

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Tilley, Weller, Cheves, Chasteler		NP A595,1 (1995)	31-Oct-1994

$Q(\beta^-) = -1655.9$ 5; $S(n) = 8045$; $S(p) = 15942$ 15; $Q(\alpha) = -6228$ 2012Wa38

Note: Current evaluation has used the following Q record -1665.50 638044.39 7815941 15

1993Au05.

 ^{18}O LevelsCross Reference (XREF) Flags

A	$^{10}\text{B}(\beta^-\text{Be,p}), ^{11}\text{B}(\beta^-\text{Be,d})$	Q	$^{17}\text{O}(^{12}\text{C}, ^{11}\text{C})$	AF	$^{18}\text{O}(^{12}\text{C}, ^{12}\text{C}), (^{13}\text{C}, ^{13}\text{C})$
B	$^{12}\text{C}(^7\text{Li,p})$	R	$^{18}\text{N} \beta^-$ decay	AG	$^{18}\text{O}(^{16}\text{O}, ^{16}\text{O})$
C	$^{13}\text{C}(^6\text{Li,p})$	S	$^{18}\text{O}(\gamma,n), (\gamma,2n), (\gamma,p), (\gamma,t)$	AH	$^{18}\text{O}(^{17}\text{O}, ^{17}\text{O}), (^{18}\text{O}, ^{18}\text{O})$
D	$^{13}\text{C}(^9\text{Be}, \alpha)$	T	$^{18}\text{O}(\gamma, \gamma)$	AI	$^{18}\text{O}(^{19}\text{F}, ^{19}\text{F})$
E	$^{13}\text{C}(^{17}\text{O}, ^{12}\text{C})$	U	$^{18}\text{O}(e,e)$	AJ	$^{18}\text{O}(^{24}\text{Mg}, ^{24}\text{Mg}), (^{26}\text{Mg}, ^{26}\text{Mg})$
F	$^{14}\text{C}(\alpha, \gamma)$	V	$^{18}\text{O}(\pi, \pi)$	AK	$^{18}\text{O}(^{27}\text{Al}, ^{27}\text{Al})$
G	$^{14}\text{C}(\alpha, \alpha), (\alpha, n)$	W	$^{18}\text{O}(n, n)$	AL	$^{18}\text{O}(^{28}\text{Si}, ^{28}\text{Si})$
H	$^{14}\text{C}(^6\text{Li}, d)$	X	$^{18}\text{O}(p, p)$	AM	$^{18}\text{O}(^{40}\text{Ca}, ^{40}\text{Ca}), (^{44}\text{Ca}, ^{44}\text{Ca})$
I	$^{14}\text{C}(^7\text{Li}, t)$	Y	$^{18}\text{O}(d, d)$	AN	$^{18}\text{F} \beta^+$ decay
J	$^{14}\text{C}(^{14}\text{C}, ^{10}\text{Be})$	Z	$^{18}\text{O}(t, t)$	AO	$^{19}\text{F}(\gamma, p)$
K	$^{14}\text{C}(^{16}\text{O}, ^{12}\text{C})$	Others:		AP	$^{19}\text{F}(n, d)$
L	$^{16}\text{O}(t, p)$	AA	$^{18}\text{O}(^3\text{He}, ^3\text{He})$	AQ	$^{19}\text{F}(p, 2p)$
M	$^{16}\text{O}(\alpha, 2p)$	AB	$^{18}\text{O}(\alpha, \alpha)$	AR	$^{19}\text{F}(d, ^3\text{He})$
N	$^{16}\text{O}(^{10}\text{B}, ^8\text{B}), (^{13}\text{C}, ^{11}\text{C})$	AC	$^{18}\text{O}(^6\text{Li}, ^6\text{Li}), (^7\text{Li}, ^7\text{Li})$	AS	$^{19}\text{F}(t, \alpha)$
O	$^{17}\text{O}(d, p)$	AD	$^{18}\text{O}(^9\text{Be}, ^9\text{Be})$	AT	$^{22}\text{Ne}(d, ^6\text{Li})$
P	$^{17}\text{O}(\alpha, ^3\text{He})$	AE	$^{18}\text{O}(^{10}\text{B}, ^{10}\text{B}), (^{11}\text{B}, ^{11}\text{B})$		

