Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen[#]	NDS 126, 1 (2015)	31-Mar-2015

Q(β^-)=−2220.7 *19*; S(n)=7932.89 *17*; S(p)=10675.76 *25*; Q(α)=−7592 *5* 2012Wa38
S(2n)=19413.56 *18*, S(2p)=19919.3 *4* (2012Wa38).
Hyperfine structure measurements: 2011Av01, 2004Mo21, 2000Mu17.

^{43}Ca Levels

Cross Reference (XREF) Flags

A	^{43}K β^- decay (22.3 h)	I	^{42}Ca(n,γ),(n,n):resonances	Q	^{44}Ca(d,t)
B	^{43}Sc ε decay (3.891 h)	J	^{42}Ca(d,p)	R	^{44}Ca(^{3}He,α),(pol ^{3}He,α)
C	^{27}Al(^{19}F,2pnγ)	K	^{42}Ca(α,^{3}He)	S	^{44}Ca(^{3}He,$\alpha\gamma$)
D	^{30}Si(^{18}O,αnγ)	L	^{43}Ca(p,p′)	T	^{45}Sc(μ^-,2nγ)
E	^{40}Ar(α,nγ)	M	^{43}Ca(p,p′γ)	U	^{45}Sc(d,α)
F	^{41}K(^{3}He,p)	N	^{43}Ca(d,d′)	V	Coulomb excitation
G	^{41}K(α,d)	O	^{43}Ca(α,α′)		
H	^{42}Ca(n,γ) E=thermal	P	^{44}Ca(p,d)		

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[@]	XREF	Comments
0	7/2$^-$	stable	ABCDEFGH JKLMNOPQRSTUV	μ=−1.31726 *60* (1972Ol01,2014StZZ) Q=−0.0408 *8* (1991Si14,2008Py02,2014StZZ) Evaluated rms charge radius=3.4954 fm *19* (2013An02). μ: optical method (1972Ol01). Other: −1.317643 *7* (NMR,1973Lu08). Q: from CFBLS method (revised value by 1993Su36 from −0.043 *9* (1991Si14). Other measurements: −0.062 *12* (ABMR-LIRF, 1982Ay02), −0.065 *20* (ABMR, laser spectroscopy, 1979Gr05), −0.040 *8* (optical isotope shift method, 1980Be13,1981Ar15). Recalculations and analyses: −0.0552 *11* (2002Mi37), −0.0408 *8* (1993Su36,2008Py02), −0.049 *5* (1984Sa10,1983Ar25,1982Ol05). Measured Δ<r^2>(^{43}Ca−^{40}Ca)=0.117 fm^2 *25* (1981Wo02), 0.1254 fm^2 *32* (1984Pa12), 0.1215 fm^2 *4* (1991Si14). Adopted (by 1977En02) spectroscopic factor S=0.58 *6* (neutron stripping); 3.1 *3* (neutron pickup). J$^\pi$: L(d,p)=L(d,t)=L(α,^{3}He)=L(p,d)=L(pol ^{3}He,α)=3; J from optical spectroscopy (1954Ke14); L(α,d)=5.
372.762 *5*	5/2$^-$	34 ps *3*	ABCDE H JKLMNOPQRSTUV	Adopted (by 1977En02) spectroscopic factor S<0.02 (neutron stripping); 0.17 *8* (neutron pickup). J$^\pi$: L(d,t)=L(α,^{3}He)=L(p,d)=L(d,t)=L(pol ^{3}He,α)=3; $\gamma(\theta)$ and γ(lin pol) in (α,nγ).
593.394 *5*	3/2$^-$	81 ps *4*	ABCDE H JKLMNOPQRS UV	Adopted (by 1977En02) spectroscopic factor S=0.04 *2* (neutron stripping); 0.10 *3* (neutron pickup). J$^\pi$: L(d,p)=L(α,^{3}He)=L(d,t)=L(p,d)=L(pol ^{3}He,α)=1; ΔJ=2 to 7/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ). T$_{1/2}$: other: 160 ps *10* from p′γ(t) in (p,p′γ).
990.257[a] *5*	3/2$^+$	49 ps *4*	A CDEF H JKLM PQRS U	Adopted (by 1977En02) spectroscopic factor S=0.11 *2* (neutron stripping); 2.2 *4* (neutron pickup). J$^\pi$: L(d,p)=L(d,t)=L(α,^{3}He)=L(p,d)=L(pol ^{3}He,α)=2; L(^{3}He,p)=0; ΔJ=1 to 5/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ). T$_{1/2}$: weighted average of 48 ps *4* from (α,nγ) and 51 ps *8* from (^{19}F,2pnγ).

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Adopted Levels, Gammas (continued)

^{43}Ca Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
1394.473[b] *8*	5/2$^+$	1.84[&] ps *35*	A CDEF H JKLM PQRS U	Jπ: L(d,t)=L(α,^{3}He)=L(p,d)=2; ΔJ=1 to 7/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ).
1677.84 *17*	11/2$^-$	0.85[&] ps *14*	CDE JKLMNOPQ S UV	Jπ: L(α,α')=2+4; ΔJ=2 to 7/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ).
1901.99[a] *14*	7/2$^+$	0.53[&] ps *10*	CDE J LM	Jπ: ΔJ=2 E2 to 3/2$^+$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ) and RUL.
1931.53 *14*	5/2$^-$	116[&] fs *30*	B E J LMNO S	Jπ: L(α,α')=2+4; ΔJ=0 or 1 to 3/2$^-$, 5/2$^-$ and 7/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ) and RUL.
1957.4 *4*	1/2$^+$	1.1 ps *3*	E H JKL PQR	Adopted (by 1977En02) spectroscopic factor S=0.05 *2* (neutron stripping); 1.0 *2* (neutron pickup). Jπ: L(d,p)=L(d,t)=L(p,d)=L(pol ^{3}He,α)=0.
2046.21 *15*	3/2$^-$	0.8 ps *2*	EFGH JKLMNOPQR	Adopted (by 1977En02) spectroscopic factor S=0.72 *9* (neutron stripping); 0.19 *6* (neutron pickup). Jπ: L(d,p)=L(α,^{3}He)=L(d,t)=L(p,d)=L(pol ^{3}He,α)=1; L(α,α')=2+4 and γ to 7/2$^-$ reject 1/2$^-$.
2067.21 *17*	7/2$^-$	21 fs *7*	E LMNO	Jπ: L(d,d′)=4; L(α,α')=2+4; ΔJ=1 to 5/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ). $T_{1/2}$: from DSAM in (p,p′γ).
2093.81 *18*	9/2$^-$	1.4[&] ps *4*	CDE LMNO	Jπ: L(α,α')=2+4; ΔJ=1 to 7/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ).
2102.7 *3*	3/2$^-$	0.33 ps *9*	E H J L	Jπ: L(d,p)=1; γ to 7/2$^-$.
2223.9 *4*	3/2$^-$,5/2$^-$	28 fs *17*	E J LM	Jπ: ΔJ=0 or 1 to 3/2$^-$ and 5/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ); positive sign gives unacceptable M2 strength from (α,nγ).
2248 *8*			JK	
2249.01 *14*	9/2$^-$	37[&] fs *8*	E LMNO	Jπ: L(α,α')=2+4; L(d,d′)=2; ΔJ=2 to 5/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ).
2272.8 *3*	3/2$^+$,5/2$^+$	0.28 ps *8*	EF H J LM PQ	XREF: P(2250). Jπ: L(d,t)=L(p,d)=2.
2409.68[b] *15*	9/2$^+$	1.2[&] ps *4*	CDE J LM	Jπ: γ decays to 5/2$^+$, 7/2$^+$ and 7/2$^-$; ΔJ=2 to 5/2$^+$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ).
2523 *10*	(1/2$^-$,3/2$^-$)		J	Jπ: L(d,p)=(1).
2611.1 *3*	1/2$^-$	0.13 ps *5*	E H JKL Q	Jπ: L(d,p)=L(α,^{3}He)=1; γ circular polarization from (n,γ) E=thermal rejects 3/2$^-$.
2674.3 *8*	5/2$^-$,7/2$^-$	36[&] fs *16*	E JKLM O	Jπ: L(d,p)=L(α,^{3}He)=3.
2696.5 *5*	3/2$^+$,5/2$^+$	<38 fs	E J LM OPQ S	XREF: P(2660)Q(2680). Jπ: L(d,p)=L(d,t)=L(p,d)=2; L(α,α')=2+4 is presumed to be in error or for a different level at 2694 *5*.
2748 *8*	1/2$^+$		JKl	Jπ: L(d,p)=0.
2754.00 *21*	15/2$^-$	23.6 ps *10*	CDE l O	Jπ: ΔJ=2 to 11/2$^-$ from $\gamma(\theta)$ and γ(lin pol) in (α,nγ) and from DCO in (^{18}O,αnγ). $T_{1/2}$: weighted average from (^{19}F,2pnγ).
2769.6 *5*	(1/2,3/2,5/2)	0.10 ps *4*	E	Jπ: γ to 3/2$^+$ and 3/2$^-$.
2844.7 *5*	(5/2)$^+$	0.55 ps *15*	EFG JKL OPQ	Jπ: L(p,d)=L(d,t)=2 and γ to 7/2$^-$. L(d,p)=0 suggests 1/2$^+$. L(α,d)=4+6 from 3/2$^+$ is inconsistent with J=5/2.
2878.7 *10*	1/2$^-$	107 fs *38*	E H J L S	Jπ: L(d,p)=1. γ(circ pol) in (pol n,γ) does not allow 3/2$^-$. $\gamma(\theta)$ of 2504γ in (^{3}He,$\alpha\gamma$) is inconsistent with J=1/2. It is possible that the level seen in (^{3}He,$\alpha\gamma$) is different from that in (n,γ) and (α,nγ).
2943.5 *3*	3/2$^-$	<60 fs	E H JKl S	Jπ: L(d,p)=1. γ(circ pol) in (pol n,γ) does not allow 1/2$^-$.

