Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 108, 923 (2007)	20-Feb-2007

Q(β^-)=−2930.60 *15*; S(n)=8880.72 *15*; S(p)=10464.9 *7*; Q(α)=−8952.5 *5* 2012Wa38
Note: Current evaluation has used the following Q record.
S(n): Other: 8880.58 keV *30* (2006FaZZ. See ^{46}Ti(d,p) for details).
Q(β^-)=−2930.34 *30*; S(n)=8880.292 *9*; S(p)=10462.2 *7*; Q(α)=−8948.7 *8* 2003Au03

^{47}Ti Levels

Resonance parameters: see 2006MuZX.
See (d,p) for possible states not confirmed by other work.
E(R),J(S) E(level) is weighted average from (p,d) and (^{3}He,α). Analog states of ^{47}Sc 767, (3/2)$^+$, and 1391, 1/2$^+$, respectively.

Cross Reference (XREF) Flags

A	^{47}Sc β^- decay	H	^{46}Ti(d,pγ)	O	^{48}Ti(d,t)
B	^{47}V β^+ decay	I	^{46}Ti(d,p)	P	^{48}Ti(^{3}He,α)
C	^{10}B(^{40}Ca,3pγ), ^{36}S(^{14}C,3nγ),	J	^{46}Ti(d,p),(pol d,p)	Q	^{48}Ti(α,2p3nγ),(^{16}O,^{12}C2p3nγ)
D	^{44}Ca(α,nγ),^{47}Ti(p,p′),(p,p′γ),	K	^{47}Ti(γ,γ),(γ,γ′)	R	^{50}V(p,α)
E	^{45}Sc(^{3}He,p),(^{3}He,pγ)	L	Ti(n,n′),(n,n′γ)	S	Muonic atom
F	^{45}Sc(α,npγ),(α,d)	M	Coulomb excitation		
G	^{46}Ti(n,γ),(pol n,γ) E=thermal	N	^{48}Ti(p,d)		

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0[@]	5/2$^-$	stable	ABCDEFGHIJKLMNOP R	μ=−0.78848 *1* (2005St24,1965Dr03,1953Je16) Q=+0.30 *2* (2005St24,1990Ay01) Octupole mom(mag)≤−1.1 *9*; MOME4≤−1.3 *5* (1994St27) T=3/2 J$^\pi$: J=5/2 from NMR (1953Je16) and EPR (1961Ga16) (1976Fu06). π=− from L(n)=3 in pickup reactions. μ: NMR, ^{39}K standard. Q: HFS; LASER-induced fluorescence. Sternheimer-free determination. Other: +0.29 *1* (2005St24,1965Ch19). AB, No polarization correction included. Octupole mom(mag),MOME4: ABLFS.
159.371[@] *12*	7/2$^-$[&]	210 ps *6*	ABCDEFGHIJKLMNOP R	μ=−1.9 *6* (2005St24,1977Bu10); T=3/2 T$_{1/2}$: weighted av from γ(t) In (p,p′γ) and RDM In (^{19}F,n2pγ). Other: 0.22 ns *7* from Ag(t) In Coul. Ex. μ: from (α,nγ). Note agreement of g=−0.55 *17* with Schmidt g-factor (−0.55), assuming (f$_{7/2}$)^3 neutron configuration for this state.
1250.7 *10*	(1/2$^-$,3/2$^-$)		G I	
1252.09[@] *4*	9/2$^-$	140 fs *13*	CDEF LMNO QR	J$^\pi$: from M1+E2 γ to 7/2$^-$ and D+Q γ from 11/2$^-$. T$_{1/2}$: weighted av from DSAM In (^{14}C,3nγ) and (α,nγ). Other: 0.35 ps *14* from DSAM In (α,npγ).
1444.25[@] *4*	11/2$^-$[b]	0.90[a] ps *14*	C EF IJKLM P	T$_{1/2}$: others: 1.0 ps *4* and 1.0 ps *+12−5* from DSAM In (p,p′γ) and 1.2 ps *4* from DSAM In (α,npγ).
1549.65[c] *9*	3/2$^-$[&]	1.5 ps *4*	B DEFGHIJ L NOP R	
1670 *80*			L R	E(level): from (n,n′).
1793.80[c] *16*	1/2$^-$[&]	1.7 ps *+17−6*	B DEfG IJ O R	

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Adopted Levels, Gammas (continued)