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0	0^+	stable	BCDEFGHIJKL OPQRSTUVWXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT T=1
1982.07 9	2^+	1.94 ps 5	ABCDEFGHIJ L NOPQR UVWXY	XREF: Others: AA, AB, AG, AH, AJ, AL, AM, AO, AP, AQ, AR, AS, AT %IT=100 g=-0.287 15
3554.84 40	4^+	17.2 ps 8	BC F HI LMNOPQR U X	XREF: Others: AB, AG, AH, AS, AT %IT=100 g=-0.62 10
3633.76 11	0^+	0.96 ps 11	BC F HI L O R U X	XREF: Others: AB, AG, AH, AR, AS, AT %IT=100
3920.44 14	2^+	18.4 fs 20	BC F HI L O R U X	XREF: Others: AB, AG, AS %IT=100
4455.54 10	1^-	45 fs 10	BC F HI L O R U X	XREF: Others: AB, AG, AH, AR, AS %IT=100
5097.78 54	3^-	43 fs 17	BC F HI L O R UVWX	XREF: Others: AB, AG, AH, AM, AS, AT %IT=100
5254.8 9	2^+	7.0 fs 3	BC F HI L NO U X	XREF: Others: AB, AR, AS %IT=100
5336.4 6	0^+	139 fs 28	BC H L O U	XREF: Others: AB, AS %IT=100
5377.8 12	3^+	<21 fs	BC L OP	XREF: Others: AS %IT=100
5530.24 29	2^-	<17 fs	BC L R U X	XREF: Others: AB, AS %IT=100
6198.22 40	1^-	2.6 fs 4	BC H L O R TU	XREF: Others: AB, AS

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Adopted Levels, Gammas (continued)

^{18}O Levels (continued)							
E(level)	J^π	$T_{1/2}$	XREF				Comments
6351.3 6	(2 ⁻)	<24 fs	BC	L O R U		%IT=100 XREF: Others: AB, AS, AT	
6404.4 12	3 ⁻	21 fs 10	BC	L		%IT=100 XREF: Others: AB, AS	
6880.45 27	0 ⁻	<17 fs	BC	L R		%IT=100 XREF: Others: AB, AR, AS	
7116.9 12	4 ⁺	<17 fs	BC F HI	L NOP U X		%IT=100 XREF: Others: AB, AF, AG, AH, AS	
7615.9 7	1 ⁻	<2.5 keV	BC F H	L R U		%IT=?; %α=? XREF: Others: AB, AF, AG, AH, AS	
7771.07 50	2 ⁻	<50 keV	BC	L R U		%IT=?; %α=? XREF: Others: AS	
7864 5	5 ⁻		BC F HI	L OP U		%IT=100 XREF: Others: AB, AF, AG, AH, AS, AT	
7977 4	(3 ⁺ ,4 ⁻)		BC	L O		%IT=100 XREF: Others: AS	
8037.8 7	1 ⁻	<2.5 keV	BC FG	LMN R U		%IT=100 XREF: Others: AF, AG, AH, AS	
8125 2	5 ⁻		BC F HI	L U		%IT=?; %α=? XREF: Others: AS	
8213 4	2 ⁺	1.0 keV 8	BC FG	L U X		%IT=?; %α=? XREF: Others: AB, AF, AG, AH, AS	
8282 3	3 ⁻	8 keV 1	BC FGHI	L U		%IT=?; %n=?; %α=? T=(1) XREF: Others: AB, AS	
8410 8	(2 ⁻)	8 keV 6	G	L U		%IT=?; %n=?; %α=? XREF: Others: AS	
8521 6				L U		%n=?; %α=? XREF: Others: AS	
8660 6				L		%IT=100 XREF: Others: AS	
8817 12	(1 ⁺)	70 keV 12	G	P X		XREF: Others: AB %n=?; %α=?	
8955 4		43 keV 3	G	L U		XREF: Others: AB %n=?; %α=?	
900×10 ¹ † 20	(1 ⁻)			R		%α=? Level uncertain.	
9030				L O		XREF: Others: AB	
9100						XREF: Others: AB	
9270† 20	(0,1,2) ⁻			R			
9361 6	(3 ⁻)	27 keV 15	G I L	U		XREF: Others: AB, AF, AG, AH %IT=?; %n=?; %α=?	
9414 18		≈120 keV	G I L			XREF: Others: AB %n=?; %α=?	
9480 24		≈65 keV	G	L		%n=?; %α=?	
9672 7	(3 ⁻)	60 keV 30	G	L		XREF: Others: AB, AF, AG, AH %n=?; %α=?	
9713 7				L U		XREF: Others: AB %IT=100	
9890 11		≈150 keV	G	L		XREF: Others: AB %n=?; %α=?	
10118 10	3 ⁻	16 keV 4	GH	L		XREF: Others: AB %n=?; %α=?	
10240† 20	(0,1,2) ⁻			R		%n=100	
10295 14	4 ⁺	<50 keV	GHI LM	U		XREF: Others: AB, AF, AG, AH %IT=?; %n=?; %α=?	

