Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh and John A. Cameron	NDS 112, 2357 (2011)	31-Jul-2011

Q(β^-)=−3652.7 *18*; S(n)=11131.16 *23*; S(p)=12182.2 *6*; Q(α)=−8853.7 *4* 2012Wa38
Note: Current evaluation has used the following Q record.
S(2n)=19064.22 *29*, S(2p)=21624 *6* (2011AuZZ).
Values in 2003Au03: Q(β^-)=−3652.4 *18*, S(n)=11131.16 *23*, S(p)=12164 *9*, Q(α)=−8853.5 *4*, S(2n)=19064.04 *29*, S(2p)=21624 *6*.
Q(β^-)=−3652.5 *18*; S(n)=11131.27 *23*; S(p)=12182.5 *5*; Q(α)=−8853.9 *3* 2011AuZZ
Levels shown as populated in reaction "Y" in XREF column in the table below refer to the following energies in different reactions:
^{44}Ca(n,n′γ),(n,n): 0, 1152.
^{44}Ca(d,d′),(pol d,d): 0, 1157, 1884, 2285, 2658, 3309.
^{44}Ca(^{3}He,^{3}He′),(pol ^{3}He,^{3}He′): 0, 1160, 1890.
^{44}Ca(^{6}Li,^{6}Li′): 0, 1160.
^{44}Ca(^{7}Li,^{7}Li): 0.
^{44}Ca(^{9}Be,^{9}Be′): 0, 1160.
^{44}Ca(^{18}O,^{18}O),(^{18}O,^{18}O′): 0, 1157.
^{45}Sc(d,^{3}He),(pol d,^{3}He): 0, 1158, 1887, 2288, 2659.
Coulomb excitation: 0, 1156.
Other measurements and reactions:
Mesic atoms (pionic x rays): 1970Ku03, 1970Ma26, 1979Ba07, 1980Po01, 1983Ku10.
Mesic atoms (muonic x rays): 1966Co02, 1981Wo02.
Mesic atoms (kaonic x rays): 1971Ku08.
Isotope shifts: 1976Ne08, 1978Br31, 1978Wo03, 1980Be13, 1982An15, 1982Ay02, 1983Lo13, 1984Pa12, 1986We08, 1991As06, 1992Ma20, 1998No10.
^{26}Mg(^{18}O,X) E=130 MeV: 1995Co22.
^{40}Ar(α,n): 1938Fu01: resonances.
Additional information 1.
^{26}Mg(^{18}O,xn): 1995Co22.
^{40}Ar(α,γ): 1976Fo04,1974Fo04.
^{42}Ca(^{48}Ti,^{46}Ti): 1986Br06,1988Br02; measured σ(E,θ).
1977Mu02,1993Mo10,1966Go38,1964Go13: ^{43}Ca(n,γ),(n,X) resonance. ≈50 ^{43}Ca+n resonances between 11133 and 11172 keV.
^{45}Sc(γ,p): 1995Is07,1993Is07,1982Ry01,1977Oi01,1975We11.
^{48}Ti(p,pα): 1981Ca02,1984Ca09.
^{42}Ca(^{48}Ti,^{46}Ti) E=385 MeV: 1986Br06.
^{45}Sc(p,2p): 1967Ru03 (E=156 MeV); 1969Ja12 (E=385 MeV).

^{44}Ca Levels

Cross Reference (XREF) Flags

A	^{44}K β^- decay (22.13 min)	M	^{43}Ca(n,γ) E=thermal	Y	^{46}Ti(^{14}C,^{16}O)
B	^{44}Sc ε decay (3.97 h)	N	^{43}Ca(n,γ),(n,n):resonances	Z	^{48}Ti(d,^{6}Li)
C	^{44}Sc ε decay (58.61 h)	O	^{43}Ca(d,p)	Others:	
D	^{27}Al(^{19}F,2pγ)	P	^{44}Ca(pol γ,γ'),(γ,γ')	AA	^{44}Ca(d,d′),(pol d,d)
E	^{30}Si(^{16}O,2pγ)	Q	^{44}Ca(e,e′)	AB	^{44}Ca(^{3}He,^{3}He′),(pol ^{3}He,^{3}He′)
F	^{30}Si(^{18}O,2p2nγ)	R	^{44}Ca($\pi^+,\pi^{+\prime}$),($\pi^-,\pi^{-\prime}$)	AC	^{44}Ca(^{6}Li,^{6}Li′)
G	^{36}S(^{14}C,α2nγ)	S	^{44}Ca(p,p′),(pol p,p′)	AD	^{44}Ca(^{7}Li,^{7}Li)
H	^{40}Ar(^{6}Li,d)	T	^{44}Ca(p,p′γ)	AE	^{44}Ca(^{9}Be,^{9}Be′)
I	^{41}K(α,pγ),(α,p)	U	^{44}Ca(α,α')	AF	^{44}Ca(^{18}O,^{18}O),(^{18}O,^{18}O′)
J	^{42}Ca(t,p)	V	^{44}Ca(^{16}O,^{16}O′)	AG	Coulomb excitation
K	^{42}Ca(α,^{2}He)	W	^{45}Sc(μ^-,nγ)	AH	^{45}Sc(d,^{3}He),(pol d,^{3}He)
L	^{42}Ca(^{48}Ti,^{46}Ti)	X	^{45}Sc(t,α)	AI	^{44}Ca(n,n′γ),(n,n)

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{44}Ca Levels (continued)

E(level)†	Jπ‡#@	$T_{1/2}$&	XREF	Comments
0.0[d]	0^+	stable	ABCDE GHIJK M OPQRSTUVWXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG, AH, AI The rms charge radius $(<r^2>)^{1/2}$=3.5175 fm *21* (update of 2004An14 evaluation by I. Angeli in 2008, available on http://cdfe.sinp.msu.ru). Jπ: L(t,p)=L(α,^{2}He)=L(^{6}Li,d)=L(d,^{6}Li)=0. $\Delta<r^2>(^{40}Ca-^{44}Ca)$=0.2904 fm^2 *10* (1998No10). Adopted (1977En02) spectroscopic factors S: 3.1 *3* (L=3) (neutron stripping); 0.50 *13* (L=3) (proton pickup).
1157.019[d] *4*	2^+	2.71 ps *15*	ABCDEFGHIJK M OPQRSTUVWXYZ	XREF: Others: AA, AB, AC, AE, AF, AG, AH, AI μ=−0.56 *22*; Q=−0.14 *7* (1989Ra17) B(E2)↑=0.0473 *20* (1973To07) XREF: K(2030). μ: αγ(θ): 1979Ni04. Q: Coulomb excitation: 1973To07. Jπ: L(t,p)=L(^{6}Li,d)=L(α,α′)=L(d,d′)=L(p,p′)=L(e,e′)=2. $T_{1/2}$: weighted average of 3.5 ps *7* from (α,pγ), 3.0 ps *3* from Coulomb excitation and 2.61 ps *14* from B(E2) in 1989It02. Adopted (1977En02) spectroscopic factors S: 0.41 *11* (L=3) and 0.08 *2* (L=1) (neutron stripping); 0.18 *3* (L=3) (proton pickup).
1883.514 *14*	0^+	14 ps *4*	A HIJ M OPQRSTUV XYZ	XREF: Others: AA, AB, AH Jπ: L(^{6}Li,d)=L(d,^{6}Li)=0. Adopted (1977En02) spectroscopic factors S: 0.39 *10* (L=3) (neutron stripping); 0.12 *3* (L=3) (proton pickup).
2283.114[d] *10*	4^+	1.9 ps *7*	A CDEFGHIJ M O QRSTUVWXYZ	XREF: Others: AA, AG, AH Jπ: L(^{6}Li,d)=L(e,e′)=L(p,p′)=L(α,α′)=4. Adopted (1977En02) spectroscopic factors S: 0.14 *4* (L=3) and 0.01 *1* (L=1) (neutron stripping); 0.09 *3* (L=3) (proton pickup).
2656.506 *11*	2^+	30 fs *3*	AB F HIJ M OPQRSTUVWXYZ	XREF: Others: AA, AH Jπ: L(^{6}Li,d)=L(t,p)=L(p,p′)=L(α,α′)=2. $T_{1/2}$: from B(E2) in (e,e′) in 1989It02. Adopted (1977En02) spectroscopic factors S: 0.51 *13* (L=3) and <0.02 (L=1) (neutron stripping); 0.19 *3* (L=3) (proton pickup).
3044.27 *3*	4^+	4.6 ps *11*	A FGHIJ M O STUV XYZ	Jπ: L(t,p)=L(α,α′)=4. Adopted (1977En02) spectroscopic factors S: 0.91 *23* (L=3) (neutron stripping); <0.04 (L=3) (proton pickup).
3284.97[d] *3*	6^+	13.4 ps *10*	CDEFG I K M S	XREF: Others: AG, AH XREF: K(3290). Jπ: L(α,^{2}He)=6.
3301.35 *4*	2^+	35 fs *18*	AB IJ M OP STu z	Jπ: also γ to 0^+.
3307.865 *11*	3^-	0.15 ps *7*	AB F M OPQRSTuV XYz	XREF: Others: AA B(E3)↑=0.0095 *9* (1989It02); B(E3)↑=0.00559 *23* (1971He08) XREF: B(?). Jπ: L(e,e′)=L(p,p′)=L(d,d′)=L(α,α′)=3. $T_{1/2}$: deduced by the evaluators from B(E3)(up)(e,e′)=0.0076 20 and γ-branching ratios.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{44}Ca Levels (continued)

