]	29.4 *20*	4344.07	5^+			
		3621.3[@]	6.9 *6*	4298.9	4^+			
		3737.1[@]	1.40 *20*	4182.92	2^+			
		3991.4[@]	2.5 *4*	3928.66	3^+			
		5080.5[@]	100 *6*	2839.39	3^+			
		5380.9[@]	31.4 *20*	2538.87	3^+			
		5946.3[@]	21.2 *18*	1973.34	3^+			
		6465.3[@]	1.00 *20*	1454.28	2^+			
		7210.7[@]	0.60 *20*	708.70	1^+			
7920.4	2^+	2411.9[@]	1.8 *4*	5508.80	(3^+)			
		2713.9[@]	10.4 *7*	5206.8	3^+			
		3184[j] *1*	22.1 *14*	4736.11	3^+	D+Q	−8 *+4−60*	I_γ: other: 2.5 *5* if Iγ(5197)=10.7, otherwise 24 *5* for Iγ(5197)=100 (^{3}He,pγ).
		3294.6[@]	18.2 *14*	4626.01	3^-			
		3776.8[@]	6.4 *7*	4143.7	2^-			
		3991.9[@]	21.8 *18*	3928.66	3^+			
		4084.7[@]	20.0 *14*	3835.85	2^+	D+Q	−0.2 *+1−2*	
		4982.8[@]	9.6 *11*	2937.55	2^+	D+Q	−0.4 *1*	
		5196.5 *13*	10.7 *11*	2723.64	2^+			I_γ: other: 100 *30* (^{3}He,pγ).
		5381.4[@]	100 *7*	2538.87	3^+	D		Mult.,δ: D+Q and δ=−0.00 *8* in (p,γ).
		5946.8[@]	71 *4*	1973.34	3^+	D+Q	+1.2 *+13−5*	
		6465.8[@]	22.9 *18*	1454.28	2^+			
		7211.2[@]	40 *3*	708.70	1^+	D+Q	−0.13 *8*	
7922	(4^+)	3578[@]	27.5 *25*	4344.07	5^+			
		3993[@]	22.5 *25*	3928.66	3^+			
		5082[@]	100 *10*	2839.39	3^+	D+Q	−0.11 *+5−4*	
		5383[@]	53 *5*	2538.87	3^+			
		5948[@]	35 *5*	1973.34	3^+			
		6467[@]	12.5 *25*	1454.28	2^+			

$^{30}_{15}P_{15}$-30

Adopted Levels, Gammas (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[a]	δ[a]	Comments
7997.0	1^+	2488.1[@]	3.7 *4*	5508.80	(3^+)			
		3059.3 *7*	3.7 *4*	4937.8	1			I_γ: other: 1.6 *5*, if Iγ(4262)=7.2, otherwise 22 *7* for Iγ(4262)=100.
		4262.2 *9*	7.2 *6*	3734.06	1^+	D+Q	−1.0 *+6−15*	I_γ: other: 100 *12* (^{3}He,pγ).
		4976.8[@]	11.9 *8*	3019.8	1^+	D(+Q)	−0.0 *3*	
		7318.9[@]	1.9 *5*	677.11	0^+			
		7995.9[@]	100 *5*	0	1^+	D(+Q)	−0.2 *+2−1*	
8001	1^-	5063[@]	15.3 *14*	2937.55	2^+			
		6546[@]	12.5 *14*	1454.28	2^+			
		7291[@]	12.5 *14*	708.70	1^+			
		7323[@]	100 *8*	677.11	0^+			
8007.4	(2^+)	2072.9[@]	2.30 *20*	5934.37	4^+			Mult.,δ: D+Q to 4^+ with δ=+0.20 *7* in (p,γ) is inconsistent, if $J^\pi=(2^+)$. Note 8006γ D+Q to 1^+ as well. The latter Iγ is stronger.
		2433.9[@]	1.0 *12*	5573.5	$(1,2)^+$	D+Q	−1.6 *+6−11*	
		3824.2[@]	30.8 *15*	4182.92	2^+	D+Q	−1.0 *3*	
		4078.5[@]	1.80 *20*	3928.66	3^+			
		4273.0[@]	1.00 *10*	3734.06	1^+			
		4987.2[@]	0.40 *10*	3019.8	1^+			
		5069.4[@]	100 *6*	2937.55	2^+	D+Q	−0.73 *8*	
		5283.0[@]	0.80 *10*	2723.64	2^+			
		6033.4[@]	1.10 *20*	1973.34	3^+			
		6552.4[@]	3.2 *3*	1454.28	2^+			
		7297.8[@]	1.10 *20*	708.70	1^+			
		7329.3[@]	0.80 *10*	677.11	0^+			
		8006.3[@]	9.1 *6*	0	1^+	D+Q		δ: +20 *+∞−10*.
8012.2	$(2)^+$	2505.0[@]	100 *10*	5506.6	$1^{(-)}$	D		Mult.,δ: D+Q and δ=+0.01 *3* in (p,γ).
		3064.3 *11*	26 *10*	4946.3	(1^+)			
		3830.7 *12*	97 *10*	4182.92	2^+	D		Mult.,δ: D+Q and δ=+0.02 *5* in (p,γ).
		6557.1[@]	43 *7*	1454.28	2^+			
		7302.5[@]	47 *7*	708.70	1^+	D+Q	−1.4 *2*	
		8011.0[@]	47 *7*	0	1^+	D+Q	+0.30 *6*	
8248.3	$4^-,5^-$	1777.3 *1*	100	6471.0	$(2^-,3)$			

[†] From (^{3}He,pγ), except where otherwise noted. Based on (^{3}He,pγ), several E_γ reported in 1968Ve04, but not reported in 2014Mc08, 2014McZZ are not adopted.

$^{30}_{15}P_{15}$-31

Adopted Levels, Gammas (continued)

$\gamma(^{30}P)$ (continued)

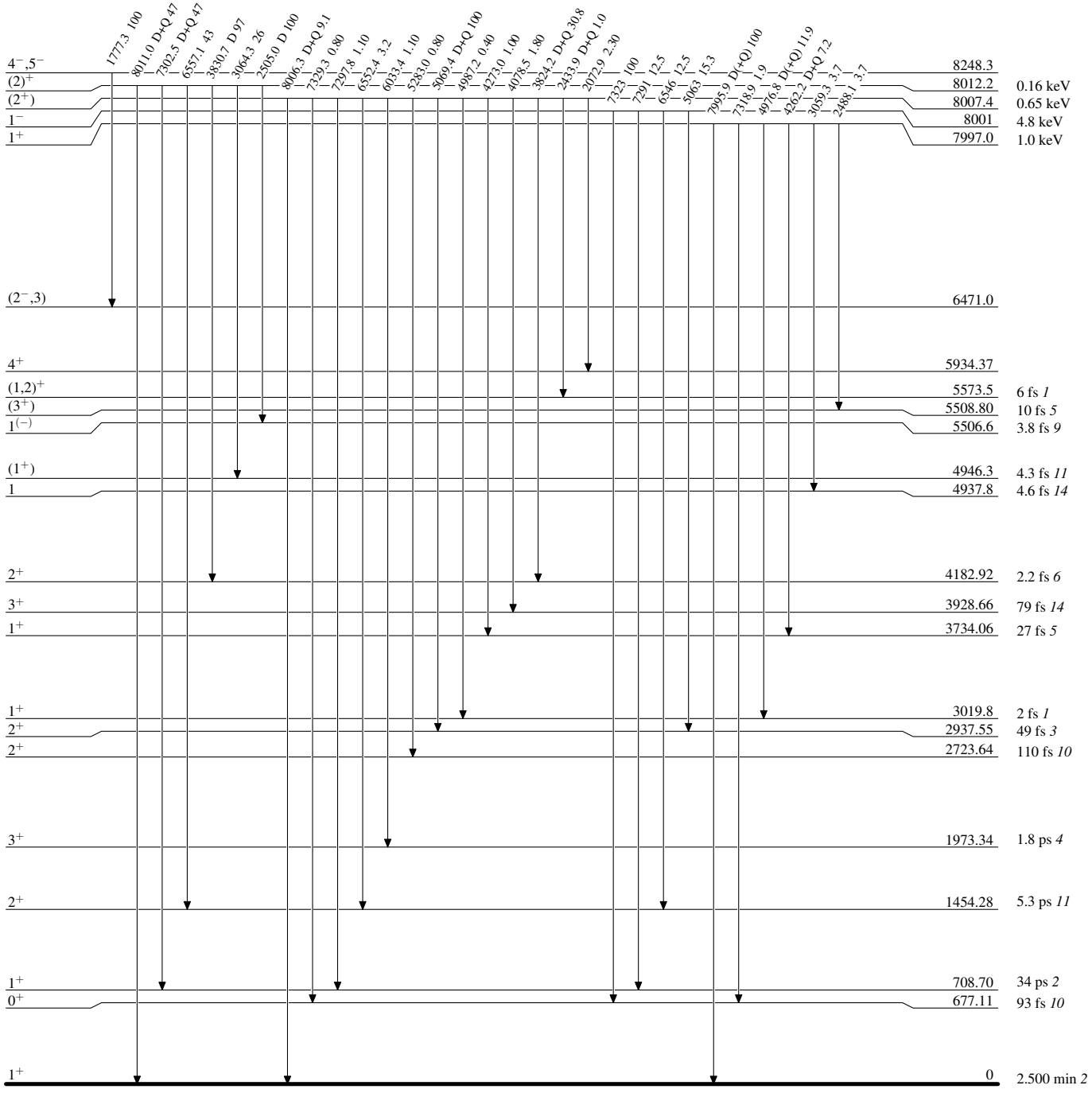
‡ From (^{16}O,pnγ).
# From (p,γ).
@ From level energy differences, recoil energy subtracted.
& The placement should be considered with caution − the J^{π} of the intial and final states indicate transition multipolarity to be of higher order and/or slower one.
[a] From (p,γ),(α,nγ) dataset, except where otherwise noted. In a few cases, Iγ data in (^{3}He,pγ) differ significantly, and listed in the comments. (p,γ) data are given more preference as the investigation using the (p,γ) probe was carried out at more number of angles compared to the (^{3}He,pγ) probe. Also as compared to other datasets, more depopulating γs are reported in (p,γ) for many levels.
[b] From (^{3}He,pγ), based on $\gamma(\theta)$ and/or DCO measurements.
[c] From (^{16}O,pnγ), based on polarization measurements.
[d] Magnetic/electric multipolarity from RUL − assigned by the evaluators.
[e] ΔJ=1 transition based on $\gamma(\theta)$ measurement in (^{3}He,pγ).
[f] ΔJ=0 transition based on $\gamma(\theta)$ measurement in (^{3}He,pγ).
[g] ΔJ=2 transition based on $\gamma(\theta)$ measurement in (^{3}He,pγ).
[h] From (^{3}He,pγ).
[i] Additional information 2.
[j] Multiply placed.