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Adopted Levels, Gammas (continued)

^{43}Ca Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
2951.33[a] *19*	11/2$^+$	4.7 ps *12*	CDE G l O	Jπ: L(α,d)=6 from 3/2$^+$; ΔJ=1 to 9/2$^+$ from γ(θ) and γ(lin pol) in (α,nγ).
3028.7 *8*	(3/2 to 7/2)	<60 fs	E J l O S	Jπ: γ to 5/2$^-$; ΔJ=1 to 5/2$^-$ from γ(θ) in (^{3}He,αγ).
3030.4 *7*	(1/2,3/2,5/2)		l S	E(level): not resolved from 3028.6; γ decay seen only in (^{3}He,αγ). Jπ: γ decays to 3/2$^+$,3/2$^-$ L(p,d)=0+2 implies the presence of a doublet.
3049.6 *15*		<60 fs	E JKL P	Jπ: probable 1/2$^+$ from L(p,d)=0 or 0(+2). E(level): population in (α,nγ) is considered suspect (evaluators).
3050.6 *4*	11/2$^-$	<17 fs	E O	Jπ: L(α,α′)=2+4; ΔJ=2 to 7/2$^-$ from γ(θ) and γ(lin pol) in (α,nγ).
3076.0 *15*	(5/2)$^+$	<17 fs	E G JkL Q	Jπ: L(d,t)=2 and γ to 7/2$^-$. L(d,p)=0 gives 1/2$^+$. L(α,d)=4+6 is inconsistent with J=5/2.
3096.0 *7*	(1/2$^-$ to 7/2$^-$)	<17 fs	Ef jkl o	Jπ: γ to 3/2$^-$ and 5/2$^-$.
3097.0 *6*	(5/2$^+$ to 11/2$^+$)	0.76 ps *21*	Ef j l o	Jπ: γ to 7/2$^+$ and 9/2$^+$.
3195.6 *5*	7/2$^+$,9/2$^+$	118 fs *42*	E G JKL O	Jπ: L(α,α′)=3+5; L(α,^{3}He)=4.
3270	(5/2)		kl opq S	Jπ: D+Q γ transitions to 5/2$^-$ and 7/2$^-$; γ to 5/2$^+$; αγ(2288) favors 5/2.
3278 *10*	(11/2 to 17/2)$^+$		G kl opq	Jπ: L(α,d)=6 from 3/2$^+$; L(α,α′)=3+5. L(α,^{3}He)=(4) implying (7/2$^+$,9/2$^+$) is inconsistent with either of the J^π values for 3278 or 3270 levels.
3285.7 *6*	3/2$^-$	<60 fs	Ef H J L Opq	Jπ: L(d,p)=1. γ(circ pol) in (pol n,γ) does not allow 1/2$^-$. L(α,α′)=3+5 for 3277+3297 is inconsistent with π=−.
3315.2 *7*	1/2$^-$,3/2$^-$	0.13 ps *6*	Ef H J	Jπ: L(d,p)=1.
3371.19[b] *19*	13/2$^+$	<14 ps	CDE G O	XREF: G(3372)O(3377). Jπ: L(α,α′)=3+5 and ΔJ=2 to 9/2$^+$ from γ(θ) and γ(lin pol) in (α,nγ). $T_{1/2}$: From (^{19}F,2pnγ). >3.5 ps from (α,nγ).
3376.6 *10*			E JK	
3415 *8*	5/2$^-$,7/2$^-$		JKL	Jπ: L(d,p)=L(α,^{3}He)=3.
3469 *5*			O	
3505.3 *3*	13/2$^+$	73 fs *24*	DE G K O	Jπ: L(α,d)=4+6 from 3/2$^+$; L(α,α′)=3+5; ΔJ=1 to 11/2$^-$ from γ(θ) and γ(lin pol) in (α,nγ).
3572.2 *5*	3/2$^-$		H J	Jπ: L(d,p)=1. γ(circ pol) in (pol n,γ) does not allow 1/2$^-$.
3604 *10*	(1/2)$^+$		J PQ	Jπ,E(level): L(d,p)=0. However, L(p,d)=2 giving 3/2$^+$,5/2$^+$ may suggest a doublet near this energy.
3649 *8*	(3/2$^+$,5/2$^+$)		JK	Jπ: L(d,p)=(2).
3662.5 *4*	13/2$^-$	49 fs *21*	E O	Jπ: ΔJ=1 to 11/2$^-$ from γ(θ) and γ(lin pol) in (α,nγ) and γ to 9/2$^-$.
3705 *10*			J	
3737 *10*			J	
3772 *10*	1/2$^-$,3/2$^-$		J	Jπ: L(d,p)=1.
3783 *10*			J	
3816.1 *8*	(7/2$^-$)	69 fs *38*	E JK	XREF: K(3803). Jπ: from L(d,p)=L(α,^{3}He)=(3) and γ to 9/2$^+$.
3837 *10*	(3/2 to 13/2)$^+$		G O	Jπ: L(α,d)=4 from 3/2$^+$.
3864 *10*	(1/2$^-$,3/2$^-$)		J	Jπ: L(d,p)=(1).
3898 *10*			J	
3918 *8*	(7/2,9/2)$^+$		F JK O	E(level): possible doublet as suggested in (α,^{3}He)

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Adopted Levels, Gammas (continued)

^{43}Ca Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
				and in 1990En08 evaluation. See also J^{π} comment.
				Jπ: L(^{3}He,p)=2 from 3/2$^+$; L(α,α')=3+5; L($\alpha,^3$He)=(4). L(d,p)=(1) from 1974Br19 is in disagreement but L(d,p)=4 is also suggested by 1966Do02. Similarity to 4984, 9/2$^+$ state in ^{41}Ca indicates 4p-1h component in this level (1968Do02).
3943.81[a] *24*	15/2$^+$	0.76 ps *21*	CDE G O	Jπ: ΔJ=1 to 13/2$^+$ from γ(θ) and γ(lin pol) in (α,nγ); L(α,d)=6 from 3/2$^+$.
3958 *10*			J	
3978 *10*	3/2$^+$,5/2$^+$		J PQ	XREF: P(3950). Jπ: L(d,p)=L(p,d)=L(d,t)=2.
4017 *10*			J	
4044 *8*	3/2$^+$,5/2$^+$		JK	Jπ: L(d,p)=2.
4078 *10*			J	
4089 *10*	(5/2$^-$,7/2$^-$)		J	Jπ: L(d,p)=(3).
4135.9 *7*	7/2$^+$,9/2$^+$	<260 fs	E G JK O	XREF: J(4124)K(4123). Jπ: L(d,p)=4; inconsistent with L(α,d)=6 from 3/2$^+$.
4148 *10*	1/2$^+$		J	Jπ: L(d,p)=0.
4174.8 *11*			E	
4186.5 *4*	15/2$^+$	125 fs *50*	DE G	Jπ: ΔJ=1 to 13/2$^+$ from γ(θ) and γ(lin pol) in (α,nγ); L(α,d)=6 from 3/2$^+$.
4207.2 *5*	1/2$^-$		H JK	XREF: J(4196)K(4193). Jπ: L(d,p)=L(α,^{3}He)=1. γ(circ pol) in (pol n,γ) does not allow 3/2$^-$. Not compatible with L(d,t)=2 or L(p,d)=(2,3).
4210? *20*	3/2$^+$,5/2$^+$		PQ	Jπ: L(d,t)=2 and L(p,d)=(2,3). E(level): this level corresponds to 4207.1 if L transfer in (d,t) and (p,d) is ignored (1978En02).
4239 *10*	1/2$^-$,3/2$^-$		J	Jπ: L(d,p)=1.
4268 *10*	(3/2$^+$,5/2$^+$)		J Q	Jπ: L(d,t)=2. L(d,p)=1 in 1974Br19 suggests 1/2$^-$,3/2$^-$. In another experiment L(d,p)=2 is also suggested by 1966Do02.
4291 *10*	(7/2 to 13/2)$^+$		G	Jπ: L(α,d)=4+6 from 3/2$^+$.
4298 *10*	1/2$^+$		J	Jπ: L(d,p)=0.
4364 *10*	(7/2 to 13/2)$^+$		G J	Jπ: L(α,d)=4+6 from 3/2$^+$.
4394.8 *5*	15/2$^-$	42 fs *17*	E	Jπ: ΔJ=2 to 11/2$^-$ from γ(θ) and γ(lin pol) in (α,nγ).
4401 *10*			J	
4461 *7*	5/2$^-$,7/2$^-$		G JK P	Jπ: L(d,p)=3. Incompatible with (7/2 to 13/2)$^+$ from L(α,d)=4+6 from 3/2$^+$.
4498 *10*			J	
4533 *10*	1/2$^+$		J	Jπ: L(d,p)=0.
4569 *8*			K	
4585 *10*			J	
4591.0[b] *4*	17/2$^+$	0.21 ps *5*	CDE G	Jπ: ΔJ=1 to 15/2$^-$ from γ(θ) and γ(lin pol) in (α,nγ); L(α,d)=6 from 3/2$^+$.
4603.4 *10*	(1/2,3/2,5/2$^+$)		H J	Jπ: γ from 1/2$^+$ capture state.
4621.2 *4*	15/2$^+$	76 fs *28*	E	Jπ: ΔJ=1, M1 γ to 13/2$^+$ from γ(θ) and γ(lin pol) in (α,nγ).
4641.6 *10*	3/2$^+$,5/2$^+$		H J	Jπ: L(d,p)=2.
4654 *10*	1/2$^+$		J	Jπ: L(d,p)=0.
4703 *10*			G J pq	

