Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 127, 69(2015)	1-Apr-2015

Q(β^-)=−4781.6 *3*; S(n)=11068.2 *3*; S(p)=6738.71 *18*; Q(α)=−8479.6 *5* 2012Wa38

^{22}Na Levels

Cross Reference (XREF) Flags

A	^{22}Mg ε decay	F	^{20}Ne(^{3}He,p),(^{3}He,pγ)	K	^{21}Ne(^{3}He,d)
B	^{23}Al εp decay	G	^{20}Ne(α,d)	L	^{22}Ne(^{3}He,t)
C	^{10}B(^{16}O,α)	H	^{20}Ne(^{6}Li,α)	M	^{23}Na(^{3}He,α)
D	^{12}C(^{14}N,α),(^{14}N,$\alpha\gamma$)	I	^{21}Ne(p,γ)	N	^{24}Mg(p,^{3}He)
E	^{19}F(α,n),(α,nγ)	J	^{21}Ne(p,p),(p,p′)	O	^{24}Mg(d,α)

E(level)†	Jπ	$T_{1/2}$@	XREF	Comments
0.0	3+	2.6018 y *22*	ABCDEFGHI KLM O	%ε+%β^+=100 μ=+1.746 *3*; Q=+0.180 *11* μ: From 2013StZZ, 2014StZZ − Adjusted by tabulator − β-NMR. Other: +0.185 *11* − Atomic beam laser spectroscopy (1998Ga44, 2014StZZ). $T_{1/2}$: From 950.3 d *8*: Weighted average of 957 d *7* (1961Wy01), 954 d *4* (1965An07), 950.7 d *4* (1965An07), 950 d *4* (1965An07), 950.34 d *13* (1980Ho17), 950.25 d *11* (1980RuZX, replaced by 1982RuZV), 950.30 d *25*, (1982RuZV), 950.1 d *7* (Updated NIST value in 2014Un01 − earlier value 950.97 d *15* in 2002Un02). Other values: 946.3 d *11* (1965An07), 951.71 d *11* (1982HoZJ, replaced by 1992Un01). 2008Li02 and 2006Li34 report 0.46% *14* and 1.2% *14* shorter β+ half-lives measured in implanted Pd at 15K and 12K, respectively, compared with values measured at room temperatures. However, 2008Ru05 reports no difference at the 0.04% level, measured in implanted Al at 10K and room temperatures. A half-life value of 2.57 y *13* at room temperature is reported (2008Ru05). Jπ: Atomic beam measurement (1949Da14), L=2 in (^{3}He,α), Unnatural parity (pol d,α).
583.05 *10*	1+	243 ns *2*	ABCDEFGHI KLM O	μ=+0.535 *10* μ: From Time Dependent Perturbed Angular Distribution (1966Su07). +0.523 *11* in 1989Ra17. Jπ: log *ft*=3.64 from 0+, L=0+(2) in (^{3}He,p), L=2 in (^{3}He,α), unnatural parity (pol d,α). $T_{1/2}$: From 1966Su07. Other value: 266 ns *10* (1958Te15).
657.00 *14*	0+	19.6 ps *7*	A DEF I KLM O	T=1 Jπ: L=0 in (^{3}He,p), natural parity (pol d,α), L=2 in (^{3}He,α).
890.89 *20*	4+&	10.0 ps *3*	BCDEFGHI KLM O	Jπ: L=2 in (^{3}He,α). Natural parity (pol d,α).
1528.1 *3*	5+&	3.42 ps *24*	DEFGHI KLM O	Jπ: M1+E2 γ to 4+, unnatural parity (pol d,α).
1936.9 *2*	1+	13 fs *4*	A DEFGHI K MNO	Jπ: log *ft*=3.46 from 0+, unnatural parity (pol d,α). $T_{1/2}$: From mean lifetime 19 fs *6*: weighted average of 29 fs *5* (1967Wa13) and 16 fs *3* (1978Bi11).
1951.8 *3*	2+	8 fs *2*	C EF I K O	T=1 Jπ: From isotopic-spin analog state in ^{22}Ne (1967Wa13). Natural parity (pol d,α).
1983.5 *5*	3+	1.47 ps *15*	CDEF HI K M O	Jπ: L=2 in (^{3}He,α), L=4 in (^{3}He,p), E2 γ to 1+, γ to 4+. Unnatural parity (pol d,α).
2211.4 *3*	1−	14.9 ps *6*	DEF HI KLM O	μ=0.36 *7* μ: From 1976Be06.

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Adopted Levels, Gammas (continued)

^{22}Na Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[@]	XREF	Comments
				Jπ: L=1 in (^{3}He,α), L=(1) in (^{3}He,p). γ to 0^+. Natural parity (pol d,α).
2571.5 *3*	2^-	5.0 ps *6*	DEFGHI KLMNO	Jπ: L=1 in (^{3}He,α), γ transition to 1^+ and 3^+, unnatural parity (pol d,α).
2968.6 *6*	3^+	32 fs *4*	DEFGHI KLMNO	Jπ: L=2 in (^{3}He,p), L=(2) in (^{3}He,α), M1+E2 γ to 2^+, unnatural parity (pol d,α).
3059.4 *6*	2^+	23 fs *3*	DEF HI K M O	Jπ: L=0+2 in (^{3}He,d); M1+E2 γ to 1^+; Natural parity (pol d,α).
3519.1 *4*	(3^-)	465 fs *76*	DEF HI KLM O	Jπ: L=(3) in (^{3}He,p); M1+E2 γ to 2^-, γ to 4^+. Natural parity (pol d,α).
3706.7 *4*	6^+	59 fs *12*	CDEFGH KL O	E(level),Jπ: From angular correlation, linear polarization measurements of 2815γ (α,n),(α,nγ) (1973Ma23, 1977Ha11). Natural parity (pol d,α).
3941.9 *9*	1^+	<0.7 fs	DEFGHI KLMNO	Jπ: L=0+2 in (^{3}He,d), L=0 in (^{3}He,α), unnatural parity (pol d,α).
4071.4 *6*	4^+[&]	<0.7 fs	DEF I KLM O	T=1 Jπ: L=2 in (^{3}He,α) and (^{3}He,d); γ to 3^+, 5^+; natural parity (pol d,α).
4296.2 *4*	(0^-)	3.5 ps *+8−2*	DEF I	Jπ: γ's to 2^-, 1^+, unnatural parity (pol d,α).
4319.0 *5*	1^+	17 fs *10*	DEF HI K M O	Jπ: L=0+(2) in (^{3}He,p); Unnatural parity (pol d,α).
4360.0 *4*	2^+	5.0 fs *14*	DEF HI K M O	Jπ: L=0+(2) in (^{3}He,p); Natural parity (pol d,α).
4468.7 *4*	(4^-)	100 fs *38*	EFGH K M O	Jπ: γ's to 2^-, 3^+, and 5^+; Unnatural parity (pol d,α).
4523.9 *5*	(5^+)	71 fs *33*	CDEF H K M O	Jπ: Weakly populated in one and two nucleon transfer (indication for high spin), strongly populated in (^{16}O,α) and consistent with Hauser-Feshbach prediction for spin-parity 7^+ (discussion in 1975Sp02); 2995.8γ to 5^+; Unnatural parity in (pol d,α). $T_{1/2}$: From mean lifetime of 103 fs *48*, weighted average of 55 fs *20* (1976Ma23), 115 fs *45* (1973Fr18), and 160 fs *23* (1977Ev02) using the Limitation of Relative Statistical Weight (LWM) averaging method (1985ZiZY).
4583 *2*	2^-	<69 ps	DEF HI K M O	Jπ: L=1 in (^{3}He,α); unnatural parity (pol d,α); γ to 3^+.
4622 *2*	1	<69 ps	DEF HI K M O	Jπ: Dipole transition to 0^+.
4710.0 *4*	(5^+)	37 fs *14*	CDEFGHI K M O	Jπ: L=(4) in (^{3}He,p); unnatural parity (pol d,α); γ to 3^+, 4^+.
4770 *2*	3^+	5.9 ps *14*	D F HI K M O	E(level): From (^{3}He,pγ). Jπ: L=2 in (^{3}He,d); 3^+ from (pol d,αγ) measurements in 1977Ku02.
5062.5 *4*	(2^+)	<14 fs	DEF HI K MNO	Jπ: L=0+2 in (^{3}He,α); M1 γ 2^+.
5100.4 *13*	4^+	38 fs *12*	CDEFGH K M O	Jπ: γ to 2^+, 3^+, 4^+, 5^+. Possible 3^+ discarded based on linear polarization measurement of the 2041γ (1976Ma23).
5130 *7*		<69 ps	EF K O	E(level): Weighted average of 5132 keV *10* (1964Hi05) and 5130 keV *10* (1971Ga04).
5174[‡] *2*	1^+,2^+	<1 fs	D F I K M	T=1 Jπ: L=0+2 in (^{3}He,α), γ from 3^+.
5318 *5*	(3^+)	<0.7 fs	FGHI K M O	Jπ: L=2(+0) in (^{3}He,d); Unnatural parity (pol d,α). E(level): Weighted average of 5317 *15* (1964Hi05), 5317 *7* (1971Ga04), and 5322 *10* (1971Ga22).
5442 *5*			D F M O	E(level): Weighted average of 5440 *7* (1971Ga04), 5436 *10* (1971Ga22), 5446 *10* (1964Hi05), 5448 *10* (1978Ha29).
5603[‡] *2*	$(1,2)^+$	<3 fs	D FGHI K M O	Jπ: L=0+2 in (^{3}He,α).
5700 *2*			I	
5725[‡] *2*			I K M	
5739[‡] *2*	1^+		D F HI K M O	Jπ: L=0(+2) in (^{3}He,p), γ from 3^+.
5832 *6*			F H M O	E(level): Weighted average of 5837 *10* (1964Hi05), 5830 *7* (1971Ga04), 5828 *20* (1971Ga22).
5863 *6*	$(1,2)^+$		D F H M O	E(level): Weighted average of 5871 *10* (1964Hi05), 5858 *10* (1971Ga04), 5865 *10* (1971Ga22), 5858 *10* (1978Ha29). Jπ: L=0+2 in (^{3}He,α).
5922 *6*			D F H NO	E(level): Weighted average of 5938 *15* (1964Hi05), 5918 *7* (1971Ga04).