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Adopted Levels, Gammas (continued)

^{18}O Levels (continued)						
E(level)	J^π	$T_{1/2}$	XREF		Comments	
10396 9	3^-		G	L		XREF: Others: AB %n=?; %α=?
10430 40	(2^-)	<50 keV			U	%IT=100
10595 15			G	L		%n=?; %α=?
10670 20	(2^-)	<50 keV			U	%IT=100
10820 20			G			%n=?; %α=?
10910 20			G I			%n=?; %α=?
10990 20	(2^-)	<50 keV	G		U	%IT=?; %n=?; %α=?
11060	(6^-)				P	
11130 20			G I			XREF: Others: AR %n=?; %α=?
11390 20	(2^+)		GH			%n=?; %α=?
11410 20	(4^+)		GH			%n=?; %α=?
11490 [†] 30	$(0,1,2)^-$				R	%n=100
11520 50	(2^-)	<50 keV			U	%IT=100
11620 20	5^-		GHI		U	XREF: Others: AB, AF, AG, AH %n=?; %α=?
11670 20	(3^-)	112.00 keV 2			U	
11690 20	6^+		GHI			XREF: Others: AB %n=?; %α=?
11820 20	(3^-)		G			%n=?; %α=?
11900 30	(2^-)	<50 keV			U	%IT=100
12040 20	(2^+)		GH			%IT=?; %n=?; %α=?
12090 20	$(1^-,2^+)$	<50 keV			U	
12250 20	(1^-)		GH			%n=?; %α=?
12330 20	5^-		GHI			%n=?; %α=?
12410 20	(3^-)	143 keV 24			U	%IT=100
12500 20	4^+		G			XREF: Others: AF, AG, AH %n=?; %α=?
12520 20		<50 keV			U	%IT=100
12530 20	6^+		GHI			XREF: Others: AF, AG, AH %n=?; %α=?
12660 20	(2^-)	<50 keV			U	%IT=100
12990 20	(4^-)	68 keV 18			U	%IT=100
13100	1^-	700 keV			S	%IT=?; %n=?
13400 20	(2^-)	108 keV 20			U	%IT=100
13800	1^-	600 keV			S	%IT=?; %n=?
13850 13	(6^-)	≈200 keV		P	U	%IT=100
14170 40	(6^-)	140 keV 50		P	U	%IT=100
14450 50		≈1070 keV			U	%IT=100
14700	1^-	800 keV			S	%IT=?; %n=?
15230 40		≈300 keV			U	%IT=100
15800	1^-	700 keV			S	%IT=?; %n=?
15950 30		<50 keV			U	%IT=100
16210 10	$1^{(-)}$				U	%IT=100
16315 10	$(3,2)^-$				U	%IT=100
16399 5	2^-	<20 keV			U X	%IT=100
16880 30	$(4^-,2^-)$	<50 keV			U	T=2 %IT=100
16948 10	$(3,2)^-$				U	T=(1) %IT=100
17025 10	(3^-)	20 keV 6			U	%IT=100
17050	(7^-)	≈350 keV	H			T=2
17398 10	1^-	600 keV			S U	%IT=?; %n=?; %p=? T=(2)