E(level)†	Jπ‡#@	$T_{1/2}$&	XREF	Comments
				Other: <0.35 ns ($\gamma\gamma$(t) in (n,γ).
				B(E3) from (e,e′). 2002Ki06 evaluation gives an average value of 0.0076 20.
3357.28 *12*	(2+,3,4+)	<28 fs	A IJ M O STU X	Jπ: γ′s to 2+ and 4+.
3580.4 *6*	0+		A H J NO ST W YZ	XREF: Others: AH XREF: T(3587)Z(3590). Jπ: L(d,^{6}Li)=L(^{6}Li,d)=0+.
3661.526 *10*	1[b]	8.3[a] fs	A OP STU	Jπ: also ΔJ=1 to 0+ from p$\gamma(\theta)$ in (p,p′γ).
3676.088 *15*	(1−,2,3)		A J M O ST X	Jπ: from β-decay, log *ft*=6.21 *5*.
3691.7 *4*	1[b]	66[a] fs	P	
3712.02[e] *11*	4−	<0.42 ns	A F M O S WX	XREF: Others: AG, AH XREF: O(3729). Jπ: L(t,α)=2; ΔJ=1, D to 3− and bandhead of a 4− band in ^{30}Si(^{18}O,2p2nγ).
3776.26 *12*	2	<0.69 ns	A M O ST WX	XREF: Others: AG, AH XREF: O(3792)X(?).
3880 *10*			O	
3913.72[f] *9*	5−	>2 ps	FG M Q S UV X z	Jπ: L(e,e′)=L(α,α′)=5. $T_{1/2}$: from (^{14}C,α2nγ).
3922.67 *11*	5−	<0.56 ns	F M O S X z	XREF: Others: AH XREF: F(?)O(3934). Jπ: L(p,p′)=5 and γ′s to 4+ and 6+.
4011.5 *5*			M O S X Z	XREF: Others: AG XREF: O(4026).
4091.97 *13*	6+		F M O U X	XREF: Others: AF XREF: O(4104). Jπ: ΔJ=2, (E2) to 4+ in ^{30}Si(^{18}O,2p2nγ).
4093.7 *5*	(2+,3,4+)		A	E(level): this level is probably different from 4092 level (see discussion in 1976Co06). Jπ: γ′s to 2+ and 4+.
4169 *4*			S U z	
4196.14 *24*	2+	<0.69 ns	M OP ST WX z	XREF: Others: AG XREF: P(4207). Jπ: L(d,p)=1 and ΔJ=2 to 0+ from p$\gamma(\theta)$ in (p,p′γ). But J=1 from γ(pol) in (γ,γ′). $T_{1/2}$: 44 fs from (γ,γ′).
4260.3 *4*	(2+,3)		A	Jπ: (2+,3,4+) from γ′s to 2+ and 4+; 4+ excluded by ∓decay from 2−.
4315.22 *14*	(1,2,3)		A X	Jπ: from β-decay from 2−, log *ft*=7.
4358.43 *3*	3−		A J M Q S U X	Jπ: L(α,α′)=3.
4399.1 *6*	3−		A J M QRS UV X z	Jπ: L(p,p′)=L(α,α′)=3.
4409.174 *14*	(1,2,3)−		A O S z	Jπ: allowed β-decay from 2−, log *ft*=5.58 *7*.
4436.7 *5*	(1,2+)		A	Jπ: γ to 0+ and β-decay from 2−, log *ft*=8.0 *4*.
4480.0 *6*	2+		J M O S U X	XREF: Others: AH XREF: O(?). Jπ: L(t,p)=L(α,α′)=2.
4552.640 *23*	(1,2,3)−		A k S z	Jπ: allowed β-decay from 2−, log *ft*=5.60 *8*.
4564.79 *14*	(5−)		F Jk M O Q S U X z	Jπ: L(α,α′)=L(p,p′)=(5); L(α,^{2}He)=7 for a 4550 group.
4572.6 *5*	(1,2,3)		A	Jπ: β-decay from 2− parent, log *ft*=6.9 *3*.
4583.99 *19*	(2+,3,4+)	<3.5 ns	MNO S U XY	XREF: O(4598). Jπ: γ′s to 2+ and 4+.
4616 *10*			O	
4649.46 *10*	1[b]	11[a] fs	P	
4650.6 *4*	2+		A J M O S UV X	Jπ: L(t,p)=L(α,α′)=2.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{44}Ca Levels (continued)

E(level)†	Jπ‡#@	T1/2&	XREF	Comments
4690.1 *6*	(1⁻,2,3,4⁺)		M O	Jπ: primary γ from 3⁻, 4⁻ rejects 0⁺,1⁺.
4804.4 *6*	(1⁻,2⁺)		D S	Jπ: primary γ from 3⁻, 4⁻ rejects 1⁺.
4824.4 *6*	(1,2,3)		A E	Jπ: β-decay from 2⁻ parent, log *ft*=6.9 *4*.
4848.39 *20*	1[b]	24[a] fs	P	
4866.08 *11*	1[b]	6.2[a] fs	A	Jπ: also γ's to 0⁺ and 2⁺; β-decay from 2⁻ parent, log *ft*=6.21.
4884.02 *8*	(1,2,3)⁻		A S	Jπ: allowed β-decay from 2⁻ parent, log *ft*=5.8.
4904.6 *4*	3⁻		J MNO Q UV X	XREF: Others: AF, AG XREF: J(4898)O(4914). Jπ: L(α,α′)=3.
4930.70[e] *17*	6⁻		F	Jπ: ΔJ=1, D to 5⁻ and member of a 4⁻ band in ^{30}Si(^{18}O,2p2nγ).
4982 *8*	(2 to 5)⁺		J O X	Jπ: L(d,p)=1.
5005.65 *23*	4⁺		j M o UV	Jπ: L(α,α′)=4.
5025.72 *21*	3⁻		A j o RS WXY	XREF: Others: AH XREF: AH(5070). Jπ: L(π,π)=3⁻.
5087.51[d] *19*	8⁺	0.53 ps *14*	EFG	Jπ: ΔJ=2, Q to 6⁺ and member of g.s. band in ^{30}Si(^{18}O,2p2nγ). T1/2: from (^{14}C,α2nγ).
5096.8 *4*	(3,4)⁻		M S X	Jπ: L(t,α)=0.
5130.21 *22*	(2,3)⁺		A M O S XY	XREF: Others: AF, AG, AH XREF: O(5143). Jπ: (2 to 5)⁺ from L(d,p)=1;(1,2,3) from β-decay from 2⁻ parent.
5161.6 *3*	1[b]	3.7[a] fs	A O	Jπ: also γ to 0⁺.
5201.1 *4*	(1,2,3)⁻		A	Jπ: allowed β-decay from 2⁻ parent, log *ft*=5.8 *4*.
5210.0 *5*	1⁺[b]	2.0 fs *3*	P S	T1/2: deduced from Γ=0.228 ev *40* in (γ,γ′).
5222 *5*			Jk S U	Jπ: L(α,^{2}He)=4+5 for a 5210 group.
5230.33 *22*	(2 to 5)⁺	<4.2 ns	Jk M O S X	Jπ: L(d,p)=1.
5245.12[f] *14*	7⁻		F	Jπ: ΔJ=2, (E2) to 5⁻ in ^{30}Si(^{18}O,2p2nγ).
5289.2 *4*	(2 to 5)⁺		M O S	Jπ: L(d,p)=1.
5300.8 *5*			M S X	
5325.0 *5*	(1,2,3)		A	Jπ: β-decay from 2⁻ parent, log *ft*=6.4 *5*.
5342.8 *8*	2⁺		M O U X	Jπ: L(α,α′)=(2);L(d,p)=1.
5367.5 *7*	(1,2,3)		A J	Jπ: β-decay from 2⁻ parent, log *ft*=5.8 *9*.
5375.1 *8*	(2 to 5)⁺		M O	Jπ: L(d,p)=1.
5404 *4*	(3,4)⁻		O U X	Jπ: L(t,α)=0.
5459.2 *5*	(2 to 5)⁺		M O	Jπ: L(d,p)=1.
5519 *5*			U X	
5548.64 *24*	(2,3,4)⁺		M O	Jπ: L(d,p)=1 and γ to 2⁺.
5560.8 *6*	3⁻		A X	Jπ: L(t,α)=0 and allowed β-decay from 2⁻ parent, log *ft*=4.111.
5611.6 *3*	1[b]	2.1[a] fs	P	
5646.70 *19*	(8⁺)		F J	Jπ: ΔJ=0 (M1) to 8⁺ in ^{30}Si(^{18}O,2p2nγ).
5655 *4*	(1 to 6)⁻		O U X	
5733.24 *24*	(2 to 5)⁺	<3.5 ns	J M O X	Jπ: L(d,p)=1.
5775.6 *3*	(2,3,4)⁺		M O	Jπ: L(d,p)=1 and γ to 2⁺.
5800.61 *20*	1[b]	16[a] fs	P	
5806.31 *10*	1[b]	3.3[a] fs	P	
5810 *12*			X	
5832 *10*			O	
5864 *20*	0⁺		H JK N YZ	XREF: H(5850)K(5860).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{44}Ca Levels (continued)

E(level)†	Jπ‡#@	$T_{1/2}$&	XREF	Comments
				Jπ: L(t,p)=L(^{6}Li,d)=L(α,^{2}He)=0.
5866.8 *4*	(2$^+$,3,4,5)		M O	Jπ: L(d,p)=(1) and γ to 4$^+$.
5875.82 *20*	1[b]	6[a] fs	P	
5891 *12*			X	
5911.13 *20*	1[b]	2.7[a] fs	P	
5971.22[e] *18*	8$^-$		F	Jπ: ΔJ=2, Q to 6$^-$ in ^{30}Si(^{18}O,2p2nγ).
5975 *10*			O	
6014 *20*			J	
6040.2 *7*	(2 to 5)$^+$		M O	Jπ: L(d,p)=1.
6082.8 *4*	1$^+$[b]	3[a] fs	P	
6136.6 *3*	1$^-$[b]	1.8[a] fs	P	
6145.6 *4*	(2 to 5)$^+$		M O	Jπ: L(d,p)=1.
6211.3 *6*			K M Z	XREF: Others: AF, AG XREF: K(6210). Jπ: L(α,^{2}He)=2 suggests π=+.
6245.5 *3*	1[b]	12[a] fs	P	
6422.12 *10*	1$^-$[b]	0.3[a] fs	P	
6438 *20*			J	
6446.5 *8*	1$^+$[b]	8.4[a] fs	P	
6507.1 *5*	1[b]	4.8[a] fs	P	
6578 *20*			J	
6657.55[f] *22*	9$^-$		F	Jπ: ΔJ=2, (E2) to 7$^-$ in ^{30}Si(^{18}O,2p2nγ).
6672.6 *5*			M	
6675.44 *20*	1[b]	6.5[a] fs	P	
6744 *20*			J	
6778 *20*			J	
6913 *20*			J	
6960.7 *6*	1[b]	8[a] fs	P	
6972.14 *19*	1[b]	0.7[a] fs	P	
6996 *20*			J	
7044 *20*			J	
7065.9 *9*	1[b]	3.9[a] fs	P	
7092.66 *21*	9$^-$		F	Jπ: ΔJ=1, (E1) to 8$^+$ in ^{30}Si(^{18}O,2p2nγ).
7226.0 *3*	1[b]	4.1[a] fs	P	
7275.1 *9*	1[b]	2.7[a] fs	P	
7403.0 *8*	1[b]	5.4[a] fs	P	
7470.82 *24*	(10$^+$)		F	Jπ: ΔJ=2, Q to 8$^+$ in ^{30}Si(^{18}O,2p2nγ).
7556.5 *3*	(9$^-$)		F	Jπ: ΔJ=1, D to 8$^+$ in ^{30}Si(^{18}O,2p2nγ).
7572.0 *5*	1$^+$[b]	3.8[a] fs	P	
7578.9 *3*	1$^-$[b]	0.7[a] fs	P	
7662.1 *6*	1$^-$[b]	6.7[a] fs	P	
7783.3 *10*	1$^-$[b]	6.1[a] fs	P	
7808.9 *16*	1$^-$[b]	11.6[a] fs	P	
7828.8 *12*	1[b]	8.9[a] fs	P	
7834.7 *8*	1$^-$[b]	4.4[a] fs	P	
7844 *20*			J	
7879.87[e] *23*	10$^-$		F	Jπ: ΔJ=2, Q to 8$^-$ in ^{30}Si(^{18}O,2p2nγ).
7953.1 *5*	1[b]	2.4[a] fs	P	
8050 *50*			K	Jπ: L(α,^{2}He)=3 suggests π=−.
8070.2 *7*	1[b]	3.1[a] fs	P	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{44}Ca Levels (continued)