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Adopted Levels, Gammas (continued)

^{22}Na Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[@]	XREF	Comments
5959[‡] *2*	2^-	2.9 fs *8*	F I M	T=1 Jπ: L=1 in (^{3}He,α), γ's to 1^+,3^+.
5988[‡] *2*			I	
5995[‡] *2*	$(1,2)^+$		D F HI M O	T=(1) Jπ: L=0+2 in (^{3}He,d); L=2 in (^{3}He,α), γ to 1^+.
6090 *5*	$(1,2)^+$		D F H M O	T=(1) E(level): Weighted average of 6089 *10* (1964Hi05), 6088 *7* (1971Ga04), 6074 *20* (1971Ga22), 6097 *10* (1978Ha29). Jπ: L=0+2 in (^{3}He,α).
6189 *5*	$(0 \text{ to } 4)^+$		D F H M O	T=(1) E(level): Weighted average of 6190 *15* (1964Hi05), 6185 *7* (1971Ga04), 6183 *10* (1971Ga22), 6196 *10* (1978Ha29). Possible doublet. Jπ: L=2 in (^{3}He,d); (2) in (^{3}He,α);
6242 *5*			D FGH M O	E(level): Weighted average of 6241 *15* (1964Hi05), 6247 *7* (1971Ga04), 6236 *10* (1971Ga22), 6240 *10* (1978Ha29).
6329 *5*	$(0 \text{ to } 3)^-$		D F MNO	T=(1) E(level): Weighted average of 6329 *15* (1964Hi05), 6326 *7* (1971Ga04), 6324 *10* (1971Ga22), 6339 *10* (1978Ha29). Jπ: L=1 in (^{3}He,d).
6433 *5*			D F H M O	E(level): Weighted average of 6435 *10* (1964Hi05), 6437 *7* (1971Ga04), 6429 *10* (1971Ga22), 6428 *10* (1978Ha29).
6523 *6*			F M O	E(level): Weighted average of 6528 *10* (1964Hi05), 6521 *7* (1971Ga04).
6551 *5*	$(1,2)^+$		D F H M O	T=1 E(level): Weighted average of 6556 *15* (1964Hi05), 6557 *7* (1971Ga04), 6543 *10* (1971Ga22), 6445 *10* (1978Ha29). Jπ: L=0+2 in (^{3}He,d).
6580 *6*			D F M O	E(level): Weighted average of 6591 *15* (1964Hi05), 6582 *7* (1971Ga04), 6594 *20* (1971Ga22), 6565 *15* (1978Ha29).
6636 *8*			D FGH M O	E(level): Weighted average of 6640 *10* (1964Hi05), 6641 *20* (1971Ga22), 6625 *15* (1978Ha29).
6668 *5*			D M	E(level): Weighted average of 6671 *15* (1964Hi05), 6664 *7* (1971Ga04), 6674 *10* (1971Ga22), 6667 *15* (1978Ha29).
6714 *5*			F H M O	E(level): Weighted average of 6713 *15* (1964Hi05), 6715 *7* (1971Ga04), 6711 *10* (1971Ga22).
6756 *6*			D F H M O	E(level): Weighted average of 6752 *15* (1964Hi05), 6750 *7* (1971Ga04), 6770 *20* (1971Ga22), 6780 *15* (1978Ha29).
6834 *7*	$(0^+,1^+)$		F	T=(1) Jπ: L=0 in (^{3}He,p).
6859.3[‡] *6*	$1,2^+$	<12 eV	D F HI M O	Jπ: γ's to 0^+ and 2^+. 1982Go11 proposed J^π=1,2 or 3^-. J^π=3^- is unlikely if γ ray feeding to 0^+ is correct.
6957 *6*			F M O	T=(1) E(level): Weighted average of 6952 *10* (1964Hi05), 6961 *7* (1971Ga04), 6949 *20* (1971Ga22).
6981 *15*			D	T=(1)
6997.1[‡] *4*		<5 eV	F HI MN	
6998.1[‡] *4*		<3 eV	I	
7016.4[‡] *4*		<11 eV	G I O	
7049 *15*			D	
7074.9[‡] *4*		<0.1 keV	F I M O	
7152[‡] *4*	$3^+,4^+$	<0.5 keV	D F I M O	Jπ: γ's to 2^+ and 5^+.
7220[‡] *2*	$1^+,2,3^+$	<0.4 keV	D FGHI MNO	T=0 Jπ: γ's to 1^+ and 3^+.

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Adopted Levels, Gammas (continued)

^{22}Na Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[@]	XREF	Comments
7240[‡] *2*	2^+,3,4^+	<0.3 keV	D F I O	T=(1) Jπ: γ's to 2^+ and 4^+.
7278 *3*	1,2^+	<0.5 keV	I	T=(1) Jπ: γ's to 0^+ and 2^+.
7279[‡] *3*		<1.5 keV	D F HI M	
7360[‡] *3*	3^+,4	<1.0 keV	F HI M O	Jπ: γ's to 3^+, 3^-, and 5^+.
7372 *2*	2	<0.5 keV	I	Jπ: γ's to 1^+, 1^-, 3^+, and 3^-.
7378[‡] *1*	2^+,3^+	<0.5 keV	D I	Jπ: γ's to 1^+ and 4^+.
7401[‡] *2*	1^+,2^+	<1.5 keV	HI M	Jπ: γ's to 0^+ and 3^+.
7408.6[‡] *5*	1^+	3.5 keV *6*	D F IJ O	T=1 Jπ: L=0 in (p,p),(p,p′). $J^\pi=2^+$ excluded from non-interference with the Ep=768 keV (resonance state 7471 keV) (1983Go21).
7423 *3*	2	2.5 keV *5*	I	Jπ: γ's to 1^-, 1^+, and 3^+.
7471.7[‡] *12*	(2^+)	3.5 keV *6*	G IJ	T=1 Jπ: L=0 in (p,p),(p,p′). M1+E2 γ's to 1^+ and 3^+.
7515.2[‡] *10*	(3^+)	<0.5 keV	F HI M O	T=0 Jπ: γ's to 2^+ and 4^+.
7547.0[‡] *10*		<0.6 keV	F I O	T=1
7573.5[‡] *10*	3^+,4,5^+	<0.5 keV	D F HI O	Jπ: γ's to 3^+ and 5^+.
7599[‡] *3*	(2^-)	1.9 keV *10*	D F IJ	Jπ: L=1 in (p,p),(p,p′). γ's to 1^+ and 3^+.
7605[‡] *2*	1^+,2^+	<0.6 keV	F I O	Jπ: γ's to 0^+ and 3^+.
7636 *3*	2^+,3,4^+	<0.5 keV	I	T=0 Jπ: γ's to (1^+,2^+) and 4^+.
7683[‡] *3*	2^+,3,4^+	<0.5 keV	D F I O	Jπ: γ's to 2^+ and 4^+.
7778.2[‡] *10*	(1 to 3)$^-$	2.8 keV *7*	IJ	T=(1) Jπ: L=1 in (p,p),(p,p′).
7800.6[‡] *10*	$(1,2)^+$	2.4 keV *7*	F IJ	T=0 Jπ: L=0 in (p,p),(p,p′).
7821.1[‡] *10*	1^+,2^+	<0.5 keV	D I O	T=0 Jπ: γ's to 0^+ and 3^+.
7883.7[‡] *9*		<2.6 keV	D FG I O	$T_{1/2}$: No gammas observed.
7889.1[‡] *11*	4^+	<0.5 keV	IJ	T=(1) Jπ: L=2 in (p,p),(p,p′); M1+E2 to 3^+ and 5^+.
7919[‡] *2*	2^-	17 keV *4*	IJ	T=1 Jπ: Assignment in 1977Ke04 (p,γ) based on γ feedings to 1^-,2^-,2^+,3^+. L=1 in (p,p),(p,p′). 1975Ch15 assigns $J^\pi=1^-$ with a note for doublet.
7943 *6*			D F	E(level): Weighted average of 7942 *7* (1971Ga04), 7947 *15* (1978Ha29).
7965[‡] *2*	0,1,2,3^+	<0.5 keV	F I	T=(1) Jπ: γ to 1^+.
7977[‡] *2*	(1 to 3)$^-$	10 keV *3*	IJ	T=(1) Jπ: L=1 in (p,p),(p,p′).
8018[‡] *4*	4^+,5^+	<1.0 keV	D F I	Jπ: γ's to 3^+ and 6^+.
8041 *2*	2^+,3,4^+	<0.5 keV	I	Jπ: γ's to 2^+ and 4^+.
8101[‡] *4*	1^+,2^+	3.8 keV *7*	F IJ	Jπ: L=0 in (p,p),(p,p′); γ's to 0^+ and 3^+.
8108 *2*	3^+,4	<1.5 keV	I	T=1 Jπ: γ's to 3^+, 3^-, and 5^+.
8114[‡] *2*	3^-	3.5 keV *12*	G IJ	Jπ: L=1 (p,p),(p,p′); γ's to 2^+ and 4^+.

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Adopted Levels, Gammas (continued)

^{22}Na Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[@]	XREF	Comments
8128 *8*			D F	E(level): Weighted average of 8128 *10* (1971Ga04), 8128 *15* (1978Ha29).
8165[‡] *2*	3^-	35 keV *10*	F IJ	T=1(+0) Jπ: L=1 (p,p),(p,p′); γ′s to 2^+ and 4^+.
8197[‡] *4*	2^+,3^+	<0.6 keV	F I	Jπ: γ′s to 1^+ and 4^+.
8211[‡] *2*	1^+,2^+	10 keV *4*	IJ	T=0 Jπ: L=0 in (p,p),(p,p′); γ′s to 2^+ and 3^+.
8221 *4*	4^+,5,6^+	<21 fs	D	Jπ: γ′s to 4^+ and 6^+. $T_{1/2}$: From (^{14}N,α),(^{14}N,αγ).
8234[‡] *2*	1^+,2^+	13 keV *3*	IJ	T=1 Jπ: L=0 in (p,p),(p,p′); γ′s to 1^+ and 3^+.
8288[‡] *2*	$(1\text{ to }3)^-$	4.5 keV *10*	IJ	Γ_p=2 keV Jπ: L=1 in (p,p),(p,p′).
8328[‡] *2*	1^-,2^-	2.7 keV *8*	F IJ	Γ_p=5 keV Jπ: Assignment in 1975Ch15, L=1 in (p,p),(p,p′).
8371[‡] *2*			D F I	
8404[‡] *5*			D F I	
8436[‡] *2*	$(1\text{ to }3)^-$	5.4 keV *15*	IJ	Γ_p=8 keV Jπ: L=1 in (p,p),(p,p′); γ to 1^- and 3^-.
8496[‡] *2*	1^+,2^+	44 keV *4*	F IJ	Γ_p=29 keV T=1 Jπ: L=0 in (p,p),(p,p′).
8538 *2*	$(1\text{ to }3)^-$	13.2 keV *15*	D F IJ	Γ_p<8 keV Jπ: L=1 in (p,p),(p,p′).
8562[‡] *2*			I	
8567[‡] *2*	$(0\text{ to }4)^+$		IJ	Jπ: L=2 in (p,p),(p,p′).
8572 *3*		<16 fs	D F	E(level),$T_{1/2}$: From 1978Ha29 – (^{14}N,α),(^{14}N,αγ).
8602[‡] *2*	$(1\text{ to }3)^-$	11.2 keV *20*	D F IJ	Γ_p=2.1 keV Jπ: L=1 in (p,p),(p,p′).
8613[‡] *2*		21 fs *14*	CD I	$T_{1/2}$: From (^{14}N,α),(^{14}N,αγ).
8636[‡] *2*	$(1\text{ to }3)^-$		IJ	Γ_p=5 keV Jπ: L=1 in (p,p),(p,p′).
8675[‡] *2*		5.3 keV *15*	D FG I	T=1
8724 *4*		<32 fs	D F	E(level),$T_{1/2}$: From 1978Ha29 – (^{14}N,α),(^{14}N,αγ).
8740 *5*			I	
8792[‡] *5*			F I	
8845[‡] *5*			F I	
8875[‡] *5*			D F I	
8950 *10*			F	
9008[#] *10*			CD F	
9060 *3*		<17 fs	D F	E(level),$T_{1/2}$: From 1978Ha29 – (^{14}N,α),(^{14}N,αγ).
9122[#] *10*			D F	
9150 *10*			F	
9195 *10*			F	
9240 *10*			F	
9312[#] *10*			CD F	
9360[#] *10*			FG	XREF: F(9378).
9438[#] *10*			D F	
9527 *10*			F	
9582[#] *10*			D F	

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Adopted Levels, Gammas (continued)

^{22}Na Levels (continued)

E(level)[†]	XREF	Comments
9647[#] *10*	D F	
9682[#] *10*	D F	
9715 *13*	N	
9756 *10*	F	
9794 *10*	F	
9813 *3*	D	
9859[#] *10*	CD F	
9908[#] *10*	D F	
9957 *10*	F	
10009[#] *10*	FG	
10051 *10*	F	
10118[#] *10*	D F	
10167 *10*	F	
10220	G	
10990 *40*	G	
11540	G	E(level): Possible doublet.
11770	G	
12200	G	
12520	G	
12620	C G	XREF: G(12800).
13370	c G	
13750	c G	

† Upto 5130 keV from (α,n),(α,nγ), except otherwise noted.
‡ From (p,γ).
# From (^{3}He,p),(^{3}He,pγ).
@ From (α,n),(α,nγ) or (p,γ) or weighted average of data from these two data sets, except otherwise noted.
& From (α,nγ) angular correlation (transition characteristics – 1967Wa13, 1975Sp02, 1977Ha11) and polarization (1967Po14, 1976Ma23) measurements.

