Adopted Levels, Gammas

History

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

Q(β^-)=−2843.20 *17*; S(n)=10364.26 *4*; S(p)=15266.1 *18*; Q(α)=−9666.81 *2* 2012Wa38

2006As01: No evidence of excited state population in ^{22}Ne from ^{9}Be(^{18}O,α^{14}C), (^{18}O,^{10}Be^{12}C), and (^{18}O,^{9}Be^{13}C) reactions.

Other reaction: ^{22}Ne(α,α'): 1971Ol01,1984Sa28,1987Su09.

^{22}Ne Levels

Cross Reference (XREF) Flags

A	^{22}F β^- decay	J	^{18}O(^{6}Li,d)	S	^{22}Ne(e,e′)
B	^{22}Na ε decay	K	^{18}O(^{7}Li,t),(^{7}Li,tγ)	T	^{22}Ne(p,p′)
C	^{4}He(^{19}F,pγ)	L	^{19}F(α,pγ)	U	Coulomb excitation
D	^{11}B(^{13}C,d)	M	^{20}Ne(t,p)	V	^{23}Na(d,^{3}He)
E	^{12}C(^{18}O,^{8}Be),^{14}C(^{18}O,^{10}Be)	N	^{20}Ne(t,pγ)	W	^{23}Na(t,α)
F	^{14}C(^{12}C,α)	O	^{21}Ne(n,γ) E=thermal	X	^{26}Mg(d,^{6}Li)
G	^{18}O(α,γ)	P	^{21}Ne(n,γ): res	Y	^{26}Mg(^{3}He,^{7}Be)
H	^{18}O(α,n): res	Q	^{21}Ne(d,p)	Z	^{150}Nd(^{26}Mg,^{22}Neγ)
I	^{18}O(^{4}He,^{4}He′): res	R	^{22}Ne(γ,γ')		

E(level)[†]	J$^\pi$	T$_{1/2}$[g]	XREF	Comments
0.0[c]	0$^+$[cf]	stable	ABCD GH JKLMNOPQRSTUVWXY	δ<r^2>(^{20}Ne,^{22}Ne)=−0.321 fm^2 *4* (stat) *43* (syst) (2011Ma48,2008Ge07). Absolute ^{22}Ne charge radius=2.952 fm *9* (2008Ge07) deduced with respect to known ^{20}Ne charge radius=3.006 fm *5*. J$^\pi$: From optical spectroscopy (1927Ha01); L=0 in (^{6}Li,d), (^{7}Li,t), and (t,p); natural parity.
1274.537[c] *7*	2$^+$[cf]	3.60 ps *5*	AB D G JKLMNOPQ S UVWXYZ	μ=+0.65 *2*; Q=−0.19 *4* E(level): From γ-ray energy. J$^\pi$: E2 to 0$^+$; L=2 in (^{6}Li,d), (^{7}Li,t), and (t,p); natural parity. μ: Recoil into Vacuum, Differential method (1977Ho01, 2014StZZ). Q: Coulomb Excitation Reorientation (1981Sp07, 2014StZZ). T$_{1/2}$: From mean lifetime 5.19 ps *7*: weighted average of mean lifetimes − 5.16 ps *13* (1984Bh03), 5.1 ps *2* (1983Ko01), 4.6 ps *6* (1979Ma13), 5.15 ps *31* (1979Fo02), 5.2 ps *3* (1977Ho01), 5.62 ps *20* (1977Ra01), 4.9 ps *7* (1977Og03), 5.15 ps *14* (1977Sc36), 4.9 ps *4* (1974Ol01), 5.4 ps *4* (1973An01), 5.5 ps *10* (1973Si31), 5.9 ps *11* (1972Sn01), 5.9 ps *6* (1972Sz05), 3.6 ps *7* (1970Na07), 4.6 ps *5* (1969Jo10), 6.1 ps *5* (1969ScZV), and 3.1 ps *11* (1960An07).
3357.2[‡c] *5*	4$^+$[cf]	225 fs *4*	A D G JKLMN Q S VWXYZ	μ=+2.2 *6* J$^\pi$: L=4 in (^{6}Li,d); natural parity. μ: Tilted Foil hyperfine field integral perturbed angular

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Adopted Levels, Gammas (continued)

^{22}Ne Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[g]	XREF	Comments
				correlation (1984Ba10, 2014StZZ). $T_{1/2}$: From mean lifetime 324 fs *6*: weighted average of mean lifetimes – 324 fs *9* (1979Fo02), 311 fs *17* (1978Fi04), 328 fs *10* (1978Ek01), 285 fs *50* (1974Fi16), 360 fs *50* (1972Br17 – average of measurements with 39 different slowing down materials), 270 fs *90* (1968Ku05), 400 fs *110* (1967Wa13), and 390 fs *80* (1964Es02).
4456.2 *9*	2^+[f]	3.7[i] fs *25*	A CD G JKLMN Q S VWXYZ	Jπ: E2 to 0^+; L=2 in (^{6}Li,d), (^{7}Li,t), and L=(2) in (t,p); natural parity. $T_{1/2}$: From (e,e′) – 1979Ma13. Other values: <11 fs (1979Al01–(^{19}F,pγ)), <30 (α,pγ)), while 37 fs *6* (1993Ol05 – (α,pγ)) is higher compared to other values.
5146.0 *9*	2^-[f]	0.8 ps *2*	CD G KLMN Q VWX	Jπ: E1 to 2^+, L=1,3 in (t,p); unnatural parity. $T_{1/2}$: From mean lifetime 1.1 ps *2*: weighted average of mean lifetimes – 1.2 ps *3* (1975Me19), 1.15 ps *45* (1976Fi02), 1.3 ps *5* (1979Al01), and 0.9 ps *4* (1993Ol05).
5329.6 *13*	1^+[f]	1.2 fs *3*	D G L N QRS W	E(level): Weighted average of data from (e,e′), (γ,γ′), and (α,pγ). Jπ: M1+E2 to 2^+, $J^\pi=1^+$ in (e,e′) (1974Ma43); (unnatural parity). $T_{1/2}$: From mean lifetime 1.7 ps *3*: Weighted average of 1.7 fs *3* (e,e′) (1979Ma13) and 1.8 fs *7* (γ,γ′) (1984Be26).
5363.4 *11*	2^+[f]	69[i] fs *12*	D JKLMN Q WX	Jπ: E2 to 0^+; L=2 in (t,p); natural parity. $T_{1/2}$: <20 fs in 1976Fi02 – reason for this discrepancy is unknown.
5523.3[‡] *6*	$(4)^+$[f]	21 fs *3*	A CD JKLMN Q WX Z	Jπ: L=4 in (^{6}Li,d), (t,p); natural parity; J=3 in ^{11}B(^{13}C,d). $T_{1/2}$: From mean lifetime 30 fs *4*: Weighted average of 27 fs *4* (1979Al01) and 37 fs *6* (1993Ol05). Uncertainty – lower experimental value.
5641.2[‡] *7*	3^+[f]	<3[i] fs	A CD KLMN Q WX	Jπ: M1 to 2^+; L=2 in (d,p); unnatural parity.
5910.1 *9*	3^-[f]	32 fs *11*	A D JKLMN S WX	E(level): From (n,γ). Jπ: E1 to 2^+; L=3 in (^{6}Li,d); natural parity; γ to 4^+. $T_{1/2}$: From mean lifetime 46 fs *16*: Weighted average of 51 fs *23* (1976Fi02) and 44 fs *16* (1993Ol05). Uncertainty – lower experimental value.
6119.9 *16*	2^+[f]	14 fs *7*	D JKLMN Q S WX	Jπ: L=2 in (t,p); natural parity. $T_{1/2}$: From (e,e′). Other value: 24 fs *9* (1993Ol05).
6235 *2*	0^+[f]	236[i] fs *83*	JKLM S X	Jπ: L=0 in (^{6}Li,d), (^{7}Li,t), and (t,p); natural parity.
6311.0[c] *10*	(6^+)[c]	49 fs *4*	CD G L W Z	$T_{1/2}$: From mean lifetime 70 fs *6*: Weighted average of 78 fs *15* (1976Fi02), 70 fs *10* (1979Al01), and 69 fs *6* (1993Ol05). Uncertainty – lowest experimental value.
6345.1[‡] *10*	4^+[f]	13[i] fs *3*	A CD G KLMN Q WX	Jπ: L=4 in (t,p), natural parity.
6635.8 *8*	$(3,4)^+$	49[i] fs *21*	CD LM Q WX	Jπ: M1+E2 to 4^+, γ to 2^+, L=2 in (d,p).
6689.0 *11*	1^-[f]	243[i] fs *132*	KLM S WX	Jπ: L=1 in (t,p); natural parity.
6819.4 *16*	2^+	<3[i] fs	CD KLM Q S WX	Jπ: L=2 in (t,p), (^{7}Li,t); natural parity.
6853.5 *16*	(1^+)	0.38[#] fs *16*	D G LM QRST W	Jπ: M1 to 0^+ and 2^+, also from σ(θ) and DWIA calculation in (p,p′).