$^{30}_{15}P_{15}$-32

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

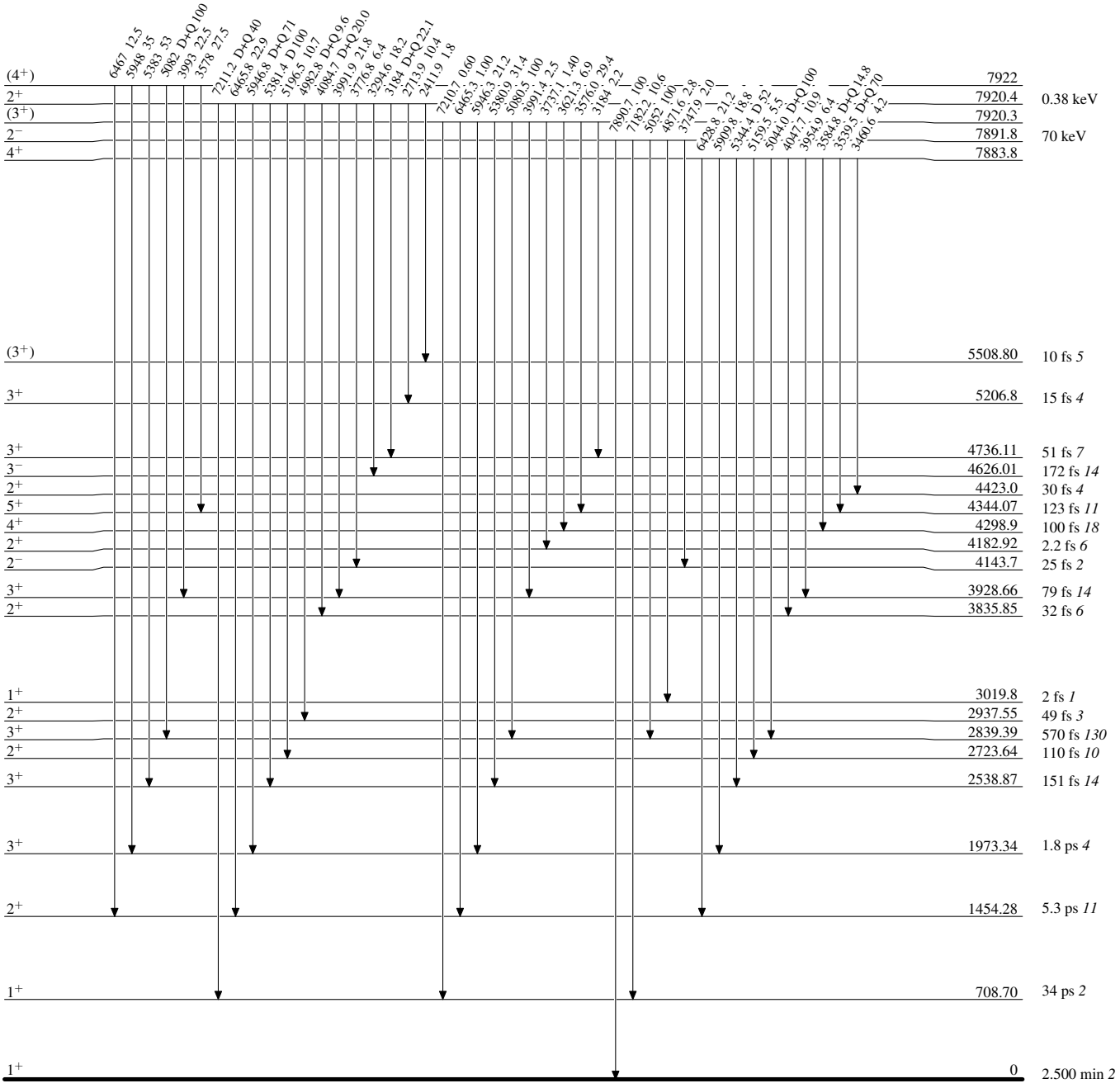


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

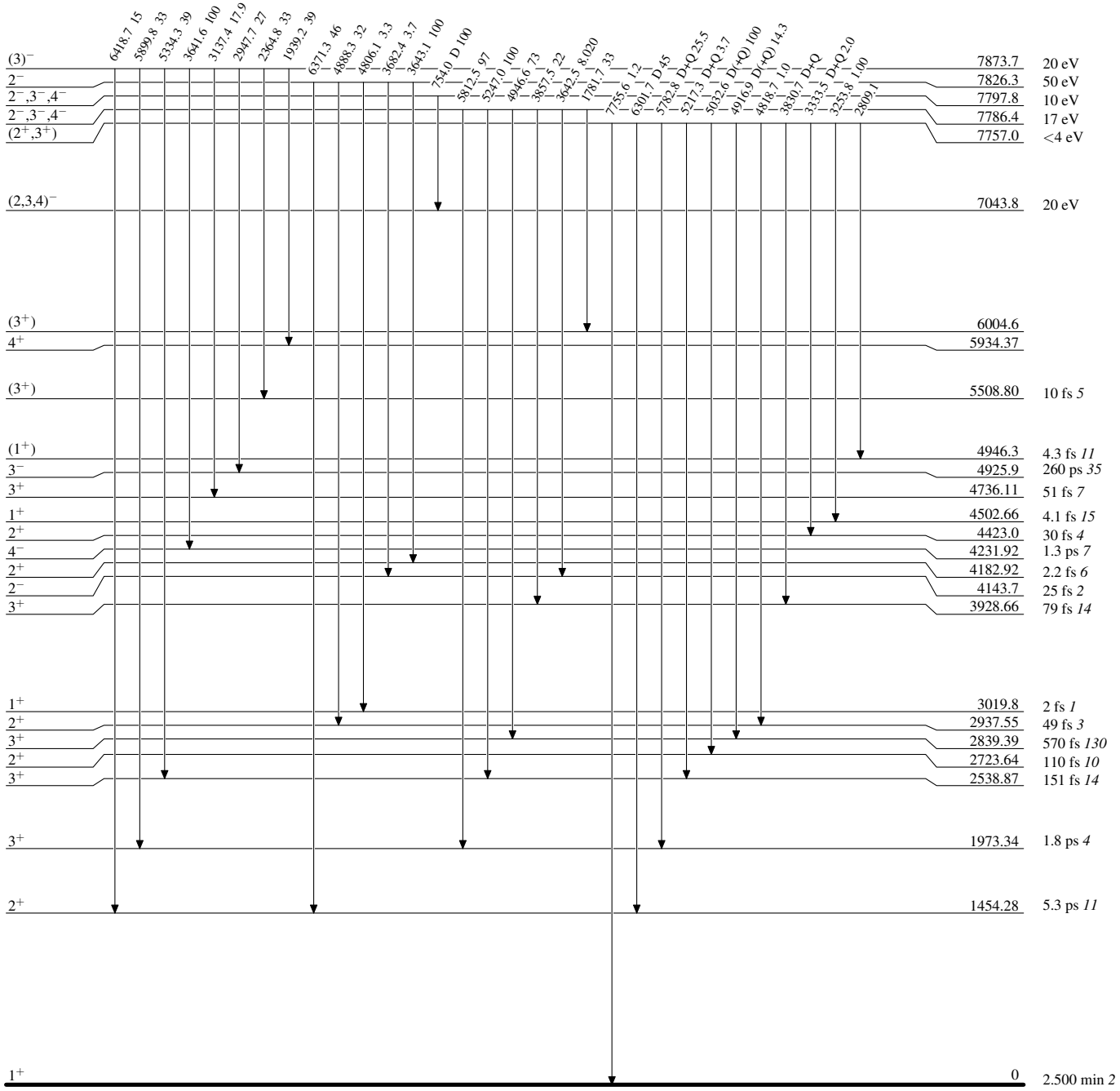


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