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Adopted Levels, Gammas (continued)

^{43}Ca Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
4736 *10*	$3/2^+,5/2^+$		J pq	Jπ: L(d,t)=2.
4758 *10*			J	
4783 *10*			J	
4796 *10*			J	
4826 *8*	$(5/2^-,7/2^-)$		JK	Jπ: L(α,^{3}He)=(3).
4854 *10*			J	
4878 *8*	$(7/2 \text{ to } 17/2)^+$		G JK	Jπ: L(α,d)=6 from $3/2^+$.
4901.2 *6*	$1/2^-,3/2^-$		H J	Jπ: L(d,p)=1. $J^\pi=1/2^-$ is preferred by γ(circ pol) in (pol n,γ).
4922 *10*			J	
4944 *10*			J	
4982 *10*	$(3/2^+,5/2^+)$		J	Jπ: L(d,p)=2 from 1974Br19; but L(d,p)=1 implying $1/2^-,3/2^-$ is suggested in 1966Do02.
5004 *8*	$(5/2^-,7/2^-)$		JK	Jπ: L(α,^{3}He)=(3).
5037.5 *11*	$1/2^-,3/2^-$		H Jk	Jπ: L(d,p)=1. $J^\pi=1/2^-$ is preferred by γ(circ pol) in (pol n,γ).
5047 *10*	$1/2^-,3/2^-$		Jk	Jπ: L(d,p)=1.
5072 *10*	$1/2^-,3/2^-$		J	Jπ: L(d,p)=1.
5100 *10*	$1/2^+$		J	Jπ: L(d,p)=0.
5155.4 *6*	$(13/2,17/2)^-$	76 fs *28*	E	Jπ: ΔJ=1, M1+E2 γ to $15/2^-$; γ to $13/2^-$.
5170 *10*	$3/2^+,5/2^+$		J	Jπ: L(d,p)=2.
5189 *10*	$(7/2 \text{ to } 13/2)^+$		G	Jπ: L(α,d)=4+6 from $3/2^+$.
5193 *10*	$1/2^+$		JK p	Jπ: L(d,p)=0. L(α,^{3}He)=(3) and L(p,d)=(2,3) is inconsistent.
5215 *10*	$1/2^+$		J pQ	Jπ: L(d,p)=0. L(p,d)=(2,3) is inconsistent.
5249 *8*	$(7/2 \text{ to } 13/2)^+$		G K	Jπ: L(α,d)=4+6 from $3/2^+$.
5351 *10*	$(7/2 \text{ to } 13/2)^+$		G Q	Jπ: L(α,d)=4+6 from $3/2^+$.
5394.7 *11*	$(11/2^- \text{ to } 19/2^-)$	0.104 ps *31*	E K	E(level): 5410 group in (α,^{3}He) may define a different level. Jπ: γ to $15/2^-$.
5430 *20*			P	
5548 *8*			K	
5555.4[a] *6*	$(15/2,19/2)^+$	1.4 ps *4*	DE	Jπ: γ(θ,pol) in (α,nγ) and RUL.
5647 *8*			K	
5696 *10*	$(7/2 \text{ to } 13/2)^+$		G	Jπ: L(α,d)=4+6 from $3/2^+$. Additional information 1.
5728 *8*	$3/2^+,5/2^+$		K PQ	Jπ: L(d,t)=2. Additional information 2.
5805 *8*			K	
5889 *8*			K	
5931.5 *8*	$(11/2 \text{ to } 19/2)^-$	55 fs *17*	E	Jπ: M1(+E2) stretched dipole transition to $(13/2,17/2)^-$ from γ(θ,lin pol) in (α,nγ).
5991 *8*	$(5/2^-,7/2^-)$		K	Jπ: L(α,^{3}He)=(3).
6015 *20*	$1/2^+$		PQ	Jπ: L(p,d)=0. L(d,t)=(2) is inconsistent.
6087 *10*			G	Additional information 3.
6177 *10*	$(3/2^+,5/2^+)$		G PQ	Jπ: L(d,t)=(2).
6223.6[b] *8*	$(17/2,21/2)^+$	0.58 ps *15*	DE	Jπ: ΔJ=1 stretched dipole transition to $(15/2,19/2)^+$ from γ(θ,lin pol) in (α,nγ);RUL.
6300			F	
6410			F	
6460			F	
6570			F	
6640			F	
6680			F	
6790			F	
6950			F	

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Adopted Levels, Gammas (continued)

^{43}Ca Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
7040		F	
7090		F	
7190		F	
7500		F	
7590 *20*		F Q	
7730		F	
7920		F	
(7932.7 *3*)	1/2+	H	
7941.88 *17*	1/2−,3/2−[#]	I	
7942.08 *17*	1/2+[#]	I	
7951.56 *17*	1/2−,3/2−[#]	I	
7955.13 *17*	1/2+[#]	I	
7956.17 *17*	1/2−,3/2−[#]	I	
7958.62 *17*	1/2+[#]	I	
7968.91 *17*	1/2−,3/2−[#]	I	
7969.51 *17*	1/2+[#]	I	
7972.10 *17*	1/2−,3/2−[#]	I	
7977.9	1/2+[#]	I	
7980.06 *17*	1/2+[#]	I	
7981.48 *17*	1/2−,3/2−[#]	I	
7981.65 *17*	1/2−,3/2−[#]	I	
7989.92 *17*	1/2+[#]	I	
7990 *20*	(3/2)+	F PQR	T=5/2 XREF: F(8033). Jπ: L(p,d)=L(d,t)=L(^{3}He,α)=2. Strong L(^{3}He,p)=0 from 3/2+ indicates IAS of ^{43}K g.s., J^π=3/2+.
7991.80 *17*	1/2+[#]	I	
7996.59 *17*	1/2+[#]	I	
8002.12 *17*	1/2−,3/2−[#]	I	
8006.45 *17*	1/2−,3/2−[#]	I	
8007.62 *17*	1/2+[#]	I	
8013.64 *17*	1/2+[#]	I	
8014.25 *17*	1/2−,3/2−[#]	I	
8020.16 *17*		I	
8020.52 *17*		I	
8023.49 *19*		I	
8023.77 *19*		I	
8025.59 *19*		I	
8028.55 *19*	1/2+[#]	I	
8033.83 *20*	1/2−,3/2−[#]	I	
8047.20 *20*	1/2+[#]	I	
8049.25 *20*	1/2−,3/2−[#]	I	
8052.1 *10*	1/2+[#]	I	
8055.99 *20*	1/2−,3/2−[#]	I	
8057.0 *10*	1/2+[#]	I	
8057.07 *20*	1/2−,3/2−[#]	I	
8057.46 *20*		I	
8058.34 *20*		I	
8061.1 *3*	1/2−,3/2−[#]	I	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{43}Ca Levels (continued)

E(level)†	Jπ‡	XREF
8062.2 *3*	1/2+#	I
8066.1 *3*	1/2−,3/2−#	I
8073.9 *3*	1/2+#	I
8074.6 *3*	1/2−,3/2−#	I
8075.5 *3*		I
8078.4 *3*	1/2+#	I
8081.0 *3*		I
8086.1 *3*	1/2+#	I
8089.4 *3*		I
8090.3 *4*		I
8099.3 *4*		I
8103.3 *10*	1/2+#	I
8106.1 *4*	1/2+#	I
8113.7 *4*		I
8115.4 *4*	1/2+#	I
8128.3 *5*		I
8132.9 *5*		I
8134.1 *5*		I
8138.2 *5*		I
8139.9 *5*	1/2+#	I
8141.6 *5*	1/2−,3/2−#	I
8144.3 *5*		I
8149.0 *5*	1/2−,3/2−#	I
8152.3 *5*	1/2−,3/2−#	I
8157.2 *5*	1/2+#	I
8160		F
8165.9		I
8176.1		I
8181.0	1/2−,3/2−#	I
8186.4	1/2+#	I
8201.0	1/2+#	I
8201.5		I
8204.9	1/2+#	I
8206.9	1/2−,3/2−#	I
8223.0		I
8259.1		I
8263.0		I
8270		F
8281.1	1/2+#	I
8302.6		I
8308.9		I
8323.1	1/2+#	I
8341.1	1/2+#	I
8348.0	1/2+#	I
8367.5		I
8369.5		I
8372.9	1/2+#	I
8399.7	1/2+#	I
8412.9	1/2+#	I
8418.8		I