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Adopted Levels, Gammas (continued)

^{22}Ne Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[g]	XREF	Comments
6900 *2*	0^+	76[i] fs *8*	KLM S W	Jπ: L=0 in (^{7}Li,t).
7051 *3*	1^-[f]	100[i] fs *30*	D KLMN Q S W	Jπ: L=1 in (t,p); natural parity.
7341.1 *11*	0^+[f]	<3[i] fs	D JKL N Q WX Z	Jπ: L=0 in (^{7}Li,t), (^{6}Li,d) for doublet; natural parity for doublet. γ-rays to 1^+ and 2^+.
7341.2[‡] *11*	$(4)^+$[f]	35[i] fs *21*	A D LM	Jπ: L=(4) in (t,p); natural parity.
7405.9 *7*	$(3)^-$[f]	32[i] fs *10*	D KLM Q WX	Jπ: L=1 in (d,p), E1 to 2^+ (α,pγ), γ-ray feeding from 4^+ state at 8855; natural parity for doublet. Another possibility 1^-, as suggested in 1993Ol05 – (α,pγ), less likely considering γ feeding from 4^+.
7423.0[‡] *9*	(5^+)	<3[i] fs	A D LM W Z	Jπ: From (α,pγ) (1993Ol05), based on γ(θ) and Hauser-Feshbach calculations.
7469? *2*	1,2	55[i] fs *21*	L Q S W	Jπ: From (α,pγ). 1559γ to 3^-.
7489 *5*	1^-[f]		G KLMN W	Jπ: L=1 in (^{7}Li,t) and (t,p); natural parity.
7643.1 *13*	2^+	470[k] as *200*	D JKLM Q S X	Jπ: L=2 in (^{7}Li,t); 7641γ E2 to 0^+.
7663.7 *9*	$(2)^-$		LM Q S	XREF: S(7630). Jπ: L=1 in (d,p); also from (e,e′).
7722.0 *11*	3^-[f]		D JKLM Q X	Jπ: L=3 (^{6}Li,d), (^{7}Li,t), and (t,p); natural parity.
7921 *2*	$(2)^+$[f]		D KLM Q S X	Jπ: L=2 in (t,p); natural parity. J=3 in (^{13}C,d).
8076.9 *14*	$(4)^+$		D KLM Q	Jπ: L=2 in (d,p); J=3 in (^{13}C,d); γ-ray transitions to 2^+, 4^+,(6^+).
8134.3 *4*	2^+[f]		D JKLM Q X	Jπ: L=2 in (t,p); natural parity.
8162.2 *13*	2^+,3,4^+		LM S	Jπ: γ′s to 2^+ and 4^+.
8375.9 *16*	$(3)^-$		D KLM Q X	Jπ: L=3 in (t,p); natural parity; γ transitions to 2^+, 4^+. But J=5 in (^{13}C,d).
8452 *7*			X	
8489.6 *12*	2^+		D KLM Q	XREF: M(8500). Jπ: L=2 in (t,p).
8561.4[#] *19*	$(1,2)^+$	0.35[#] fs *13*	LM QR	Jπ: L=2 in (d,p), γ to 0^+ and 1^-.
8573 *10*			X	
8596.0 *9*			D KLM Q S	
8741.0 *14*	$(3)^-$		D LM Q X	Jπ: L=3 in (t,p); but J=5 in (^{13}C,d).
8855.3 *15*	$(4)^+$		LM Q	Jπ: L=2 in (d,p); γ transitions to $(3)^-$, $(6)^+$.
8900.3 *16*			D G L Q T	Jπ: Reported as doublet of 1^- and $(4,5)^+$ in 1998En04.
8976 *3*			D J LM	
9045 *3*	$(2^+,3^-)$		LM Q X	Jπ: γ′s to 4^+, 1^-.
9097 *3*	(1 to 3)$^-$		D J LM Q	Jπ: L=1 in (d,p); possible γ-ray branch to 2^+ (1976Fi02).
9178 *3*	1^+	84[#] as *3*	RS	XREF: S(9140). E(level): Other values: 9165 *3* (1979Be10 – (γ,γ′)), 9170 *4* (1976Fi02 – (α,pγ)), 9179 *10* (1974Fl07 – (t,p)). Jπ: From (pol γ,γ).
9178.1 *7*	$(4)^+$		D J LM T	Jπ: L=4 in (t,p); but J=5 in (^{13}C,d).
9229 *3*	2^+		J LM X	Jπ: L=2 in (t,p); γ transitions to 1^-,2^- states.
9250 *3*			L	
9324 *2*			D L	
9508[@] *10*			D J LM	
9541 *10*	2^+		M	Jπ: L=2 in (t,p).
9625 *12*	5		D J L	XREF: D(9640)L(9609). E(level): Average of data from (α,pγ), (^{6}Li,d), and (^{13}C,d).