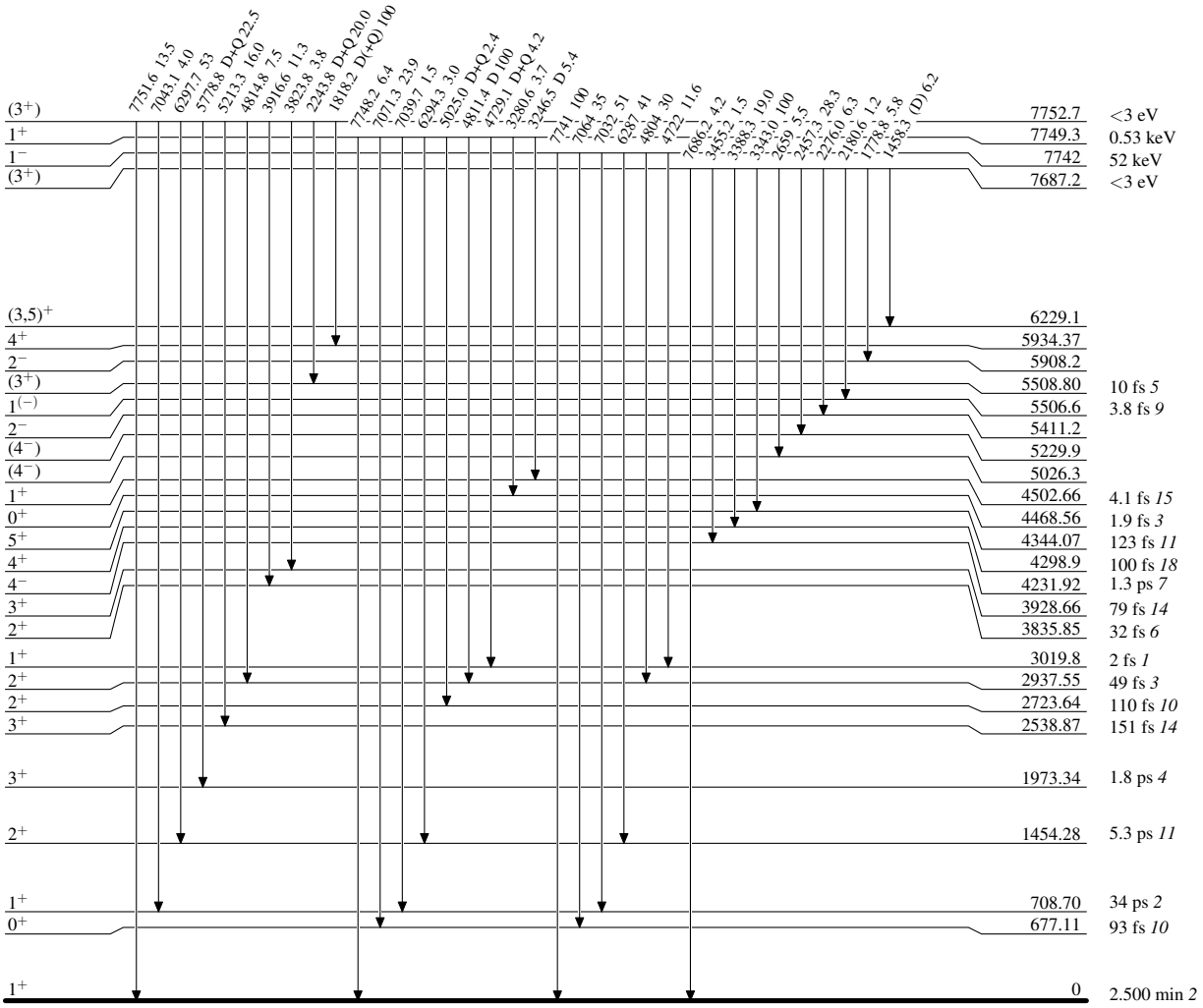


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

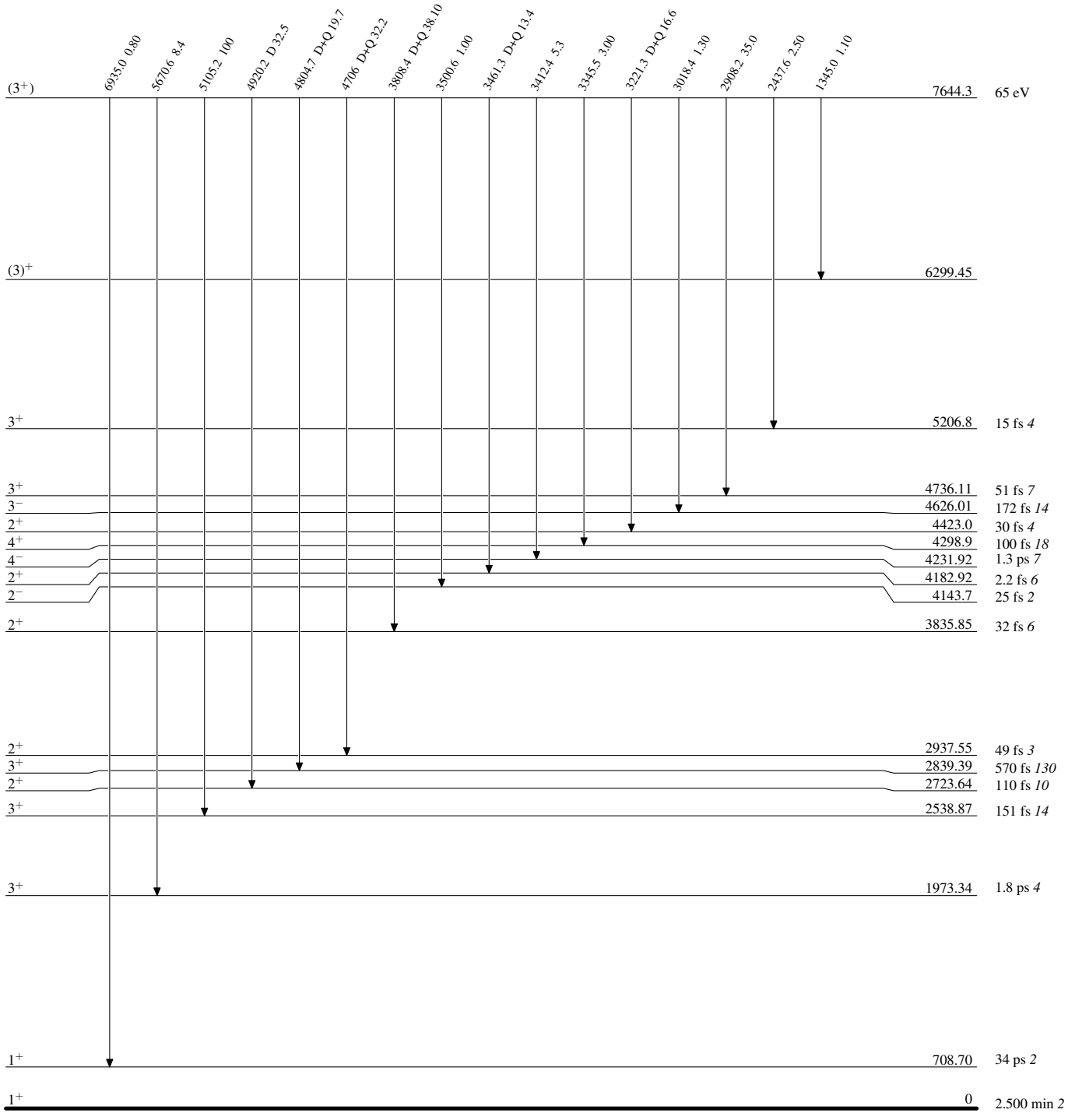


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

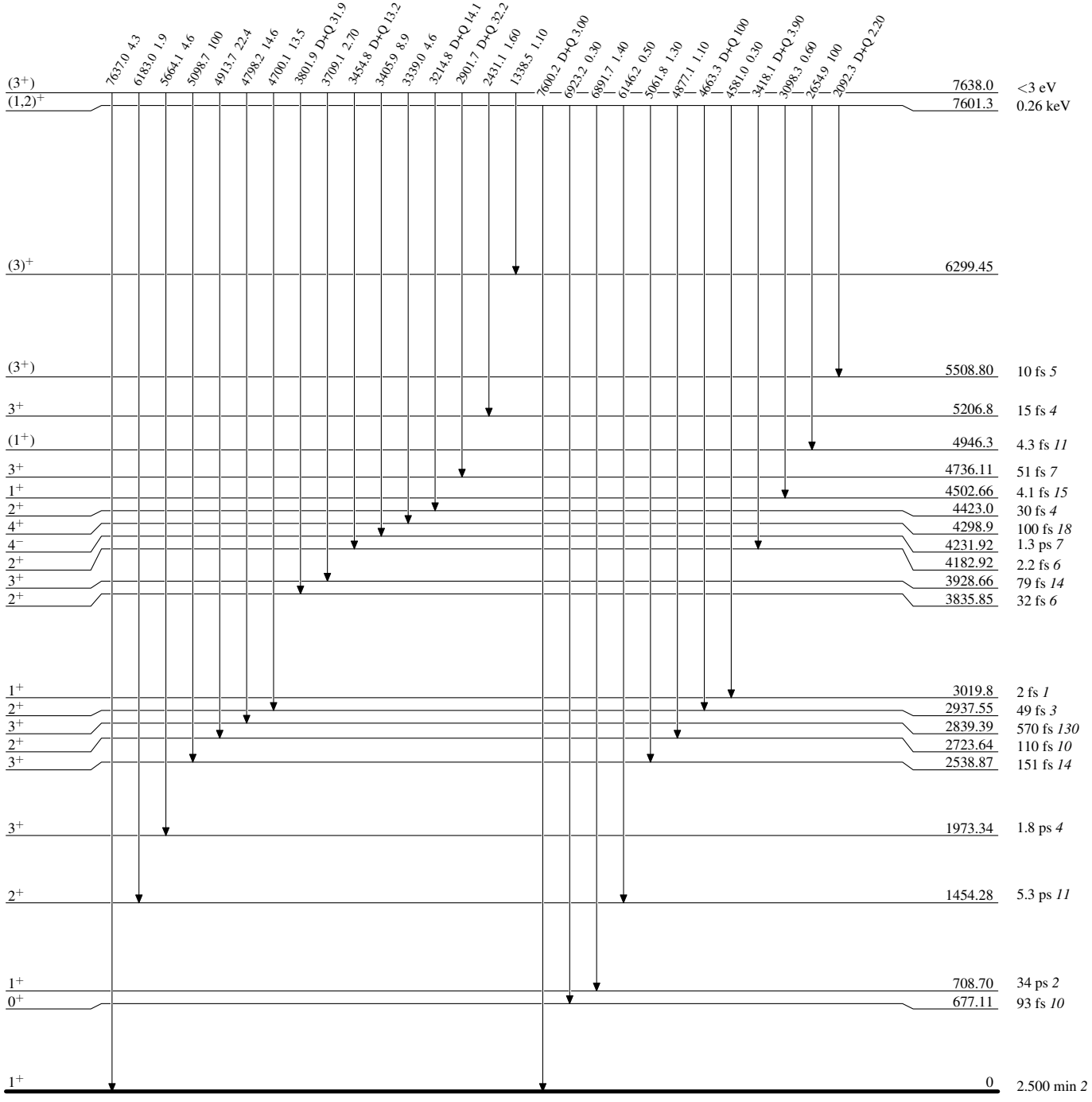