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Adopted Levels, Gammas (continued)

^{18}O Levels (continued)						
E(level)	J^π	$T_{1/2}$	XREF		Comments	
17450 10	(2,1,3) ⁻			U	%IT=100	
17460 30	(4 ⁻)	≈600 keV		U	%IT=100 T=1	
17500		≈150 keV		U	%IT=100	
17502 10	(1,2,3) ⁻			U	%IT=100	
1760×10 ¹ 20	(8 ⁺)		H			
17635 10				U	%IT=100	
18049 10				U	%IT=100	
18200		≈150 keV		U	%IT=100	
18450 20	(3 ⁻)	75 keV 27		U	%IT=100 T=(1)	
18500		≈4300 keV		U	%IT=100	
18700 20	(4 ⁻)	<20 keV		U	%IT=100 T=2	
18871 5	1 ⁺			U	%IT=100 T=2	
18927 10	(1,2 ⁺)			U	%IT=100	
18950	(7 ⁻)	≈350 keV	H			
19027 10	(1,3) ⁻			U	%IT=100	
19150 10	(1 ⁻ ,2 ⁺ ,3 ⁻)			U	%IT=100	
19240 20	(≥3)	<20 keV		U	%IT=100 T=2	
19400	1 ⁻	900 keV		S	%IT=?; %p=? T=(2)	
19700		≈200 keV		U	%IT=100	
20200		≈180 keV		U	%IT=100	
20360 20	(4 ⁻)	<20 keV		U	%IT=100 T=2	
20860 20		97 keV 41		U	%IT=100	
21000	1 ⁻	≈150 keV		S U	%IT=?; %n=?; %p=? T=(1)	
21420 20	(4 ⁻)	<50 keV		U	%IT=100 T=(2)	
22400 20	4 ⁻	91 keV 8		U	%IT=100 T=2	
22700	1 ⁻			S	%IT=?; %n=?; %p=?	
23100 20		49 keV 24		U	%IT=100	
23800	1 ⁻	≈1500 keV		S U	%IT=?; %n=?; %p=? T=(1)	
27000	1 ⁻			S	%IT=?; %n=?; %p=? T=(2)	
30000				S	%IT=?; %n=?	
36000				S	%IT=100	

† See ^{18}N β^- decay for discussion of this level.

 $\gamma(^{18}\text{O})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
1982.07	2 ⁺	1982	100	0.0	0 ⁺	E2	B(E2)(W.u.)=3.32 9
3554.84	4 ⁺	1573	100	1982.07	2 ⁺	E2	B(E2)(W.u.)=1.19 6
3633.76	0 ⁺	1652	99.70 6	1982.07	2 ⁺	E2	B(E2)(W.u.)=17 2
		3634	0.30 6	0.0	0 ⁺		$\Gamma(\pi)/\Gamma=3.0\times 10^{-3}$ 6 (1975So05).
3920.44	2 ⁺	1938	87.6 7	1982.07	2 ⁺	M1	B(M1)(W.u.)=0.14 2

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Adopted Levels, Gammas (continued)