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Adopted Levels, Gammas (continued)

^{22}Ne Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[g]	XREF	Comments
				Jπ: From (α,pγ) (1976Br06).
9654 *10*			D M	XREF: D(9630).
9725[&] *10*	(3⁻)		J LM	XREF: L(9697). Jπ: L=(3) in (^{7}Li,t).
9841[@] *10*	(2⁺)		J LM	Jπ: L=(2) in (^{7}Li,t).
10066[&] *10*	(0⁺)		J M	Jπ: L=(0) in (^{7}Li,t).
10137[&] *10*	2⁺		J LM	Jπ: L=2 in (t,p).
10208.5[a] *10*	1⁻	<2[a] keV	G J LM R	Jπ: L=1 in (^{6}Li,d), γ to 0⁺.
10280.4[a] *10*	(0⁺,1⁻,2⁺)	<2[a] keV	G J L	Jπ: From (α,γ) angular distributions.
10294.8[a] *10*	(2⁺)	<2[a] keV	G M	Jπ: Suggested in 1994Gi01, 9018γ D to 2⁺.
10384 *15*			J lM O	E(level): From (t,p). Jπ: 6,8 in (α,pγ).
10416.4 *3*			J lM P	E(level): From (n,γ): res. Jπ: 6,8 in (α,pγ).
10462.5 *5*	3⁻		M P	E(level): From (n,γ): res. Jπ: L=3 in (t,p).
10501.6 *3*	2⁺		M P	E(level): From (n,γ): res. Jπ: L=2 in (t,p).
10544.9 *4*	2⁺		M P	E(level): From (n,γ): res. Jπ: L=2 in (t,p).
10616[b] *3*	(5⁻)	6 keV	GH J LM	Jπ: From αγ angular distribution measurements (α,γ).
10696 *4*		<4[a] keV	G J	E(level): From (α,γ).
10706 *6*		<10[a] keV	GH M	XREF: M(10720). E(level): From (α,γ).
10749 *3*	5⁻	6 keV	GH L	E(level): From (α,n). Jπ: From (α,γ). Natural parity listed in 1990En08 Table 22.11.
10857[b] *3*	3⁻	6 keV	GH J M	Jπ: L=3 in (t,p).
10890 *10*	1⁺		T	Jπ: From σ(θ) and DWIA calculation in (p,p′).
10921[b] *3*	1⁻	24 keV	GH M	Jπ: L=1 in (t,p); γ transitions to 0⁺, 2⁺ states.
11032[a] *6*	(8⁺,6⁺)	<10[a] keV	GH J L Z	Jπ: 8⁺ in (α,pγ), (8⁺,6⁺) in (α,γ).
11064 *10*	2⁺		M	Jπ: L=2 in (t,p).
11130[a] *5*	6,7	<5[a] keV	G J L	Jπ: From (α,pγ), angular correlation measurements.
11172			H	
11194[b] *3*		7 keV	GH M	
11269[b] *5*	2⁺,3⁺,4⁺	12 keV	GH J M	Jπ: From 1978Tr05 (α,γ) – based on αγ angular distribution measurements.
11323			H	
11431[b] *8*		48 keV	GH M	Jπ: Natural parity in 1978Tr05 (α,γ).
11465[b] *3*	(1⁻)	<3 keV	GH	Jπ: From 1978Tr05,1970Ch18 (α,γ).
11522 *8*	7⁻		GH LM	E(level): Weighted average of data 11533 *10* (1994Ma37) and 11520 *15* (1974Fl07) in (t,p), and 11482 *20* (α,pγ). Jπ: From (α,pγ), angular correlation measurements. Natural parity listed in 1990En08 – Table 22.11.
11577 *5*		18 keV	GH M	E(level): From (α,n).
11656 *10*			M	
11686 *5*	(2⁺)	9 keV	GH	E(level),Jπ: From (α,γ).
11708 *15*	(2⁺)[d]	5[d] keV	HI M	E(level): From (t,p).
11745		41 keV	G	

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Adopted Levels, Gammas (continued)

^{22}Ne Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[g]	XREF	Comments
11751	1⁻	8 keV	G	
11772[@] *10*	3⁻		I M	Jπ: L=3 in (t,p). Inconsistent with 1⁻ in (^{4}He,^{4}He′).
11892 *6*	1	10[d] keV	G I M ST	E(level): Weighted average of data from 11886 *10* (α,γ), 11907 *10* and 11895 *15* (t,p), and 11880 *10* (^{4}He,^{4}He′). Jπ: 1⁺ in (p,p′), 1⁻ in (^{4}He,^{4}He′) and (α,γ).
12000 *10*	1⁺		T	
12020 *10*	0⁺[d]	68[d] keV	I	
12071 *15*			M	
12218 *15*			M	
12250 *10*	0⁺[d]	76[d] keV	I	
12280 *10*	1⁻[d]	51[d] keV	G I	
12390 *10*	3⁻	99[d] keV	I M	Jπ: L=3 in (t,p), Inconsistent with 2⁺ in (^{4}He,^{4}He′).
12450 *20*	(0⁺,1⁻)		M	Jπ: L=0,1 in (t,p).
12570 *10*	(1⁻)[d]	105[d] keV	I S	
12610 *10*	(2⁺)[d]	124[d] keV	I	
12643 *15*			M	
12700 *10*	3⁻[d]	15[d] keV	I	
12800 *10*	2⁺[d]	50[d] keV	I	
12820 *10*	1⁻[d]	170[d] keV	I	
12862 *15*	(3⁻)	145[j] keV	I M	XREF: I(12840). Jπ: L=(3) in (t,p). J^π=1⁻ in (^{4}He,^{4}He′):res.
12900 *10*	3⁻[d]	39[d] keV	I M	E(level): Average of data from (t,p) and (^{4}He,^{4}He′).
12990 *10*	0⁺[d]	80[d] keV	I	
13030 *10*	2⁺[d]	90[d] keV	I	
13078 *20*			M	
13190 *10*	3⁻[d]	79[d] keV	I	
13210 *10*	0⁺[d]	81[d] keV	I	
13274 *20*			M	
13392 *8*	3⁻[d]	58[d] keV	I M	E(level): Average of data from (t,p) and (^{4}He,^{4}He′).
13460 *10*			T	
13490 *10*	4⁺[d]	29[d] keV	I	
13540 *10*	0⁺[d]	96[d] keV	I	
13570 *10*	3⁻[d]	136[d] keV	I	
13650 *10*	(3⁻)[d]	48[d] keV	I	
13670 *10*	(2⁺)[d]	41[d] keV	I	
13690 *10*	(5⁻)[d]	50[d] keV	I	
13730 *10*	4⁺[d]	57[d] keV	I	
13820 *10*	(2⁺)[d]	51[d] keV	I	
13880 *10*	4⁺[d]	46[d] keV	I T	XREF: T(13890).
14060 *20*			T	
14470			E	
15580 *40*			T	
16510 *10*			T	
17.00×10^3 *10*			F	
17.48×10^3 *10*			E	
18.43×10^3 *10*		≈330[h] keV	EF	E(level): Average of data from (^{18}O,^{8}Be),^{14}C(^{18}O,^{10}Be) and (^{12}C,α).
19280 *20*	(7⁻)[d]	88[d] keV	F I	XREF: F(19130).