E(level)†	Jπ‡#@	$T_{1/2}$&	XREF	Comments
8086.0 *7*	1[b]	3.1[a] fs	P	
8286.2[f] *3*	11−		F	Jπ: ΔJ=2, (E2) to 9− in ^{30}Si(^{18}O,2p2nγ).
8290 *50*			K	Jπ: L(α,^{2}He)=5,6.
8321.5 *16*	1[b]	13.7[a] fs	P	
8395.3 *4*	1[b]	2.4[a] fs	P	
8405.4 *17*	1[b]	0.6[a] fs	P	
8556.7 *8*	1−[b]	3.4[a] fs	P	
8615.2 *12*	1−[b]	3.3[a] fs	P	
8802 *3*	1−[b]	16[a] fs	P	
8828.0 *11*	[b]	1.1[a] fs	P	
8851.5 *7*	1−[b]	1.0[a] fs	P	
8860 *50*			K	Jπ: L(α,^{2}He)=5,6,7.
8908.8 *7*	1−[b]	0.5[a] fs	P	
9024.1 *20*	1−[b]		P	
9148.4 *24*	1−[b]		P	
9273.5 *8*	1−[b]	1.5[a] fs	P	
9317.2 *10*	1−[b]		P	
9460 *50*			K	Jπ: L(α,^{2}He)=3 suggests π=−.
9664.9 *7*	1−[b]		P	
9750 *50*			K	Jπ: L(α,^{2}He)=7,8.
9788.5 *7*			F	
9814.1 *11*	1−[b]		P	
9859.4[e] *4*	12−		F	Jπ: ΔJ=2, (E2) to 10− in ^{30}Si(^{18}O,2p2nγ).
9898.2 *10*	1−[b]		P	
10567.7[f] *5*	13−		F	Jπ: ΔJ=2, (E2) to 11− in ^{30}Si(^{18}O,2p2nγ).
(11131.54 *19*)	3−,4−		M	Jπ: s-wave capture in 7/2− g.s. of ^{43}Ca. E(level): S(n)=11131.27 *23* (2011AuZZ).
11132.73 *30*	4−[c]		N	
11134.44 *23*	+[c]		N	
11134.52 *23*	(4)−[c]		N	
11135.49 *23*	4−[c]		N	
11135.72 *23*	+[c]		N	
11136.33 *23*	3−[c]		N	
11136.35 *23*	4−[c]		N	
11138.07 *23*	3−[c]		N	
11139.93 *23*	4−[c]		N	
11141.00 *23*	+[c]		N	
11141.22 *23*	+[c]		N	
11141.52 *23*	(4)−[c]		N	
11143.08 *23*			N	
11143.31 *23*			N	
11143.77 *23*	+[c]		N	
11144.39 *23*			N	
11144.9 *5*	4−[c]		N	
11145.29 *23*	(3)−[c]		N	
11145.65 *23*	+[c]		N	
11146.04 *23*	+[c]		N	
11146.19 *23*	+[c]		N	
11147.53 *23*	3−,4−[c]		N	
11149.99 *24*	4−[c]		N	
11150.62 *23*	+[c]		N	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{44}Ca Levels (continued)

E(level)†	Jπ‡#@	XREF	Comments
11151.10 *23*	(3)$^{-c}$	N	
11152.19 *23*	(3)$^{-c}$	N	
11152.71 *23*	(3)^{c}	N	
11153.68 *23*	(4)$^{-c}$	N	
11154.10 *23*	$^{+c}$	N	
11154.90 *23*	(2)$^{+c}$	N	
11155.07 *23*	(3)$^{-c}$	N	
11155.29 *23*	$^{+c}$	N	
11155.41 *23*	(2)$^{+c}$	N	
11157.59 *23*		N	
11157.71 *23*	(4)$^{-c}$	N	
11157.99 *23*	3^{-},4^{-c}	N	
11158.69 *23*	$^{+c}$	N	
11158.84 *23*	$^{+c}$	N	
11160.27 *23*	(4)$^{-c}$	N	
11160.40 *23*	(4)$^{-c}$	N	
11161.47 *23*	$^{+c}$	N	
11161.65 *23*	(4)$^{-c}$	N	
11161.86 *23*	$^{+c}$	N	
11162.06 *23*	(4)$^{-c}$	N	
11162.89 *23*		N	
11164.00 *23*		N	
11165.39 *23*		N	
11165.91 *23*		N	
11166.61 *23*		N	
11166.74 *23*		N	
11167.34 *23*		N	
11167.58 *23*	(4)$^{-c}$	N	
11170.05 *23*		N	
11850 *10*		Q	T=3
12188.1 *10*		F	

† From least-squares fit to Eγ data for levels populated in γ-ray studies. In other cases weighted averages are taken of values available from different reactions.

‡ In particle-transfer reactions, target $J^{\pi}=0^{+}$ for ^{40}Ar in (^{6}Li,d), ^{42}Ca in (t,p), ^{46}Ti in (^{14}C,^{16}O) and ^{46}Ti in (d,^{6}Li) reactions, $J^{\pi}= 7/2^{-}$ for ^{43}Ca in (d,p) and (t,α) reactions.

From the comparison of the DWBA prediction of cross section with experimental data in particle-transfer reactions or/and from angular distribution measurements or DCO of γ-rays.

@ When assigning J^{π} to a level based on γ transitions from this level to a level of known J^{π}, evaluators use the following rules: if Eγ<4 MeV, transitions are only considered to be E1,M1 or E2; if Eγ>4 MeV, M2 and E3 are considered to be possible.

& Primarily from measurements using DSAM (Doppler-Shift-Attenuation-Method) in (α,pγ), unless otherwise stated. Values quoted in nanoseconds are from γγ(t) in (n,γ).

[a] Deduced by the evaluators from Γ_{γ} in (γ,γ′).

[b] ΔJ=1 from 0^{+} from γ(pol) in (γ,γ′).

[c] From analysis of neutron resonance.

[d] Band(A): yrast g.s. band.

[e] Band(B): Band based on 4^{-}, α=0.

[f] Band(b): Band based on 5^{-}, α=1.

Adopted Levels, Gammas (continued)

γ(^{44}Ca)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	$I_{(\gamma+ce)}$	Comments
1157.019	2^+	1157.002 *4*	100	0.0	0^+	E2			B(E2)(W.u.)=10.9 *6*
1883.514	0^+	726.490 *16*	100	1157.019	2^+	E2			B(E2)(W.u.)=22 *7*
		1883.47		0.0	0^+	E0		≈0.012	$I_{(\gamma+ce)}$: branching deduced by the evaluators from q^2_K(E0/E2)=I_K(E0)/I_K(E2)=0.54 *9* and assuming 80% K-shell conversion of E0 transition. q^2_K(E0/E2)=0.54 *9*, X(E0/E2)=0.23 *4*, ρ^2(E0)=0.14 5 (2005Ki02 evaluation). Γ(pair formation)/Γ=8.8×10^{-4} *14* from (p,p′) (1976Ul01); Γ(pair formation)=2.1×10^{-8} eV *3* from (e,e′) (1978Gr02).
2283.114	4^+	1126.076 *10*	100	1157.019	2^+	E2(+M3)	−0.05 *4*		B(E2)(W.u.)=(18 *7*); B(M3)(W.u.)=(2.5×10^5 *+41−25*) δ: <0.0003 from RUL(M3)=10.
2656.506	2^+	1499.46 *2*	100 *4*	1157.019	2^+	M1+E2	−0.123 *16*		B(M1)(W.u.)=0.191 *22*; B(E2)(W.u.)=3.6 *10*
		2656.42 *3*	12.5 *6*	0.0	0^+	E2			B(E2)(W.u.)=1.72 *20*
3044.27	4^+	761.12 *3*	100 *5*	2283.114	4^+	M1+E2	−0.25 *20*		B(M1)(W.u.)=0.0055 *15*; B(E2)(W.u.)=1.7 *+26−17*
		1887.3 *2*	86 *5*	1157.019	2^+	E2(+M3)	−0.08 *5*		B(E2)(W.u.)=(0.26 *7*); B(M3)(W.u.)=(3.E+3 *+4−3*) δ: <0.005 from RUL(M3)=10.
3284.97	6^+	1001.84 *3*	100	2283.114	4^+	(E2)			B(E2)(W.u.)=4.5 *4*
3301.35	2^+	2144.26 *8*	100 *6*	1157.019	2^+				
		3301.33 *6*	43 *7*	0.0	0^+	E2			B(E2)(W.u.)=1.3 *8*
3307.865	3^-	263.53 *6*	0.49 *13*	3044.27	4^+	[E1]			B(E1)(W.u.)=0.0007 *4*
		651.355 *9*	13.3 *5*	2656.506	2^+	[E1]			B(E1)(W.u.)=0.0012 *6*
		1024.738 *17*	29.4 *5*	2283.114	4^+	[E1]			B(E1)(W.u.)=0.0007 *4*
		2150.786 *17*	100.0 *20*	1157.019	2^+	[E1]			B(E1)(W.u.)=0.00025 *12*
		3307.7 *5*	0.08 *3*	0.0	0^+	E3			B(E3)(W.u.)=11.8 *11* (from 1989It02,(e,e′)), 6.9 *3* (from 1971He08,(e,e′)), 2002Ki06 give an average value of B(E3)(W.u.)=9 *3* from (e,e′) data.
3357.28	$(2^+,3,4^+)$	1074.13 *15*	100	2283.114	4^+				
		2200.1 *3*	14	1157.019	2^+				
3580.4	0^+	2423.3 *6*	100	1157.019	2^+	(E2)			
3661.526	1	353.67 *25*	0.3 *2*	3307.865	3^-				
		1005.0 *9*	0.48	2656.506	2^+				
		1777.973 *20*	34.8 *8*	1883.514	0^+				
		2504.39 *6*	10.7 *9*	1157.019	2^+				
		3661.363 *11*	100.0 *19*	0.0	0^+				
3676.088	$(1^-,2,3)$	368.208 *28*	23.2 *4*	3307.865	3^-				
		374.82 *11*	2.0 *5*	3301.35	2^+				
		1019.55 *7*	8.7 *4*	2656.506	2^+				
		2518.991 *18*	100.0 *18*	1157.019	2^+				
		3676.7 *6*	0.15 *7*	0.0	0^+				
3691.7	1	3691.5 *4*	100	0.0	0^+				
3712.02	4^-	404.26 *13*	100 *8*	3307.865	3^-	D			
		1428.67 *25*	44 *4*	2283.114	4^+				

Adopted Levels, Gammas (continued)