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Adopted Levels, Gammas (continued)

^{43}Ca Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
8430.0		I	
8434.4	1/2+[#]	I	
8452.5	1/2+[#]	I	
8465.6	1/2+[#]	I	
8470		F	
8474.9	1/2+[#]	I	
8479.8	1/2+[#]	I	
8484.2		I	
8490.1	1/2+[#]	I	
8492.0		I	
8590 *20*	1/2+	PQ	T=5/2 Jπ: L(p,d)=L(d,t)=0. Possible IAS of 1/2+, 561 in ^{43}K.
8767 *20*	5/2−,7/2−	PQ	T=5/2 Jπ: L(p,d)=L(d,t)=3. Possible IAS of 7/2−, 738 in ^{43}K.
8930		F	
8993 *20*	1/2−,3/2−	PQ	T=5/2 Jπ: L(p,d)=L(d,t)=1. Possible IAS of 3/2−, 975 in ^{43}K.
9145 *30*	3/2+,5/2+	PQ	T=5/2 Jπ: L(p,d)=L(d,t)=2. Possible IAS of 3/2+, 1110 in ^{43}K.
10485 *30*	1/2+	PQ	T=5/2 Jπ: L(p,d)=L(d,t)=0. Possible IAS of 1/2+, 2451 in ^{43}K.
10720 *30*	3/2+,5/2+	PQ	Jπ: L(d,t)=2.
11380 *30*		PQ	
12060 *30*		P	
12265 *30*	3/2+,5/2+	PQ	Jπ: L(d,t)=2.
13230 *30*	(3/2+,5/2+)	PQ	Jπ: L(d,t)=(2).
13700 *30*		P	
13950 *30*		P	
14190 *30*		Q	

[†] From least-squares adjustment to measured Eγ data when such data are available. Otherwise weighted averages of available level energies are taken.

[‡] When L-transfer arguments are used, the target is $J^\pi=0^+$, except for ^{41}K(^{3}He,p) and ^{41}K(α,d), where target $J^\pi=3/2^+$.

[#] From s-wave or p-wave assignment in the analysis of neutron-resonance data (2006MuZX).

[@] From DSAM in (α,nγ), unless otherwise indicated. For levels from 7992 to 8590, see the (n,γ),(n,n):resonances for Γ widths.

[&] From DSAM. Weighted average of values in (α,nγ) and (p,p′γ).

[a] Band(A): Band based on 3/2+.

[b] Band(B): Band based on 5/2+.

Adopted Levels, Gammas (continued)

γ(^{43}Ca)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
372.762	5/2$^-$	372.760 *7*	100	0	7/2$^-$	M1+E2	−0.161 *14*	B(M1)(W.u.)=0.0122 *11*; B(E2)(W.u.)=6.5 *13* δ: 0.192 *11* was deduced by 1978En02 from B(E2)=8.7×10^{-3} *7* (1971HoYN) and $T_{1/2}$=48 ps *4*. Using the same B(E2) and $T_{1/2}$=34 ps *3*, evaluators get δ=0.161 *14*. Sign from γ(θ, lin) in (α,nγ). δ=−0.15 *3* from (^{3}He,αγ).
593.394	3/2$^-$	220.632 *5*	42.3 *8*	372.762	5/2$^-$	M1+E2	−0.09 *4*	B(M1)(W.u.)=0.0075 *4*; B(E2)(W.u.)=4 *+4−3* δ: weighted average From γ(θ) in (α,nγ) and (^{3}He,αγ).
		593.390 *6*	100.0 *4*	0	7/2$^-$	E2		B(E2)(W.u.)=7.5 *4*
990.257	3/2$^+$	396.861 *6*	14.93 *13*	593.394	3/2$^-$	E1(+M2)	−0.1 *1*	B(E1)(W.u.)=2.31×10^{-5} *20*
		617.490 *6*	100.00 *14*	372.762	5/2$^-$	E1(+M2)	−0.015 *17*	B(E1)(W.u.)=4.1×10^{-5} *4*; B(M2)(W.u.)<0.4 δ: weighted average from γ(θ) in (α,nγ) and (^{3}He,αγ).
		990.245 *8*	0.36 *5*	0	7/2$^-$	[M2]		B(M2)(W.u.)=0.17 *3*
1394.473	5/2$^+$	404.214 *13*	18.7 *7*	990.257	3/2$^+$	M1+E2	+0.32 *5*	B(M1)(W.u.)=0.023 *5*; B(E2)(W.u.)=41 *14*
		801.070 *13*	7.5 *7*	593.394	3/2$^-$	E1(+M2)	−0.03 *4*	B(E1)(W.u.)=3.2×10^{-5} *7*; B(M2)(W.u.)<0.8
		1021.698 *13*	100.0 *9*	372.762	5/2$^-$	E1(+M2)	+0.11 *12*	B(E1)(W.u.)=0.00021 *4*
		1394.448 *14*	9 *3*	0	7/2$^-$	E1		B(E1)(W.u.)=7.E−6 *3* I_γ: unweighted average of 6.7 *4* from β^- decay, 15.1 *5* from (α,nγ) and 4.8 *8* from (p,p′γ).
1677.84	11/2$^-$	1677.8 *2*	100	0	7/2$^-$	E2(+M3)	−0.02 *2*	B(E2)(W.u.)=5.6 *10*
1901.99	7/2$^+$	507.8 *3*	24 *3*	1394.473	5/2$^+$	[M1]		B(M1)(W.u.)=0.053 *13*
		911.6 *3*	19 *6*	990.257	3/2$^+$	E2(+M3)	−0.02 *3*	B(E2)(W.u.)=25 *10*
		1901.8 *2*	100 *6*	0	7/2$^-$	E1(+M2)	+0.03 *4*	B(E1)(W.u.)=0.000106 *22*; B(M2)(W.u.)<0.5
1931.53	5/2$^-$	1338.3 *5*	11.7 *11*	593.394	3/2$^-$	M1+E2	+2.2 *25*	B(M1)(W.u.)=0.0009 *+18−9*; B(E2)(W.u.)=7 *4*
		1558.8 *2*	59 *2*	372.762	5/2$^-$	M1+E2	+0.28 *14*	B(M1)(W.u.)=0.016 *5*; B(E2)(W.u.)=1.5 *+15−11*
		1931.4 *2*	100 *2*	0	7/2$^-$	M1+E2	−0.8 *3*	B(M1)(W.u.)=0.009 *4*; B(E2)(W.u.)=4.6 *25*
1957.4	1/2$^+$	967.1 *4*	28 *1*	990.257	3/2$^+$	[M1]		B(M1)(W.u.)=0.0048 *14*
		1364.0 *5*	100 *1*	593.394	3/2$^-$	[E1]		B(E1)(W.u.)=0.00015 *5*
2046.21	3/2$^-$	651.2 *4*	2 *1*	1394.473	5/2$^+$	[E1]		B(E1)(W.u.)=3.2×10^{-5} *18*
		1056.0 *5*	11 *1*	990.257	3/2$^+$	E1(+M2)	0.00 *3*	B(E1)(W.u.)=4.1×10^{-5} *11*
		1453.0 *3*	13 *2*	593.394	3/2$^-$			
		1673.5 *4*	32 *3*	372.762	5/2$^-$	[M1]		B(M1)(W.u.)=0.0012 *4*
		2046.2 *3*	100 *6*	0	7/2$^-$	E2(+M3)	0.00 *2*	B(E2)(W.u.)=1.4 *4*
2067.21	7/2$^-$	1694.3 *3*	28.0 *12*	372.762	5/2$^-$	M1+E2	−0.90 *24*	B(M1)(W.u.)=0.026 *11*; B(E2)(W.u.)=21 *10*
		2067.2 *2*	100.0 *12*	0	7/2$^-$	M1+E2	−0.10 *6*	B(M1)(W.u.)=0.09 *3*; B(E2)(W.u.)=0.6 *+8−5*
2093.81	9/2$^-$	2093.8 *2*	100	0	7/2$^-$	M1+E2	−5.9 *11*	B(M1)(W.u.)=4.8×10^{-5} *22*; B(E2)(W.u.)=1.1 *4*
2102.7	3/2$^-$	1509.2 *5*	50	593.394	3/2$^-$	M1+E2	+2.0 *17*	B(M1)(W.u.)=0.0010 *+14−10*; B(E2)(W.u.)=4.9 *25*
		1730.0 *6*	100 *40*	372.762	5/2$^-$	[M1]		B(M1)(W.u.)=0.006 *4*
		2102.8 *5*	50 *30*	0	7/2$^-$	[E2]		B(E2)(W.u.)=1.2 *9*
2223.9	3/2$^-$,5/2$^-$	1630.4 *5*	100.0 *23*	593.394	3/2$^-$	M1+E2		δ: −0.50 *25* for J=5/2; +0.8 *+4−10* for J=3/2.
		1851.2 *4*	74.5 *23*	372.762	5/2$^-$	M1+E2		δ: −0.20 *5* for J=5/2; >+11, or <−5.6 for J=3/2.
2249.01	9/2$^-$	570.7 *5*	2.3 *6*	1677.84	11/2$^-$			
		1876.3 *2*	12.6 *11*	372.762	5/2$^-$	E2(+M3)	−0.01 *3*	B(E2)(W.u.)=8.1 *19*