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Adopted Levels, Gammas (continued)

^{22}Ne Levels (continued)

E(level)[†]	J$^\pi$	T$_{1/2}$[g]	XREF	Comments
19.45×10^3 *10*	(6$^+$)		E	J$^\pi$: Based on α-α angular distribution measurements (2006Yi01).
19560 *20*	(7$^-$)[d]	75[d] keV	I	
19.89×10^3 *10*	(10$^+$)		E	J$^\pi$: Based on α-α angular distribution measurements (2006Yi01).
20.00×10^3 *10*	(9$^-$)[e]	≈270 keV	F	
20.70×10^3 *10*	(11$^-$)[d]	≈340[d] keV	F	
20850 *20*	(9$^-$)[d]	110[d] keV	I	
21840 *20*	(9$^-$)[d]	170[d] keV	EF I	XREF: F(21600). E(level): From (^{4}He,^{4}He′):res. Γ − Other value: ~ 350 keV (^{12}C,α).
22.20×10^3 *10*	(12$^+$)[e]	≈250[h] keV	F	
22.90×10^3 *10*		≈290[h] keV	F	
24.14×10^3 *20*			F I	XREF: F(24000).
25.00×10^3 *10*	(9$^-$)[e]	≈350[h] keV	F	
25.90×10^3 *10*			F	
26.89×10^3 *20*			F I	XREF: F(27000).

[†] From ^{19}F(α,pγ), except otherwise noted.
[‡] From ^{22}F β^- decay.
[#] From (γ,γ').
[@] From (t,p).
[&] Average of data from (t,p) and (^{6}Li,d). Uncertainty − lowest experimental value.
[a] From (α,γ).
[b] Weighted average of data from (α,γ) and (α,n). Uncertainty − lowest experimental value.
[c] Identified as member of a rotational band based on 0$^+$ g.s. in 1976Fi02 (α,pγ).
[d] From ^{18}O(^{4}He,^{4}He′):res. J^π assignments are based on double differential cross section measurements and fitting.
[e] From (^{12}C,α). J^π assignments are based on the analysis of double (α,α) angular correlations with the residual ^{18}O nucleus in the 0$^+$ ground state.
[f] Natural/Unnatural parity quoted in comment column from 1971Ol01 − σ(180°) (α,α').
[g] Γ_0 values from (α,n):res, except otherwise noted.
[h] From (^{12}C,α).
[i] From 1993Ol05 (α,pγ).
[j] From (^{4}He,^{4}He′):Re.
[k] From (e,e′).

γ(^{22}Ne)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$[@]	E$_f$	J$_f^\pi$	Mult.[@]	δ[@b]	Comments
1274.537	2$^+$	1274.537 *7*	100	0.0	0$^+$	E2		B(E2)(W.u.)=12.76 *18* E$_\gamma$,Mult.: From ^{22}Na β^+ decay.
3357.2	4$^+$	2082.6[‡] *5*	100	1274.537	2$^+$	E2		B(E2)(W.u.)=17.5 *4*
4456.2	2$^+$	1099[#]		3357.2	4$^+$			
		3181.4	100.0 *21*	1274.537	2$^+$	M1+E2	+0.09 *2*	B(M1)(W.u.)=0.18 *12*; B(E2)(W.u.)=1.0 *8* δ: Average of +0.11 *3* (1994Br11 − also

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Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[@]	δ[@b]	Comments
								possibility of a large value), +0.08 *2* (1967Bu01).
4456.2	2^+	4455.7	3.1 *21*	0.0	0^+	E2		B(E2)(W.u.)=0.7 *5*
5146.0	2^-	689.8	89[a] *6*	4456.2	2^+	E1+M2	−0.29 *2*	B(E1)(W.u.)=0.0014 *4*; B(M2)(W.u.)=1.2×10^3 *4* δ: Other value: +0.04 *8* (1967Bu01).
		3871.1	100[a] *6*	1274.537	2^+	E1+M2	+0.96 *18*	B(E1)(W.u.)=5.1×10^{-6} *17*; B(M2)(W.u.)=1.4 *5* δ: Other value: +0.10 *10* 1972Ho52.
5329.6	1^+	4054.6	50 *12*	1274.537	2^+	M1+E2	+1.9 *5*	B(M1)(W.u.)=0.020 *11*; B(E2)(W.u.)=31 *12* δ: Weighted average of −1.7 *10* (1972Ho52) and −2.0 *6* (1993Ol05).
		5328.9	100 *12*	0.0	0^+	[M1]		B(M1)(W.u.)=0.081 *25*
5363.4	2^+	4088.4	100 *4*	1274.537	2^+	M1+E2	−0.19 *4*	B(M1)(W.u.)=0.0039 *8*; B(E2)(W.u.)=0.06 *3* δ: Weighted average of −0.12 *6* (1993Ol05), −0.25 *8* (1968Ku05), and −0.27 *8* (1976Fi02).
		5362.7	16 *4*	0.0	0^+	[E2]		B(E2)(W.u.)=0.070 *22*
5523.3	$(4)^+$	2166.1[‡] *5*	100.0[‡] *6*	3357.2	4^+	M1		B(M1)(W.u.)=0.102 *15* δ: −0.04 *3* (1993Ol05) and −0.07 *12* (1968Ku05) both in (α,pγ)).
		4247.9[‡] *10*	1.6[‡] *3*	1274.537	2^+	E2		B(E2)(W.u.)=0.084 *20*
5641.2	3^+	2283.9[‡] *7*	45[‡] *3*	3357.2	4^+	M1(+E2)	−0.12 *17*	B(M1)(W.u.)>0.18 I_γ: Other value: 30 *4* in (t,pγ). δ: From 1968Ku05 (α,pγ).
		4366.1[‡] *10*	100[‡] *3*	1274.537	2^+	M1+E2	+0.15 *2*	B(M1)(W.u.)>0.059; B(E2)(W.u.)>0.36 δ: Weighted average of +0.18 *3* (1968Ku05), +0.19 *4* (1967Bu01), +0.13 *3* (1972Ho52), and +0.16 *3* (1976Br06).
5910.1	3^-	1453.8	21 *6*	4456.2	2^+	E1(+M2)	+0.19 *10*	B(E1)(W.u.)=(0.0013 *6*); B(M2)(W.u.)=(1.0×10^2 *5*)
		2552.7	21 *6*	3357.2	4^+			
		4635.0	100 *6*	1274.537	2^+	E1+M2	+0.17 *6*	B(E1)(W.u.)=0.00019 *7*; B(M2)(W.u.)=1.1 *9* δ: Other value: 0.02 *2* (1976Br06).
6119.9	2^+	1663.6	10.3[a] *13*	4456.2	2^+	M1+E2	+1.1 *3*	B(M1)(W.u.)=0.012 *8*; B(E2)(W.u.)=38 *22*
		4844.8	100[a] *4*	1274.537	2^+	M1+E2	+2.3 *3*	B(M1)(W.u.)=0.0017 *10*; B(E2)(W.u.)=2.7 *14* δ: also an alternate value: −0.11 *4* (1993Ol05).
		6119.0	18[a] *3*	0.0	0^+	E2		B(E2)(W.u.)=0.18 *10* Mult.: From (e,e′) based on B(E2).
6235	0^+	905	100	5329.6	1^+			
6311.0	(6^+)	2953.6	100	3357.2	4^+	[E2]		B(E2)(W.u.)=14.0 *12*
6345.1	4^+	2987.7[‡] *9*	100	3357.2	4^+	M1+E2	+0.68 *16*	B(M1)(W.u.)=0.043 *12*; B(E2)(W.u.)=16 *7*
6635.8	$(3,4)^+$	3278.3	89 *6*	3357.2	4^+	M1+E2	−0.9 *3*	B(M1)(W.u.)=0.0033 *18*; B(E2)(W.u.)=1.8 *10*
		5360.6	100 *6*	1274.537	2^+			
6689.0	1^-	5413.7	45 *9*	1274.537	2^+	[E1]		B(E1)(W.u.)=7.E−6 *4*
		6687.9	100 *9*	0.0	0^+	(E1)		B(E1)(W.u.)=8.E−6 *5*