Adopted Levels, Gammas (continued)

γ(^{22}Na)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	δ&b	α[a]	Comments
583.05	1^+	583.04 *10*	100	0.0	3^+	E2			B(E2)(W.u.)=0.00944 *8*
657.00	0^+	73.9 *1*	100	583.05	1^+	M1		0.00359	α(K)=0.00338 *5*; α(L)=0.000205 *3*; α(M)=4.53×10^{-6} *7* B(M1)(W.u.)=2.77 *10*
890.89	4^+	890.87 *20*	100	0.0	3^+	M1+E2	+3.2 *3*		B(M1)(W.u.)=0.00028 *5*; B(E2)(W.u.)=25.1 *9*
1528.1	5^+	637.50 *20*	4.7 *13*	890.89	4^+	M1+E2	+2.11 *15*		B(M1)(W.u.)=0.00020 *7*; B(E2)(W.u.)=16 *5*
		1528.1 *2*	100.0 *13*	0.0	3^+	E2		1.05×10^{-4}	B(E2)(W.u.)=5.2 *4* α(K)=5.71×10^{-6} *8*; α(L)=3.42×10^{-7} *5*; α(M)=7.67×10^{-9} *11* α(IPF)=9.93×10^{-5} *14*
1936.9	1^+	1280.5 *10*	100.0 *13*	657.00	0^+	M1		2.34×10^{-5} *4*	α=2.34×10^{-5} *4*; α(K)=6.34×10^{-6} *9*; α(L)=3.80×10^{-7} *6*; α(M)=8.51×10^{-9} *12* α(IPF)=1.67×10^{-5} *3* B(M1)(W.u.)=0.80 *25*
		1353.8	0.28 *6*	583.05	1^+				E_γ,I_γ: From ^{22}Mg β^+ decay.
		1936.8	0.59 *6*	0.0	3^+	[E2]			B(E2)(W.u.)=2.6 *9* E_γ,I_γ: From ^{22}Mg β^+ decay.
1951.8	2^+	1294.8	0.29 *5*	657.00	0^+	[E2]			B(E2)(W.u.)=15 *5*
		1368.7 *3*	100	583.05	1^+				
1983.5	3^+	1092.6	1.3 *2*	890.89	4^+				
		1400.4 *5*	100.0 *3*	583.05	1^+	E2		6.24×10^{-5} *9*	B(E2)(W.u.)=18.9 *20* α=6.24×10^{-5} *9*; α(K)=6.86×10^{-6} *10*; α(L)=4.11×10^{-7} *6*; α(M)=9.20×10^{-9} *13* α(IPF)=5.51×10^{-5} *8* Mult.: Possible M3 admixture ruled out by large B(M3)(W.u.).
		1983.5	1.9 *3*	0.0	3^+				
2211.4	1^-	1554.4 *3*	100.0 *5*	657.00	0^+	E1		3.14×10^{-4}	B(E1)(W.u.)=1.52×10^{-5} *7* α(K)=3.04×10^{-6} *5*; α(L)=1.82×10^{-7} *3*; α(M)=4.08×10^{-9} *6* α(IPF)=0.000311 *5* Mult.: From 1967Po14, 1973Ha55 (α,n),(α,nγ).
		2211.3	1.5 *2*	0.0	3^+	[M2]			B(M2)(W.u.)=0.074 *11*
2571.5	2^-	360.1	1.6 *5*	2211.4	1^-				
		1914.4	2.6 *7*	657.00	0^+	[M2]		1.13×10^{-4}	B(M2)(W.u.)=0.60 *18* α(K)=5.20×10^{-6} *8*; α(L)=3.11×10^{-7} *5*; α(M)=6.98×10^{-9} *10* α(IPF)=0.0001080 *16*
		1988.8 *4*	29 *3*	583.05	1^+	E1		6.38×10^{-4}	α(K)=2.10×10^{-6} *3*; α(L)=1.258×10^{-7} *18*; α(M)=2.82×10^{-9} *4* α(IPF)=0.000636 *9* B(E1)(W.u.)=4.8×10^{-6} *8*
		2571.5	100 *3*	0.0	3^+	E1		1.01×10^{-3}	α(K)=1.476×10^{-6} *21*; α(L)=8.84×10^{-8} *13*; α(M)=1.98×10^{-9} *3* α(IPF)=0.001012 *15* B(E1)(W.u.)=7.6×10^{-6} *10*
2968.6	3^+	1016.8 *5*	100	1951.8	2^+	M1			B(M1)(W.u.)=0.65 *9*
3059.4	2^+	1107.6 *5*	100 *1*	1951.8	2^+	M1		9.53×10^{-6} *14*	B(M1)(W.u.)=0.68 *9* α=9.53×10^{-6} *14*; α(K)=8.20×10^{-6} *12*; α(L)=4.92×10^{-7} *7*;

$^{22}_{11}Na_{11}$-7

Adopted Levels, Gammas (continued)

$\gamma(^{22}Na)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&b]	α[a]	Comments
									α(M)=1.101×10^{-8} *16* α(IPF)=8.25×10^{-7} *17* Mult.: From (^{3}He,pγ).
3059.4	2$^+$	2476.2 *3*	3 *1*	583.05	1$^+$	M1+E2	+0.13 *7*	4.46×10^{-4}	α(K)=2.16×10^{-6} *3*; α(L)=1.295×10^{-7} *19*; α(M)=2.90×10^{-9} *4* α(IPF)=0.000444 *7* B(M1)(W.u.)=0.0018 *7*; B(E2)(W.u.)=0.03 *2*
3519.1	(3$^-$)	948.0 *2*	11.4 *8*	2571.5	2$^-$	M1+E2	+2.1 *3*		B(M1)(W.u.)=0.00059 *18*; B(E2)(W.u.)=20 *4*
		1307.7	46 *2*	2211.4	1$^-$	E2		3.94×10^{-5} *6*	α=3.94×10^{-5} *6*; α(K)=7.96×10^{-6} *12*; α(L)=4.77×10^{-7} *7*; α(M)=1.068×10^{-8} *15* α(IPF)=3.10×10^{-5} *5* B(E2)(W.u.)=20 *4*
		1566.8 *2*	100 *6*	1951.8	2$^+$	E1		3.24×10^{-4}	Mult.: Possible M3 admixture ruled out by large B(M3)(W.u.). α(K)=3.00×10^{-6} *5*; α(L)=1.80×10^{-7} *3*; α(M)=4.03×10^{-9} *6* α(IPF)=0.000320 *5* B(E1)(W.u.)=0.00024 *5*
		2628.0	14 *4*	890.89	4$^+$	[E1]			B(E1)(W.u.)=7.2×10^{-6} *24*
		3518.8	28 *6*	0.0	3$^+$	E1+M2	−0.19 *3*	1.46×10^{-3} *2*	α(K)=1.018×10^{-6} *17*; α(L)=6.09×10^{-8} *10*; α(M)=1.366×10^{-9} *23* α(IPF)=0.001454 *23* B(E1)(W.u.)=5.8×10^{-6} *16*; B(M2)(W.u.)=0.08 *4*
3706.7	6$^+$	2176.5 *10*	39 *9*	1528.1	5$^+$	M1+E2	+6 *3*	4.01×10^{-4} *9*	α(K)=2.92×10^{-6} *5*; α(L)=1.75×10^{-7} *3*; α(M)=3.91×10^{-9} *7* α(IPF)=0.000398 *9* B(M1)(W.u.)=0.0003 *2*; B(E2)(W.u.)=15 *5* δ: From 1977Ha11 (α,n),(α,nγ).
		2815.8 *3*	100 *9*	890.89	4$^+$	E2		7.05×10^{-4}	B(E2)(W.u.)=11 *3* α(K)=1.90×10^{-6} *3*; α(L)=1.139×10^{-7} *16*; α(M)=2.55×10^{-9} *4* α(IPF)=0.000703 *10*
3941.9	1$^+$	1990.0	7 *1*	1951.8	2$^+$				
		3284.9 *9*	100 *1*	657.00	0$^+$	D			Mult.: From (^{3}He,p),(^{3}He,pγ).
4071.4	4$^+$	2088.2 *5*	100[‡] *2*	1983.5	3$^+$	M1		2.83×10^{-4}	α(K)=2.81×10^{-6} *4*; α(L)=1.682×10^{-7} *24*; α(M)=3.77×10^{-9} *6* α(IPF)=0.000280 *4* B(M1)(W.u.)>3.0
		2543.3	12.6[‡] *14*	1528.1	5$^+$				
		4071	3.7[‡] *6*	0.0	3$^+$				
4296.2	(0$^-$)	1724.7 *2*	67[#] *17*	2571.5	2$^-$	[E2]			B(E2)(W.u.)=1.2 *+4−5*
		2359.3	100[#] *17*	1936.9	1$^+$	[E1]			B(E1)(W.u.)=1.1×10^{-5} *+3−4*
4319.0	1$^+$	3662.0	100[#]	657.00	0$^+$	M1		9.06×10^{-4}	B(M1)(W.u.)=0.026 *16* α(K)=1.222×10^{-6} *18*; α(L)=7.32×10^{-8} *11*; α(M)=1.640×10^{-9} *23* α(IPF)=0.000905 *13*
4360.0	2$^+$	2408.1 *3*	100[#] *5*	1951.8	2$^+$	M1		4.15×10^{-4}	α(K)=2.25×10^{-6} *4*; α(L)=1.349×10^{-7} *19*; α(M)=3.02×10^{-9} *5* α(IPF)=0.000413 *6* B(M1)(W.u.)=0.24 *7*

Adopted Levels, Gammas (continued)