γ(^{44}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
3776.26	2	1119.7 *4*	8 *5*	2656.506	2^+			
		2619.16 *12*	100 *19*	1157.019	2^+	D+Q	−0.62 *8*	
3913.72	5^-	202.1 *2*	5	3712.02	4^-			
		628.69 *11*	92 *3*	3284.97	6^+	(E1+M2)	−0.30 *14*	B(E1)(W.u.)<0.00080?; B(M2)(W.u.)<1.4×10^3?
		869.47 *15*	100 *5*	3044.27	4^+	(E1)		B(E1)(W.u.)<0.00011
3922.67	5^-	637.68 *12*	100 *8*	3284.97	6^+			
		878.25 *20*	91 *8*	3044.27	4^+			
		1640.7[@] *5*	<46[@]	2283.114	4^+			
4011.5		299.5 *4*	100	3712.02	4^-			
4091.97	6^+	806.95 *15*	100 *11*	3284.97	6^+	(E2)		
		1809.0 *4*	53 *6*	2283.114	4^+			
4093.7	$(2^+,3,4^+)$	1810.4 *7*	100 *67*	2283.114	4^+			
		2937.8 *10*	67 *25*	1157.019	2^+			
4196.14	2^+	3038.7 *4*	100	1157.019	2^+			
		4196.1 *3*		0.0	0^+			I_γ: 100 from (γ,γ′).
4260.3	$(2^+,3)$	1976.9 *7*	82 *64*	2283.114	4^+			
		3103.2 *4*	100 *37*	1157.019	2^+			
4315.22	(1,2,3)	1658.69 *18*	100 *24*	2656.506	2^+			
		3158.07 *20*	70 *11*	1157.019	2^+			
4358.43	3^-	646.5 *3*	12 *4*	3712.02	4^-			
		682.34 *3*	11 *6*	3676.088	$(1^-,2,3)$			
		1050.60 *10*	79 *12*	3307.865	3^-			
		1701.9 *3*	14 *6*	2656.506	2^+			
		3201.27 *7*	100 *7*	1157.019	2^+			
4399.1	3^-	3242.0 *6*	100	1157.019	2^+			
4409.174	$(1,2,3)^-$	733.0 *4*	4.0 *17*	3676.088	$(1^-,2,3)$			
		747.63 *3*	51 *3*	3661.526	1			
		1101.3 *5*	0.3 *3*	3307.865	3^-			
		1107.98 *9*	16.4 *11*	3301.35	2^+			
		1752.629 *10*	100.0 *14*	2656.506	2^+			
		3252.07 *12*	3.9 *6*	1157.019	2^+			
		4408.91 *18*	1.31 *21*	0.0	0^+			
4436.7	$(1,2^+)$	3279.0[@] *7*	<250[@]	1157.019	2^+			
		4437.0 *7*	100 *67*	0.0	0^+			
4480.0	2^+	3322.8 *6*	100	1157.019	2^+			
4552.640	$(1,2,3)^-$	876.53 *3*	100.0 *20*	3676.088	$(1^-,2,3)$			
		891.09 *12*	5.4 *20*	3661.526	1			
		1195.4	2.7 *24*	3357.28	$(2^+,3,4^+)$			
		1244.75 *5*	48.0 *17*	3307.865	3^-			
		1896.0 *9*	6.4 *47*	2656.506	2^+			
		2268.5 *10*	1.7 *14*	2283.114	4^+			
		3395.51 *4*	96 *3*	1157.019	2^+			
4564.79	(5^-)	651.06 *12*	100	3913.72	5^-			

$^{44}_{20}Ca_{24}$-9

Adopted Levels, Gammas (continued)

γ(^{44}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
4564.79	(5$^-$)	2281.7 *5*	24	2283.114	4$^+$		
		4565.1[&] *8*	23	0.0	0$^+$		
4572.6	(1,2,3)	1916.0 *8*	100 *52*	2656.506	2$^+$		
		3415.5 *6*	43 *17*	1157.019	2$^+$		
4583.99	(2$^+$,3,4$^+$)	1276.0 *8*	9.2	3307.865	3$^-$		
		1539.40 *25*	39	3044.27	4$^+$		
		2300.6 *5*	40	2283.114	4$^+$		
		3427.5 *4*	100	1157.019	2$^+$		
4649.46	1	4649.2 *1*	100	0.0	0$^+$		
4650.6	2$^+$	1992.8 *7*	100 *67*	2656.506	2$^+$		
		4651.0 *5*	12 *7*	0.0	0$^+$	E2	I_γ: from ^{44}K β^-. In (n,γ), Iγ(4651)/Iγ(1993)=1.43.
4690.1	(1$^-$,2,3,4$^+$)	3532.9 *6*	100	1157.019	2$^+$		
4804.4	(1$^-$,2$^+$)	1496[&]		3307.865	3$^-$		E_γ,I_γ: part of 1499.3 doublet in (n,γ).
		3647.2 *6*	100	1157.019	2$^+$		
4824.4	(1,2,3)	2167.8 *6*	100	2656.506	2$^+$		
4848.39	1	4848.1 *2*	100	0.0	0$^+$		
4866.08	1	1285.0[&] *10*	≤11	3580.4	0$^+$		
		2982.44 *15*	79 *11*	1883.514	0$^+$		
		3708.90[&] *12*	≤29	1157.019	2$^+$		
		4865.80 *15*	100 *4*	0.0	0$^+$		
4884.02	(1,2,3)$^-$	1222.50 *8*	100 *10*	3661.526	1		
		1575.9 *3*	36 *11*	3307.865	3$^-$		
		3726.6 *4*	6.0 *12*	1157.019	2$^+$		
4904.6	3$^-$	2248.2 *5*	63	2656.506	2$^+$		
		3747.2 *6*	100	1157.019	2$^+$		
4930.70	6$^-$	1016.9 *2*	100 *7*	3913.72	5$^-$	D	
		1218.8 *3*	48 *7*	3712.02	4$^-$		
5005.65	4$^+$	1092.2 *7*	6.7	3913.72	5$^-$		
		1648.1 *5*	69	3357.28	(2$^+$,3,4$^+$)		
		2722.4 *3*	100	2283.114	4$^+$		
		3848.9 *7*	12	1157.019	2$^+$		
5025.72	3$^-$	1363.7 *8*	18 *18*	3661.526	1		
		3868.56 *22*	100 *27*	1157.019	2$^+$		
		5025.4 *8*	2.7 *27*	0.0	0$^+$		
5087.51	8$^+$	1802.6	100	3284.97	6$^+$	Q	
5096.8	(3,4)$^-$	1183.1 *4*	100	3913.72	5$^-$		
5130.21	(2,3)$^+$	1773.3 *5*	34	3357.28	(2$^+$,3,4$^+$)		
		2846.8 *3*	100	2283.114	4$^+$		
		3973.1 *4*	83	1157.019	2$^+$		
5161.6	1	3279.0[@] *7*	<27[@]	1883.514	0$^+$		
		4005	2 *2*	1157.019	2$^+$		
		5161.0 *3*	100 *6*	0.0	0$^+$		

$^{44}_{20}Ca_{24}$-10

Adopted Levels, Gammas (continued)

γ(^{44}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
5201.1	(1,2,3)$^-$	1525[&]		3676.088	(1$^-$,2,3)			
		1893.2 *4*	100 *47*	3307.865	3$^-$			
		4044[&]	≤2.6	1157.019	2$^+$			
5210.0	1$^+$	1909	34 *15*	3301.35	2$^+$			
		2553	4 *4*	2656.506	2$^+$			
		3326	80 *2*	1883.514	0$^+$	M1		B(M1)(W.u.)=0.085 *14*
		4053	65 *2*	1157.019	2$^+$	M1+E2	+0.27 *8*	B(M1)(W.u.)=0.035 *6*; B(E2)(W.u.)=0.4 *3*
		5210	100 *1*	0.0	0$^+$	M1		B(M1)(W.u.)=0.028 *5*
5230.33	(2 to 5)$^+$	1872.7[@] *3*	<74[@]	3357.28	(2$^+$,3,4$^+$)			
		2186.2 *10*	6.9	3044.27	4$^+$			
		2947.4 *3*	100	2283.114	4$^+$			
5245.12	7$^-$	1331.3 *2*	100 *5*	3913.72	5$^-$	(E2)		
		1960.2 *2*	97 *6*	3284.97	6$^+$	(E1)		
5289.2	(2 to 5)$^+$	3006.0 *4*	100	2283.114	4$^+$			
5300.8		1588.7 *4*	100	3712.02	4$^-$			
5325.0	(1,2,3)	2280.8[&] *7*	≤315	3044.27	4$^+$			
		2668[&]	≤31	2656.506	2$^+$			
		4167.8 *5*	100 *50*	1157.019	2$^+$			
5342.8	2$^+$	4185.6 *8*	100	1157.019	2$^+$			
5367.5	(1,2,3)	2711	1×10^2 *1*	2656.506	2$^+$			
		4210.1 *10*	30 *27*	1157.019	2$^+$			
5375.1	(2 to 5)$^+$	4217.9 *8*	100	1157.019	2$^+$			
5459.2	(2 to 5)$^+$	3176.2 *7*	100	2283.114	4$^+$			
		4301.7 *7*	50	1157.019	2$^+$			
5548.64	(2,3,4)$^+$	1872.7[@] *3*	<540[@]	3676.088	(1$^-$,2,3)			
		2891.2 *6*	63	2656.506	2$^+$			
		3265.4 *7*	100	2283.114	4$^+$			
		4391.5 *7*	72	1157.019	2$^+$			
5560.8	3$^-$	1884.5 *10*	100 *75*	3676.088	(1$^-$,2,3)			
		4403.6 *6*	15 *10*	1157.019	2$^+$			
		5561.3[&] *10*	13 *10*	0.0	0$^+$			
5611.6	1	4454.1 *8*	100 *21*	1157.019	2$^+$			
		5611.2 *3*	47 *21*	0.0	0$^+$			
5646.70	(8$^+$)	559.2 *2*	100 *11*	5087.51	8$^+$	(M1)		
		1554.7 *3*	70 *7*	4091.97	6$^+$	(E2)		
		2361.6 *4*	75 *7*	3284.97	6$^+$	(E2)		
5733.24	(2 to 5)$^+$	1640.7[@] *5*	<42[@]	4091.97	6$^+$			
		2376.1 *5*	17	3357.28	(2$^+$,3,4$^+$)			
		2688.7 *5*	21	3044.27	4$^+$			
		3450.3 *4*	100	2283.114	4$^+$			
5775.6	(2,3,4)$^+$	2099.3 *5*	49	3676.088	(1$^-$,2,3)			

$^{44}_{20}Ca_{24}$-11

Adopted Levels, Gammas (continued)