$^{43}_{20}Ca_{23}$-9

Adopted Levels, Gammas (continued)

γ(^{43}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
2249.01	9/2$^-$	2248.9 *2*	100.0 *11*	0	7/2$^-$	M1+E2	−0.75 *12*	B(M1)(W.u.)=0.029 *8*; B(E2)(W.u.)=9 *3*
2272.8	3/2$^+$,5/2$^+$	877.8 *4*	19 *4*	1394.473	5/2$^+$	M1+E2		δ: −10 *+4−13* for J=5/2; +0.1 *4* for J=3/2.
		1283.3 *5*	100 *4*	990.257	3/2$^+$	M1+E2		δ: −11 *+2−4* for J=5/2; −0.26 *5* for J=3/2.
2409.68	9/2$^+$	508.0 *7*	24 *4*	1901.99	7/2$^+$			I_γ: from (p,p′γ).
		732[@]	<15	1677.84	11/2$^-$			
		1015.2 *2*	98 *9*	1394.473	5/2$^+$	[E2]		B(E2)(W.u.)=22 *8*
		2409.6 *3*	100 *9*	0	7/2$^-$	E1(+M2)	−0.03 *4*	B(E1)(W.u.)=1.5×10^{-5} *6*; B(M2)(W.u.)<0.04
2611.1	1/2$^-$	564.9 *3*	54 *16*	2046.21	3/2$^-$	[M1]		B(M1)(W.u.)=0.33 *17*
		2017.6 *5*	100 *16*	593.394	3/2$^-$	[M1]		B(M1)(W.u.)=0.013 *6*
2674.3	5/2$^-$,7/2$^-$	1276.0[@] *10*		1394.473	5/2$^+$			
		2301.5 *8*	100	372.762	5/2$^-$			
		2674.6[@] *8*		0	7/2$^-$			
2696.5	3/2$^+$,5/2$^+$	1706.2 *6*	57.7 *14*	990.257	3/2$^+$			
		2103.1	27 *14*	593.394	3/2$^-$			
		2324.4 *9*	100.0 *14*	372.762	5/2$^-$	[E1]		B(E1)(W.u.)>0.00062
2754.00	15/2$^-$	1076.14 *15*	100	1677.84	11/2$^-$	E2(+M3)	−0.02 *2*	B(E2)(W.u.)=1.86 *8*
2769.6	(1/2,3/2,5/2)	1779.1 *6*		990.257	3/2$^+$			
		2176.6 *8*		593.394	3/2$^-$			
2844.7	(5/2)$^+$	942.1 *6*		1901.99	7/2$^+$			
		1450.2		1394.473	5/2$^+$			
		2845.7 *11*		0	7/2$^-$			
2878.7	1/2$^-$	831.4[@] *10*		2046.21	3/2$^-$			γ seen in (n,γ) only.
		922.1[@] *6*		1957.4	1/2$^+$			E_γ: γ seen in (α,nγ) only.
		2285.2 *10*		593.394	3/2$^-$			γ reported in (n,γ) and (α,nγ).
		2505.9[@]		372.762	5/2$^-$			γ seen in (^{3}He,αγ) only.
2943.5	3/2$^-$	840.9 *10*	12 *8*	2102.7	3/2$^-$			
		1953.2	35 *13*	990.257	3/2$^+$			
		2350.3 *4*	100 *12*	593.394	3/2$^-$			
		2570.1 *8*	100 *40*	372.762	5/2$^-$			
		2943.4	12 *7*	0	7/2$^-$			
2951.33	11/2$^+$	541.5 *3*	21.5 *15*	2409.68	9/2$^+$	M1+E2	−0.04 *2*	B(M1)(W.u.)=0.0041 *11*; B(E2)(W.u.)=0.06 *+7−5*
		857.6 *3*	100.0 *15*	2093.81	9/2$^-$	E1(+M2)	0.00 *2*	B(E1)(W.u.)=0.00012 *3*
		1049.0 *4*	32.3 *15*	1901.99	7/2$^+$	[E2]		B(E2)(W.u.)=2.2 *6*
3028.7	(3/2 to 7/2)	2655.9 *8*	100	372.762	5/2$^-$			
3030.4	(1/2,3/2,5/2)	2040.1	45 *13*	990.257	3/2$^+$			
		2436.9	100	593.394	3/2$^-$			
3049.6		3049.5[@] *15*	100	0	7/2$^-$			
3050.6	11/2$^-$	801.7 *7*	23 *2*	2249.01	9/2$^-$	[M1]		B(M1)(W.u.)>0.30
		1373.0 *6*	100 *4*	1677.84	11/2$^-$	M1+E2	+0.30 *5*	B(M1)(W.u.)>0.23; B(E2)(W.u.)>23
		3049.7 *11*	69 *4*	0	7/2$^-$	E2(+M3)	−0.02 *2*	B(E2)(W.u.)>5.1
3076.0	(5/2)$^+$	3075.9 *15*	100	0	7/2$^-$			
3096.0	(1/2$^-$ to 7/2$^-$)	2502.4 *8*		593.394	3/2$^-$			

$^{43}_{20}Ca_{23}$-10

Adopted Levels, Gammas (continued)

γ(^{43}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
3096.0	(1/2$^-$ to 7/2$^-$)	2723.4 *11*		372.762	5/2$^-$			
3097.0	(5/2$^+$ to 11/2$^+$)	687.3 *7*		2409.68	9/2$^+$			
		1195.0 *10*		1901.99	7/2$^+$			
3195.6	7/2$^+$,9/2$^+$	350.7 *4*		2844.7	(5/2)$^+$			
		1294.1 *7*		1901.99	7/2$^+$			
3270	(5/2)	1876[@]	35	1394.473	5/2$^+$			
		2280[@]	100	990.257	3/2$^+$	D+Q	+0.07 *5*	
		3270[@]	69	0	7/2$^-$	D(+Q)	−0.13 *13*	
3285.7	3/2$^-$	1239.6 *9*	100 *30*	2046.21	3/2$^-$	[M1]		B(M1)(W.u.)>0.096
		2692.2	50 *20*	593.394	3/2$^-$			I_γ: quoted by 1978En02.
		2912.8	50 *20*	372.762	5/2$^-$			I_γ: quoted by 1978En02.
3315.2	1/2$^-$,3/2$^-$	1269.0 *6*	100	2046.21	3/2$^-$	[M1]		B(M1)(W.u.)=0.08 *4*
3371.19	13/2$^+$	419.6 *3*	51 *3*	2951.33	11/2$^+$			
		617.1 *7*	63 *3*	2754.00	15/2$^-$			
		961.6 *2*	100 *3*	2409.68	9/2$^+$	E2(+M3)	0.00 *2*	B(E2)(W.u.)>2.3
		1693.7 *9*	29 *3*	1677.84	11/2$^-$			
3376.6		1282.8 *9*		2093.81	9/2$^-$			
3505.3	13/2$^+$	554.1 *5*	16 *3*	2951.33	11/2$^+$	M1+E2	−0.06 *2*	B(M1)(W.u.)=0.21 *8*; B(E2)(W.u.)=7 *6*
		751.1 *6*	17 *3*	2754.00	15/2$^-$	[E1]		B(E1)(W.u.)=0.0023 *9*
		1827.4 *9*	100 *3*	1677.84	11/2$^-$	E1(+M2)	−0.03 *3*	B(M2)↓=1.1 *11* B(E1)(W.u.)=0.0009 *3*; B(M2)(W.u.)<3.5
3572.2	3/2$^-$	1525.4 *10*	58 *17*	2046.21	3/2$^-$			
		2978.9 *7*	100 *25*	593.394	3/2$^-$			
		3199.3	25 *17*	372.762	5/2$^-$			
3662.5	13/2$^-$	612.0 *7*	20 *3*	3050.6	11/2$^-$	[M1]		B(M1)(W.u.)=0.24 *11*
		908.0 *9*	21 *3*	2754.00	15/2$^-$	[M1]		B(M1)(W.u.)=0.08 *4*
		1412.9 *7*	23 *3*	2249.01	9/2$^-$	[E2]		B(E2)(W.u.)=32 *15*
		1984.8 *9*	100 *3*	1677.84	11/2$^-$	M1+E2	−0.60 *14*	B(M1)(W.u.)=0.026 *12*; B(E2)(W.u.)=7 *3*
3816.1	(7/2$^-$)	1406.4 *7*	100	2409.68	9/2$^+$			
3943.81	15/2$^+$	438.5 *4*	100 *14*	3505.3	13/2$^+$	M1(+E2)	0.00 *2*	B(M1)(W.u.)=0.18 *6*
		572.6 *2*	67 *14*	3371.19	13/2$^+$	[M1]		B(M1)(W.u.)=0.053 *20*
		993		2951.33	11/2$^+$			E_γ: from (^{18}O,αnγ).
		1189.8 *7*	29 *14*	2754.00	15/2$^-$	[E1]		B(E1)(W.u.)=6.E−5 *4*
4135.9	7/2$^+$,9/2$^+$	1184.6 *6*	100	2951.33	11/2$^+$			
4174.8		1902.0 *10*	100	2272.8	3/2$^+$,5/2$^+$			
4186.5	15/2$^+$	681.1 *4*	16 *4*	3505.3	13/2$^+$	[M1]		B(M1)(W.u.)=0.08 *4*
		815.4 *6*	100 *4*	3371.19	13/2$^+$	M1+E2	−0.15 *2*	B(M1)(W.u.)=0.27 *11*; B(E2)(W.u.)=27 *13*
4207.2	1/2$^-$	2161.1 *6*	45 *13*	2046.21	3/2$^-$			
		3613.4 *8*	100 *23*	593.394	3/2$^-$			
4394.8	15/2$^-$	731.9 *5*	54 *7*	3662.5	13/2$^-$	[M1]		B(M1)(W.u.)=0.30 *13*
		1641.1 *7*	90 *7*	2754.00	15/2$^-$	M1+E2	−0.50 *14*	B(M1)(W.u.)=0.035 *15*; B(E2)(W.u.)=9 *6*
		2717.4 *12*	100 *7*	1677.84	11/2$^-$	E2(+M3)	0.00 *2*	B(E2)(W.u.)=4.2 *18*
4591.0	17/2$^+$	404.4 *4*	49 *10*	4186.5	15/2$^+$	[M1]		B(M1)(W.u.)=0.38 *13*