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

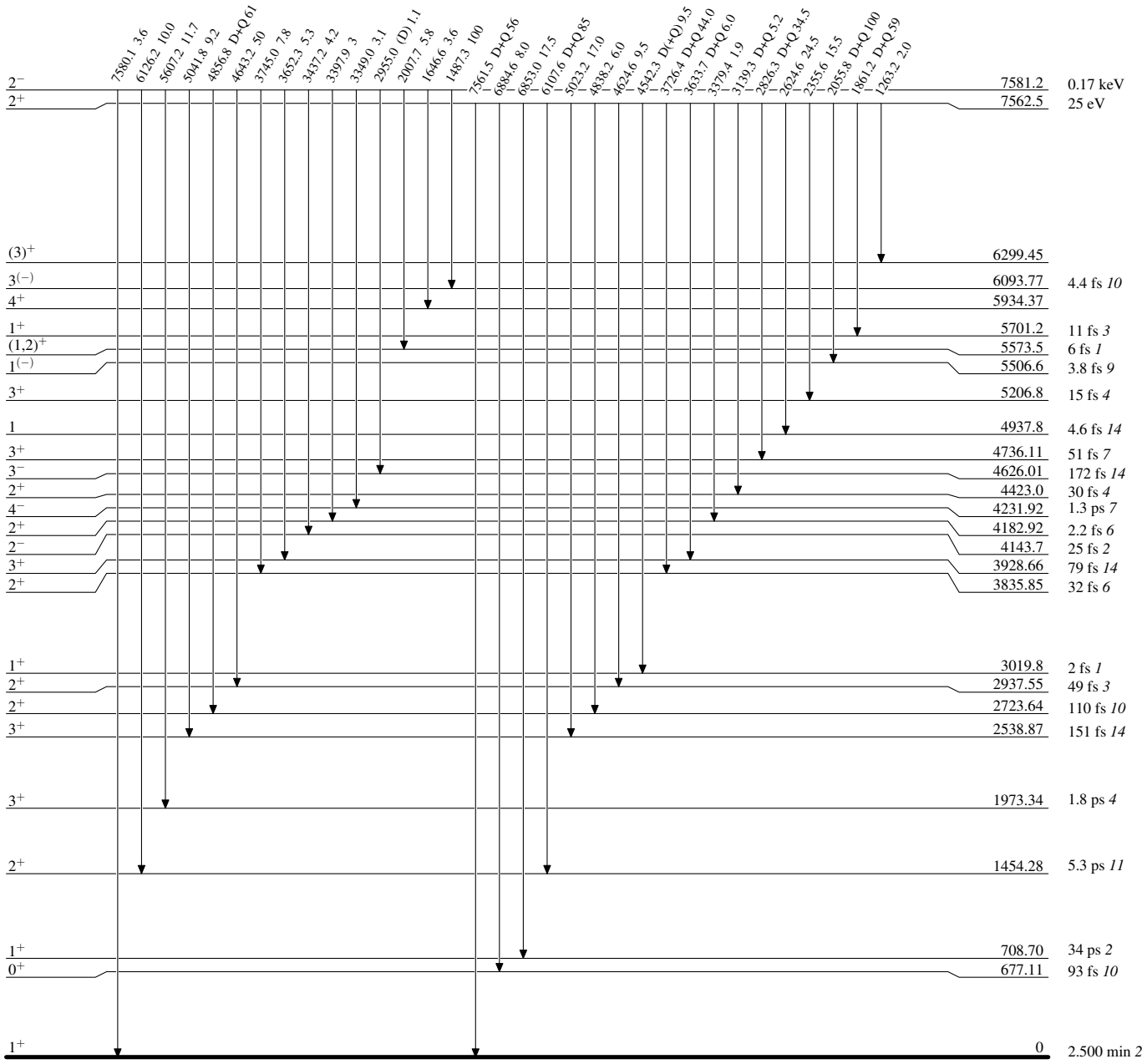


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

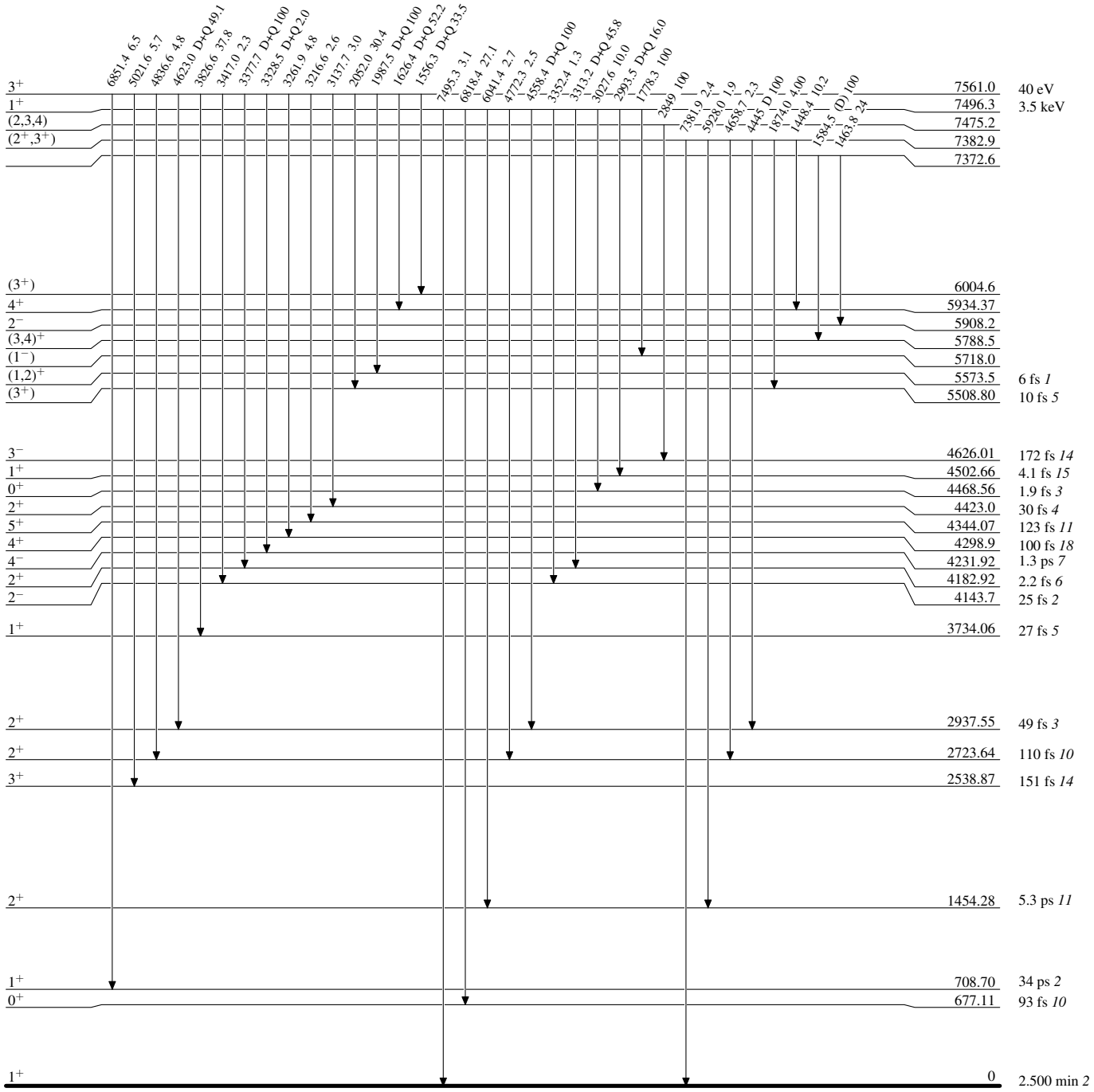


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

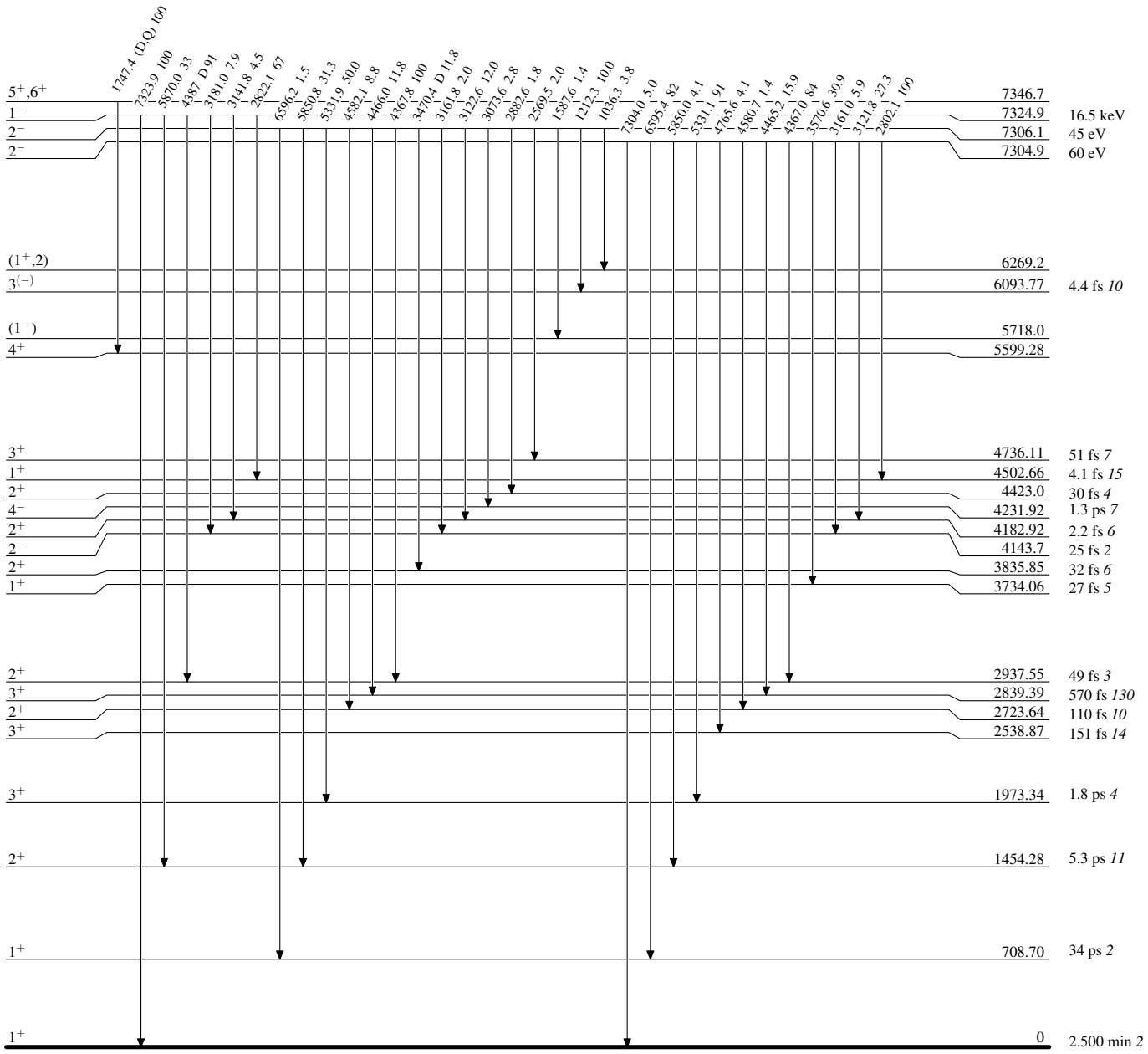