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Adopted Levels, Gammas (continued)

γ(^{22}Ne) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[@]	δ[@b]	Comments
6819.4	2+	1455.9	43 *16*	5363.4	2+			
		1673.3	57 *16*	5146.0	2−			
		2363.1	100 *16*	4456.2	2+	M1+E2	+2.5 *4*	B(M1)(W.u.)>0.021; B(E2)(W.u.)>2.1×10^2
		5544.1	70 *16*	1274.537	2+	M1		B(M1)(W.u.)>0.011 δ: +0.10 *10* 1993Ol05 (α,pγ).
6853.5	(1+)	5578.2	85 *8*	1274.537	2+	M1+E2	+1.3 *5*	B(M1)(W.u.)=0.06 *4*; B(E2)(W.u.)=22 *12*
		6852.3	100 *8*	0.0	0+	M1		B(M1)(W.u.)=0.10 *5*
6900	0+	5624.7	100	1274.537	2+	E2		B(E2)(W.u.)=0.36 *4*
7051	1−	5776	100.0[a] *11*	1274.537	2+	[E1]		B(E1)(W.u.)=4.1×10^{-5} *13*
		7050	9.9[a] *11*	0.0	0+	[E1]		B(E1)(W.u.)=2.2×10^{-6} *7*
7341.1	0+	2011.4	100 *8*	5329.6	1+	(M1)		B(M1)(W.u.)>0.51
		2884.7	75 *8*	4456.2	2+	(E2)		B(E2)(W.u.)>1.1×10^2
7341.2	(4)+	1430.9	100 *6*	5910.1	3−			E_γ: γ-ray not seen in ^{22}F β− decay. I_γ from (α,pγ).
		3983.5[‡] *10*	96 *6*	3357.2	4+	M1+E2	−0.7 *3*	B(M1)(W.u.)=0.0033 *22*; B(E2)(W.u.)=0.7 *6*
7405.9	(3)−	2259.8	100 *3*	5146.0	2−	M1+E2	+1.3 *4*	B(M1)(W.u.)=0.014 *7*; B(E2)(W.u.)=33 *13*
		6130.4	56 *3*	1274.537	2+	E1		B(E1)(W.u.)=4.2×10^{-5} *14*
7423.0	(5+)	1900.0[‡] *6*	100	5523.3	(4)+			
7469?	1,2	1559	100	5910.1	3−			
7489	1−	1369	10 *6*	6119.9	2+			
		2125	10 *6*	5363.4	2+			
		6213	23 *6*	1274.537	2+			
		7487	100 *6*	0.0	0+	E1		
7643.1	2+	3186.7	42 *5*	4456.2	2+			
		6367.6	100 *5*	1274.537	2+	M1+E2	−0.08 *5*	δ: From 1976Fi02.
		7641.7	12 *5*	0.0	0+	E2		
7663.7	(2)−	1428.7	100	6235	0+			
7722.0	3−	1602.0	19 *16*	6119.9	2+			
		2198.6	25 *16*	5523.3	(4)+			
		2575.8	22 *16*	5146.0	2−			
		3265.5	100 *16*	4456.2	2+			
		4364.3	78 *16*	3357.2	4+			
		6446.5	69 *16*	1274.537	2+			
7921	(2)+	580	20 *15*	7341.2	(4)+			
		1102	29 *15*	6819.4	2+			
		2398	33 *15*	5523.3	(4)+			
		6645	100 *15*	1274.537	2+			
8076.9	(4)+	1765.8	50 *22*	6311.0	(6+)			
		2713.3	36 *22*	5363.4	2+			
		4719.1	100 *22*	3357.2	4+			
		6801.2	92 *22*	1274.537	2+			
8134.3	2+	1314.9	8 *3*	6819.4	2+			
		6858.6	100 *3*	1274.537	2+	M1+E2	−0.48 *5*	I_γ: From 1976Fi02 (α,pγ).
8162.2	2+,3,4+	1342.8	8 *8*	6819.4	2+			
		4804.4	44 *8*	3357.2	4+			
		6886.5	100 *8*	1274.537	2+			
8375.9	(3)−	712.2	8 *7*	7663.7	(2)−			
		5018.1	100 *7*	3357.2	4+			
		7100.1	28 *7*	1274.537	2+			
8489.6	2+	412.7	32 *32*	8076.9	(4)+			
		1148.4	100 *32*	7341.2	(4)+			
		2254.5	82 *32*	6235	0+			

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Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[@]	Comments
8489.6	2^+	2848.2	71 *32*	5641.2	3^+		
		5131.8	71 *32*	3357.2	4^+		
8561.4	$(1,2)^+$	1872.3	72 *12*	6689.0	1^-		
		8559.6	100 *12*	0.0	0^+		
8596.0		519.1	100 *6*	8076.9	$(4)^+$		
		3449.7	20 *6*	5146.0	2^-		
8741.0	$(3)^-$	1399.6	19 *12*	7341.2	$(4)^+$		
		1689.9	28 *12*	7051	1^-		
		4284.3	100 *12*	4456.2	2^+		
		5383.1	28 *12*	3357.2	4^+		
8855.3	$(4)^+$	1449.3	39 *10*	7405.9	$(3)^-$		
		2544.1	100 *10*	6311.0	(6^+)		
8900.3		1477.2	54 *33*	7423.0	(5^+)		
		1559.0	100 *33*	7341.2	$(4)^+$		
		2211.2	71 *33*	6689.0	1^-		
		2589.1	79 *33*	6311.0	(6^+)		
		3258.8	54 *33*	5641.2	3^+		
		3536.6	58 *33*	5363.4	2^+		
8976		1312	56 *11*	7663.7	$(2)^-$		
		1925	100 *11*	7051	1^-		
9045	$(2^+,3^-)$	1402	71 *24*	7643.1	2^+		
		1994	92 *24*	7051	1^-		
		5687	100 *24*	3357.2	4^+		
9178	1^+	9176	100	0.0	0^+		E_γ: placement in (γ,γ).
9178.1	$(4)^+$	3267.6	64 *11*	5910.1	3^-		
		4721.3	25 *11*	4456.2	2^+		
		5819.9	100 *11*	3357.2	4^+		
9229	2^+	1565	79 *9*	7663.7	$(2)^-$		
		2178	100 *9*	7051	1^-		
9250		1528	100 *11*	7722.0	3^-		
		3130	56 *11*	6119.9	2^+		
9324		1602	100	7722.0	3^-		
9625	5	3314	45	6311.0	(6^+)		
		6267	100	3357.2	4^+		
10208.5	1^-	8932.0	25[&] *6*	1274.537	2^+		
		10206.0	100[&] *6*	0.0	0^+	E1	
10280.4	$(0^+,1^-,2^+)$	2791.2	23[&] *7*	7489	1^-		
		3426.6	45[&] *9*	6853.5	(1^+)		
		4950.2	100[&] *12*	5329.6	1^+		
		5823.4	2[&] *1*	4456.2	2^+		
		9003.9	57[&] *12*	1274.537	2^+		
10294.8	(2^+)	2805.6	19[&] *5*	7489	1^-		
		3441.0	16[&] *5*	6853.5	(1^+)		
		4964.6	30[&] *7*	5329.6	1^+		
		5837.8	11[&] *4*	4456.2	2^+		
		9018.3	100[&] *12*	1274.537	2^+	D	δ: 0.04 *5* in (α,γ).
10416.4		4071		6345.1	4^+		
10616	(5^-)	4270	100[&] *8*	6345.1	4^+		
		7258	52[&] *8*	3357.2	4^+		
10696		7337	100	3357.2	4^+		
10706		9429	100	1274.537	2^+		
10749	5^-	4437	100[&] *10*	6311.0	(6^+)		