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Adopted Levels, Gammas (continued)

γ(^{43}Ca) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
4591.0	17/2$^+$	647.2 *3*	100 *10*	3943.81	15/2$^+$	M1(+E2)	0.00 *2*	B(M1)(W.u.)=0.19 *6*
		1837.4 *9*	55 *10*	2754.00	15/2$^-$	E1(+M2)	0.00 *2*	B(E1)(W.u.)=0.00011 *4*
4603.4	(1/2,3/2,5/2$^+$)	4009.8[@]		593.394	3/2$^-$			
4621.2	15/2$^+$	677.4 *4*	39 *6*	3943.81	15/2$^+$	[M1]		B(M1)(W.u.)=0.26 *11*
		1249.9 *7*	100 *6*	3371.19	13/2$^+$	M1(+E2)	−0.02 *3*	B(M1)(W.u.)=0.11 *4*; B(E2)(W.u.)<0.3
4641.6	3/2$^+$,5/2$^+$	2595.3[@]		2046.21	3/2$^-$			
4901.2	1/2$^-$,3/2$^-$	2628.3	67 *33*	2272.8	3/2$^+$,5/2$^+$			
		2798.4	100 *67*	2102.7	3/2$^-$			
		2854.9	100 *50*	2046.21	3/2$^-$			
		4307.6	67 *50*	593.394	3/2$^-$			
5037.5	1/2$^-$,3/2$^-$	2992.4 *10*		2046.21	3/2$^-$			
5155.4	(13/2,17/2)$^-$	760.4 *5*	100 *5*	4394.8	15/2$^-$	M1+E2	−0.11 *4*	B(M1)(W.u.)=0.42 *16*; B(E2)(W.u.)=25 *21* δ: from −0.15 *2* (for J^π=13/2$^-$) and −0.08 *2* (for J^π=17/2$^-$).
		1493.1 *5*	54 *5*	3662.5	13/2$^-$			
5394.7	(11/2$^-$ to 19/2$^-$)	2640.6 *10*	100	2754.00	15/2$^-$			
5555.4	(15/2,19/2)$^+$	964.5 *6*	66	4591.0	17/2$^+$			
		1611.4 *7*	100	3943.81	15/2$^+$	M1,E2		
5931.5	(11/2 to 19/2)$^-$	776.1 *5*	100	5155.4	(13/2,17/2)$^-$	M1(+E2)		B(M1)(W.u.)<0.9
6223.6	(17/2,21/2)$^+$	668.2 *5*	100	5555.4	(15/2,19/2)$^+$	M1(+E2)		
(7932.7)	1/2$^+$	2895.1 *5*	3.8 *6*	5037.5	1/2$^-$,3/2$^-$			
		3031.3 *10*	2.1 *6*	4901.2	1/2$^-$,3/2$^-$			
		3291.1		4641.6	3/2$^+$,5/2$^+$			
		3330.0		4603.4	(1/2,3/2,5/2$^+$)			
		3725.3 *3*	15.7 *32*	4207.2	1/2$^-$			
		4359.5 *5*	5.5 *8*	3572.2	3/2$^-$			
		4616.6 *9*	1.1 *6*	3315.2	1/2$^-$,3/2$^-$			
		4646.2 *6*	4.5 *9*	3285.7	3/2$^-$			
		4989.2 *5*	6.8 *9*	2943.5	3/2$^-$			
		5054.2 *5*	4.5 *8*	2878.7	1/2$^-$			
		5321.4 *5*	7.7 *11*	2611.1	1/2$^-$			
		5828.6 *15*	1.7 *6*	2102.7	3/2$^-$			
		5886.0 *4*	100 *15*	2046.21	3/2$^-$			
		5975.2 *15*	1.1 *6*	1957.4	1/2$^+$			
		7339.0 *7*	10.8 *17*	593.394	3/2$^-$			

[†] From weighted average of measured Eγ values in different reactions and decays, when such data are available. Otherwise, the values represent level-energy differences.
[‡] Weighted average of available data from different reactions.
[#] From γ(θ,pol) in (α,nγ) and (^{3}He,αγ), unless otherwise noted.
[@] Placement of transition in the level scheme is uncertain.

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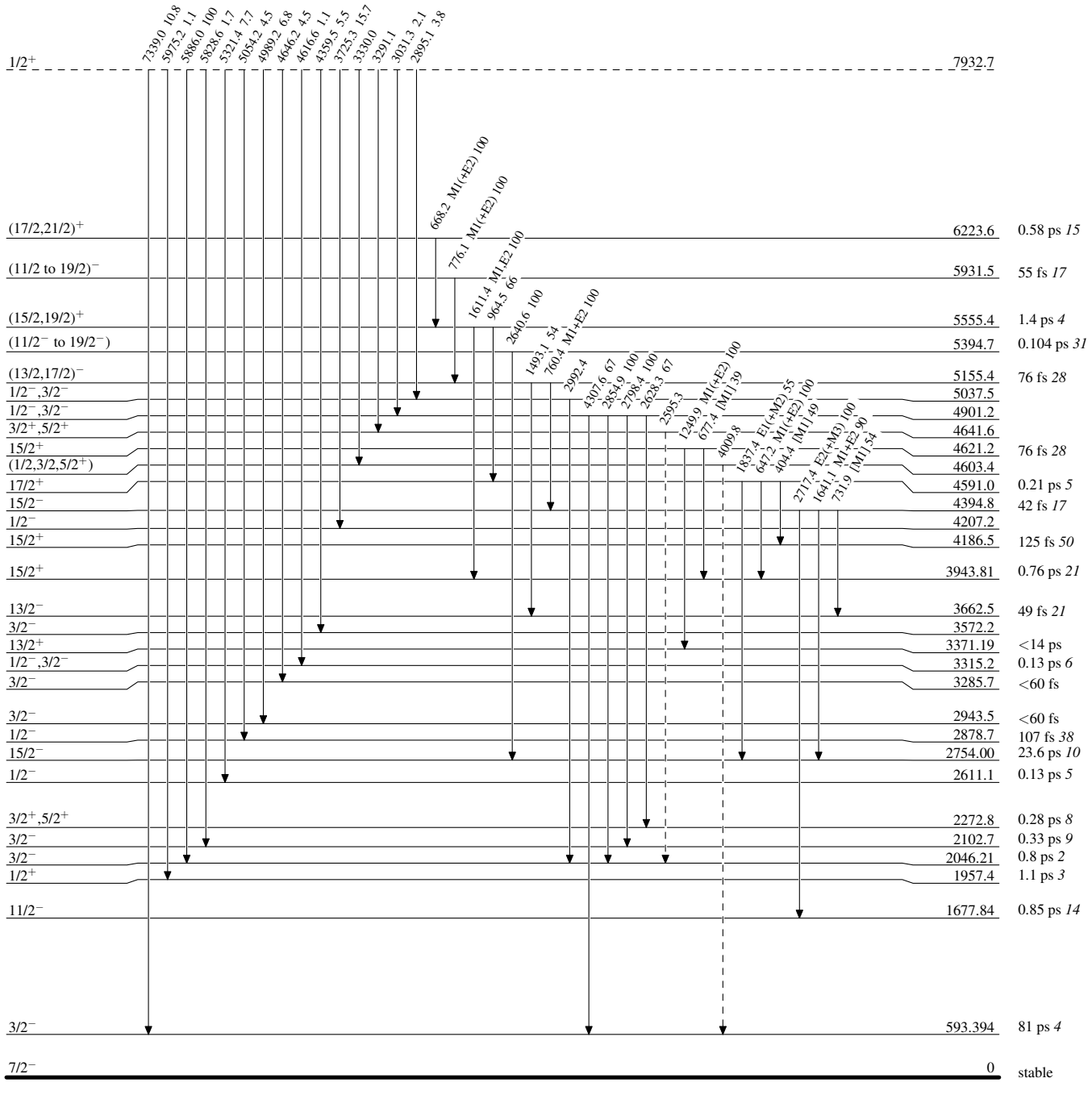
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