^{47}Ti Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
1825.0[ce] *1*	3/2+,5/2+[d]	2.1 ps *+19−7*	D fG I NOP R	
2163.2[ce] *2*	3/2−[&]	25.1 fs *43*	B DE IJK NOP	$T_{1/2}$: weighted av 26 fs *7* (1967Ra03) from (γ,γ′) and 21 fs *6* (1972We18) and 36 fs *10* (1979PeZV) from DSAM In (p,p′γ). 25.1 fs *43* is arithmetic mean of 25.3 fs *42* (NRM) and 24.8 fs *43* (RT) with RT uncertainty adopted; LWM gives 25.3 fs *42*.
2166.7[ce] *2*	5/2	19 fs *5*	B D F R	J^{π}: 5/2 to 9/2 from D γ to 7/2−. J≤5/2 from log *ft*=6.2 from 3/2−.
2259.5[ce] *2*	5/2+	0.54 ps *12*	D IJ NO R	J^{π}: L(d,t)=2. ≠ 3/2+ from D,E2 γ to 7/2−.
2297.1[ce] *2*	5/2−,7/2−[d]	<10 fs	D F I KL R	$T_{1/2}$: other:≈4 fs from $g\Gamma^2_{\gamma 0}/\Gamma$ In (γ,γ′).
2344?			I	
2364.9[ce] *2*	1/2+	>1.53 ps	D I NOP R	
2406.2[ce] *2*	(9/2−)[df]	23 fs *7*	D g I l	
2416.3[ce] *2*	1/2− to 7/2−[d]	1.0 ps *+6−3*	D Fg I l R	J^{π}: D,E2 γ′s to 3/2− and 5/2−.
2499.4? *19*	1/2(−),3/2,5/2+		G	J^{π}: fed by primary γ? from 1/2+; γ? to 5/2−.
2520?	1/2+		i O	J^{π}: L(d,t)=0.
2525.8[ce] *2*	3/2−,5/2−	94 fs *19*	B D i	J^{π}: log *ft*=5.41 from 3/2−. D,E2 γ to 7/2−.
2548.2[ce] *2*	3/2−[&]	6.2 fs *7*	D FG IJK O R	XREF: G(2554). $T_{1/2}$: from $g\Gamma^2_{\gamma 0}/\Gamma$ In (γ,γ). Other: <13 fs from DSAM In In (p,p′γ).
2572.9[ce] *2*	1/2+	0.53 ps *+22−14*	D I n	
2599.6[ce] *2*	3/2−,5/2,7/2[dg]	1.3 ps *+5−3*	D G i no	J^{π}: D,E2 γ′s to 5/2−, 7/2−, and 3/2+,5/2+. ≠ 5/2−,7/2 if fed by a primary γ from 1/2+.
2619.4[e] *2*	7/2−[&g]	29 fs *8*	DEFG iJ L noP R	
2668.0[e] *2*	9/2,13/2[d]	21 fs *16*	CD f I r	J^{π}: γ(θ) to 11/2− in (α,nγ). Lack of observation in (^{14}C,3nγ) and (^{7}Li,3npγ) supports 9/2.
2682.30 *5*	11/2(−)[dh]	>2.10 ps	CD f Qr	J^{π}: D γ from 13/2 state; high selection of yrast states states in fusion evaporation and restrictions on γ(θ) (Cf. 1985Wa09). π=− from membership in band. $T_{1/2}$: others: >6.9 ps from DSAM In (p,p′γ), >7.2 ps from DSAM In (α,nγ), and≥2.4 ps from DSAM In (α,npγ).
2695?			I	
2748.87[@] *6*	15/2−[b]	1.11[a] ps *21*	CD F Qr	$T_{1/2}$: others: 2.2 ps *+20−9* from DSAM In (α,npγ) and 1.8 ps *+10−6* from DSAM In (α,nγ).
2757.6[ce] *2*	7/2− to 13/2−[d]	17 fs *11*	D I r	J^{π}: D,E2 γ′s to 9/2− and 11/2−.
2785.1[ce] *5*	3/2 to 9/2[d]		D	J^{π}: γ to 5/2−. D γ from≥5/2−.
2793.2 *5*	1/2−[&]		B D G IJ	
2800.2[ce] *10*	[dij]	0.35 ps *+26−16*	D nop r	J^{π}: 1/2− to 9/2− from D,E2 γ to 5/2−.
2809.5[ce] *4*	5/2−,7/2,9/2−[ij]	49 fs *23*	D nop r	J^{π}: D,E2 γ′s to 9/2− and 5/2−.
2828.5[ce] *2*	1/2− to 7/2[dgij]	0.16 ps *5*	D ij nop r	J^{π}: D,E2 γ′s to 5/2− and 3/2+,5/2+.
2838.9[ce] *5*	3/2− to 9/2−[dg]	<33 fs	D F ij n	J^{π}: D,E2 γ′s to 7/2− and 5/2−.
2846.3[ce] *3*	5/2− to 11/2−[dg]	<19 fs	D f ij l r	J^{π}: D,E2 γ′s to 7/2− and 9/2−.
2855? *5*	1/2(−),3/2,5/2+		fG l r	J^{π}: fed by primary γ? from 1/2+; γ? to 5/2−.
2868?			f I l	
3033.1[ce] *2*	5/2−,7/2	0.41 ps *9*	D I l R	J^{π}: D,E2 γ′s to 5/2+, 9/2−, and 5/2−.
3051.5[ce] *2*	5/2− to 11/2−	0.43 ps *+12−9*	D I l R	J^{π}: from D,E2 γ′s to 9/2− and 7/2−.