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Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π
10749	5^-	7390	92[&] *10*	3357.2	4^+
10857	3^-	9580	100	1274.537	2^+
10921	1^-	9644	100[&] *9*	1274.537	2^+
		10918	79[&] *9*	0.0	0^+
11032	$(8^+,6^+)$	4721[#]		6311.0	(6^+)
11130	6,7	4818	100	6311.0	(6^+)
11194		2294	100[&] *4*	8900.3	
		9917	18[&] *4*	1274.537	2^+
11269	$2^+,3^+,4^+$	6122	100[&] *15*	5146.0	2^-
		7910	81[&] *15*	3357.2	4^+
11431		10154	100	1274.537	2^+
11465	(1^-)	6320	100[&] *4*	5146.0	2^-
		10190	33[&] *4*	1274.537	2^+
		11464	49[&] *4*	0.0	0^+
11522	7^-	5221	100	6311.0	(6^+)

[†] From level energy difference, recoil energy subtracted, except otherwise noted.
[‡] From ^{22}F β^- decay, except otherwise noted.
[#] Placement from (^{26}Mg,$^{22}Ne\gamma$).
[@] From 1993Ol05 (α,pγ), except otherwise noted.
[&] From (α,γ).
[a] From (t,pγ).
[b] From (α,pγ), except otherwise noted.

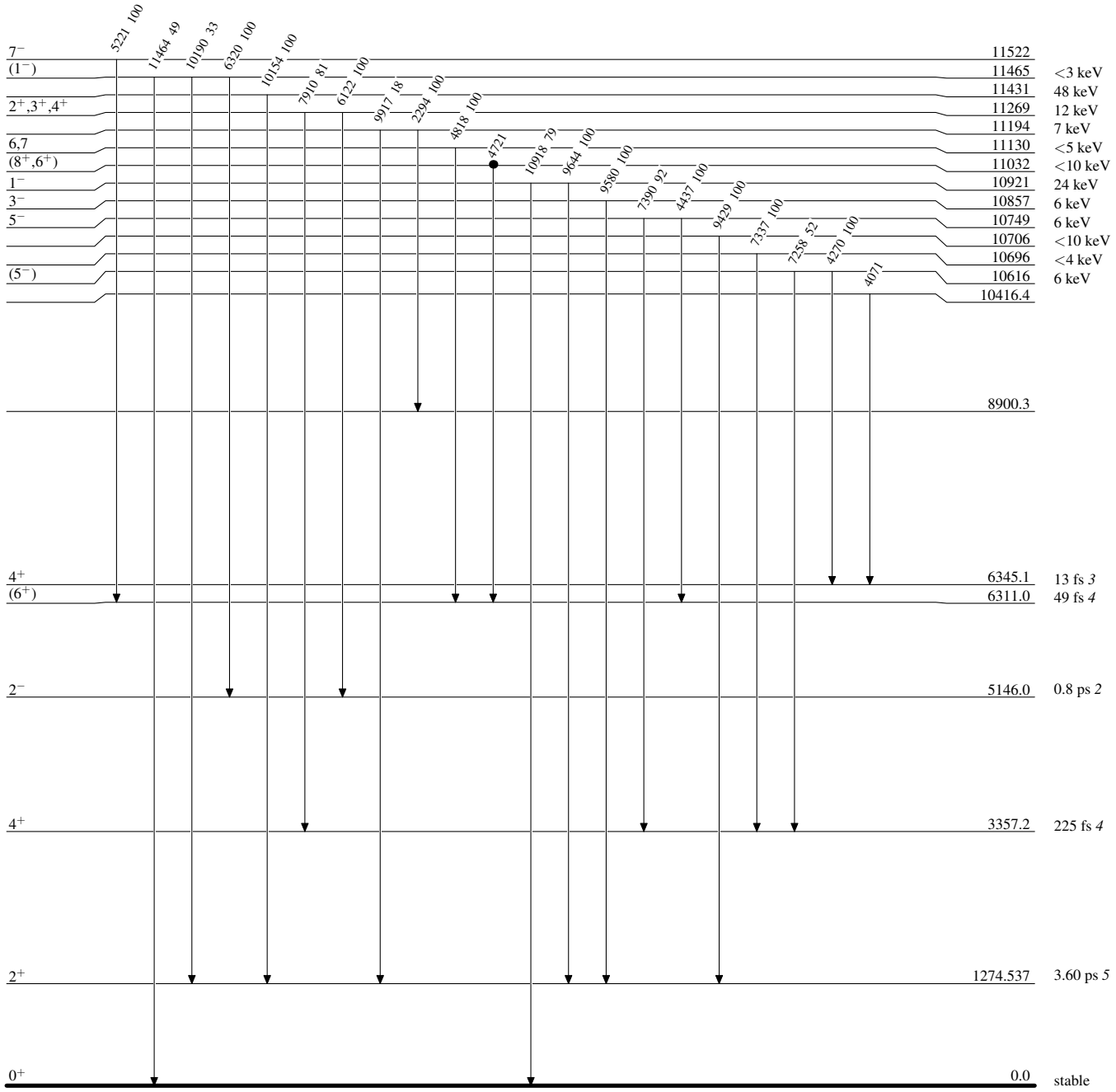
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