γ(^{22}Na) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&b]	α[a]	Comments
4360.0	2$^+$	3777.0	8[#] *4*	583.05	1$^+$	M1(+E2)[#]	[‡]		
		4360.0	24[#] *4*	0.0	3$^+$				
4468.7	(4$^-$)	1897.2 *3*	100 *6*	2571.5	2$^-$	(E2)		2.68×10^{-4}	α(K)=3.75×10^{-6} *6*; α(L)=2.25×10^{-7} *4*; α(M)=5.03×10^{-9} *7* α(IPF)=0.000264 *4* B(E2)(W.u.)=41 *17*
		2485.1	14 *5*	1983.5	3$^+$	[E1]			B(E1)(W.u.)=5.E−5 *3*
		2940.4	21 *5*	1528.1	5$^+$	[E1]			B(E1)(W.u.)=4.7×10^{-5} *22*
		3577.5	17 *5*	890.89	4$^+$	[E1]			B(E1)(W.u.)=2.1×10^{-5} *11*
4523.9	(5$^+$)	2995.8 *4*	100	1528.1	5$^+$	M1(+E2)		0.00072 *7*	α(K)=1.68×10^{-6} *6*; α(L)=1.00×10^{-7} *4*; α(M)=2.25×10^{-9} *8* α(IPF)=0.00072 *7*
4583	2$^-$	2631	100[#] *14*	1951.8	2$^+$				
		4583.7	43[#] *14*	0.0	3$^+$				
4622	1	2670	100[#] *20*	1951.8	2$^+$				
		3965	67[#] *20*	657.00	0$^+$	D			Mult.: From (^{3}He,p),(^{3}He,pγ).
4710.0	(5$^+$)	638.6	83 *6*	4071.4	4$^+$	M1			B(M1)(W.u.)=1.0 *4*
		1741.3	10 *2*	2968.6	3$^+$	E2		1.96×10^{-4}	α(K)=4.41×10^{-6} *7*; α(L)=2.64×10^{-7} *4*; α(M)=5.92×10^{-9} *9* α(IPF)=0.000191 *3* B(E2)(W.u.)=14 *6* δ: Possible M3 admixture ruled out by large B(M3)(W.u.).
		2726.0 *4*	100 *4*	1983.5	3$^+$	E2		6.64×10^{-4}	B(E2)(W.u.)=14 *6* α(K)=2.00×10^{-6} *3*; α(L)=1.200×10^{-7} *17*; α(M)=2.69×10^{-9} *4* α(IPF)=0.000662 *10* δ: Possible M3 admixture ruled out by large B(M3)(W.u.).
4770	3$^+$	2818	100	1951.8	2$^+$	M1		5.85×10^{-4}	B(M1)(W.u.)=0.00017 *4* α(K)=1.779×10^{-6} *25*; α(L)=1.065×10^{-7} *15*; α(M)=2.39×10^{-9} *4* α(IPF)=0.000583 *9*
5062.5	(2$^+$)	3110.6 *4*	100	1951.8	2$^+$	M1		7.01×10^{-4}	α(K)=1.540×10^{-6} *22*; α(L)=9.22×10^{-8} *13*; α(M)=2.07×10^{-9} *3* α(IPF)=0.000700 *10* B(M1)(W.u.)>0.052 Mult.: From (^{3}He,p),(^{3}He,pγ).
5100.4	4$^+$	1029.0	100 *9*	4071.4	4$^+$	[M1]			B(M1)(W.u.)=0.20 *7*
		2039.1	49 *6*	3059.4	2$^+$	(E2)		3.37×10^{-4}	B(E2)(W.u.)=21 *8* α(K)=3.28×10^{-6} *5*; α(L)=1.97×10^{-7} *3*; α(M)=4.41×10^{-9} *7* α(IPF)=0.000333 *5*
		3573.3	32 *6*	1528.1	5$^+$				
		4209.1	41 *14*	890.89	4$^+$	M1+E2	>1		B(M1)(W.u.)<0.00086; B(E2)(W.u.)>0.12 Mult.,δ: (α,n),(α,nγ).
		5101.0	49 *6*	0.0	3$^+$	M1+E2	>+8		B(M1)(W.u.)<1.6×10^{-5}; B(E2)(W.u.)>0.14 Mult.,δ: (α,n),(α,nγ).
5174	1$^+$,2$^+$	3191	20[‡] *7*	1983.5	3$^+$				
		4591	100[‡] *7*	583.05	1$^+$				

$^{22}_{11}Na_{11}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{22}Na)$ (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult. [&]	Comments
5603	$(1,2)^+$	3651	100	1951.8	2^+		
5700		3748	100	1951.8	2^+		
5959	2^-	1599	10 *2*	4360.0	2^+	[E1]	B(E1)(W.u.)=0.0043 *15*
		2899	13 *2*	3059.4	2^+	[E1]	B(E1)(W.u.)=0.0009 *3*
		5376	47 *6*	583.05	1^+	[E1]	B(E1)(W.u.)=0.00053 *17*
		5958	100 *2*	0.0	3^+	[E1]	B(E1)(W.u.)=0.00083 *24*
5988		5404	100	583.05	1^+		
5995	$(1,2)^+$	5411	100	583.05	1^+		
6859.3	$1,2^+$	4907.0	100 *11*	1951.8	2^+		
		6201.4	25 *11*	657.00	0^+		
6997.1		2287	33[‡] *4*	4710.0	(5^+)		
		5013.4	100[‡] *6*	1983.5	3^+		
		5468.7	10[‡] *2*	1528.1	5^+		
		6995.9	61[‡] *4*	0.0	3^+		
6998.1		1824	1.8[‡] *4*	5174	$1^+,2^+$		
		4028.7	8.4[‡] *18*	2968.6	3^+		
		5014.4	11.8[‡] *10*	1983.5	3^+		
		5045.8	58[‡] *4*	1951.8	2^+		
		5060.5	3.8[‡] *10*	1936.9	1^+		
		6414.3	3.6[‡] *8*	583.05	1^+		
		6996.9	100[‡] *4*	0.0	3^+		
7016.4		1057.4	13[‡] *1*	5959	2^-		
		1842.3	4.6[‡] *2*	5174	$1^+,2^+$		
		2656.0	0.4[‡] *2*	4360.0	2^+		
		2944.9	100[‡] *6*	4071.4	4^+		
		4047.0	1.4[‡] *2*	2968.6	3^+		
		5032.7	3.0[‡] *4*	1983.5	3^+		
		5064.1	45[‡] *2*	1951.8	2^+		
		5488.0	0.9[‡] *4*	1528.1	5^+		
		6124.6	13[‡] *1*	890.89	4^+		
		7015.2	16[‡] *1*	0.0	3^+		
7074.9		1080	13.1[‡] *13*	5995	$(1,2)^+$		
		1116	35[‡] *2*	5959	2^-		
		1337	2.2[‡] *6*	5739	1^+		
		1350	1.3[‡] *3*	5725			
		1375	53[‡] *6*	5700			
		1901	13.1[‡] *9*	5174	$1^+,2^+$		

$^{22}_{11}Na_{11}$-10

Adopted Levels, Gammas (continued)

γ(^{22}Na) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
7074.9		2013	1.9‡ *6*	5062.5	(2^+)
		2453	1.9‡ *6*	4622	1
		2492	2.2‡ *6*	4583	2^-
		2716.2 *12*	2.2‡ *6*	4360.0	2^+
		2779	2.5‡ *6*	4296.2	(0^-)
		3132.0 *10*	2.5‡ *9*	3941.9	1^+
		3555	4.7‡ *6*	3519.1	(3^-)
		4016.3 *10*	7.8‡ *9*	3059.4	2^+
		5124.3 *10*	21‡ *5*	1951.8	2^+
		6418.6 *10*	100‡ *6*	657.00	0^+
		6492.8 *10*	94‡ *6*	583.05	1^+
		7075.4 *10*	1.9‡ *6*	0.0	3^+
7152	3^+,4^+	3080	34‡ *5*	4071.4	4^+
		4092	8‡ *3*	3059.4	2^+
		5168	47‡ *8*	1983.5	3^+
		5624	100‡ *8*	1528.1	5^+
		6260	24‡ *5*	890.89	4^+
		7151	50‡ *8*	0.0	3^+
7220	1^+,2,3^+	2860	61‡ *6*	4360.0	2^+
		3275	35‡ *6*	3941.9	1^+
		4160	39‡ *6*	3059.4	2^+
		5267	100‡ *10*	1951.8	2^+
		5282	32‡ *10*	1936.9	1^+
		6636	45‡ *6*	583.05	1^+
		7219	10‡ *3*	0.0	3^+
7240	2^+,3,4^+	4180	4.9‡ *12*	3059.4	2^+
		5256	100‡ *7*	1983.5	3^+
		6348	90‡ *7*	890.89	4^+
		7239	49‡ *7*	0.0	3^+
7278	1,2^+	2104	7.1‡ *13*	5174	1^+,2^+
		2216	4.6‡ *13*	5062.5	(2^+)
		2656	5.1‡ *15*	4622	1
		3333	7.7‡ *15*	3941.9	1^+
		4218	26‡ *5*	3059.4	2^+
		5326	100‡ *8*	1951.8	2^+
7278	1,2^+	5340	18‡ *3*	1936.9	1^+
		6620	8.7‡ *13*	657.00	0^+
		6694	79‡ *8*	583.05	1^+
7279		3572	15‡ *5*	3706.7	6^+
		5750	100‡ *5*	1528.1	5^+
7360	3^+,4	2586	6.9‡ *17*	4770	3^+
		2650	5.2‡ *17*	4710.0	(5^+)
		3840	12.1‡ *17*	3519.1	(3^-)
		4391	10.3‡ *17*	2968.6	3^+
		5831	100‡ *3*	1528.1	5^+
		6468	19‡ *3*	890.89	4^+
		7359	19‡ *3*	0.0	3^+
7372	2	2198	26‡ *3*	5174	1^+,2^+
		3852	16‡ *3*	3519.1	(3^-)
		4801	100‡ *6*	2571.5	2^-
		5160	19‡ *6*	2211.4	1^-
		5388	65‡ *6*	1983.5	3^+
		5420	52‡ *6*	1951.8	2^+
		6788	16‡ *3*	583.05	1^+
		7371	29‡ *3*	0.0	3^+
7378	2^+,3^+	2204	33‡ *7*	5174	1^+,2^+
		3306	100‡ *7*	4071.4	4^+
		5394	13‡ *3*	1983.5	3^+
		5426	6.7‡ *20*	1951.8	2^+
		6794	87‡ *7*	583.05	1^+
		7377	93‡ *7*	0.0	3^+
7401	1^+,2^+	2779	18‡ *2*	4622	1
		3041	9‡ *2*	4360.0	2^+
		3456	5.5‡ *20*	3941.9	1^+
		4341	24‡ *2*	3059.4	2^+
		4830	100‡ *5*	2571.5	2^-
		5417	1.8‡ *9*	1983.5	3^+
		5449	5.5‡ *20*	1951.8	2^+
		5463	11‡ *2*	1936.9	1^+
		6743	3.6‡ *9*	657.00	0^+

$^{22}_{11}Na_{11}$-11

Adopted Levels, Gammas (continued)