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

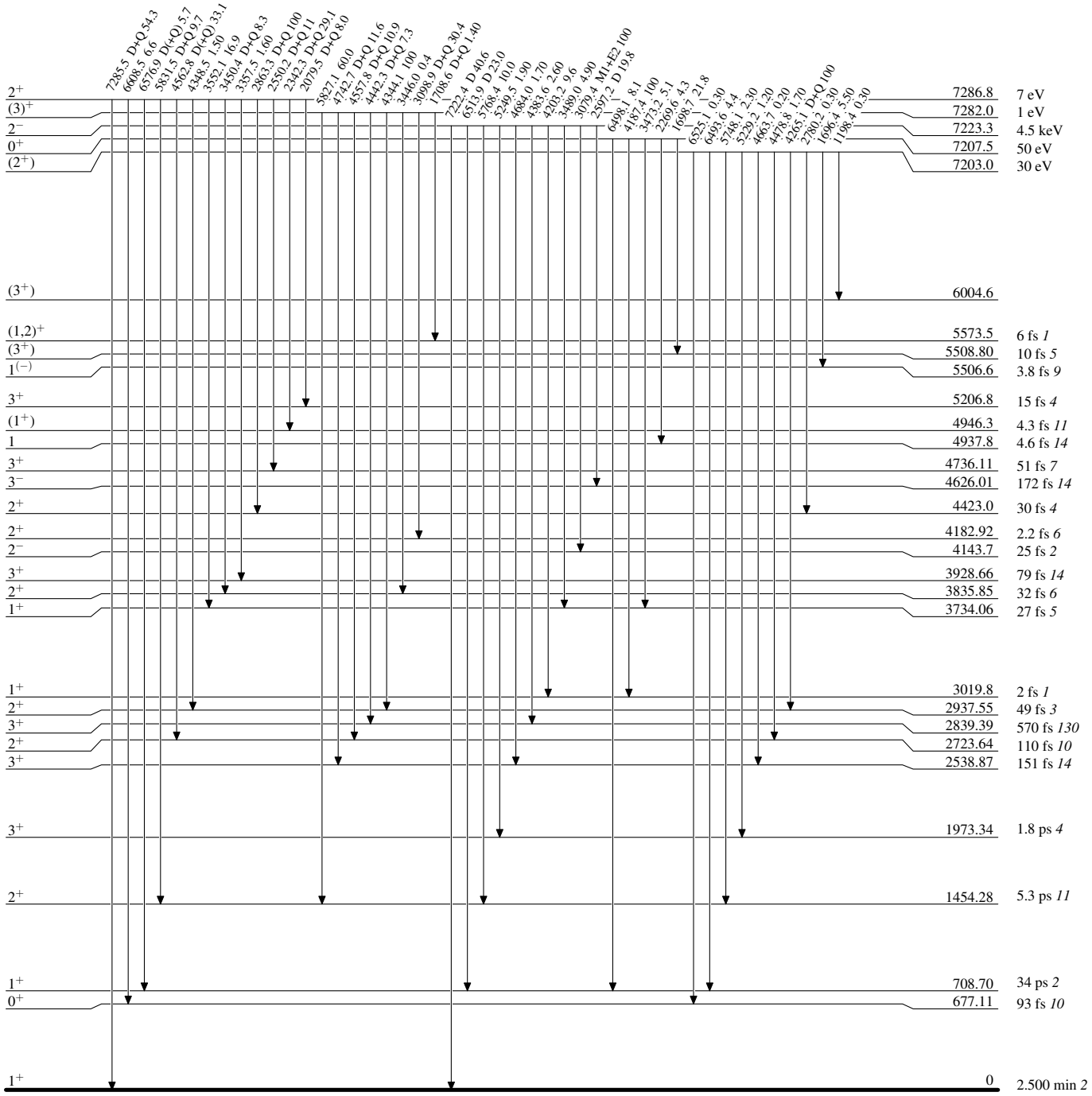


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

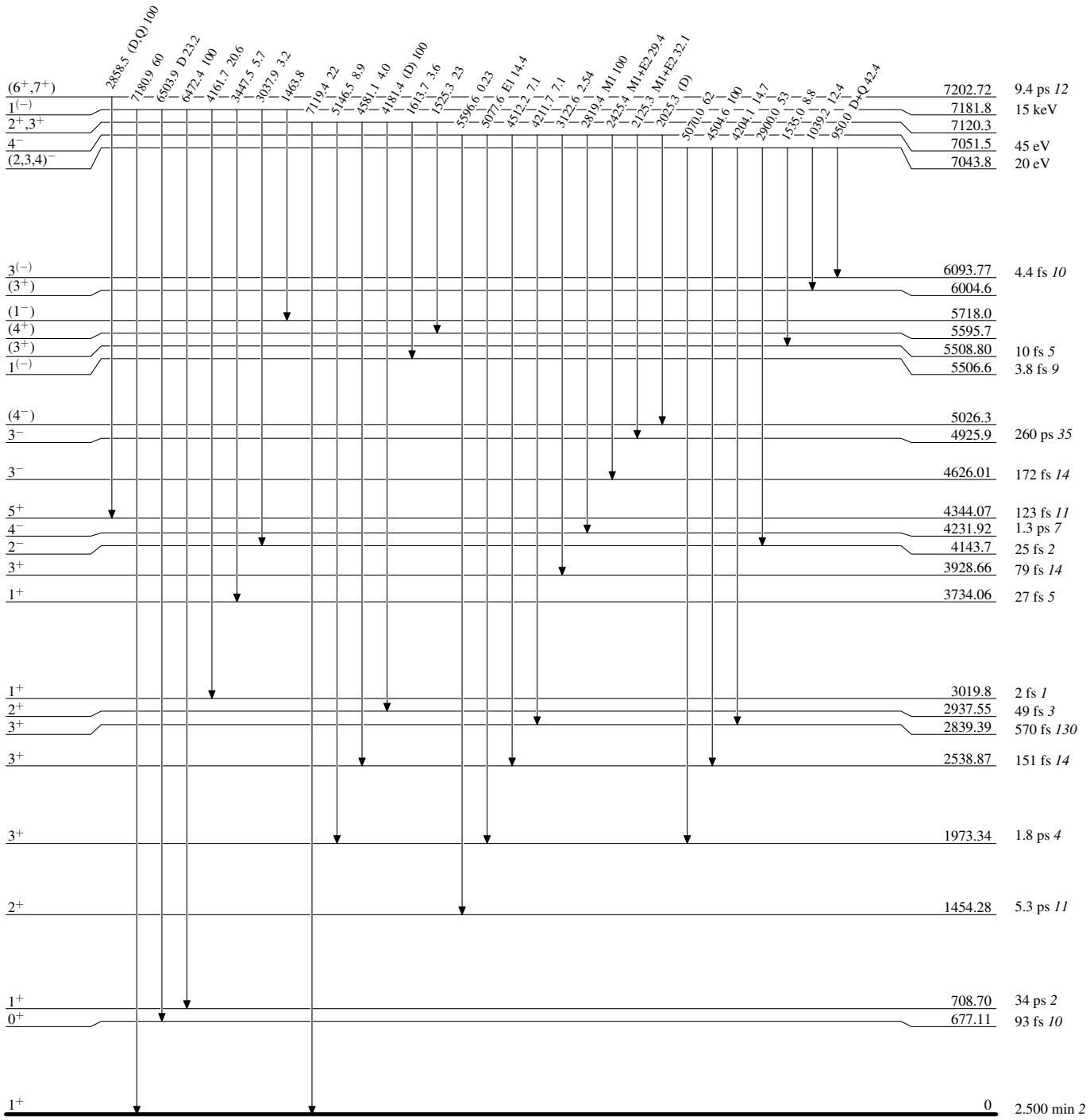


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