$\gamma(^{18}\text{O})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
3920.44	2 ⁺	3920	12.4 7	0.0	0 ⁺	E2		B(E2)(W.u.)=1.3 2 $\Gamma(\pi)/\Gamma=0.003 6$
4455.54	1 ⁻	535	2.5 9	3920.44	2 ⁺	E1		B(E1)(W.u.)=0.0035 11
		821	70.4 17	3633.76	0 ⁺	E1		B(E1)(W.u.)=0.027 7
		2473	27.1 26	1982.07	2 ⁺	E1	†	B(E1)(W.u.)=0.00041 10
5097.78	3 ⁻	1178	17.6 7	3920.44	2 ⁺	E1	†	B(E1)(W.u.)=0.0025 11
		1543	6.3 8	3554.84	4 ⁺	E1	†	B(E1)(W.u.)=0.00036 15
		3116	76.1 8	1982.07	2 ⁺	E1	†	B(E1)(W.u.)=0.00057 23
5254.8	2 ⁺	799	3.0 3	4455.54	1 ⁻	E1		B(E1)(W.u.)=0.0082 8
		1334	8.7 4	3920.44	2 ⁺	M1		B(M1)(W.u.)=0.111 8
		1621	1.0 6	3633.76	0 ⁺	E2		B(E2)(W.u.)=23 15
		1699	1.1 6	3554.84	4 ⁺	E2		B(E2)(W.u.)=21 12
		3272	55.9 10	1982.07	2 ⁺	M1+E2	0.15 4	
		5254	30.3 9	0.0	0 ⁺	E2	†	B(E2)(W.u.)=2.15 11
5336.4	0 ⁺	880	42 2	4455.54	1 ⁻	E1		B(E1)(W.u.)=0.0042 9
		3354	58 2	1982.07	2 ⁺	E2		B(E2)(W.u.)=2.0 4
		5336	0.0	0.0	0 ⁺			$\Gamma(\pi)/\Gamma \leq 0.0023$.
5377.8	3 ⁺	1459	13.5 22	3920.44	2 ⁺		†	
		3396	86.5 22	1982.07	2 ⁺		†	
5530.24	2 ⁻	1074	27 2	4455.54	1 ⁻		†	
		1610	24 2	3920.44	2 ⁺		†	
		3548	49 2	1982.07	2 ⁺		†	
6198.22	1 ⁻	862	1.1 3	5336.4	0 ⁺	E1		B(E1)(W.u.)=0.0064 20
		943	3.6 4	5254.8	2 ⁺	E1		B(E1)(W.u.)=0.016 3
		1742	4.1 4	4455.54	1 ⁻	M1		B(M1)(W.u.)=0.063 13
		2564	2.5 3	3633.76	0 ⁺	E1		B(E1)(W.u.)=0.00055 12
		6198	88.7 9	0.0	0 ⁺	E1		B(E1)(W.u.)=0.0014 3
6351.3	(2 ⁻)	1895	12 2	4455.54	1 ⁻		†	
		2431	55 2	3920.44	2 ⁺		†	
		4369	32 2	1982.07	2 ⁺		†	
6404.4	3 ⁻	1149	5.6 9	5254.8	2 ⁺	E1		B(E1)(W.u.)=0.0017 9
		1306	9.8 9	5097.78	3 ⁻	M1		B(M1)(W.u.)=0.045 26
		1948	2.8 10	4455.54	1 ⁻	E2		B(E2)(W.u.)=9 6
		2484	6.3 10	3920.44	2 ⁺	E1	†	B(E1)(W.u.)=0.00020 11
		2849	7.4 12	3554.84	4 ⁺	E1		B(E1)(W.u.)=0.00015 8
		4422	68.1 18	1982.07	2 ⁺	E1	†	B(E1)(W.u.)=0.00037 20
6880.45	0 ⁻	2424	100	4455.54	1 ⁻		†	
7116.9	4 ⁺	1857	0.30 6	5254.8	2 ⁺			
		2019	1.3 2	5097.78	3 ⁻	E1		B(E1)(W.u.)=0.00029 8
		3197	2.1 2	3920.44	2 ⁺	E2		B(E2)(W.u.)=2.2 6
		3562	69.2 7	3554.84	4 ⁺	M1		B(M1)(W.u.)=0.071 16 $\Gamma_\gamma/\Gamma\alpha=0.9 1$.
		5135	27.1 4	1982.07	2 ⁺	E2+(M3)	-0.052 35	B(E2)(W.u.)=3.2 6
7615.9	1 ⁻	1418	1 1	6198.22	1 ⁻	M1		B(M1)(W.u.)=0.07 7
		2280	6 1	5336.4	0 ⁺	E1		B(E1)(W.u.)=0.0045 13
		3160	8 1	4455.54	1 ⁻	M1+E2	-0.027 8	
		5634	62 3	1982.07	2 ⁺	E1+M2	-0.21 3	
		7616	23 2	0.0	0 ⁺	E1		B(E1)(W.u.)=0.00046 11
7771.07	2 ⁻	2673	36 3	5097.78	3 ⁻			
		3315	11 2	4455.54	1 ⁻			
		5789	53 3	1982.07	2 ⁺			
7864	5 ⁻	4309	>75	3554.84	4 ⁺	E1		B(E1)(W.u.)>0.0009