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Adopted Levels, Gammas (continued)

^{47}Ti Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
3176.0[ce] 3	3/2⁻,5/2⁺[d]	0.23 ps +10−7	D GI o r	J^{π}: D,E2 γ's to 1/2⁺ and 7/2⁻. L(d,p)=3 discrepant. Possible doublet.
3211 8	5/2⁻,7/2⁻		E I NoP r	E(level): weighted av of 3203 10 from (d,p), 3219 15 from (^{3}He,p), 3220 20 from (p,d), and 3220 20 from (^{3}He,α).
3225.8[ce] 3	7/2⁻[k]	7 fs +7−6	D f I	T=3/2 Antianalog state.
3251.6[ce] 3	7/2⁻	29 fs 9	DEf I	J^{π}: L(d,p)=3. ≠ 5/2⁻ from D,E2 γ to 11/2⁻.
3277.7[ce] 3	3/2⁻[&]	42 fs 22	D IJ R	
3287.73 6	13/2⁻[dhl]	0.51 ps +16−10	CD F QR	$T_{1/2}$: other: 0.97 ps 21 from DSAM in (^{14}C,3nγ).
3368.9[ce] 4	7/2⁻,9/2,11/2⁻	0.19 ps 6	D I r	J^{π}: D,E2 γ's to 11/2⁻ and 7/2⁻.
3400.5[ce] 2	7/2⁻ to 13/2[d]	1.4 ps +10−4	D I r	J^{π}: 7/2⁻ to 15/2⁻ from D,E2 γ to 11/2⁻. ≠ 15/2 from D γ to 5/2⁻ to 11/2⁻.
3434.6[ce] 4	1/2⁻ to 7/2[d]	65 fs 22	D I	J^{π}: D,E2 γ's to 5/2⁻ and 3/2⁺,5/2⁺.
3484.5[ce] 5	(3/2⁻)	30 fs 10	D f I No r	J^{π}: 3/2⁻ to 9/2⁻ from D,E2 γ to 7/2⁻. L(d,p)=(1).
3515.5[ce] 5	1/2⁺[d]	40 fs 12	D f I o r	Possibly a doublet since D,E2 γ? to 5/2⁻ is not consistent with L(d,p)=0.
3544.8[ce] 4	3/2⁻,5/2⁺[m]	<35 fs	D G ij n	J^{π}: D,E2 γ's to 1/2⁺ and 7/2⁻. Possible doublet.
3553.6[ce] 10	3/2⁻ to 11/2⁻[m]	35 fs +38−33	D G ij n p	J^{π}: D,E2 γ to 7/2⁻.
3567.97[@] 8	17/2⁻[b]	69[a] fs 21	CD F p	$T_{1/2}$: other: <70 fs from DSAM In (p,p′γ) and 0.27 ps 9 from DSAM In (α,npγ).
3582.7[ce] 4	(3/2⁻)	<15 fs	D F I	J^{π}: 3/2⁻ to 9/2⁻ from D,E2 γ to 7/2⁻. L(d,p)=(1).
3622.5[ce] 6	5/2⁻ to 13/2⁻	20 fs 19	D f I	J^{π}: 5/2⁻ to 13/2⁻ from D,E2 γ to 9/2⁻.
3654			f I o	
3676.1[ce] 9	3/2⁻[&]	<40 fs	D fG IJ	
3701.8[ce] 5	7/2,9/2,11/2,13/2⁻[d]	24 fs +24−22	D f I	J^{π}: D γ to 9/2,13/2 and D,E2 γ to 9/2⁻.
3724[n] 16			F I	
3727.1 6	(13/2⁻)[f]		C	
3780.0[ce] 10	3/2$^{(-)}$ to 9/2⁻[d]	44 fs 19	D I	J^{π}: D,E2 γ 5/2⁻ and D,(E2) γ to 7/2⁻.
3827.1[ce] 5	7/2⁻	17 fs 9	DE I	J^{π}: L(d,p)=3; D,E2 γ to 11/2⁻.
3839 11			F I	E(level): weighted av of 3838 16 from (d,p) and 3840 15 from (α,d).
3889			I	
3923 4	3/2⁻[&]		EfG IJK O	E(level): from (n,γ).
3961 16			f I	
3993.94 8	15/2⁻[dhl]	0.10[a] ps +8−5	CD f Q	$T_{1/2}$: other: 0.54 ps +18−14 from DSAM in (α,nγ).
4040 16			I	
4095 16	1/2⁻,3/2⁻		I	
4112 16			I n	
4132? 16			I n	
4164			I n	
4180			I	
4217 16			I	
4243 16	[o]		e I	
4264 16	[o]		e I	
4277			I	