γ(^{22}Na) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&b]	α[a]	Comments
7401	1$^+$,2$^+$	6817	3.6[‡] *9*	583.05	1$^+$				
7408.6	1$^+$	3048	100[‡] *6*	4360.0	2$^+$	M1+E2[#]	−0.4[‡] *−1+4*	6.95×10^{-4} *21*	α(K)=1.60×10^{-6} *3*; α(L)=9.58×10^{-8} *16*; α(M)=2.15×10^{-9} *4* α(IPF)=0.000694 *21*
		3464	58[‡] *6*	3941.9	1$^+$	M1+E2[#]	−1.3[‡] *9*	0.00093 *8*	α(K)=1.36×10^{-6} *4*; α(L)=8.14×10^{-8} *22*; α(M)=1.82×10^{-9} *5* α(IPF)=0.00092 *8*
		4348	90[‡] *6*	3059.4	2$^+$	M1+E2[#]	+0.3[‡] *3*	0.00115 *4*	α(K)=9.68×10^{-7} *15*; α(L)=5.80×10^{-8} *9*; α(M)=1.299×10^{-9} *20* α(IPF)=0.00115 *4*
		5471	48[‡] *6*	1936.9	1$^+$	M1+E2[#]	−0.29[‡] *11*	1.46×10^{-3} *2*	α(K)=7.15×10^{-7} *10*; α(L)=4.28×10^{-8} *6*; α(M)=9.59×10^{-10} *14* α(IPF)=0.001461 *23*
		6825	26[‡] *3*	583.05	1$^+$	M1+E2[#]	−0.19[‡] *10*		
7423	2	2249 *3*	28[‡] *4*	5174	1$^+$,2$^+$				
		4852 *3*	22[‡] *5*	2571.5	2$^-$				
		5211 *3*	10[‡] *2*	2211.4	1$^-$				
		5439 *3*	100[‡] *4*	1983.5	3$^+$				
		5485 *3*	12[‡] *2*	1936.9	1$^+$				
7471.7	(2$^+$)	2698	2.6[‡] *6*	4770	3$^+$				
		3151	2.6[‡] *6*	4319.0	1$^+$				
		4411	5.1[‡] *13*	3059.4	2$^+$				
		5488	2.6[‡] *8*	1983.5	3$^+$				
		5534	13[‡] *3*	1936.9	1$^+$	(M1+E2)[#]	+0.2[‡] *2*	0.00147 *3*	α(K)=7.04×10^{-7} *10*; α(L)=4.21×10^{-8} *6*; α(M)=9.44×10^{-10} *14* α(IPF)=0.00147 *3*
		6888	2.6[‡] *13*	583.05	1$^+$				
		7470	100[‡] *4*	0.0	3$^+$	(M1+E2)[#]	−0.2[‡] *2*		
7515.2	(3$^+$)	2341	6.4[‡] *11*	5174	1$^+$,2$^+$				
		3444	100[‡] *6*	4071.4	4$^+$				
		5531	8.5[‡] *21*	1983.5	3$^+$				
		5563	6.4[‡] *21*	1951.8	2$^+$				
		6623	60[‡] *4*	890.89	4$^+$				
		7514	32[‡] *4*	0.0	3$^+$				
7547.0		3602	64[‡] *4*	3941.9	1$^+$				
		5609	100[‡] *4*	1936.9	1$^+$				

$^{22}_{11}Na_{11}$-12

Adopted Levels, Gammas (continued)

γ(^{22}Na) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&b]	α[a]	Comments
7547.0		6963	18[‡] *4*	583.05	1^+				
7573.5	$3^+,4,5^+$	3502	100[‡] *3*	4071.4	4^+				
		6045	11.5[‡] *13*	1528.1	5^+				
		6682	7.7[‡] *13*	890.89	4^+				
		7572	9.0[‡] *13*	0.0	3^+				
7599	(2^-)	3239	19[‡] *3*	4360.0	2^+				
		3654	25[‡] *3*	3941.9	1^+				
		4539	34[‡] *6*	3059.4	2^+				
		5615	72[‡] *9*	1983.5	3^+				
		5647	31[‡] *3*	1951.8	2^+				
		7015	31[‡] *6*	583.05	1^+				
		7598	100[‡] *6*	0.0	3^+				
7605	$1^+,2^+$	2431	15[‡] *3*	5174	$1^+,2^+$				
		5392	4.5[‡] *15*	2211.4	1^-				
		5621	8[‡] *3*	1983.5	3^+				
		5653	100[‡] *5*	1951.8	2^+				
		6947	20[‡] *3*	657.00	0^+				
		7021	3.0[‡] *15*	583.05	1^+				
		7603	1.5[‡] *7*	0.0	3^+				
7636	$2^+,3,4^+$	2462	100[‡] *7*	5174	$1^+,2^+$				
		6744	45[‡] *5*	890.89	4^+				
		7635	34[‡] *5*	0.0	3^+				
7683	$2^+,3,4^+$	2509	34[‡] *4*	5174	$1^+,2^+$				
		3611	100[‡] *4*	4071.4	4^+				
		4163	12[‡] *2*	3519.1	(3^-)				
		4623	12[‡] *2*	3059.4	2^+				
		6791	32[‡] *4*	890.89	4^+				
		7682	10[‡] *2*	0.0	3^+				
7778.2	$(1\text{ to }3)^-$	4718	27[‡] *3*	3059.4	2^+				
		5566	100[‡] *3*	2211.4	1^-				
		5826	42[‡] *3*	1951.8	2^+				
7800.6	$(1,2)^+$	2626	23[‡] *3*	5174	$1^+,2^+$				
		5848	100[‡] *4*	1951.8	2^+	M1+E2[#]	−0.15[‡] *9*	1.55×10^{-3} *2*	α(K)=6.55×10^{-7} *10*; α(L)=3.92×10^{-8} *6*; α(M)=8.80×10^{-10} *13* α(IPF)=0.001545 *23*
		7799	22[‡] *4*	0.0	3^+				

$^{22}_{11}Na_{11}$-13

Adopted Levels, Gammas (continued)

γ(^{22}Na) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&b]	α[a]	Comments
7821.1	1$^+$,2$^+$	2647	78[‡] *4*	5174	1$^+$,2$^+$				
		5869	20[‡] *4*	1951.8	2$^+$				
		7163	100[‡] *4*	657.00	0$^+$				
		7820	6[‡] *2*	0.0	3$^+$				
7889.1	4$^+$	4920	4.2[‡] *12*	2968.6	3$^+$				
		5905	29[‡] *4*	1983.5	3$^+$	M1+E2[#]	+0.08[‡] *3*	1.55×10^{-3}	α(K)=6.47×10^{-7} *9*; α(L)=3.88×10^{-8} *6*; α(M)=8.68×10^{-10} *13* α(IPF)=0.001553 *22*
		6360	100[‡] *6*	1528.1	5$^+$	M1+E2[#]	−0.03[‡] *2*		
		6997	71[‡] *6*	890.89	4$^+$				
		7888	4.2[‡] *12*	0.0	3$^+$				
7919	2$^-$	3558	42[‡] *6*	4360.0	2$^+$				
		5348	16[‡] *6*	2571.5	2$^-$				
		5706	19[‡] *6*	2211.4	1$^-$				
		5935	61[‡] *6*	1983.5	3$^+$				
		5981	84[‡] *10*	1936.9	1$^+$				
		7917	100[‡] *10*	0.0	3$^+$				
7965	0,1,2,3$^+$	3645	15[‡] *3*	4319.0	1$^+$				
		4020	30[‡] *3*	3941.9	1$^+$				
		6027	100[‡] *3*	1936.9	1$^+$				
		7381	20[‡] *3*	583.05	1$^+$				
7977	(1 to 3)$^-$	5405	50[‡] *6*	2571.5	2$^-$				
		5764	68[‡] *6*	2211.4	1$^-$				
		6024	15[‡] *6*	1951.8	2$^+$				
		6039	15[‡] *6*	1936.9	1$^+$				
		7319	29[‡] *6*	657.00	0$^+$				
		7393	100[‡] *6*	583.05	1$^+$				
		7975	18[‡] *9*	0.0	3$^+$				
8018	4$^+$,5$^+$	3946	49[‡] *12*	4071.4	4$^+$				
		4309	42[‡] *16*	3706.7	6$^+$				
		7126	100[‡] *21*	890.89	4$^+$				
		8016	42[‡] *16*	0.0	3$^+$				
8041	2$^+$,3,4$^+$	3267	4.8[‡] *12*	4770	3$^+$				
		3680	4.8[‡] *12*	4360.0	2$^+$				
		4521	6.0[‡] *12*	3519.1	(3$^-$)				
		5071	2.4[‡] *6*	2968.6	3$^+$				

Adopted Levels, Gammas (continued)

γ(^{22}Na) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
8041	$2^+,3,4^+$	7149	1.2‡ *6*	890.89	4^+
		8039	100‡ *4*	0.0	3^+
8101	$1^+,2^+$	3740	3.6‡ *11*	4360.0	2^+
		5040	7.1‡ *18*	3059.4	2^+
		6148	57‡ *5*	1951.8	2^+
		7443	100‡ *5*	657.00	0^+
		7517	7.1‡ *18*	583.05	1^+
		8099	3.6‡ *11*	0.0	3^+
8108	$3^+,4$	2666	59‡ *5*	5442	
		4587	69‡ *5*	3519.1	(3^-)
		6579	100‡ *5*	1528.1	5^+
		7216	5.1‡ *25*	890.89	4^+
		8106	23‡ *3*	0.0	3^+
8114	3^-	5053	100‡ *11*	3059.4	2^+
		6161	15‡ *9*	1951.8	2^+
		7222	57‡ *11*	890.89	4^+
		8112	46‡ *9*	0.0	3^+
8165	3^-	3804	34‡ *11*	4360.0	2^+
		5104	16‡ *9*	3059.4	2^+
		6212	34‡ *11*	1951.8	2^+
		7273	100‡ *11*	890.89	4^+
		8163	43‡ *11*	0.0	3^+
8197	$2^+,3^+$	4125	35‡ *8*	4071.4	4^+
		6244	47‡ *12*	1951.8	2^+
		6259	14‡ *12*	1936.9	1^+
		8195	100‡ *10*	0.0	3^+
8211	$1^+,2^+$	3037	73‡ *8*	5174	$1^+,2^+$
		6258	100‡ *8*	1951.8	2^+
		8209	100‡ *8*	0.0	3^+
8221	$4^+,5,6^+$	4514 *4*	31@ *12*	3706.7	6^+
		6693 *4*	65@ *14*	1528.1	5^+
		7330 *4*	100@ *14*	890.89	4^+
8234	$1^+,2^+$	3651	7.3‡ *18*	4583	2^-
		3873	10.9‡ *18*	4360.0	2^+
		5173	18‡ *4*	3059.4	2^+
		6281	16‡ *4*	1951.8	2^+
		7650	22‡ *4*	583.05	1^+
		8232	100‡ *5*	0.0	3^+
8436	$(1\text{ to }3)^-$	4075	11‡	4360.0	2^+
		4915	50‡	3519.1	(3^-)
		5375	16‡	3059.4	2^+
		6223	42‡	2211.4	1^-
		6498	3‡	1936.9	1^+
		7852	100‡	583.05	1^+
		8434	45‡	0.0	3^+
8496	$1^+,2^+$	4135	1‡	4360.0	2^+
		5435	1‡	3059.4	2^+
		8495	100‡	0.0	3^+
8572		4048	43@ *4*	4523.9	(5^+)
		4865	100@ *4*	3706.7	6^+
8613		1562	100@ *12*	7049	
		3904	96@ *12*	4710.0	(5^+)
8675		4603	9‡	4071.4	4^+
		5614	2‡	3059.4	2^+
		6462	100‡	2211.4	1^-
		7783	38‡	890.89	4^+
		8091	23‡	583.05	1^+
		8673	19‡	0.0	3^+
8724		2892	100@	5832	
9060		2011	10@ *4*	7049	
		3742	40@ *6*	5318	(3^+)
		5353	100@ *10*	3706.7	6^+
		7532	50@ *10*	1528.1	5^+
9813		5289	100@	4523.9	(5^+)

Adopted Levels, Gammas (continued)

$\gamma(^{22}Na)$ (continued)