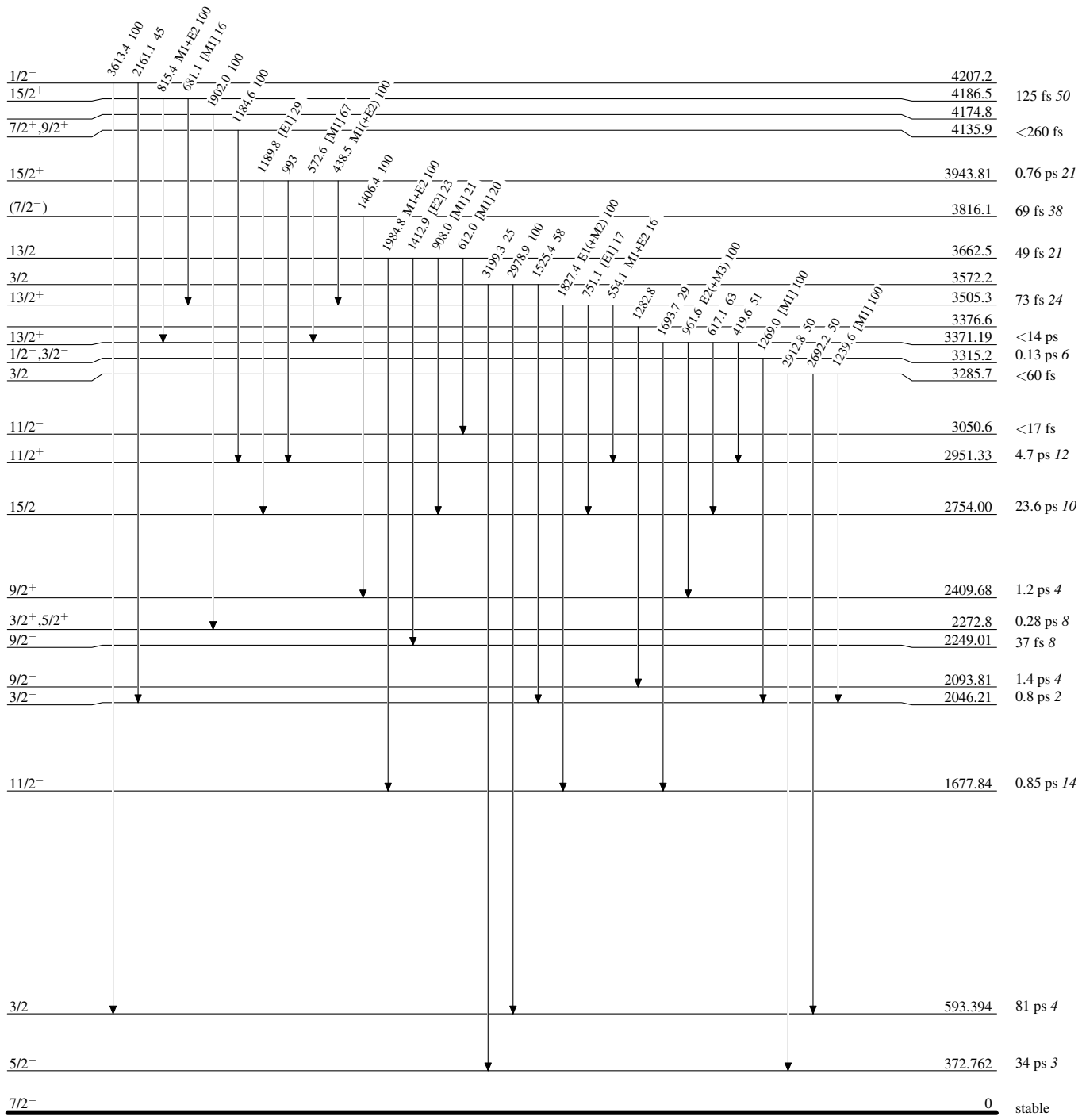


$^{43}_{20}Ca_{23}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{43}_{20}Ca_{23}$

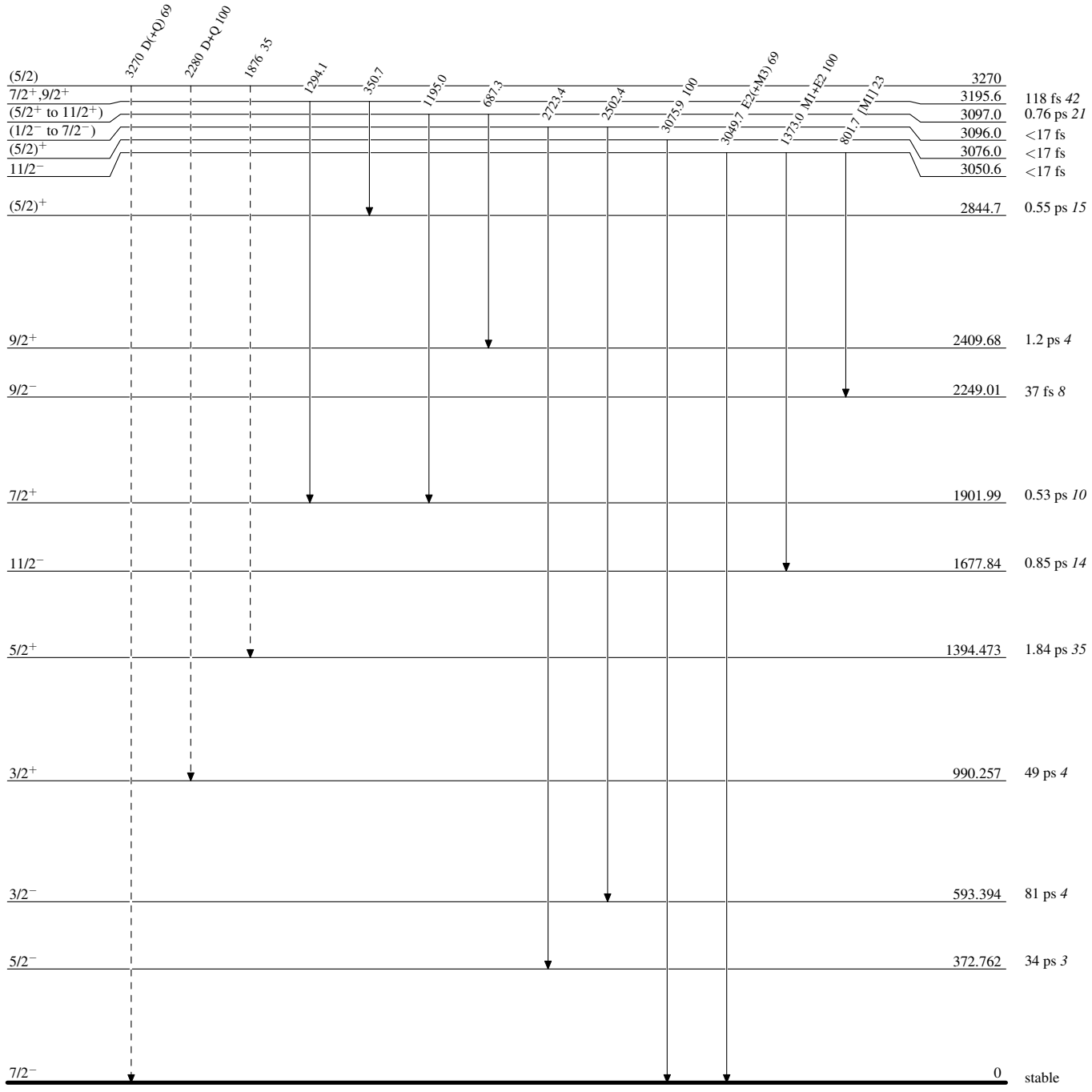
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