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Adopted Levels, Gammas (continued)

^{47}Ti Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
4281			I	
4303 *16*			I	
4336 *16*	$3/2^+,5/2^+$		I	
4359 *16*			I	
4380 *16*	$3/2^+,5/2^+$		I	
4466 *16*			I	
4492 *16*			I	
4494.11[@] *10*	$19/2^-$	0.111[a] ps *28*	CD F	J^{π}: 19/2 from $\gamma(\theta)$ in (^{14}C,3nγ). π=− from D,E2 γ to $15/2^-$. $T_{1/2}$: others: 0.20 ps *+23−16* from DSAM In (α,nγ) and 0.25 ps *9* from DSAM In (α,npγ).
4518 *16*			I	
4541 *16*			I	
4553 *16*			I	
4588 *16*	$7/2^+,9/2^+$		I	
4605 *16*			I	
4637[n] *16*	$1/2^-$[&]		IJ	
4670 *16*			I	
4672.90 *11*	$17/2^-$[hl]	0.12[a] ps *6*	C	
4686 *16*	$3/2^+,5/2^+$		I	
4708 *11*	−[k]		EF	E(level): weighted av of 4705 *15* from (^{3}He,p) and 4710 *15* from (α,d).
4743 *16*			I	
4758 *11*			EF	E(level): weighted av of 4755 *15* from (^{3}He,p) and 4760 *15* from (α,d).
4793 *16*			I	
4811 *16*			I	
4829 *16*			I	
4847 *16*			I	
4876 *16*			I	
4898 *16*			I	
4924 *16*	$1/2^-,3/2^-$		I	
4957 *16*	$1/2^+$		I	
4982 *16*	$3/2^+,5/2^+$		I	
5013 *16*	$1/2^-,3/2^-$		I	
5043 *16*			I	
5070 *16*			I	
5102 *16*			I	
5125 *16*			I	
5148 *16*			I	
5195 *16*			I	
5197.44[@] *11*	$21/2^-$	49[a] fs *35*	C F	J^{π}: D γ to J_i−1 state; high selection of yrast states states in fusion-evaporation and restrictions on $\gamma(\theta)$ (Cf. 1985Wa09). π=− from D,E2 γ to $17/2^-$.
5265 *16*	$1/2^+$		I	
5301 *16*			I	
5313 *16*	$1/2^-,3/2^-$		I	
5355[n] *16*	$1/2^-$[&]		G IJ	
5372[p] *15*			E	
5407 *16*	$1/2^+$		I	
5433 *16*	$1/2^-,3/2^-$		I	
5451			I	
5478 *16*			I	
5540 *16*	$1/2^-,3/2^-$		I	
5580[n] *16*	$1/2^-$[&]		IJ	

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Adopted Levels, Gammas (continued)

^{47}Ti Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
5615 *16*	1/2⁻,3/2⁻		I	
5635 *16*			I	
5670 *16*			I	
5702 *16*			I	
5746? *4*			G	
5755? *16*			I	
5774 *16*			I	
5810[n] *16*	1/2⁻[&]		IJ	
5836 *16*			I	
5872 *16*			I	
5937 *16*			I	
5976 *16*	1/2⁺		I	
6013			I	
6039	3/2⁺,5/2⁺		I	
6067	(1/2⁻,3/2⁻)		I	
6088.60[@] *23*	23/2⁻	35[a] fs *21*	C	Jπ: D γ to J_i-1 state; high selection of yrast states states in fusion-evaporation and restrictions on $\gamma(\theta)$ (Cf. 1985Wa09). $\pi=-$ from D,E2 γ to 19/2⁻.
6095			I	
6129			I	
6158	1/2⁺		I	
6169	1/2⁺		I	
6195			I	
6209			I	
6234			I	
6265			I	
6304			I	
6333	1/2⁻,3/2⁻		I	
6364			I	
6366.4 *6*	(21/2⁻)[h]	<28[a] fs	C	Jπ: 17/2,21/2⁻ from J→J or J→J-2, E2 γ to 17/2⁻; ≠ 17/2 from membership in band.
6387			I	
6402			I	
6430	1/2⁺		I	
6449			I	
6474			I	
6494	1/2⁺		I	
6514			I	
6530[p] *15*	−[k]		E I	
6554			I	
6565			I	
6585			I	
6607	(1/2⁺)		I	
6624			I	
6645			I	
6662			I	
6673			I	
6692			I	
6709			I	
6727			I	
6749			I	
6771	(1/2⁺)		I	
6787			I	
6823			I	
6838			I	
6854			e I	