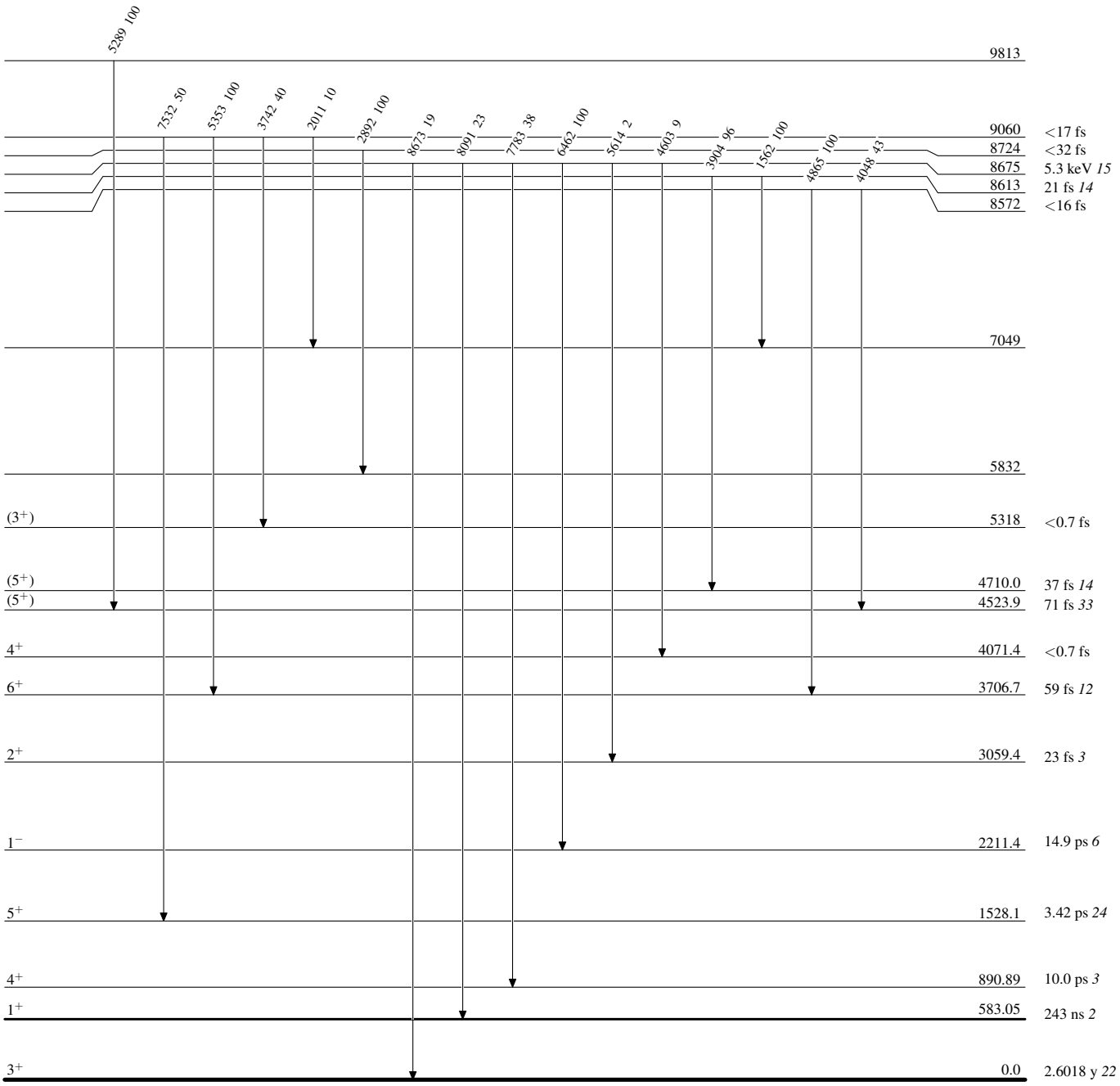
† γ-ray placement and intensity are from (α,n),(α,nγ), except otherwise noted. γ rays depopulating 5174 keV and above levels are from (p,γ), except otherwise noted. γ rays without uncertainty are from level energy difference, recoil energy subtracted.
‡ From (p,γ).
# From (^{3}He,pγ).
@ From (^{14}N,α).
& From (α,n),(α,nγ) and RUL, except otherwise noted.
a Additional information 1.
b If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