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Adopted Levels, Gammas (continued)

							$\gamma(^{18}\text{O})$ (continued)			
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.			Comments	
7977	(3 ⁺ ,4 ⁻)	2599	21 2	5377.8	3 ⁺					
		2879	12 2	5097.78	3 ⁻					
		4422	67 2	3554.84	4 ⁺					
8037.8	1 ⁻	2783	4 1	5254.8	2 ⁺	E1	B(E1)(W.u.)=0.0043 14			
		4404	10 1	3633.76	0 ⁺	E1	B(E1)(W.u.)=0.00028 8			
		6057	70 2	1982.07	2 ⁺	E1	B(E1)↓=0.0072 15			
							Γ _α Γ _γ /Γ=0.89 eV.			
		8038	16 1	0.0	0 ⁺	E1	B(E1)(W.u.)=0.00070 17			
8125	5 ⁻	3027	1 1	5097.78	3 ⁻	E2	B(E2)(W.u.)=5 5			
		4570	99 1	3554.84	4 ⁺	E1	B(E1)(W.u.)=0.0061 11			
							Γ _α Γ _γ /Γ=0.22 eV.			
8213	2 ⁺	3115	17 1	5097.78	3 ⁻	E1	B(E1)(W.u.)=0.0050 11			
		3757	29 3	4455.54	1 ⁻	E1	B(E1)(W.u.)=0.0049 16			
		4293	3 1	3920.44	2 ⁺	M1	B(M1)(W.u.)=0.0072 30			
		4658	3 1	3554.84	4 ⁺	E2	B(E2)(W.u.)=2.4 10			
		6231	29 3	1982.07	2 ⁺	M1	B(M1)(W.u.)=0.024 8			
		8213	19 4	0.0	0 ⁺	E2	B(E2)(W.u.)=0.9 3			
8282	3 ⁻	3022	36 3	5254.8	2 ⁺	E1	B(E1)(W.u.)=0.014 5			
		3826	3 3	4455.54	1 ⁻	E2	B(E2)(W.u.)=8 8			
		4727	61 3	3554.84	4 ⁺	E1	B(E1)(W.u.)=0.0061 16			




† δ is consistent with 0.