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Adopted Levels, Gammas (continued)

^{47}Ti Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
6882			e I	
6903			I	
6917			I	
6936			I	
6957			I	
6980			I	
7002			I	
7018			I	
7038			I	
7067			I	
7076			I	
7095			I	
7123			I	
7141			I	
7166	$3/2^+,5/2^+$		I	
7187	$3/2^+,5/2^+$		I	
7205			I	
7225			I	
7349.0[p] 7	$7/2^-$[k]		E N P	T=5/2 Analog of ^{47}Sc g.s., $7/2^-$.
7480.6[p] 10	$-$[k]		E	
8005.1[@] 3	$27/2^-$	0.49[a] ps 11	C	Jπ: $21/2^-$ to $27/2^-$ from D,E2 γ to 23/2 state. ≥25/2 from high selection of yrast states in fusion evaporation and restrictions on γ(θ) (Cf. 1985Wa09). ≠ 25/2 from J→J or J→J-2 γ to $23/2^-$.
8.16×10^3 2	$(3/2)^+$		N P	T=5/2 Jπ: L(p,d)=2; analog state of ^{47}Sc 767, $(3/2)^+$.
8.79×10^3 2	$1/2^+$		N P	T=5/2 Jπ: L(^{3}He,α),(p,d)=0.

[†] From least-squares fit to Eγ′s, including primary γ′s from (n,γ), except as noted in footnotes, comments, or cross reference column. ΔE_γ=1 keV assumed where not given. Capture-state energy held fixed.

[‡] From angular momentum transfer in (d,p), except as noted. See these data for Jπ′s based on empirical J-dependence of L=1 and L=3 transfers. Angular momenta deduced from other stripping and pickup reaction data are consistent, except as noted.

[#] From DSAM in (p,p′γ), (α,nγ), and (^{3}He,αγ), except as noted.

[@] Band(A): yrast band (1994Ca04).

[&] From J-dependence of vector analyzing power and angular momentum transfer in (d,p) and (pol d,p).

[a] From (^{14}C,3nγ). $T_{1/2}$ by DSAM.

[b] From γ(θ) and RUL of deexciting γ.

[c] From (p,p′γ). Held fixed in least-squares fit to Eγ′s.

[d] See (p,p′γ) and (α,nγ) for proposed assignment (not adopted by evaluator).

[e] Held fixed In least-squares adjustment.

[f] Connected by a J→J or J→J-2, presumably stretched E2; 3727 decays weakly to yrast $9/2^-$.

[g] L(d,p)=3 for multiplet.

[h] Band(J): negative-parity side band (1994Ca04). Note that 1986Wa19 suggest that π=+ based on systematics of neighboring nuclei and of the fusion-evaporation mechanism and 1979PeZV suggest Jπ(2682)=$7/2^+$ (π ≠ − from B(M1)(W.u.)<0.001; syst of $T_{1/2}$′s and excitation energies), Jπ(3287)=$9/2^+$ if 2682 is the $7/2^+$ member of a Kπ=$3/2^+$ band, Jπ(3994)=$11/2^+$ if member of Kπ=$3/2^+$ band.

[i] L(^{3}He,α)=3 for multiplet.

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Adopted Levels, Gammas (continued)

^{47}Ti Levels (continued)

[j] L(p,d)=3 for multiplet.
[k] L(^{3}He,p)=0 or 0+2.
[l] D or D,E2 γ to J_i-1 state; high selection of yrast states in fusion-evaporation and restrictions on $\gamma(\theta)$ (Cf. 1985Wa09). $\pi=-$ from D,E2 γ to $J_i-2,\pi=-$.
[m] L(d,p)=1 for multiplet.
[n] From (d,p).
[o] L(^{3}He,p)=0+2, 4252, state may correspond to this or the following state.
[p] From (^{3}He,p) and (^{3}He,pγ).

$\gamma(^{47}Ti)$

See (n,γ), (γ,γ′), (n,n′γ), and (p,p′γ) for unplaced gammas or gammas whose placement was considered uncertain. See also (^{3}He,pγ) for additional gammas whose placement was considered uncertain.