$^{22}_{11}Na_{11}$-16

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

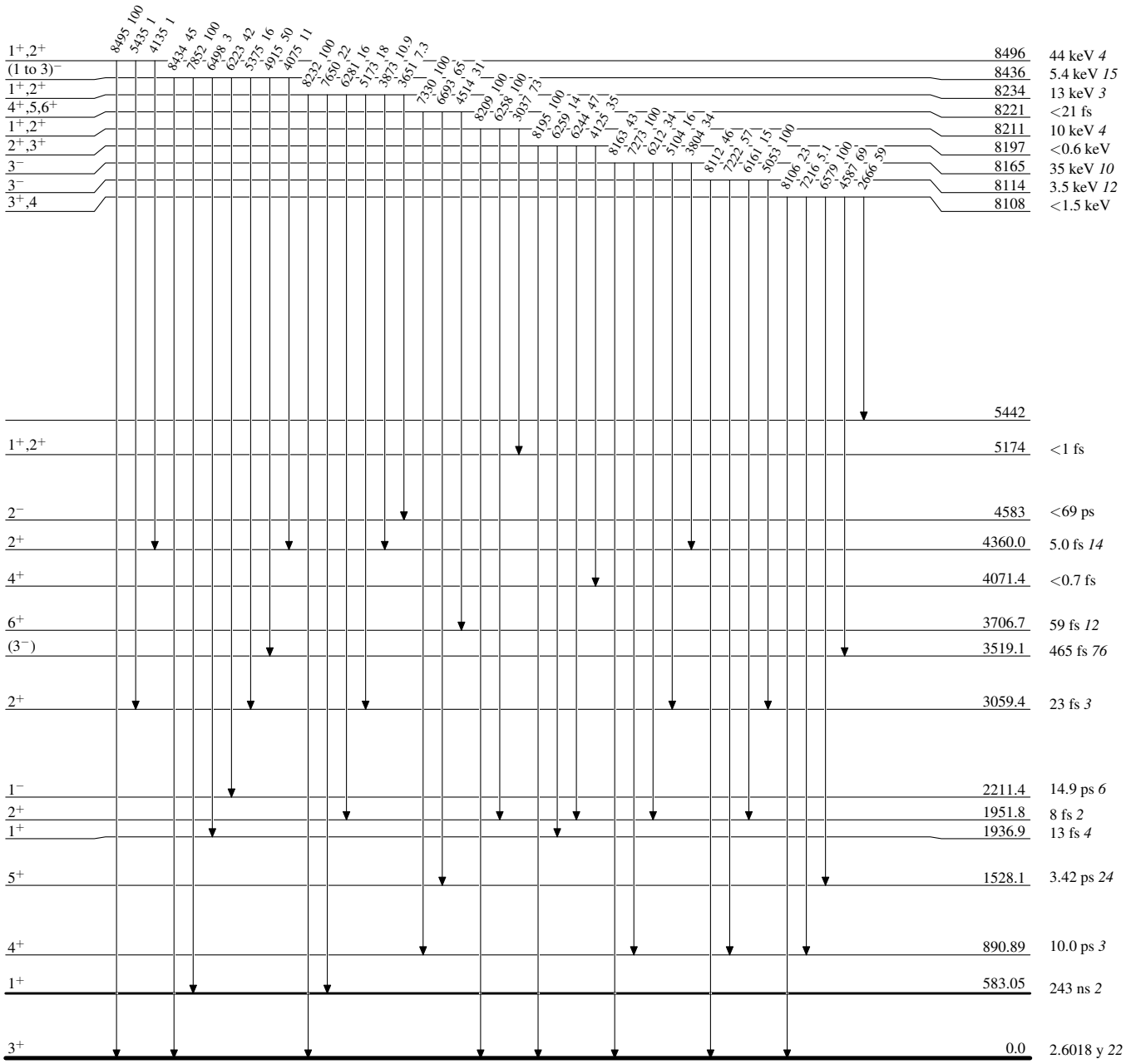


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

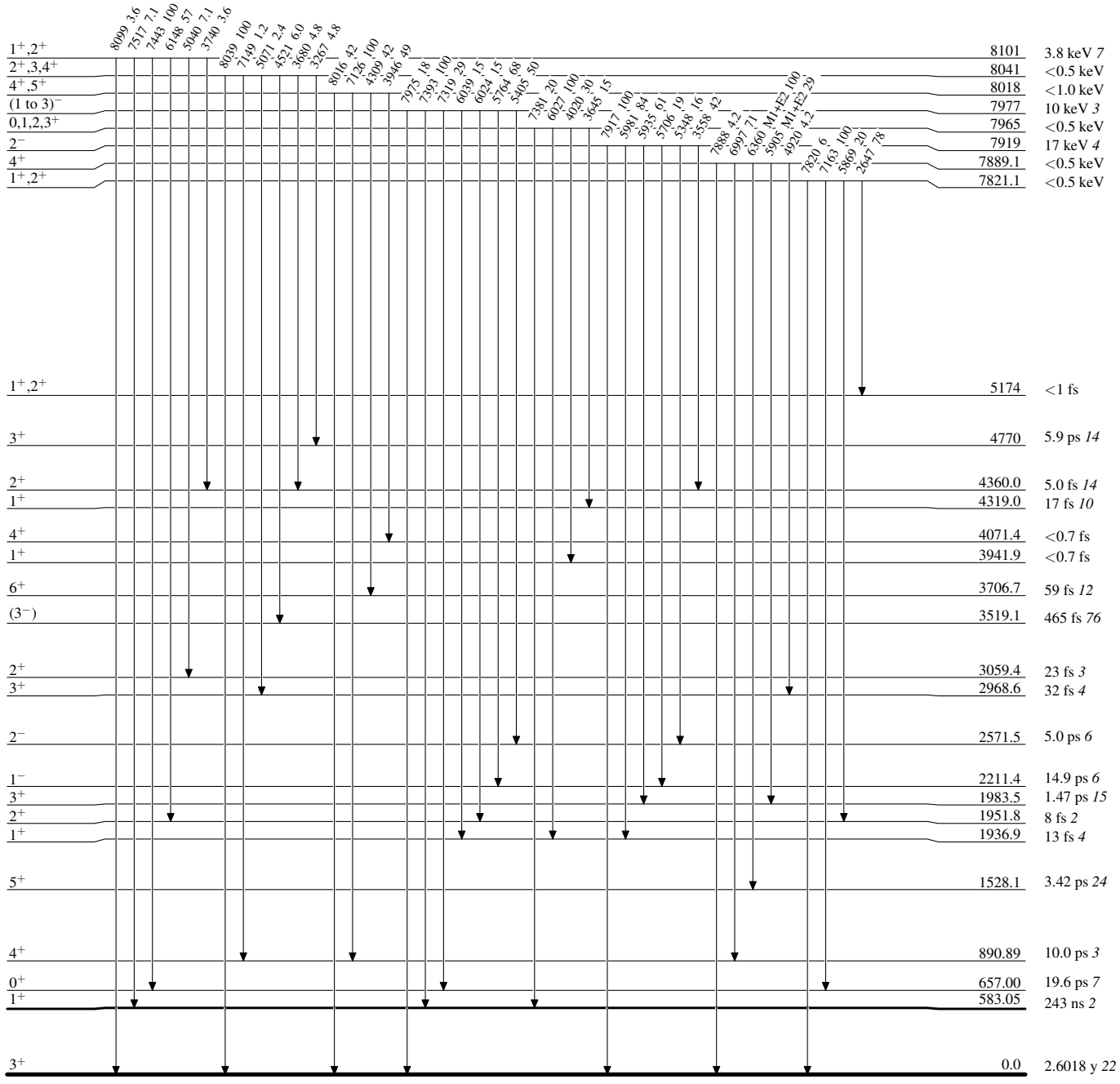


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

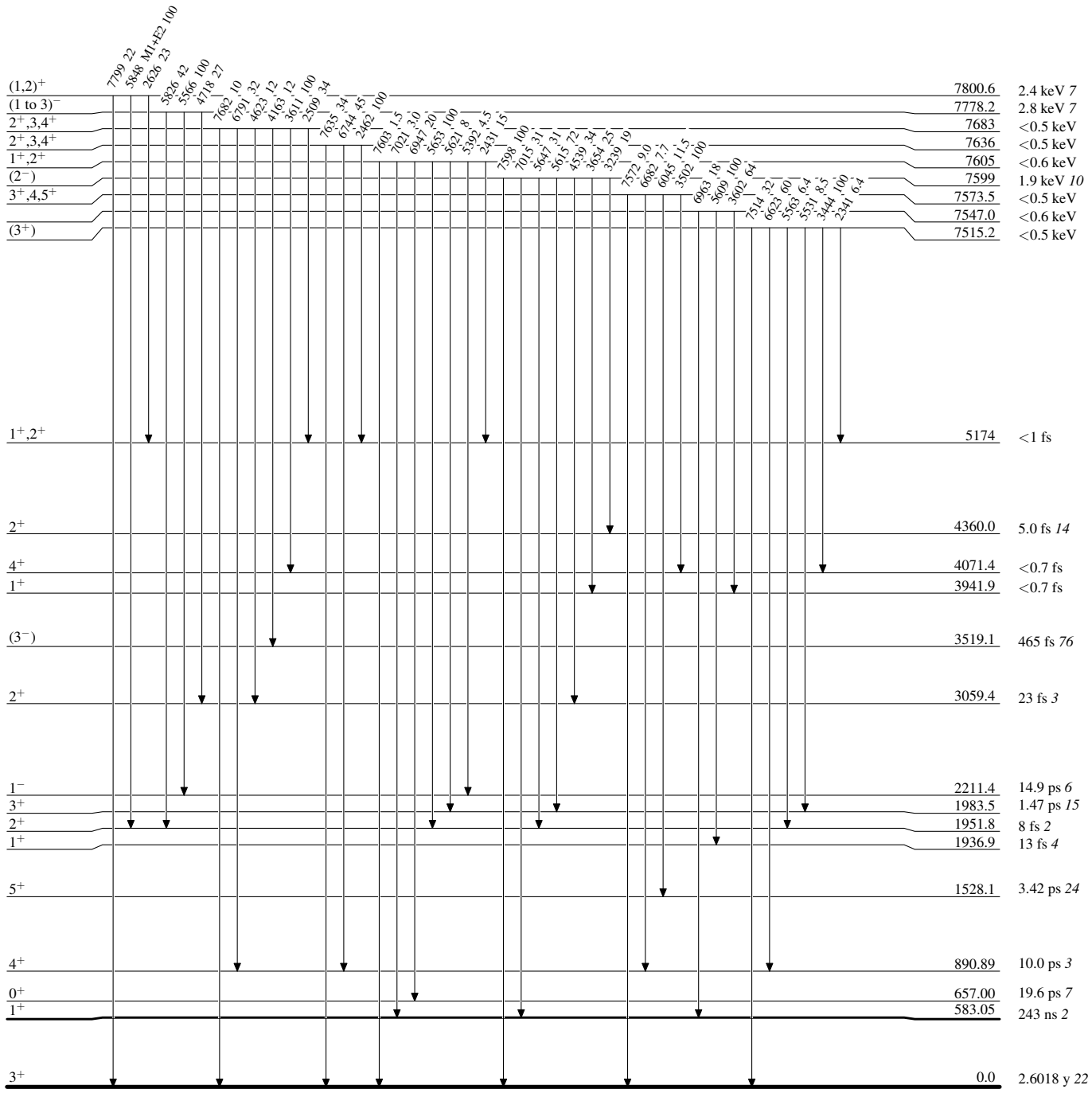


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

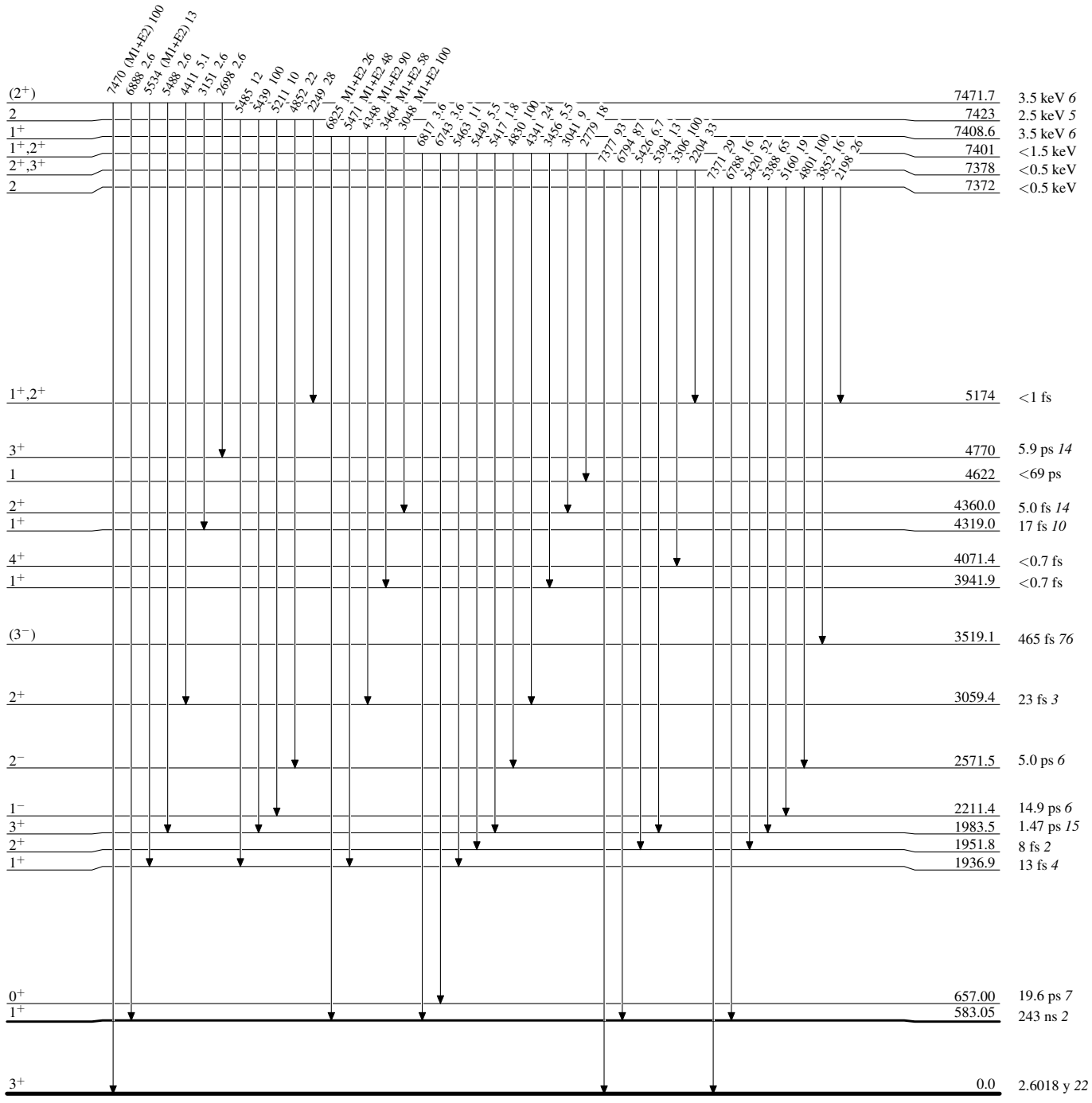


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

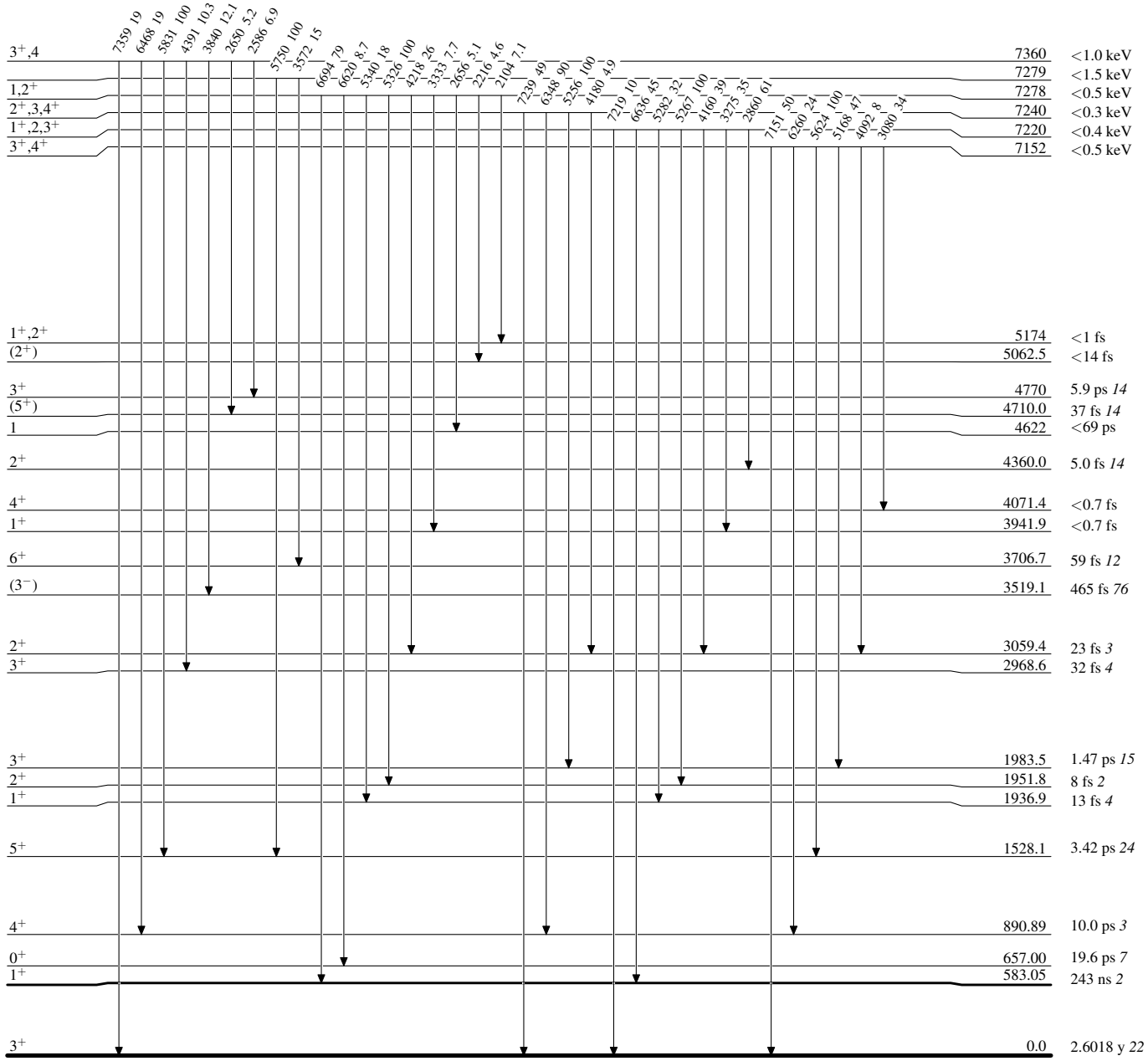