γ(^{44}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]
5775.6	$(2,3,4)^+$	2474.9[&] *6*	25	3301.35	2^+	
		2730.7 *6*	33	3044.27	4^+	
		3120.5[&] *15*	13	2656.506	2^+	
		3492.9 *4*	100	2283.114	4^+	
		4617.9 *8*	37	1157.019	2^+	
5800.61	1	5800.2 *2*	100	0.0	0^+	
5806.31	1	5805.9 *1*	100	0.0	0^+	
5866.8	$(2^+,3,4,5)$	1773.3 *5*	100	4091.97	6^+	
		2509.2 *6*	23	3357.28	$(2^+,3,4^+)$	
		3583.4 *6*	100	2283.114	4^+	
5875.82	1	5875.4 *2*	100	0.0	0^+	
5911.13	1	5910.7 *2*	100	0.0	0^+	
5971.22	8^-	726.1 *2*	100 *6*	5245.12	7^-	(M1)
		883.7 *2*	71 *6*	5087.51	8^+	
		1040.5 *3*	43 *3*	4930.70	6^-	Q
6040.2	$(2 \text{ to } 5)^+$	2682.8 *6*	100	3357.28	$(2^+,3,4^+)$	
6082.8	1^+	4199.5 *5*	62 *12*	1883.514	0^+	
		4925.3 *8*	41 *7*	1157.019	2^+	
		6080.1 *14*	100 *7*	0.0	0^+	
6136.6	1^-	4978.5 *5*	46 *7*	1157.019	2^+	
		6136.4 *3*	100 *5*	0.0	0^+	
6145.6	$(2 \text{ to } 5)^+$	2053.9 *5*	86	4091.97	6^+	
		2223.3 *20*		3922.67	5^-	
		3861.7 *7*	100	2283.114	4^+	
		6145.6[&] *10*	8	0.0	0^+	
6211.3		2297.5 *6*	100	3913.72	5^-	
6245.5	1	6245.0 *3*	100	0.0	0^+	
6422.12	1^-	4539.9 *7*	5.2 *7*	1883.514	0^+	
		5263.8 *7*	5.5 *7*	1157.019	2^+	
		6421.6 *1*	100 *1*	0.0	0^+	
6446.5	1^+	5288.0 *17*	50 *14*	1157.019	2^+	
		6446.3 *8*	100 *10*	0.0	0^+	
6507.1	1	6506.6 *5*	100	0.0	0^+	
6657.55	9^-	1412.4 *3*	59 *4*	5245.12	7^-	(E2)
		1570.0 *2*	100 *6*	5087.51	8^+	(E1)
6672.6		2088.2 *5*	100	4583.99	$(2^+,3,4^+)$	
		2896.7[&] *6*	18	3776.26	2	
		3628.9 *7*	34	3044.27	4^+	
6675.44	1	6674.9 *2*	100	0.0	0^+	
6960.7	1	6960.1 *6*	100	0.0	0^+	
6972.14	1	5815.0 *5*	100 *15*	1157.019	2^+	
		6971.5 *2*	52 *15*	0.0	0^+	

$^{44}_{20}Ca_{24}$-12

Adopted Levels, Gammas (continued)

γ(^{44}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]
7065.9	1	7065.3 *9*	100	0.0	0^+	
7092.66	9^-	435.1 *3*	39	6657.55	9^-	
		1121.5 *4*	28	5971.22	8^-	
		1445.9 *3*	100 *11*	5646.70	(8^+)	
		2005.1 *2*	67 *6*	5087.51	8^+	(E1)
7226.0	1	7225.4 *3*	100	0.0	0^+	
7275.1	1	7274.5 *9*	100	0.0	0^+	
7403.0	1	7402.3 *8*	100	0.0	0^+	
7470.82	(10^+)	1824.1 *2*	100 *8*	5646.70	(8^+)	
		2383.2 *3*	55 *6*	5087.51	8^+	Q
7556.5	(9^-)	1584[&]		5971.22	8^-	
		2468.9 *3*	100	5087.51	8^+	
7572.0	1^+	7571.3 *5*	100	0.0	0^+	
7578.9	1^-	7578.2 *3*	100	0.0	0^+	
7662.1	1^-	7661.4 *6*	100	0.0	0^+	
7783.3	1^-	7782.6 *10*	100	0.0	0^+	
7808.9	1^-	7808.2 *16*	100	0.0	0^+	
7828.8	1	7828.1 *12*	100	0.0	0^+	
7834.7	1^-	7834.0 *8*	100	0.0	0^+	
7879.87	10^-	323.4 *2*	33	7556.5	(9^-)	
		787.2 *2*	100 *8*	7092.66	9^-	(M1)
		1908.6 *3*	74 *8*	5971.22	8^-	Q
7953.1	1	5293.8 *14*	100	2656.506	2^+	
		7952.6 *5*	100	0.0	0^+	
8070.2	1	8069.4 *7*	100	0.0	0^+	
8086.0	1	8085.2 *7*	100	0.0	0^+	
8286.2	11^-	406.6[&]	6	7879.87	10^-	
		1628.6 *2*	100 *6*	6657.55	9^-	(E2)
8321.5	1	8320.7 *16*	100	0.0	0^+	
8395.3	1	8394.4 *4*	100	0.0	0^+	
8405.4	1	8404.5 *17*	100	0.0	0^+	
8556.7	1^-	8555.8 *8*	100	0.0	0^+	
8615.2	1^-	8614.3 *12*	100	0.0	0^+	
8802	1^-	8800.9 *29*	100	0.0	0^+	
8828.0		6944.6 *18*	100 *14*	1883.514	0^+	
		8826.6 *14*	89 *23*	0.0	0^+	
8851.5	1^-	7692.9 *18*	19 *8*	1157.019	2^+	
		8850.7 *7*	100 *6*	0.0	0^+	
8908.8	1^-	8907.8 *7*	100	0.0	0^+	
9024.1	1^-	9023.1 *20*	100	0.0	0^+	
9148.4	1^-	9147.4 *24*	100	0.0	0^+	
9273.5	1^-	9272.5 *8*	100	0.0	0^+	
9317.2	1^-	9316.1 *10*	100	0.0	0^+	
9664.9	1^-	8508.5 *33*	17 *8*	1157.019	2^+	
		9663.7 *7*	100 *6*	0.0	0^+	
9788.5		2317.6 *6*	100	7470.82	(10^+)	
9814.1	1^-	9812.9 *11*	100	0.0	0^+	
9859.4	12^-	1979.5 *3*	100	7879.87	10^-	(E2)
9898.2	1^-	9897.0 *10*	100	0.0	0^+	
10567.7	13^-	2281.5 *4*	100	8286.2	11^-	(E2)
(11131.54)	3^-,4^-	4457.9 *7*	27.3	6672.6		
		4919.9 *7*	12.9	6211.3		
		4984.4 *5*	16.1	6145.6	$(2\text{ to }5)^+$	
		5091.6 *8*	5.7	6040.2	$(2\text{ to }5)^+$	
		5264.4 *5*	17.1	5866.8	$(2^+,3,4,5)$	
		5355.7 *5*	41.3	5775.6	$(2,3,4)^+$	
		5397.8 *5*	53.8	5733.24	$(2\text{ to }5)^+$	
		5582.4 *5*	14.2	5548.64	$(2,3,4)^+$	
		5673.0 *7*	7.2	5459.2	$(2\text{ to }5)^+$	
		5756.3 *7*	12.2	5375.1	$(2\text{ to }5)^+$	
		5789.5 *7*	5.0	5342.8	2^+	
		5831.4 *7*	14.4	5300.8		
		5841.9 *5*	16.8	5289.2	$(2\text{ to }5)^+$	
		5900.9 *5*	100	5230.33	$(2\text{ to }5)^+$	
		6001.3 *6*	48.6	5130.21	$(2,3)^+$	
		6034.4 *6*	16.9	5096.8	$(3,4)^-$	
		6125.3 *6*	53.4	5005.65	4^+	
		6226.7 *8*	12.1	4904.6	3^-	
		6328.3 *6*	8.5	4804.4	$(1^-,2^+)$	
		6441.1 *8*	5.6	4690.1	$(1^-,2,3,4^+)$	
		6480.2 *6*	33.0	4650.6	2^+	
		6546.6 *6*	33.9	4583.99	$(2^+,3,4^+)$	
		6566.4 *6*	8.0	4564.79	(5^-)	
		6651.3 *8*	6.0	4480.0	2^+	
		6731.9 *10*	2.0	4399.1	3^-	
		6772.3 *6*	10.8	4358.43	3^-	
		6935.2 *6*	12.6	4196.14	2^+	
		7119.7 *10*	1.2	4011.5		
		7208.1 *6*	22.2	3922.67	5^-	
		7354.2 *8*	7.0	3776.26	2	
		7418.8 *6*	10.6	3712.02	4^-	
		7454.4 *10*	1.2	3676.088	$(1^-,2,3)$	
		7773.4 *6*	43.6	3357.28	$(2^+,3,4^+)$	
		7822.3 *10*	2.4	3307.865	3^-	
		7829.3 *8*	8.6	3301.35	2^+	
		8086.4 *7*	9.6	3044.27	4^+	

$^{44}_{20}Ca_{24}$-13

Adopted Levels, Gammas (continued)

$\gamma(^{44}Ca)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π
(11131.54)	$3^-,4^-$	8474.3 *10*	1.0	2656.506	2^+
		8848.0 *7*	5.3	2283.114	4^+
		9974.3 *8*	1.6	1157.019	2^+
12188.1		2399.5 *7*	100	9788.5	

[†] Values with ΔE are primarily from β^- decay, (n,γ), (γ,γ') and ^{30}Si(^{18}O,2p2nγ). Weighted average taken when available. Others are deduced from level-energy differences.

[‡] Primarily from ^{44}K β^-,(γ,γ') and (n,γ). Weighted average taken when available, unless otherwise noted.

[#] From (p,p′γ), unless otherwise stated. If $T_{1/2}$ is unknown and parity is determined not by polarization measurements, evaluators use D and Q, instead of M1 and E2, or, E1 and M2.

[@] Multiply placed with undivided intensity.