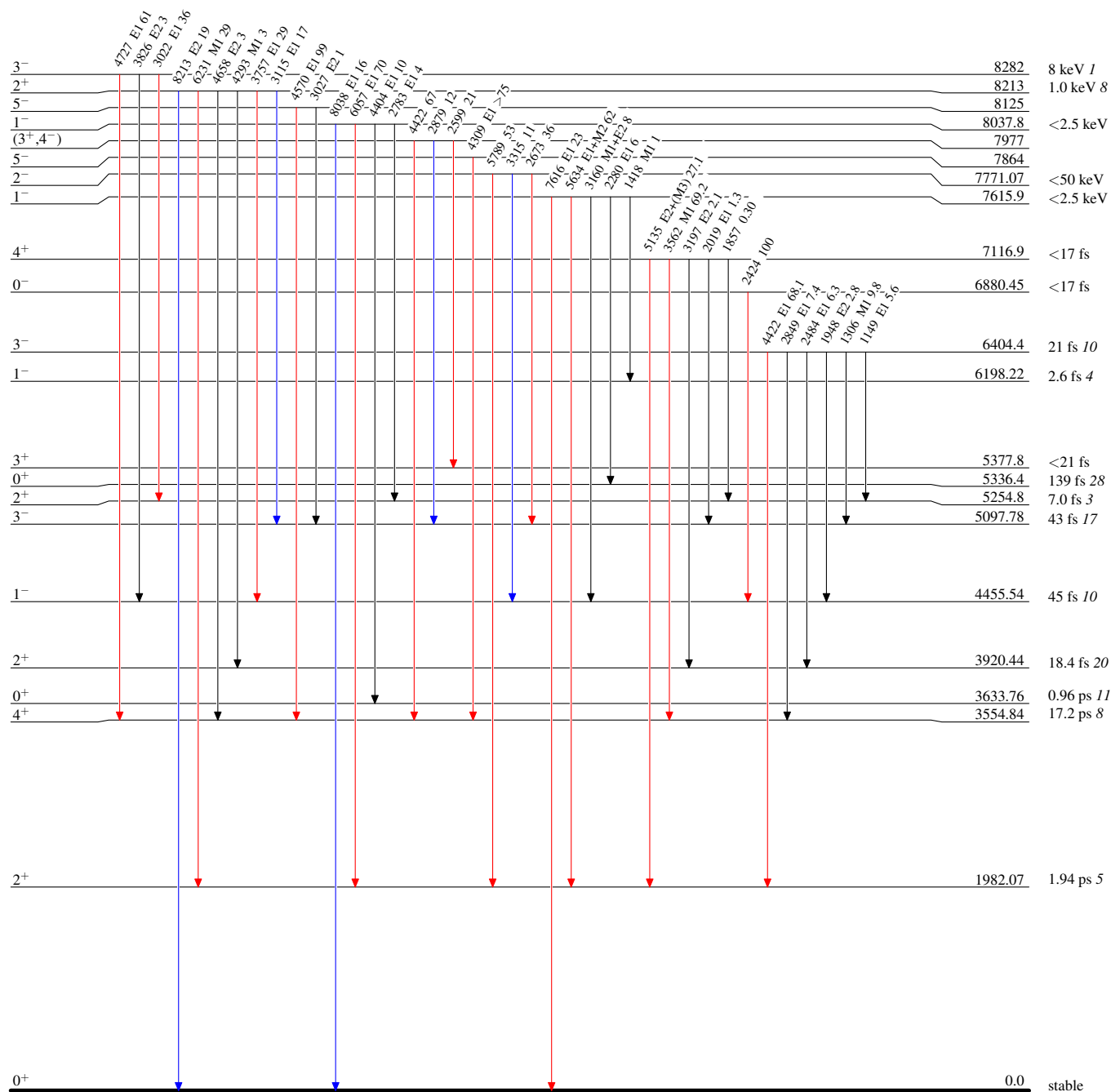
Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

Legend

-  $I_\gamma < 2\% \times I_\gamma^{\max}$
 $I_\gamma < 10\% \times I_\gamma^{\max}$
 $I_\gamma > 10\% \times I_\gamma^{\max}$