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[s]	Comments
159.371	7/2⁻	159.373 *12*	100[#]	0.0	5/2⁻	M1+E2	−0.099[@] *9*	0.0045 *3*	B(M1)(W.u.)=0.0255 *8*; B(E2)(W.u.)=25 *5* α(K)exp=0.00406 *21*; α(L)exp≈0.000406 *21* α(M)exp≈5.19×10^{-5} *31*; α(N)exp≈2.78×10^{-6} *17* E_γ: weighted av of 159.381 *15* from β^- decay, 159.369 *20* from from (^{12}C,3nγ) and 159.27 *4* from (n,γ). Arithmetic mean of 159.370 *12* (NRM) and 159.375 *12* (RT) ADOPTED. α: from α(K)exp=0.00406 *21* and K/L+≈10 in β^- decay. α(K)exp anomalous with theory: α(K)=0.00560 *12*. Additional information 1.
1252.09	9/2⁻	1092.71[&b] *5*	100[b] *2*	159.371	7/2⁻	M1+E2[a]	−0.29[c] *3*	7.89×10^{-5} *12*	B(M1)(W.u.)=0.105 *11*; B(E2)(W.u.)=19 *4* α=7.89×10^{-5} *12*; α(K)=7.16×10^{-5} *11*; α(L)=6.40×10^{-6} *10*; α(M)=8.18×10^{-7} *12*; α(N+..)=4.45×10^{-8} *7* α(N)=4.45×10^{-8} *7*
		1252.0[bu]	6[b] *2*	0.0	5/2⁻	E2[f]		9.03×10^{-5} *13*	B(E2)(W.u.)=7 *3* α=9.03×10^{-5} *13*; α(K)=6.52×10^{-5} *10*; α(L)=5.83×10^{-6} *9*; α(M)=7.46×10^{-7} *11*; α(N+..)=1.85×10^{-5} *3* α(N)=4.05×10^{-8} *6*; α(IPF)=1.84×10^{-5} *3*
1444.25	11/2⁻	192.150[&] *10*	6.2[#d]	1252.09	9/2⁻	M1+E2[a]	+0.05[c] *2*	0.00364 *8*	B(M1)(W.u.)=0.20 *4*; B(E2)(W.u.)=3.E+1 *3* α=0.00364 *8*; α(K)=0.00330 *7*; α(L)=0.000300 *7*; α(M)=3.84×10^{-5} *8*; α(N+..)=2.06×10^{-6} *5* α(N)=2.06×10^{-6} *5*
		1284.86[&] *4*	100[#d]	159.371	7/2⁻	E2[e]		9.33×10^{-5} *13*	B(E2)(W.u.)=17 *3* α=9.33×10^{-5} *13*; α(K)=6.16×10^{-5} *9*; α(L)=5.51×10^{-6} *8*; α(M)=7.04×10^{-7} *10*; α(N+..)=2.55×10^{-5} *4* α(N)=3.82×10^{-8} *6*; α(IPF)=2.54×10^{-5} *4*
1549.65	3/2⁻	1390.33 *10*	100.0[g] *29*	159.371	7/2⁻	E2		0.0001090 *16*	B(E2)(W.u.)=3.9 *11* α=0.0001090 *16*; α(K)=5.20×10^{-5} *8*; α(L)=4.65×10^{-6} *7*; α(M)=5.94×10^{-7} *9*; α(N+..)=5.18×10^{-5} *8* α(N)=3.23×10^{-8} *5*; α(IPF)=5.18×10^{-5} *8* E_γ: from (n,γ),(pol n,γ) E=thermal.