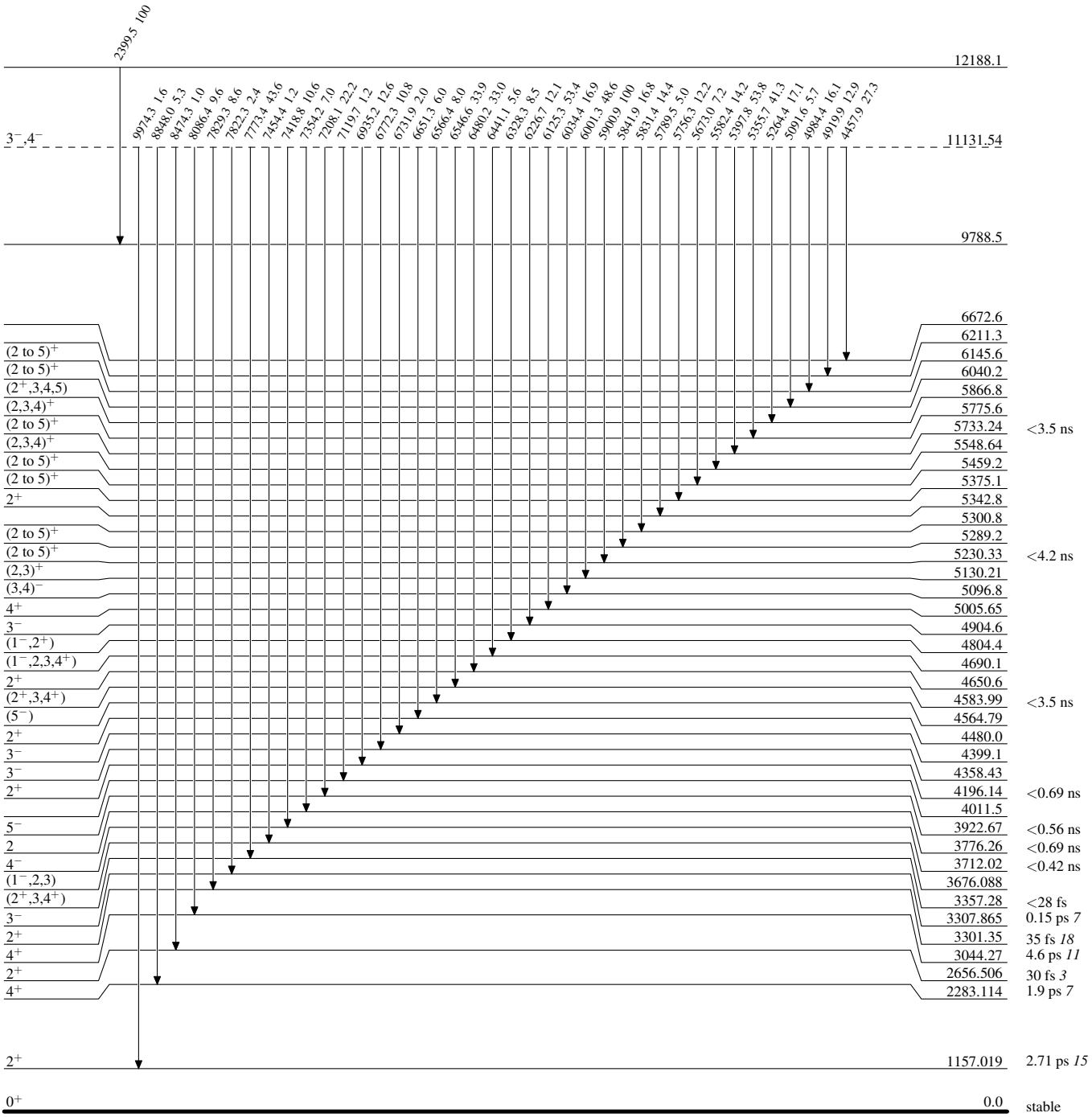
[&] Placement of transition in the level scheme is uncertain.

$^{44}_{20}Ca_{24}$-14

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{44}_{20}Ca_{24}$

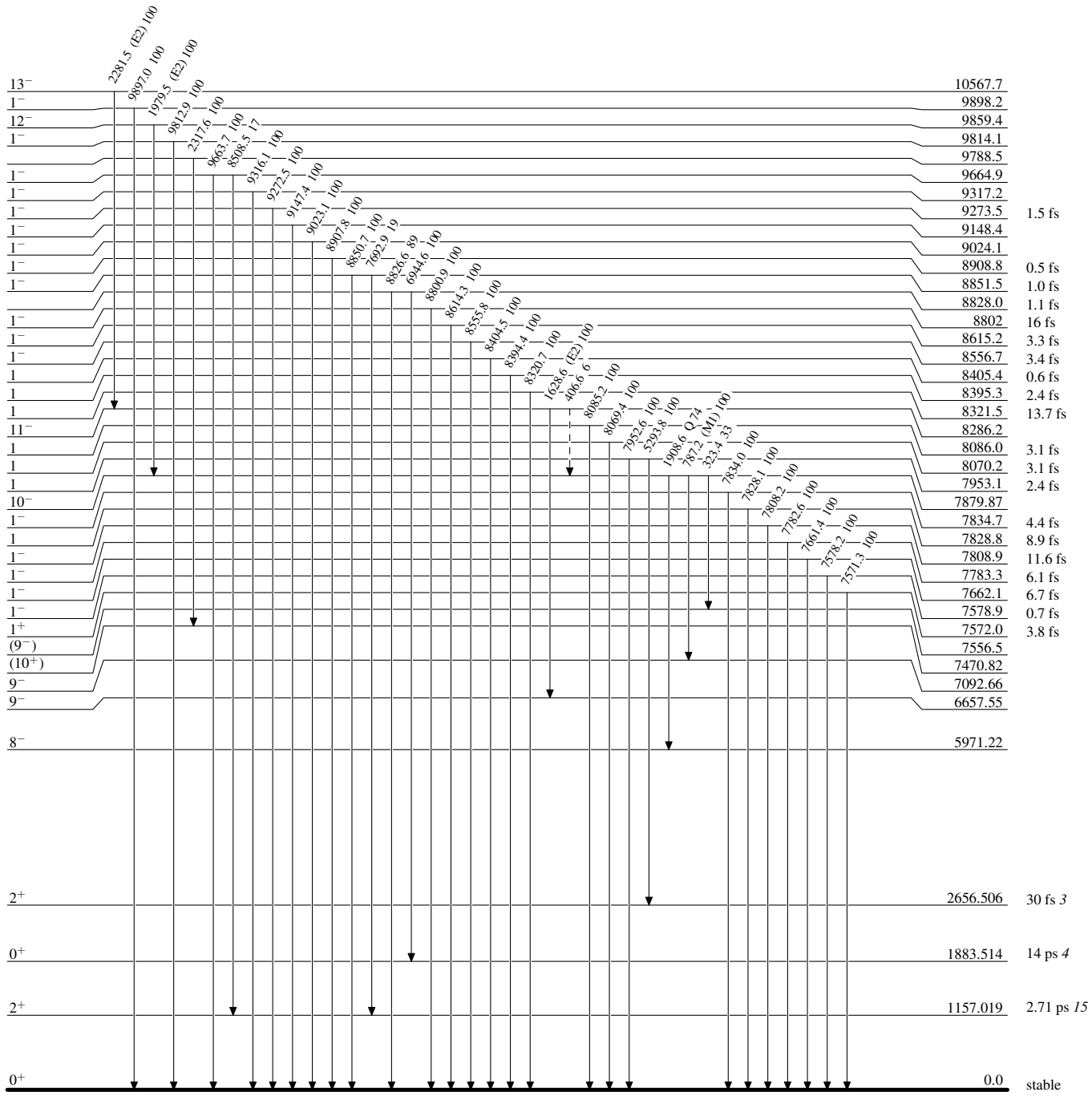
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{44}_{20}Ca_{24}$

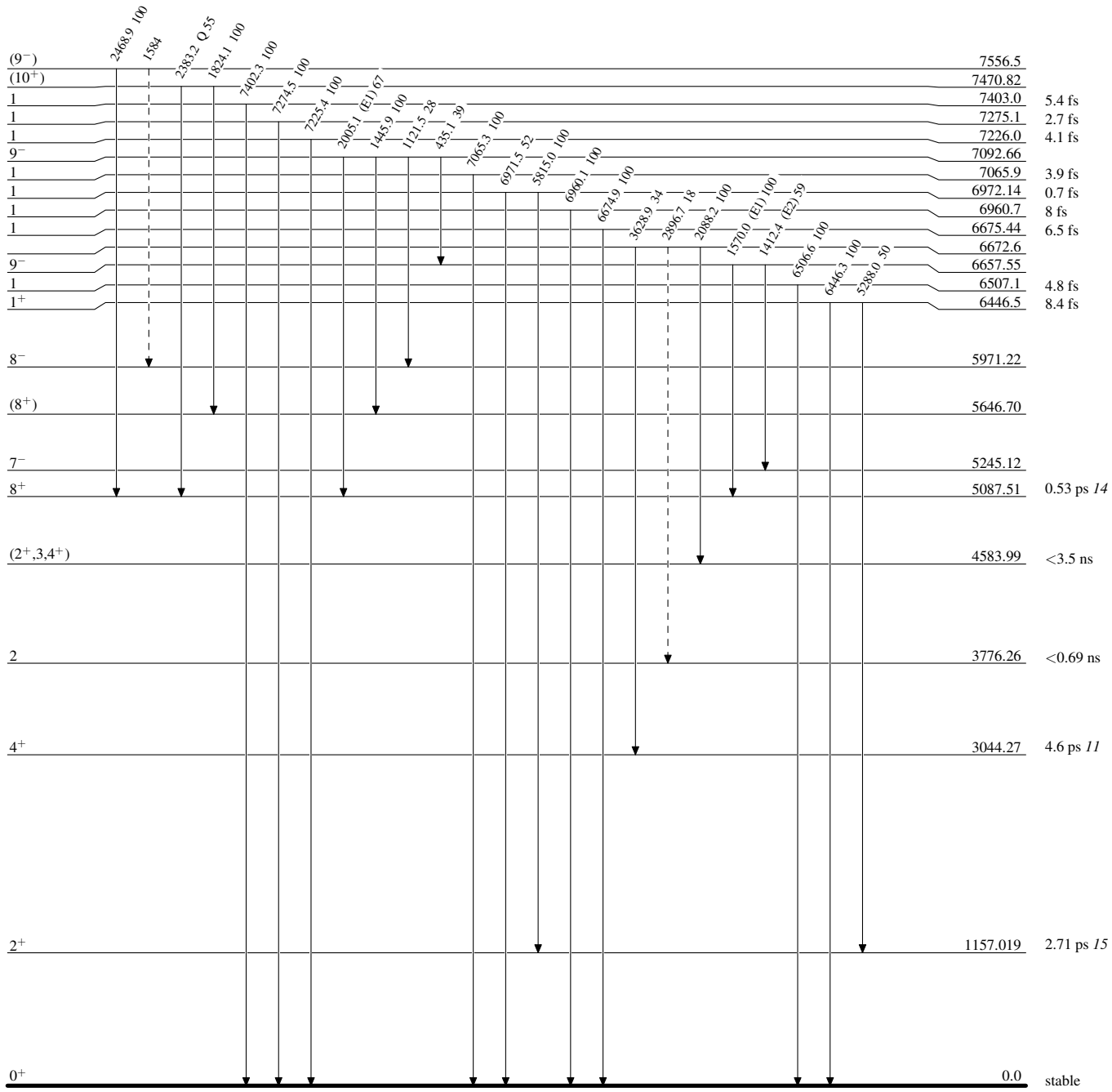
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{44}_{20}Ca_{24}$