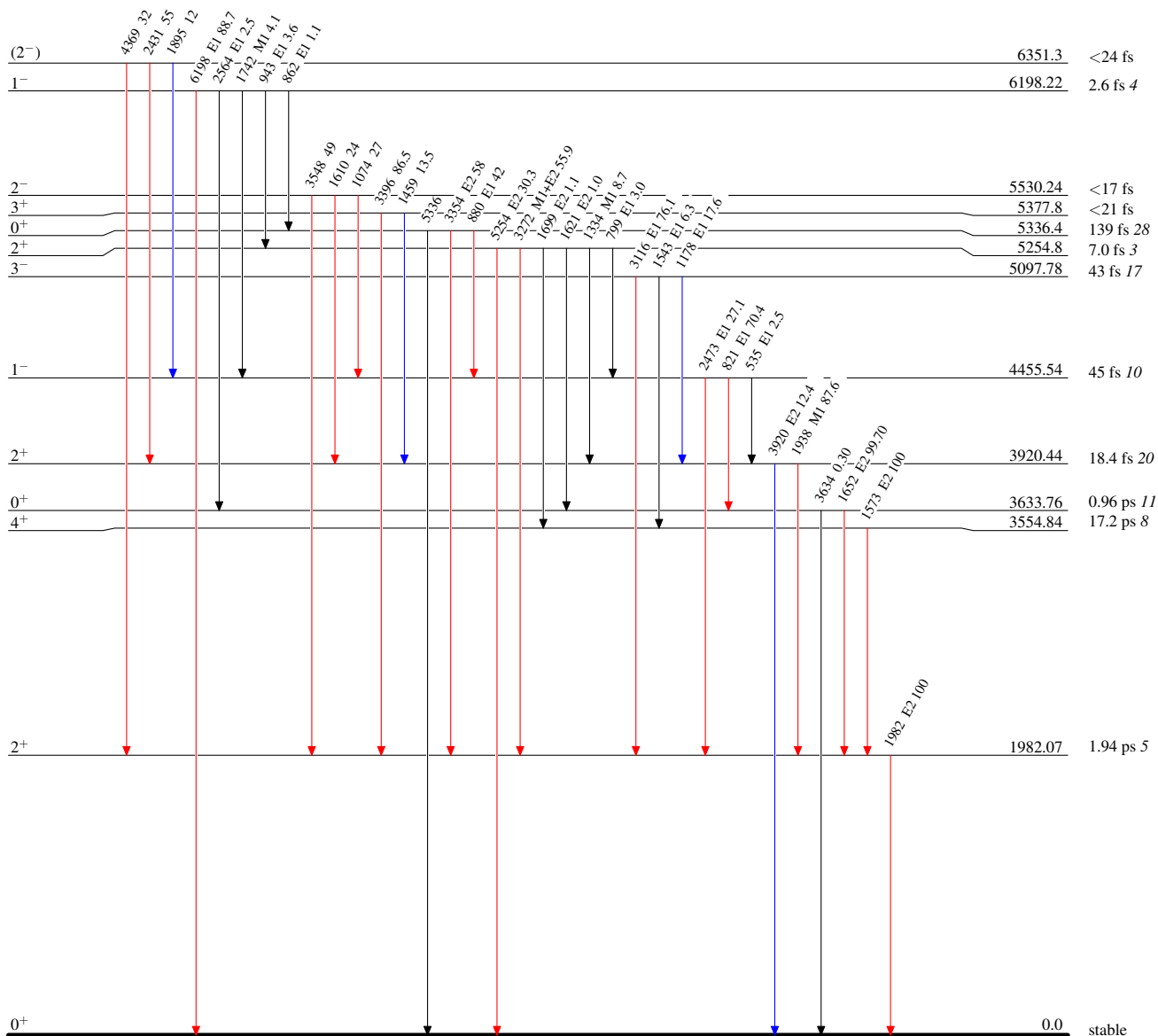


Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Type not specified

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

 $^{18}_8\text{O}_{10}$