$^{47}_{22}Ti_{25}$-8

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[s]	Comments
1549.65	3/2$^-$	1549.9[g] 4	83.9[g] 25	0.0	5/2$^-$	M1+E2[f]	+0.46[c] 10	1.26×10^{-4} 3	B(M1)(W.u.)=0.0015 5; B(E2)(W.u.)=0.33 15 $\alpha=1.26\times10^{-4}$ 3; α(K)=3.76×10^{-5} 7; α(L)=3.35×10^{-6} 6; α(M)=4.29×10^{-7} 7; α(N+..)=8.50×10^{-5} 22 α(N)=2.34×10^{-8} 4; α(IPF)=8.50×10^{-5} 22
1793.80	1/2$^-$	244.27[m] 16	49.1[g] 23	1549.65	3/2$^-$	M1+E2	−0.30 6	0.0027 3	B(M1)(W.u.)=0.27 +10−27; B(E2)(W.u.)=1.0×10^{3} +6−10 α=0.0027 3; α(K)=0.0025 3; α(L)=0.000225 24; α(M)=2.9×10^{-5} 3; α(N+..)=1.53×10^{-6} 16 α(N)=1.53×10^{-6} 16 Mult.,δ: D+Q, −0.30 6 or −14 10 from $\gamma\gamma(\theta)$ in (n,γ). ≠ E1+M2 from comparison to RUL and δ. δ ≠ −14 10 from comparison to RUL.
		1793.9[g] 4	100[g]	0.0	5/2$^-$	(E2)[h]		0.000249 4	B(E2)(W.u.)=1.2 +5−12 α=0.000249 4; α(K)=3.12×10^{-5} 5; α(L)=2.78×10^{-6} 4; α(M)=3.56×10^{-7} 5; α(N+..)=0.000215 3 α(N)=1.94×10^{-8} 3; α(IPF)=0.000215 3
1825.0	3/2$^+$,5/2$^+$	1825	100	0.0	5/2$^-$	(E1+M2)	−0.25 +7−2	5.09×10^{-4} 13	B(E1)(W.u.)=3.8×10^{-5} +13−35; B(M2)(W.u.)=3.3 +21−4 $\alpha=5.09\times10^{-4}$ 13; α(K)=1.90×10^{-5} 9; α(L)=1.69×10^{-6} 8; α(M)=2.16×10^{-7} 11; α(N+..)=0.000488 14 α(N)=1.18×10^{-8} 6; α(IPF)=0.000488 14 Mult.: D+Q from $\gamma(\theta)$ in (^{3}He,$\alpha\gamma$). $\Delta\pi$=yes from level scheme. δ: −0.219 37 if J_i=3/2 or −0.274 23 if J_i=5/2 from $\gamma(\theta)$ in (^{3}He,$\alpha\gamma$).
2163.2	3/2$^-$	2003.1[g] 10	5.4[g] 6	159.371	7/2$^-$	(E2)[h]		0.000343 5	B(E2)(W.u.)=3.6 8 α=0.000343 5; α(K)=2.54×10^{-5} 4; α(L)=2.27×10^{-6} 4; α(M)=2.90×10^{-7} 4; α(N+..)=0.000315 5 α(N)=1.578×10^{-8} 23; α(IPF)=0.000315 5
		2163.0[g] 5	100.0[g] 23	0.0	5/2$^-$	(M1(+E2))	0.0 1	0.000342 5	α=0.000342 5; α(K)=2.07×10^{-5} 3; α(L)=1.84×10^{-6} 3; α(M)=2.36×10^{-7} 4; α(N+..)=0.000319 5 α(N)=1.285×10^{-8} 18; α(IPF)=0.000319 5 B(M1)(W.u.)=0.082 15 Mult.: D(+Q) from $\gamma(\theta)$ in (^{3}He,$\alpha\gamma$).

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[s]	Comments
									$\Delta\pi$=no from level scheme. δ: from $\gamma(\theta)$ in (^{3}He,$\alpha\gamma$).
2166.7	5/2	2007.3[g] *10*	100[g]	159.371	$7/2^-$	D(+Q)	0.00 *17*		Mult.,δ: from $\gamma(\theta)$ in (^{3}He,$\alpha\gamma$). Other δ excluded by adopted J.
2259.5	$5/2^+$	2101	22 *4*	159.371	$7/2^-$	(E1(+M2))[i]	[j]	7.07×10^{-4} *22*	$\delta\leq0.24$ *4* B(E1)(W.u.)=1.9×10^{-5} *6* α=7.07×10^{-4} *22*; α(K)=1.48×10^{-5} *9*; α(L)=1.31×10^{-6} *8*; α(M)=1.68×10^{-7} *10*; α(N+..)=0.000690 *22* α(N)=9.1×10^{-9} *6*; α(IPF)=0.000690 *22*
		2259.7	100 *4*	0.0	$5/2^-$	(E1(+M2))[i]	[j]	8.24×10^{-4} *13*	$\delta\leq0.129$ *16* B(E1)(W.u.)=6.8×10^{-5} *16* α=8.24×10^{-4} *13*; α(K)=1.28×10^{-5} *3*; α(L)=1.135×10^{-6} *24*; α(M)=1.45×10^{-7} *3*; α(N+..)=0.000810 *13* α(N)=7.91×10^{-9} *17*; α(IPF)=0.000810 *13*
2297.1	$5/2^-,7/2^-$	2137	28 *4*	159.371	$7/2^-$	(M1+E2)		0.00037 *4*	α=0.00037 *4*; α(K)=2.19×10^{-5} *9*; α(L)=1.95×10^{-6} *8*; α(M)=2.49×10^{-7} *10*; α(N+..)=0.00034 *4* α(N)=1.36×10^{-8} *5*; α(IPF)=0.00034 *4* Mult.,δ: D+Q from $\sigma(96°)/\sigma(126°)$ In (γ,γ'). $\Delta\pi$=No from level scheme see table In 1976Ra03 for δ's.
		2297	100 *4*	0.0	$5/2^-$	(M1,E2)		0.00044 *5*	α=0.00044 *5*; α(K)=1.93×10^{-5} *7*; α(L)=1.72×10^{-6} *6*; α(M)=2.20×10^{-7} *8*; α(N+..)=0.00042 *5* α(N)=1.20×10^{-8} *4*; α(IPF)=0.00042 *5* Mult.: D,E2 from $\sigma(96°)/\sigma(126°)$ In (γ,γ') and comparison to RUL. $\Delta\pi$=No from level scheme.
2364.9	$1/2^+$	540.0	100	1825.0	$3/2^+,5/2^+$				
2406.2	$(9/2^-)$	962	14[k] *5*	1444.25	$11/2^-$	D,E2[j]			
		1154	30[k] *5*	1252.09	$9/2^-$	D,E2[j]			
		2247	100[k] *3*	159.371	$7/2^-$	D,E2[j]			
		2406[u]	14 *5*	0.0	$5/2^-$	(E2)[h]		0.000532 *8*	B(E2)(W.u.)=2.7 *13* α=0.000532 *8*; α(K)=1.84×10^{-5} *3*; α(L)=1.638×10^{-6} *23*; α(M)=2.10×10^{-7} *3*; α(N+..)=0.000512 *8* α(N)=1.142×10^{-8} *16*; α(IPF)=0.000511 *8*
2416.3	$1/2^-$ to $7/2^-$	591	100 *7*	1825.0	$3/2^+,5/2^+$	D,E2[j]			
		866	53 *7*	1549.65	$3/2^-$	D,E2[j]			