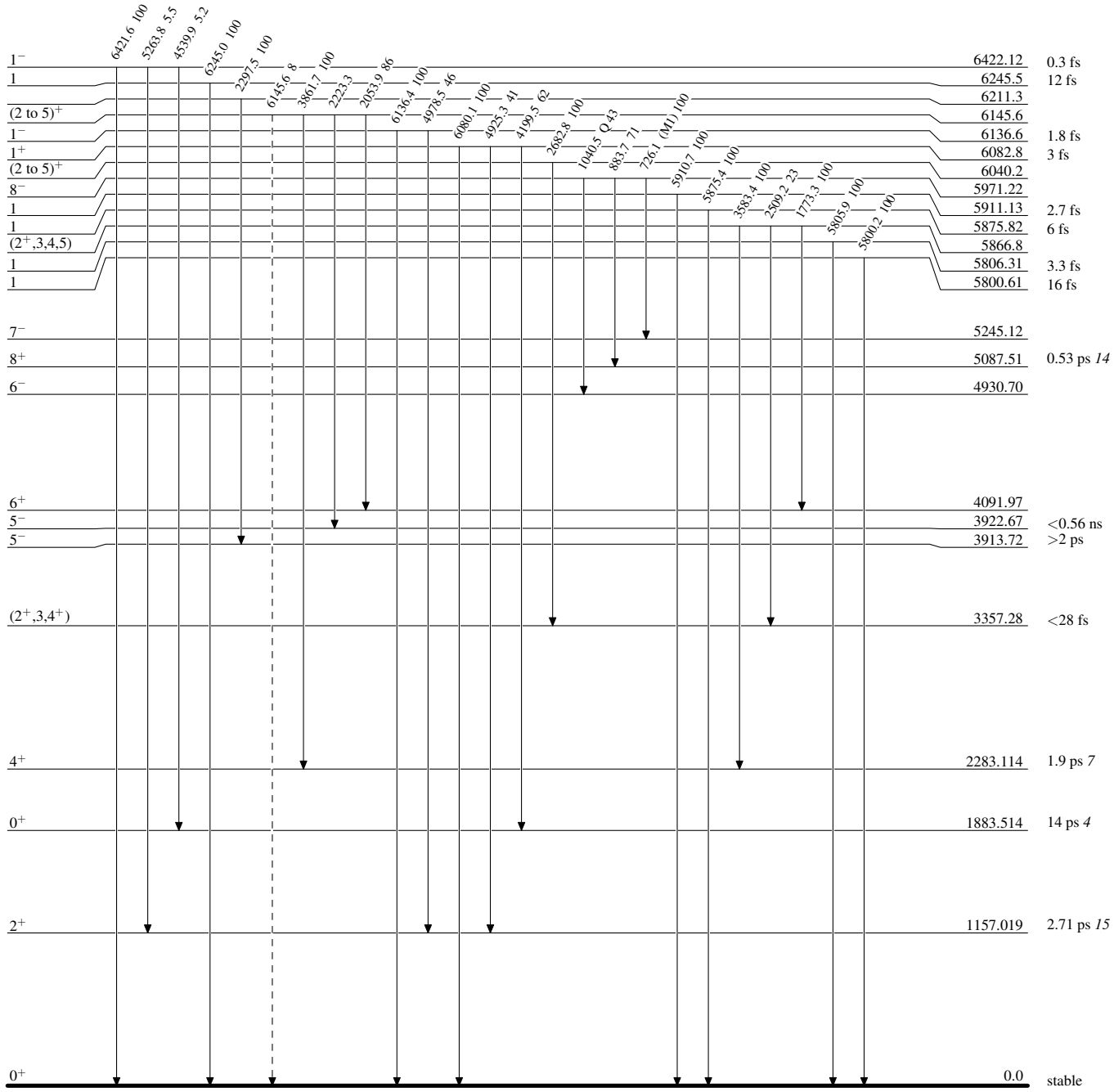
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{44}_{20}Ca_{24}$

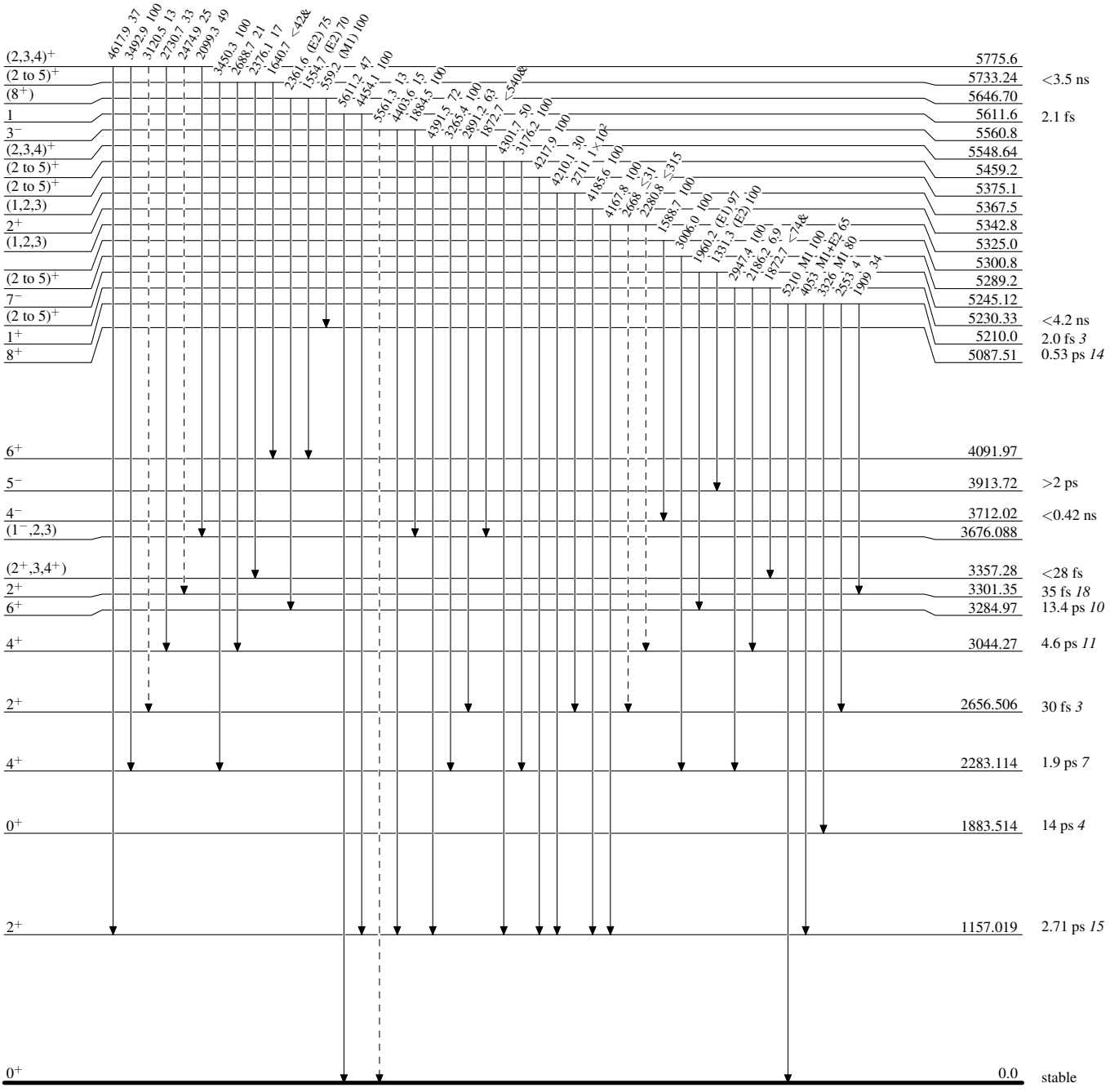
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

– – – – – – ► γ Decay (Uncertain)



$^{44}_{20}Ca_{24}$

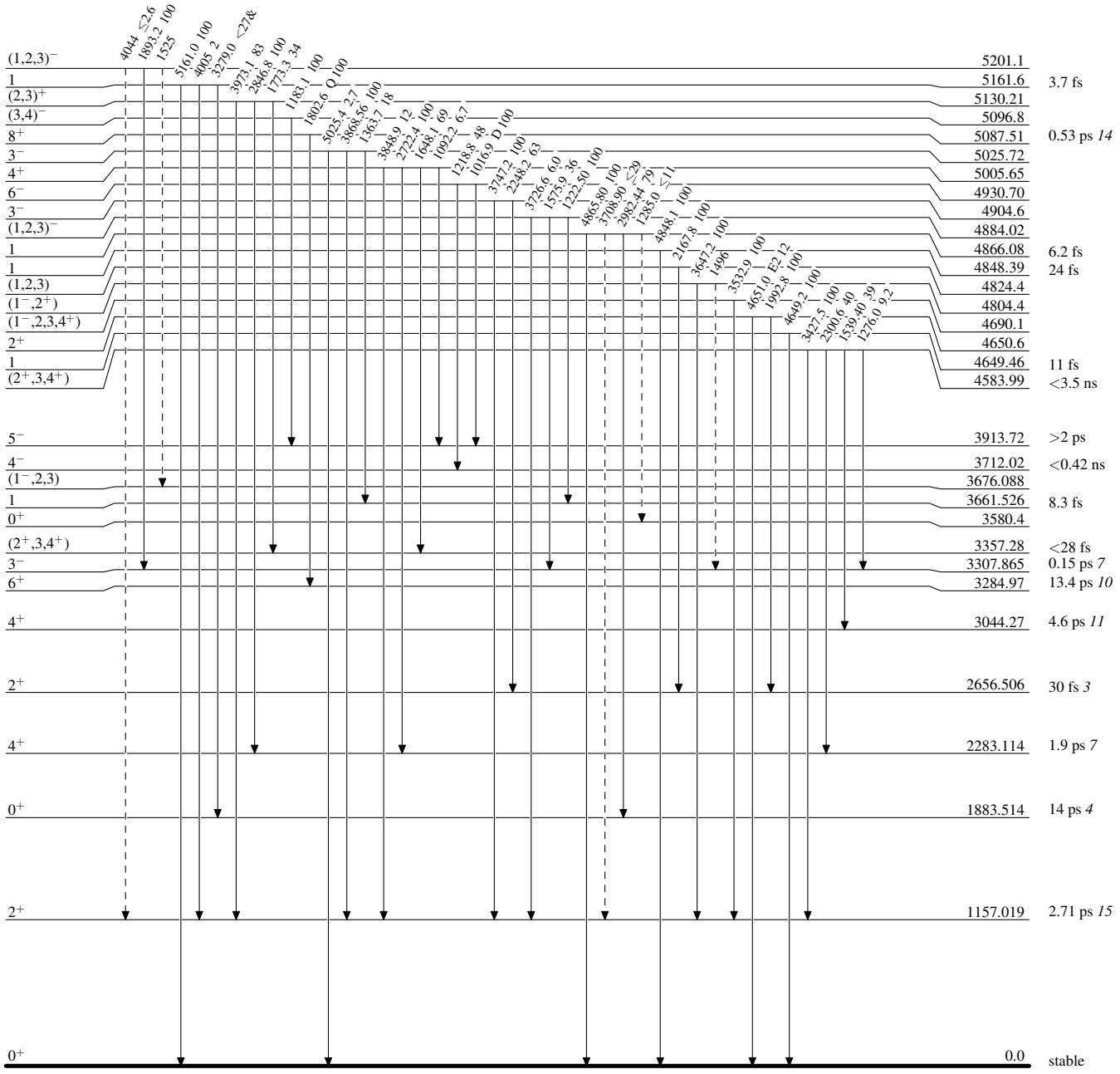
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

– – – – – – ► γ Decay (Uncertain)