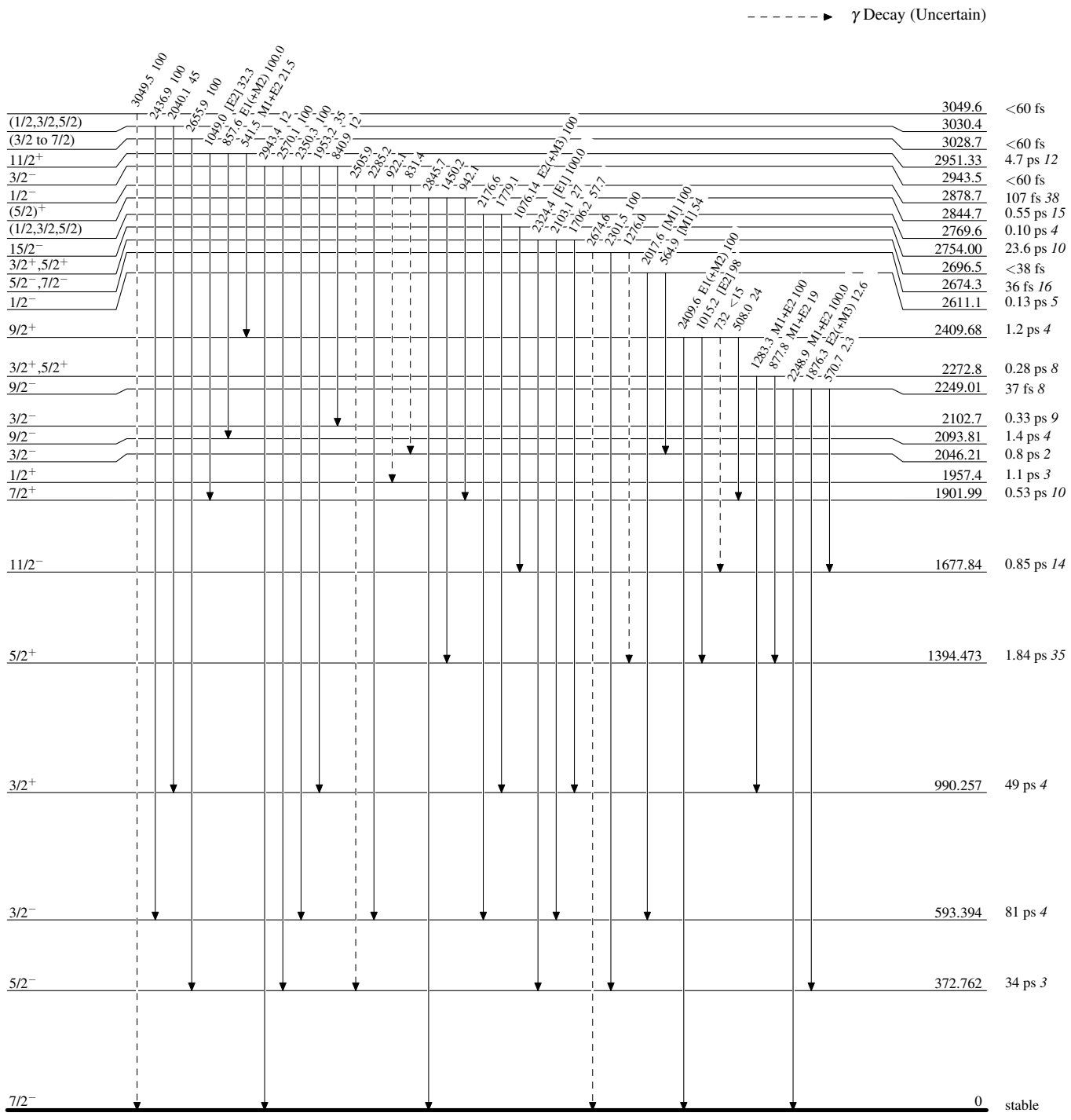
$^{43}_{20}Ca_{23}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

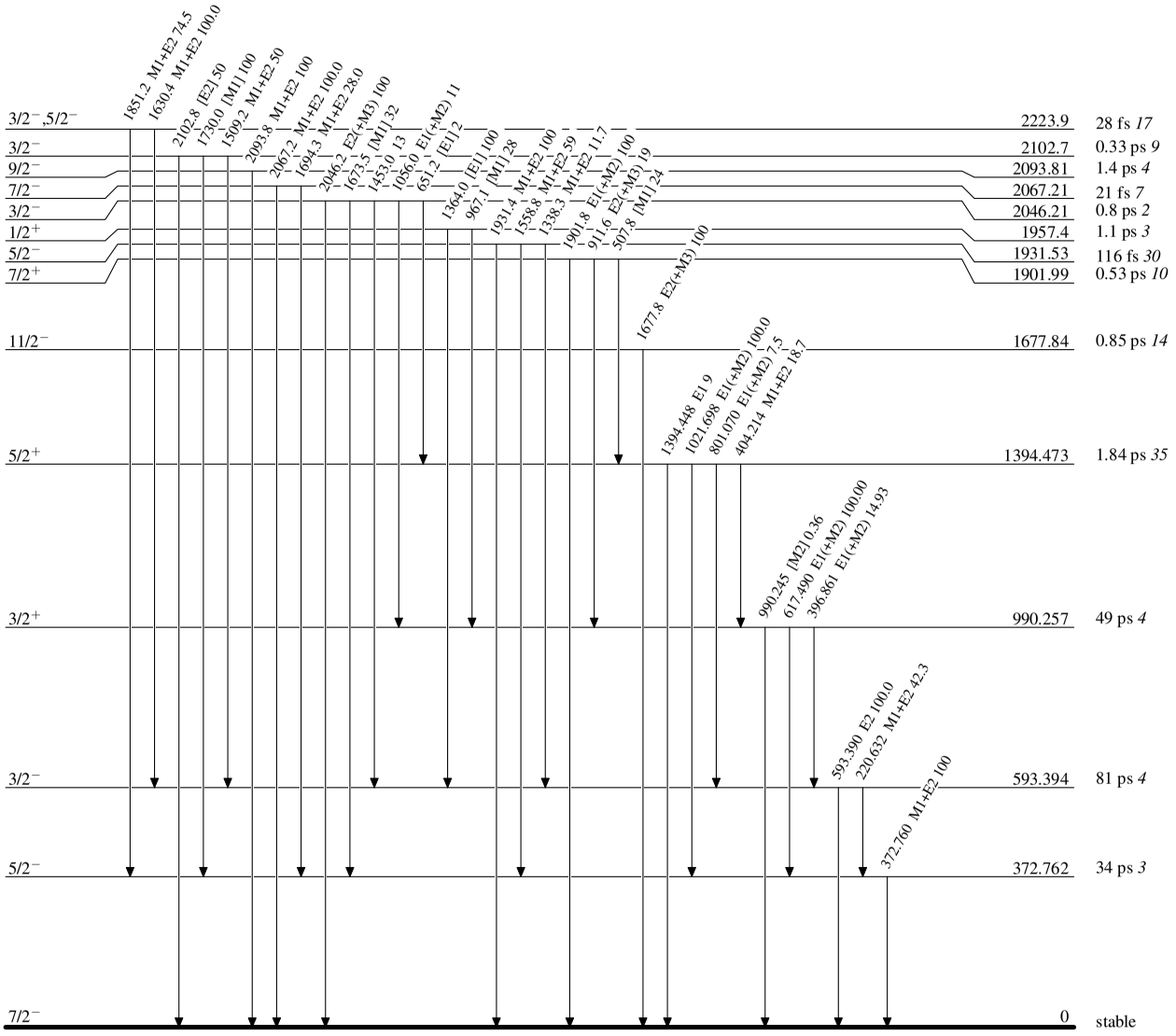


$^{43}_{20}Ca_{23}$

Adopted Levels, Gammas

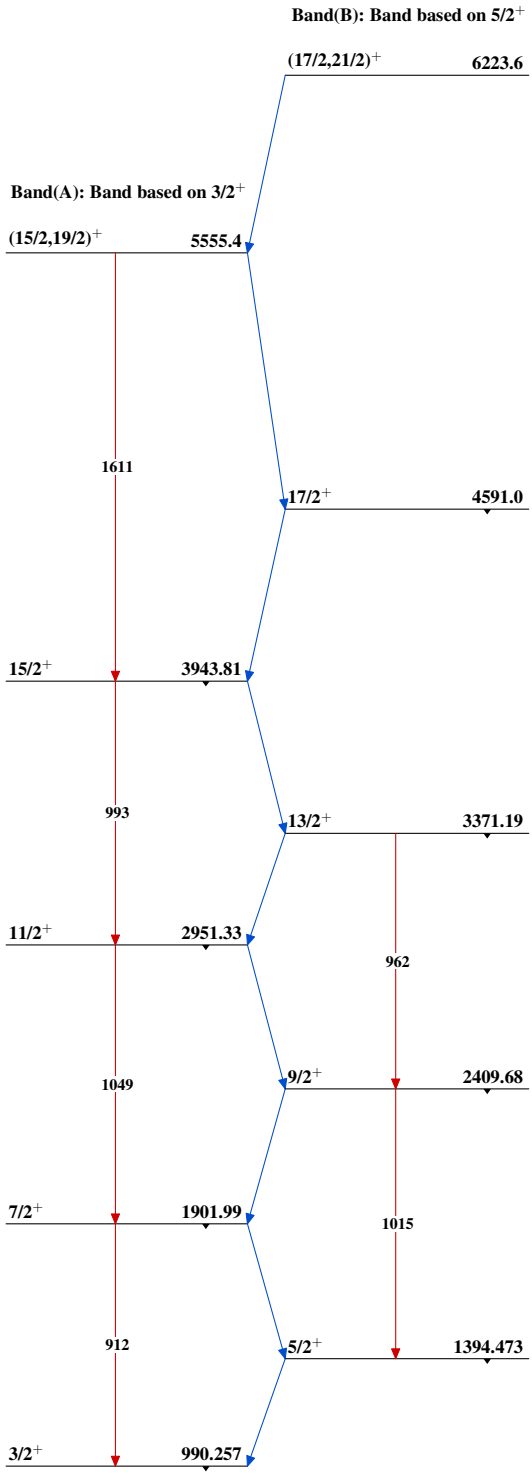
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{43}_{20}Ca_{23}$

Adopted Levels, Gammas



$^{43}_{20}Ca_{23}$