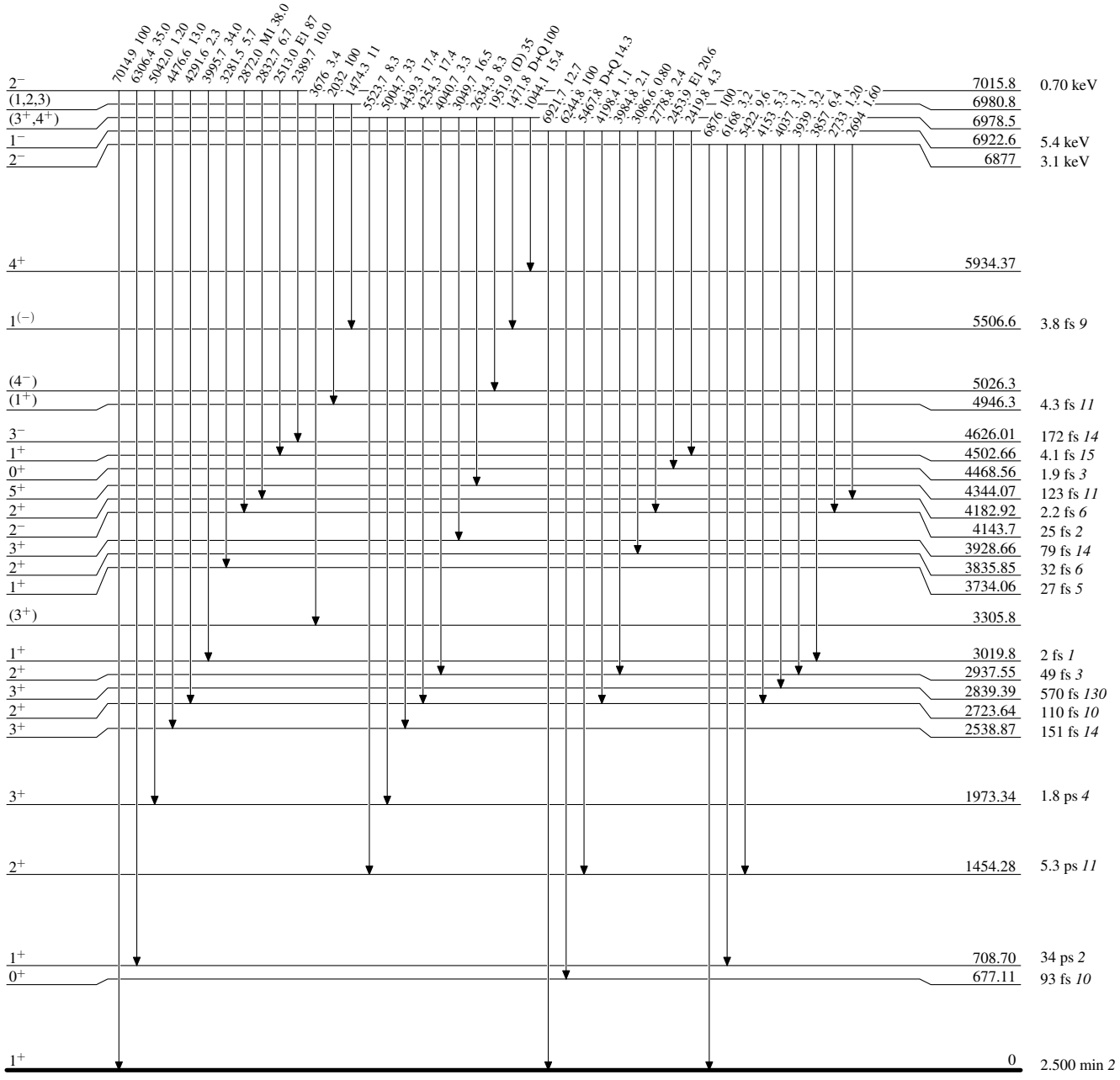


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

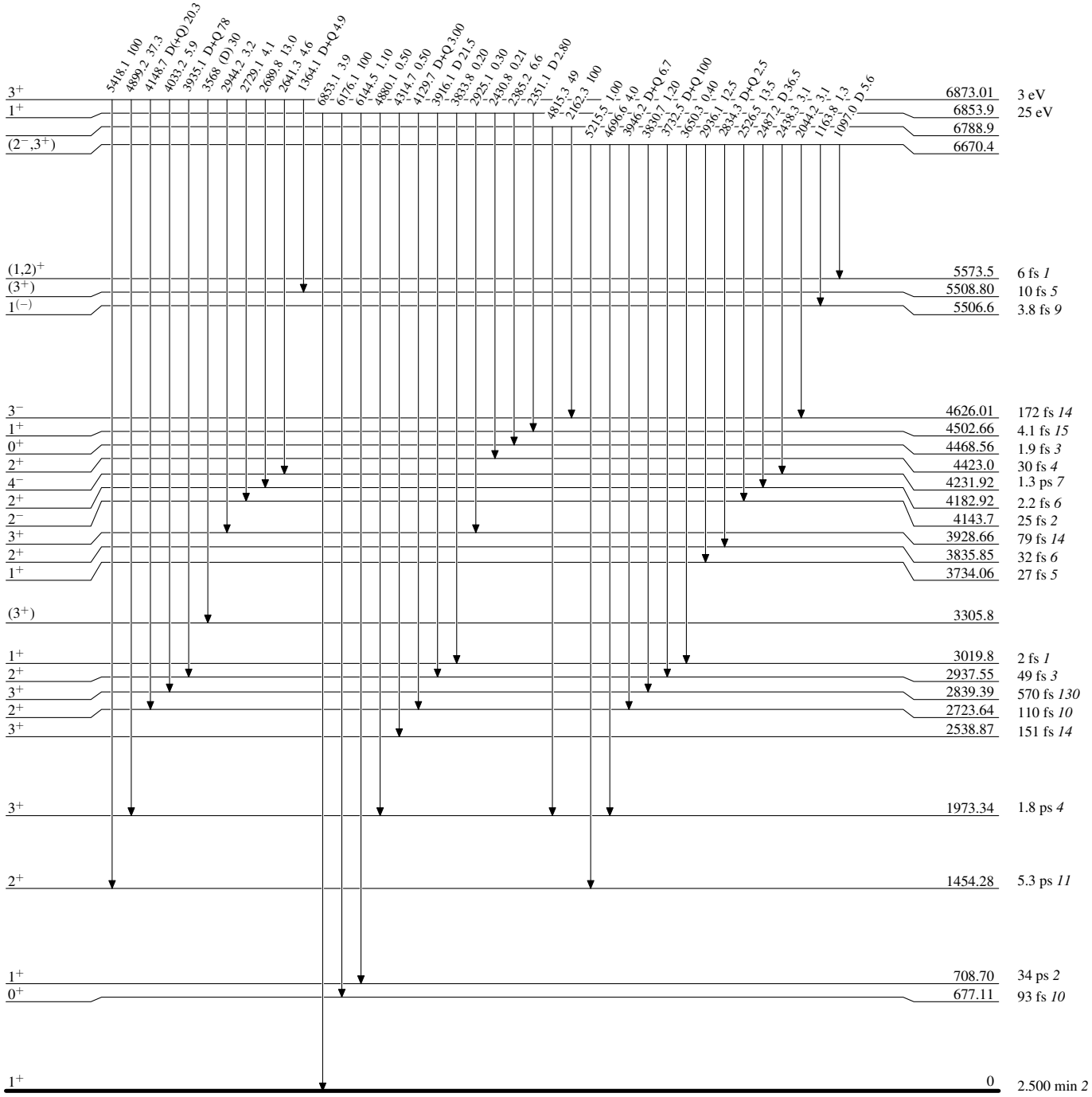


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

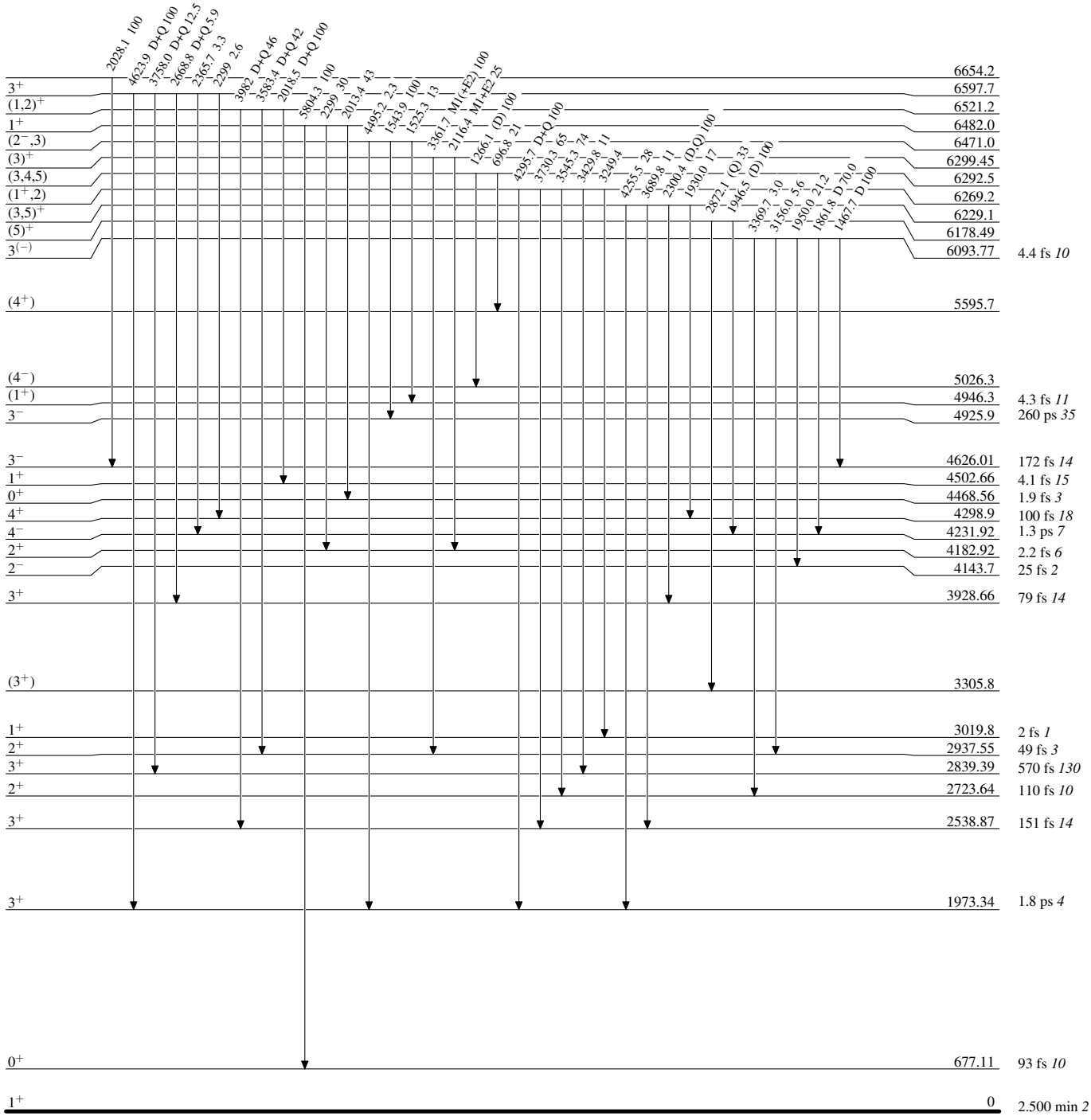


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