● Coincidence

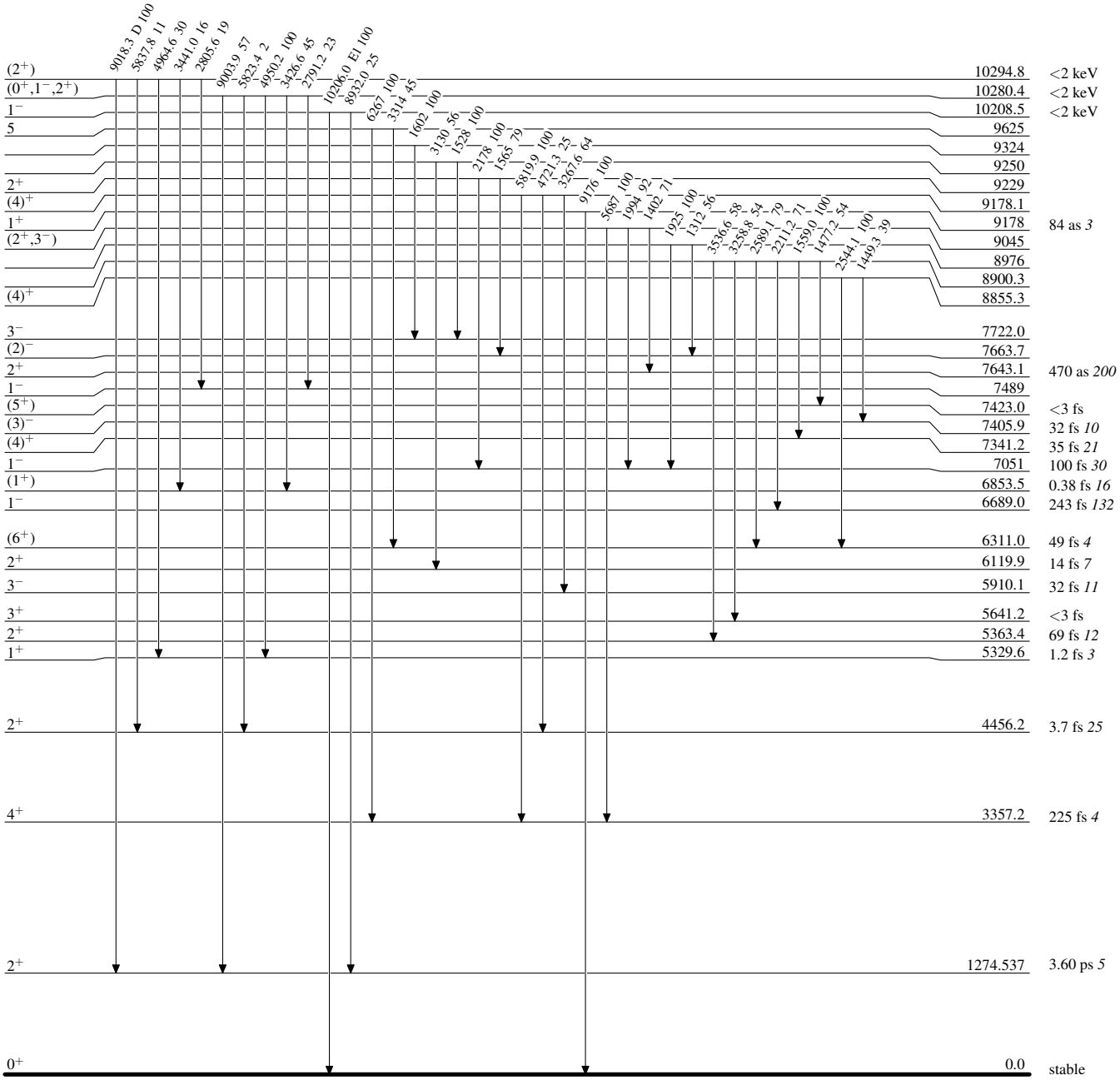


$^{22}_{10}Ne_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

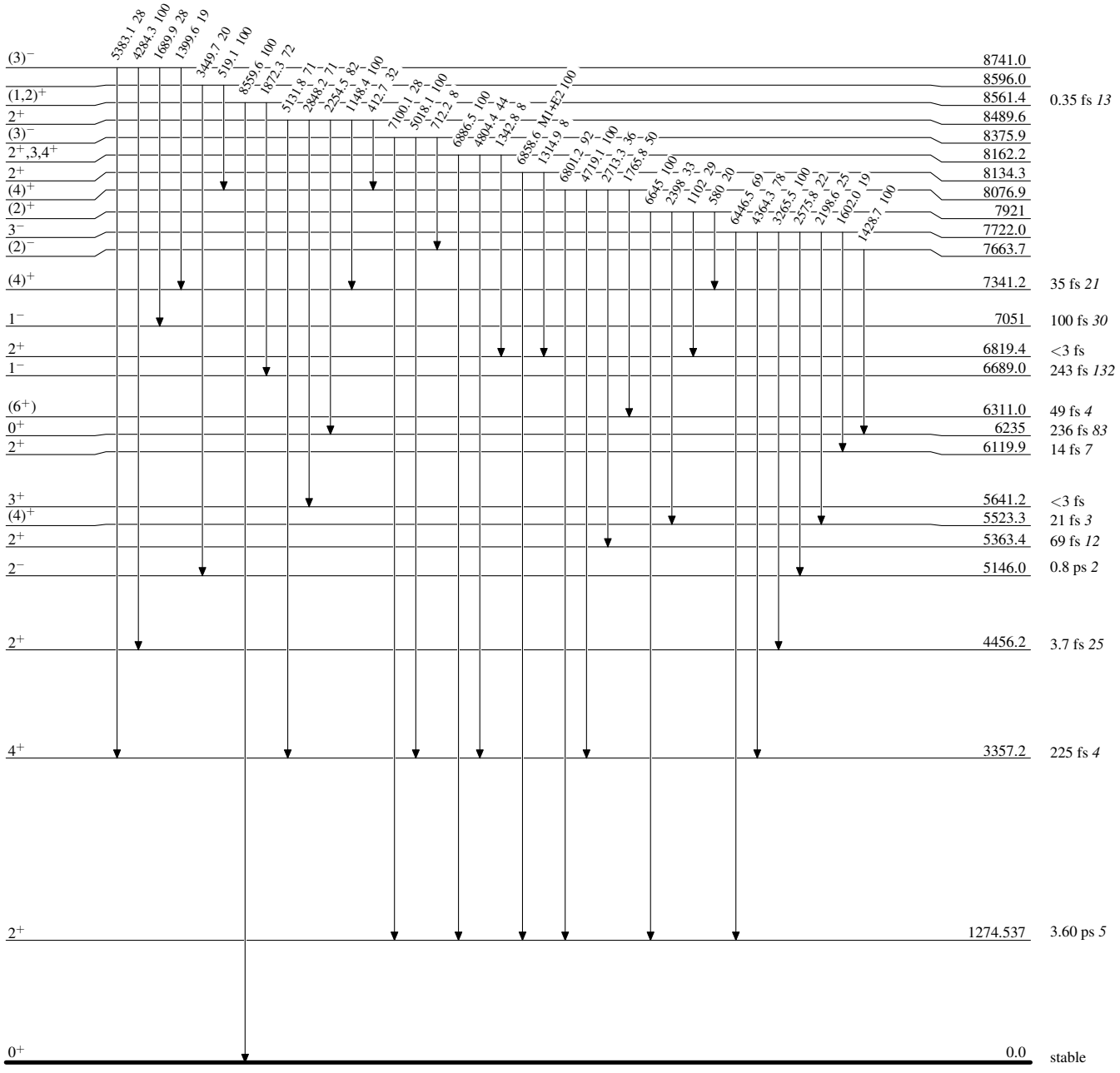


$^{22}_{10}Ne_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