$^{44}_{20}Ca_{24}$

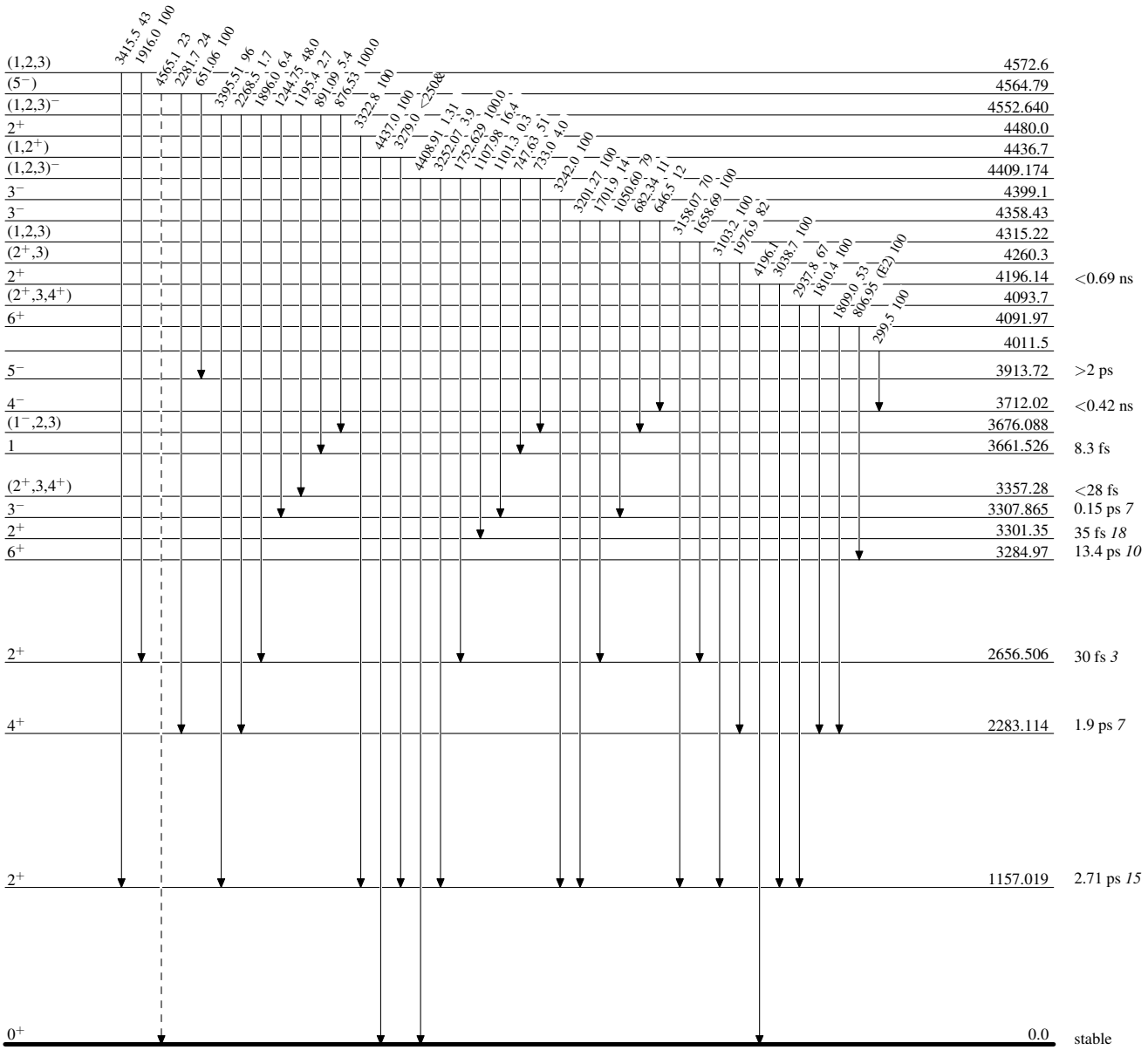
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

– – – – – – ► γ Decay (Uncertain)

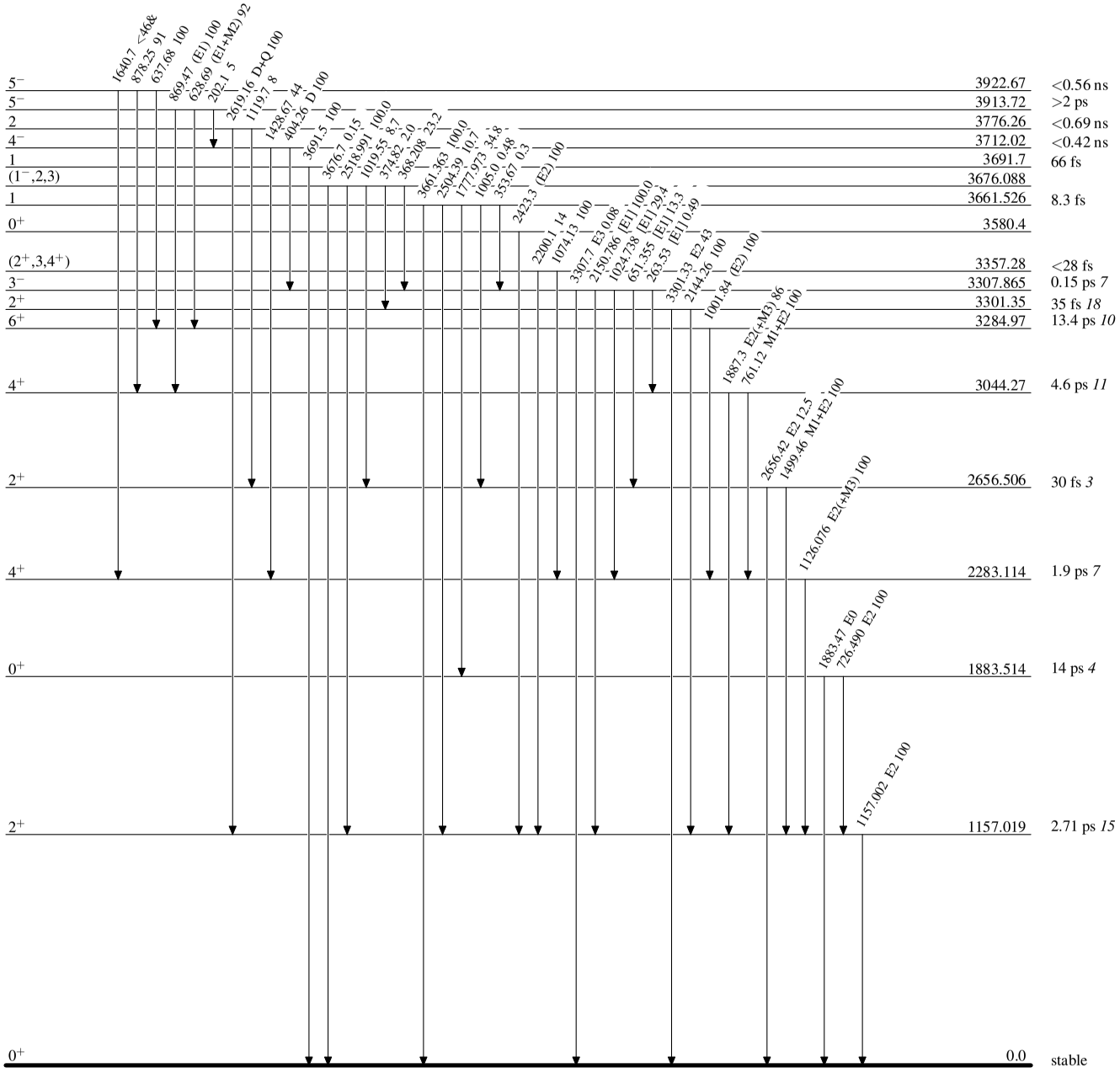


$^{44}_{20}Ca_{24}$

Adopted Levels, Gammas

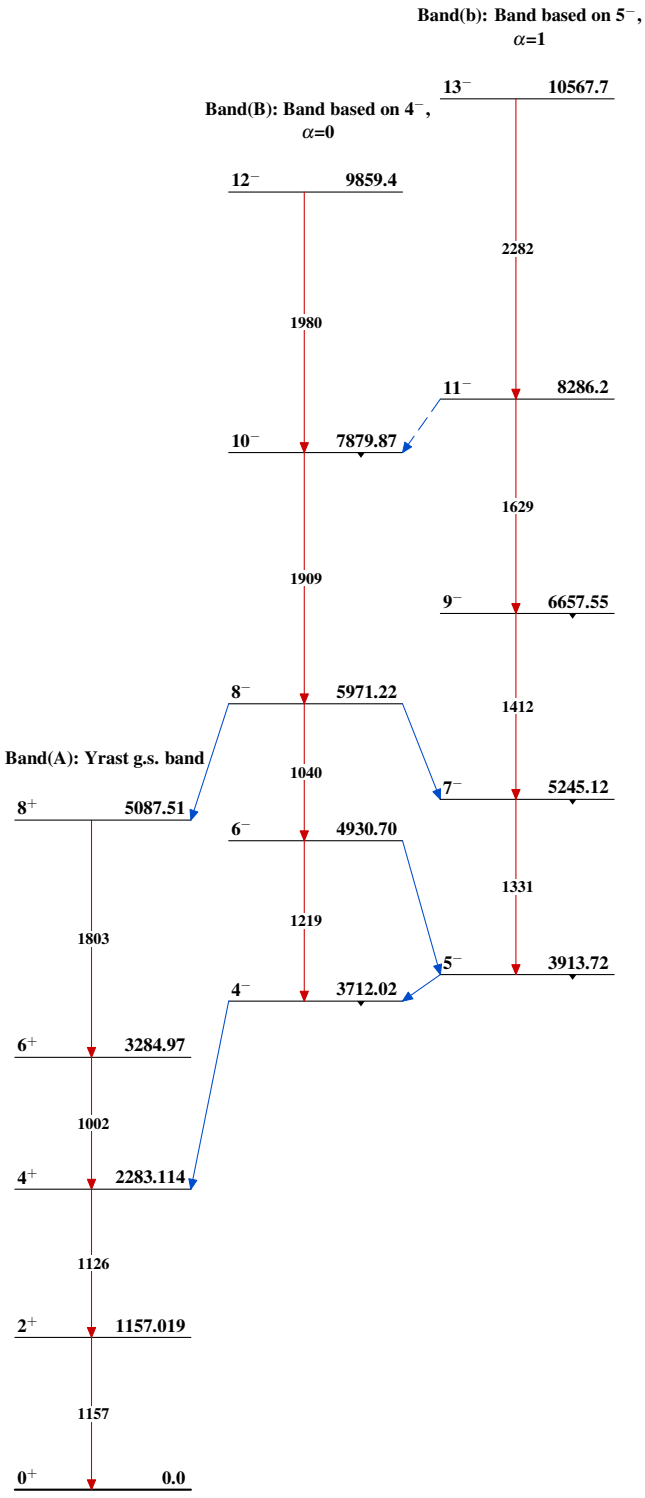
Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{44}_{20}Ca_{24}$

Adopted Levels, Gammas



$^{44}_{20}Ca_{24}$