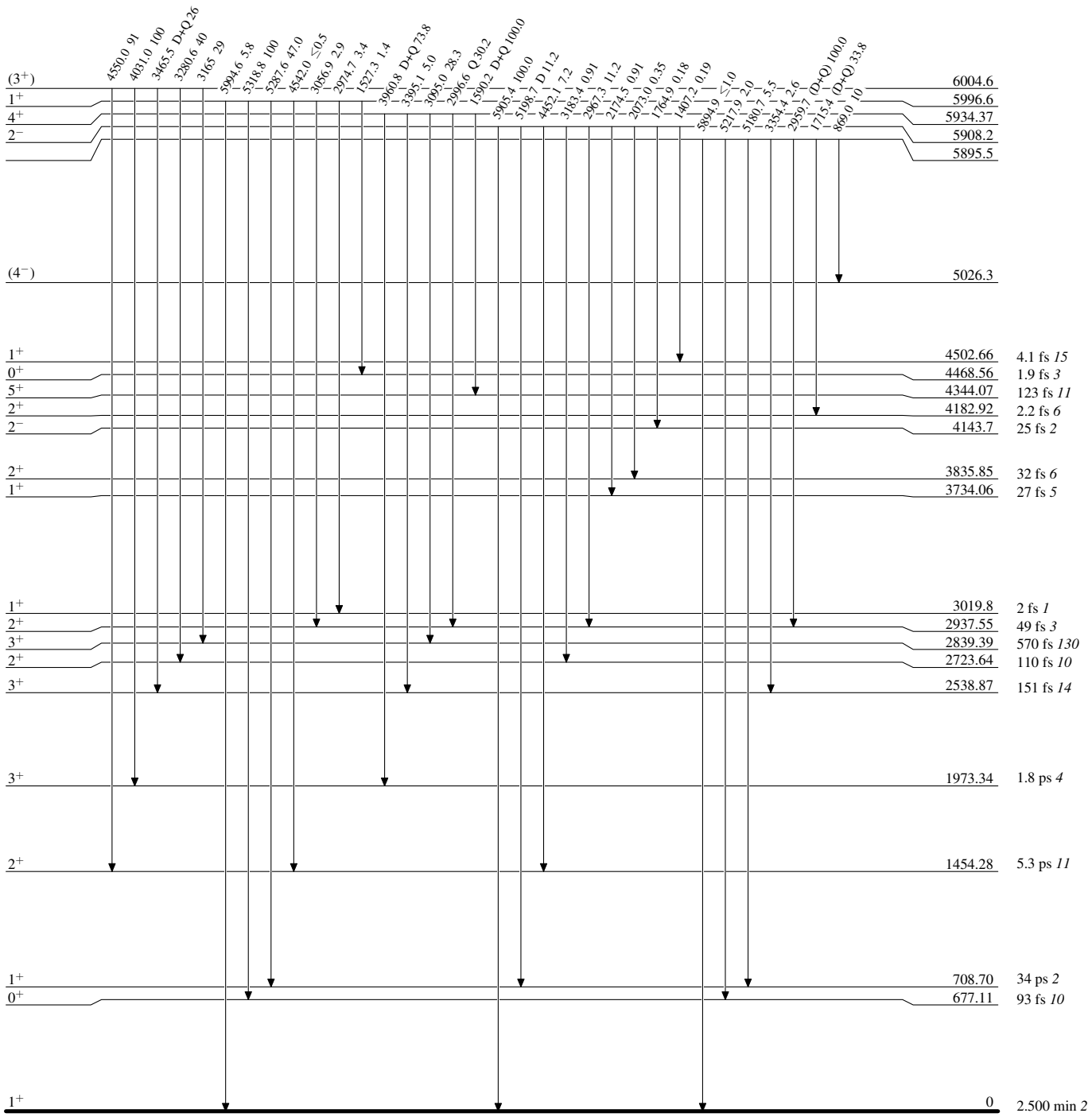


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

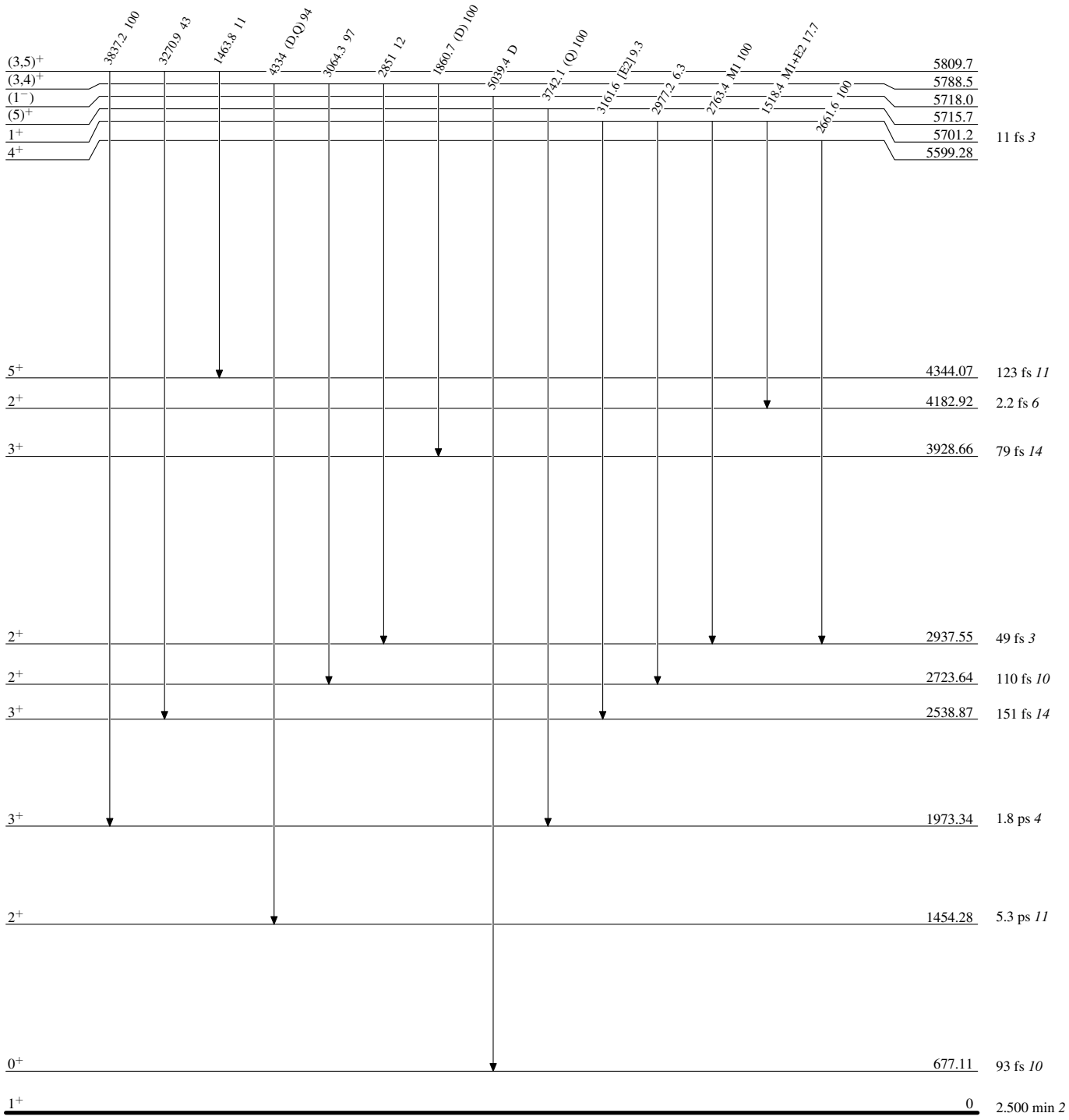


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

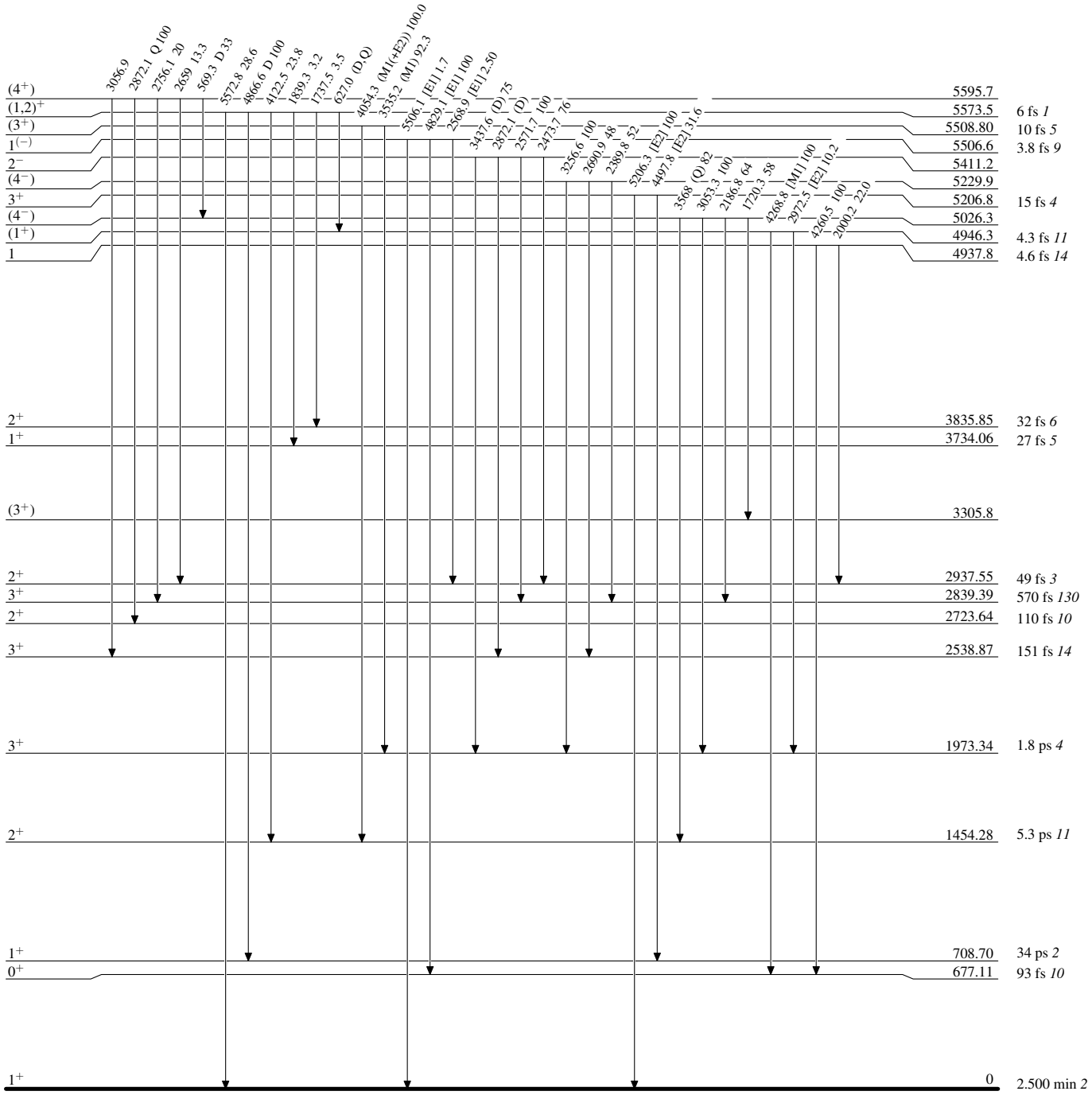