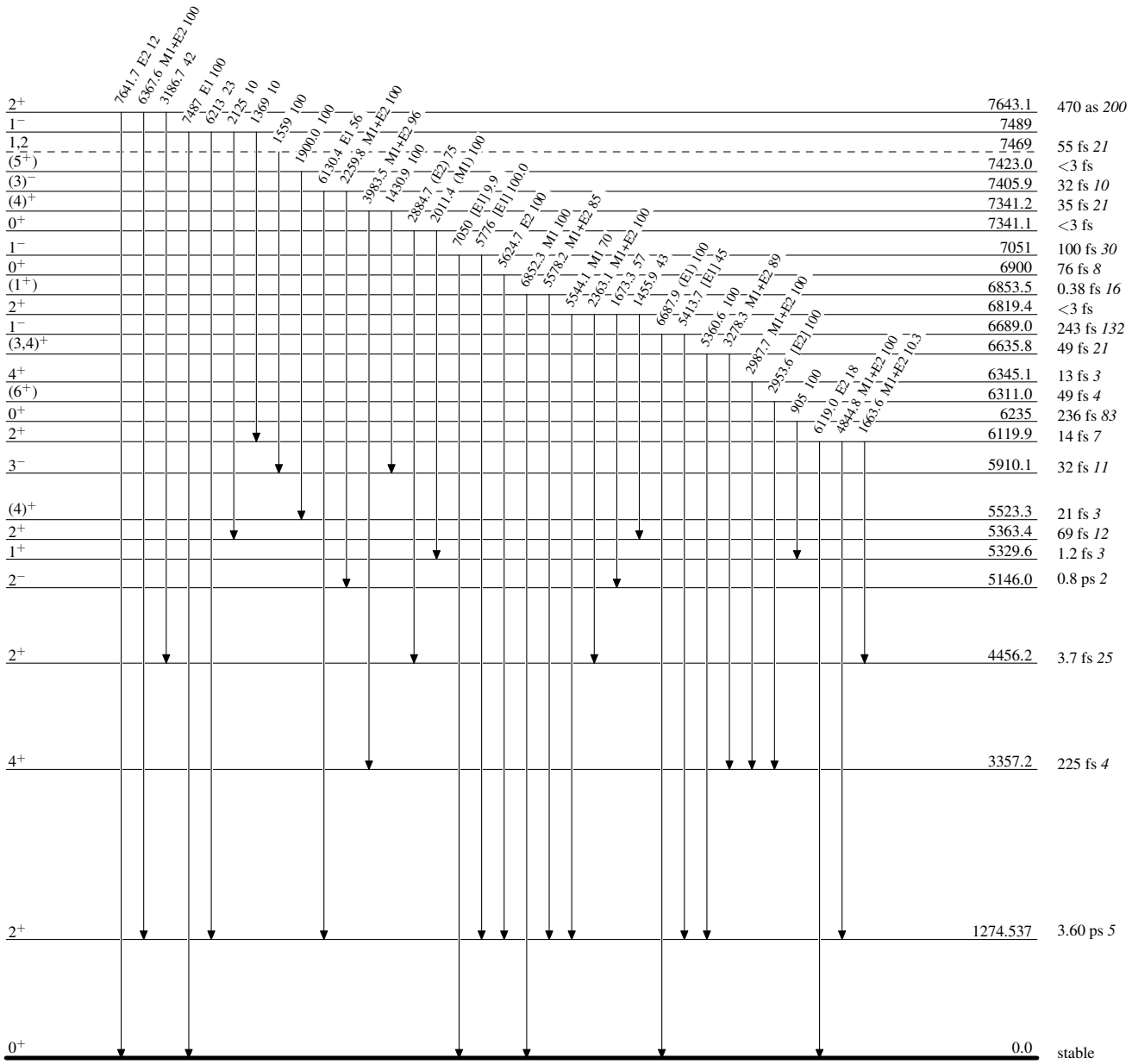


$^{22}_{10}Ne_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

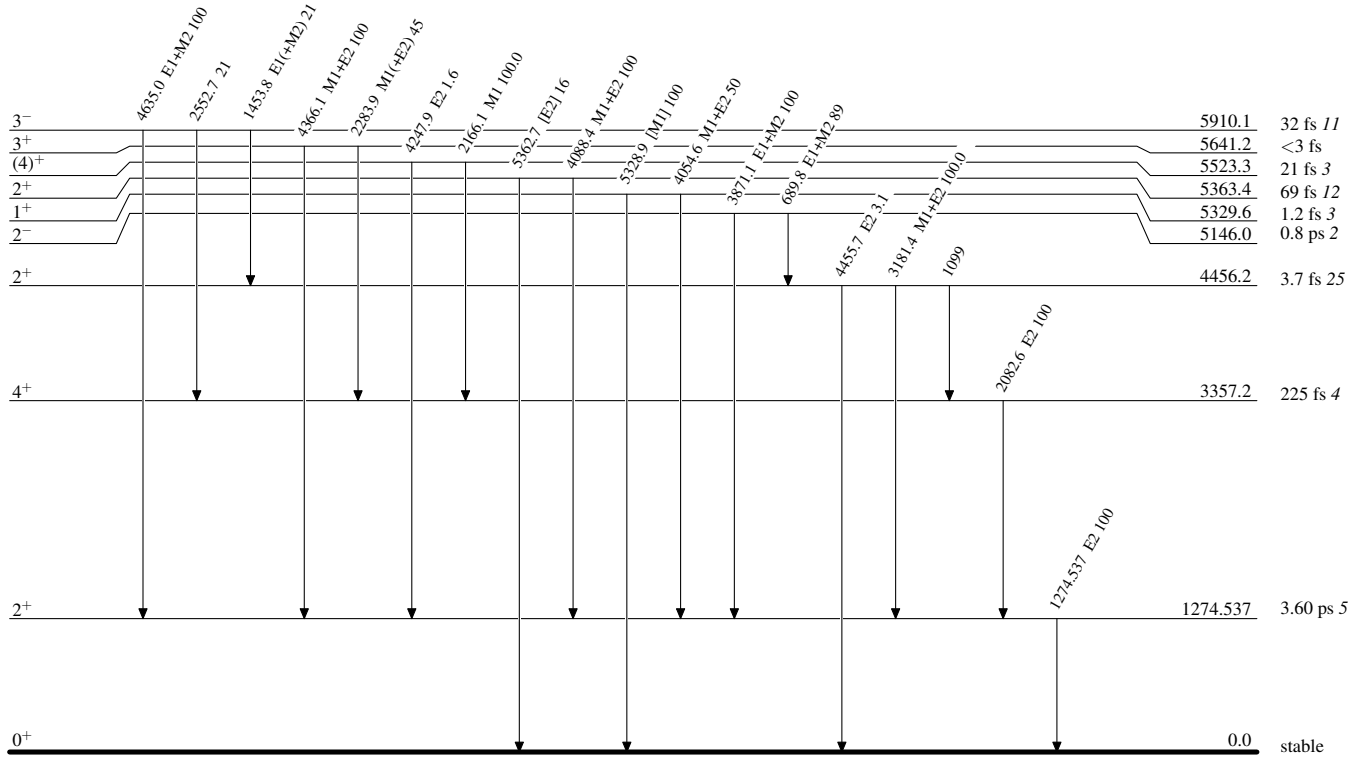


$^{22}_{10}Ne_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{22}_{10}Ne_{12}$