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

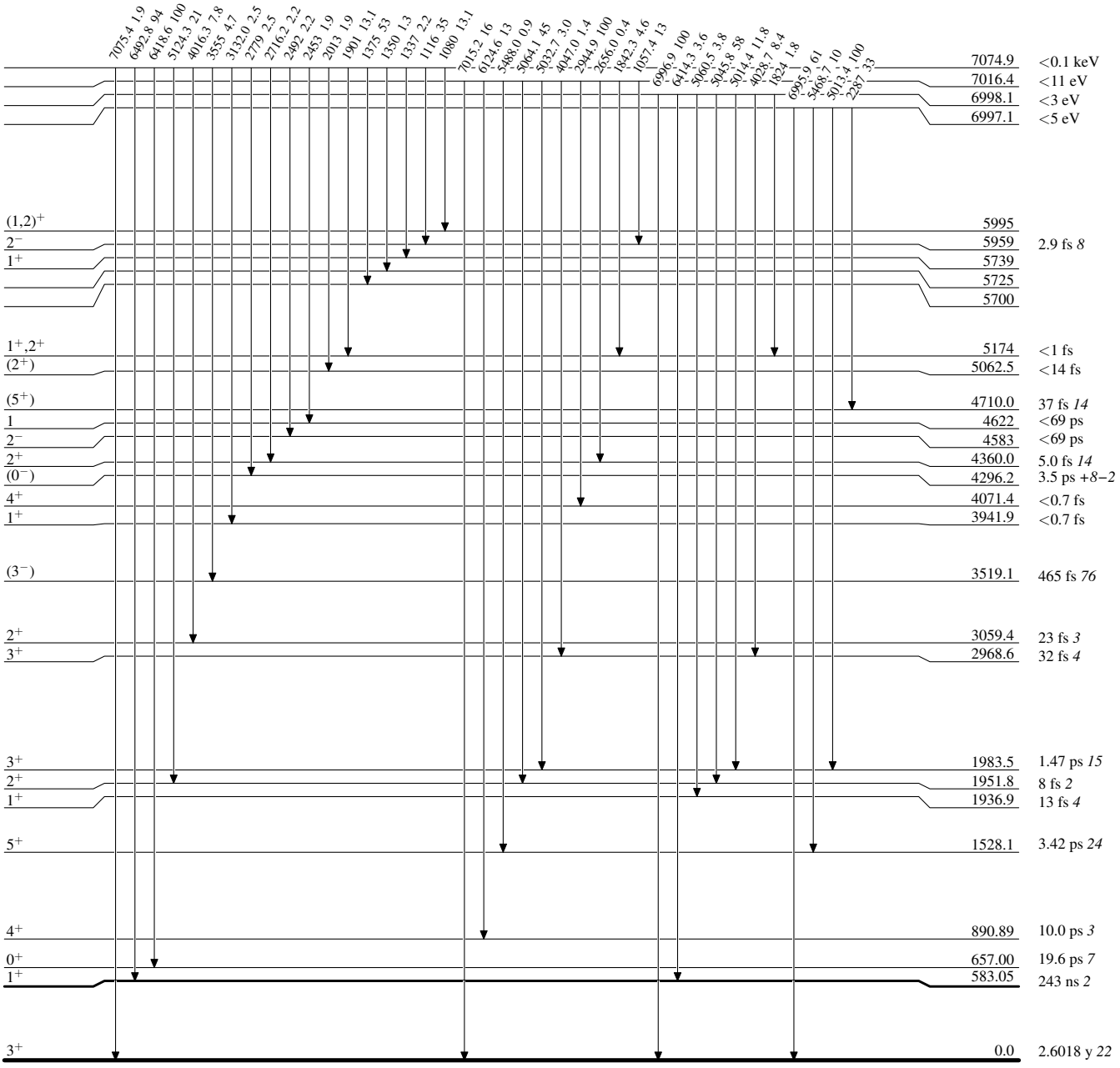


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

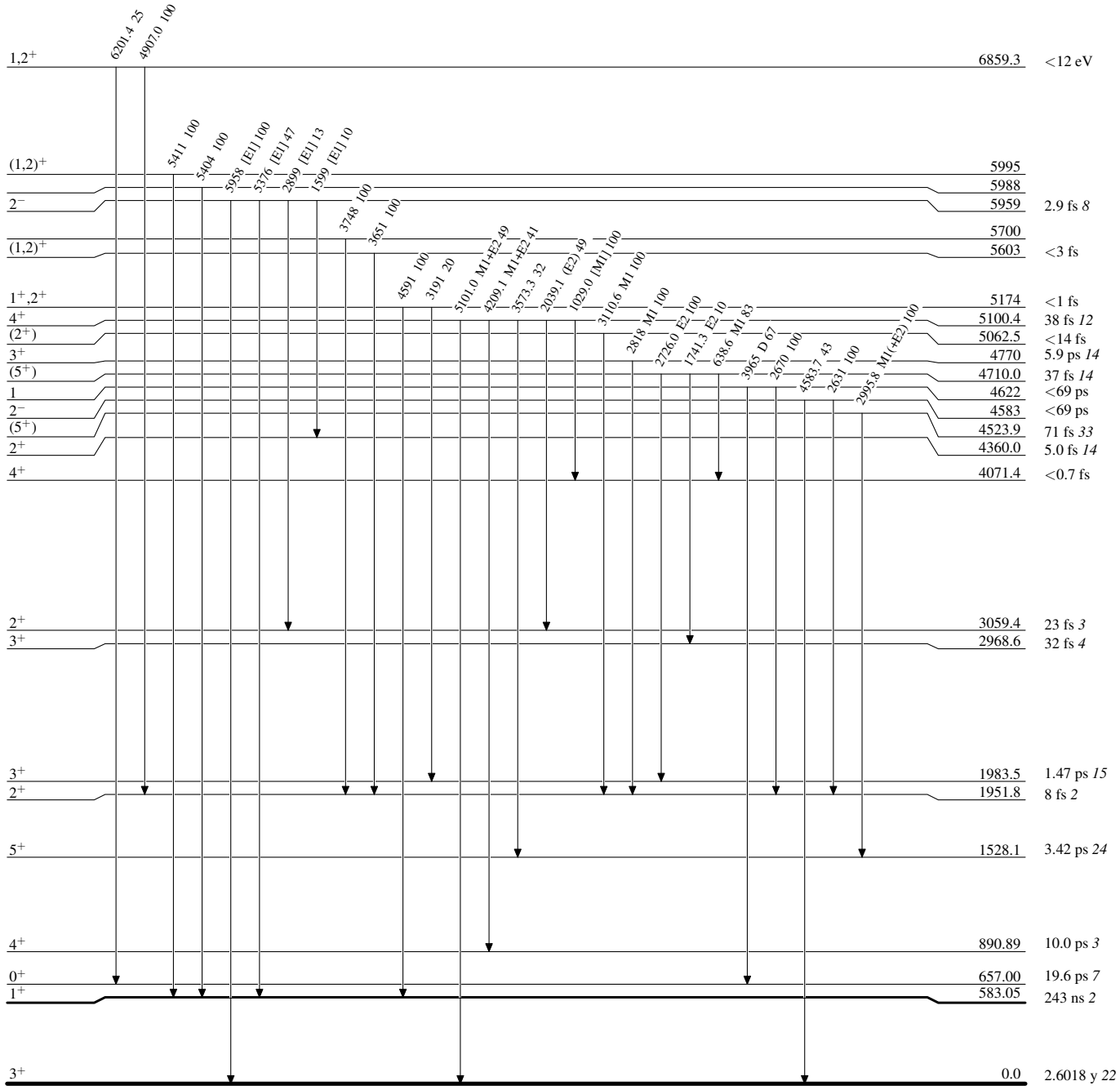


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

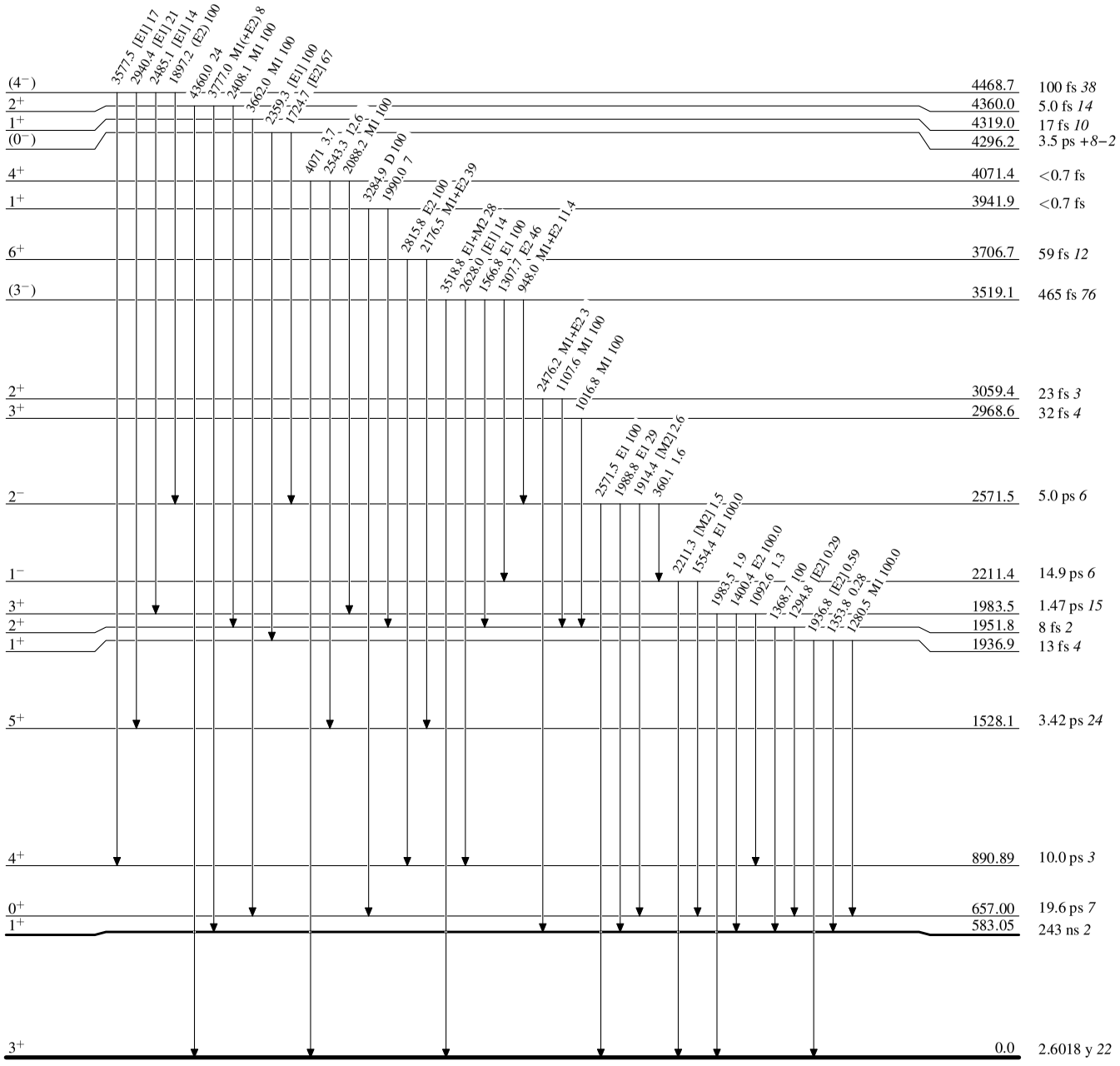


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

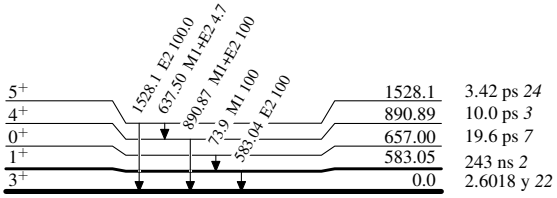


$^{22}_{11}Na_{11}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{22}_{11}Na_{11}$