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

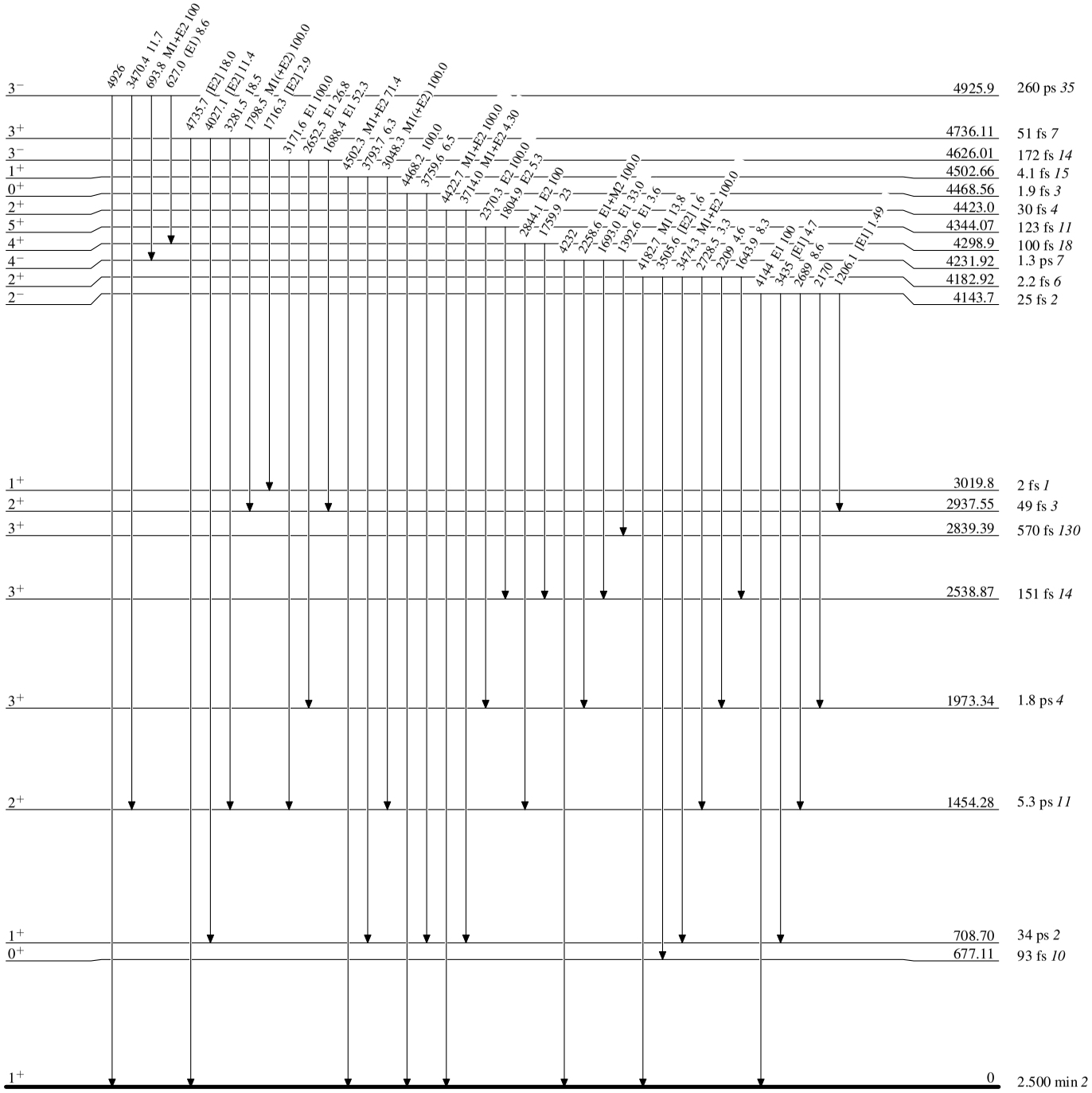


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

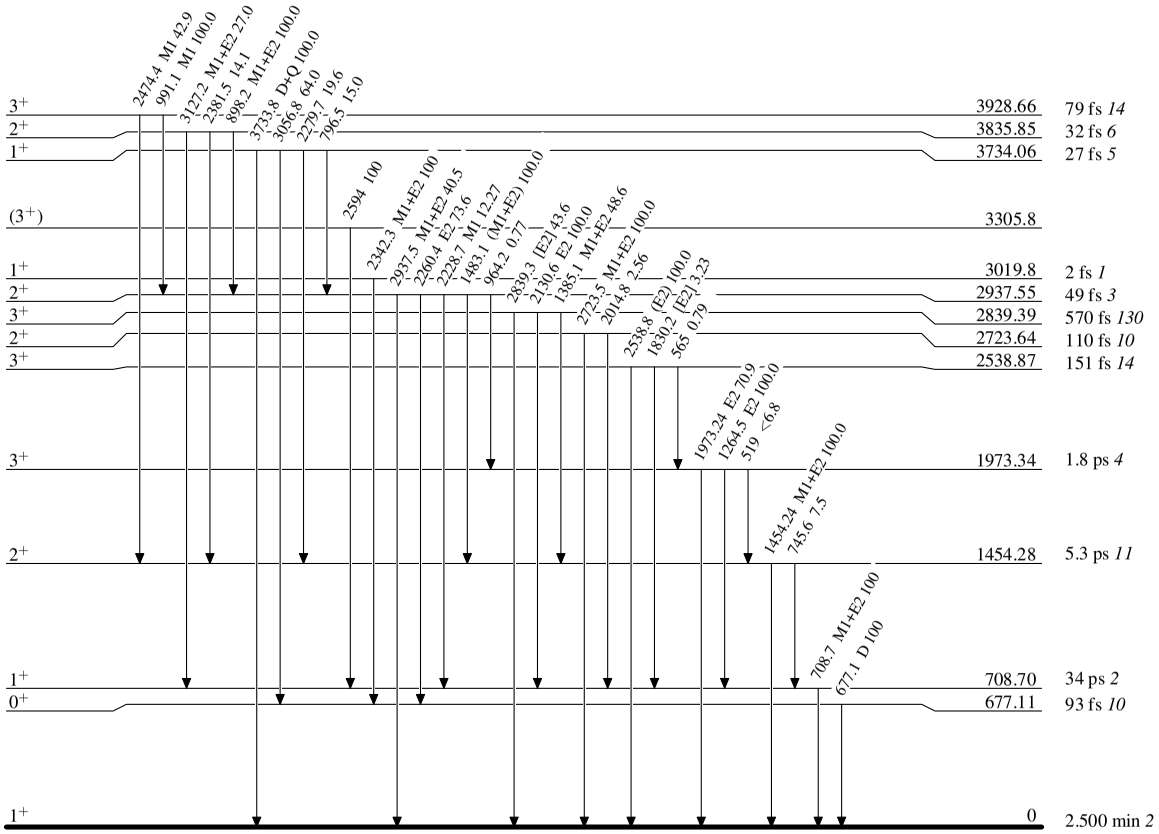


$^{30}_{15}P_{15}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{30}_{15}P_{15}$