$^{47}_{22}Ti_{25}$-10

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[s]	Comments
2416.3	$1/2^-$ to $7/2^-$	2416	79 *7*	0.0	$5/2^-$	D,E2[j]			
2499.4?	$1/2^{(-)},3/2,5/2^+$	2500[u] *5*		0.0	$5/2^-$				
2525.8	$3/2^-,5/2^-$	2366.3[g] *5*	96[g] *7*	159.371	$7/2^-$	D,E2[j]			
		2525.6[g] *5*	100[g] *4*	0.0	$5/2^-$	D,E2[j]			
2548.2	$3/2^-$	2548.7[g] *5*	100[g]	0.0	$5/2^-$	(M1(+E2))	<0.5	5.12×10^{-4} *12*	B(M1)(W.u.)>0.15<0.24 $\alpha=5.12\times10^{-4}$ *12*; $\alpha(K)=1.593\times10^{-5}$ *24*; $\alpha(L)=1.417\times10^{-6}$ *22*; $\alpha(M)=1.81\times10^{-7}$ *3* $\alpha(N+..)=0.000494$ *12* $\alpha(N)=9.89\times10^{-9}$ *15*; $\alpha(IPF)=0.000494$ *12* Mult.: D(+Q) from $\sigma(96°)/\sigma(126°)$ in (γ,γ'). $\Delta\pi$=no from level scheme. δ: from $\sigma(96°)/\sigma(126°)$ in (γ,γ').
2572.9	$1/2^+$	748	37 *6*	1825.0	$3/2^+,5/2^+$	D,E2[j]			
		1023	100 *6*	1549.65	$3/2^-$	(E1(+M2))[i]	[j]	5.05×10^{-5} *7*	$\delta\leq0.019$ *4* B(E1)(W.u.)=6.7×10^{-4} *+19−28* $\alpha=5.05\times10^{-5}$ *7*; $\alpha(K)=4.59\times10^{-5}$ *7*; $\alpha(L)=4.09\times10^{-6}$ *6*; $\alpha(M)=5.23\times10^{-7}$ *8*; $\alpha(N+..)=2.84\times10^{-8}$ *4* $\alpha(N)=2.84\times10^{-8}$ *4*
2599.6	$3/2^-,5/2,7/2$	775	27 *6*	1825.0	$3/2^+,5/2^+$	D,E2[j]			
		2441	81 *6*	159.371	$7/2^-$	D,E2[j]			
		2600	100 *6*	0.0	$5/2^-$	D,E2[j]			
2619.4	$7/2^-$	452	2.7 *14*	2166.7	5/2	D,E2[j]			
		1367	10 *3*	1252.09	$9/2^-$	D,E2[j]			
		2460	100 *4*	159.371	$7/2^-$	D,E2[j]			
		2619	25 *4*	0.0	$5/2^-$	D,E2[j]			
2668.0	9/2,13/2	1224	100	1444.25	$11/2^-$	D+Q	−0.14[c] *2*		
2682.30	$11/2^{(-)}$	276[#]	1.4[#]	2406.2	$(9/2^-)$				
		1238[&] *2*	43[#]	1444.25	$11/2^-$	D,Q[l]			
		1430.22[&] *4*	100[#]	1252.09	$9/2^-$	D(+Q)[a]	0.00[c] *2*		
2748.87	$15/2^-$	1304.61[&] *4*	100[#]	1444.25	$11/2^-$	E2[e]		9.56×10^{-5} *14*	B(E2)(W.u.)=13 *3* $\alpha=9.56\times10^{-5}$ *14*; $\alpha(K)=5.96\times10^{-5}$ *9*; $\alpha(L)=5.33\times10^{-6}$ *8*; $\alpha(M)=6.81\times10^{-7}$ *10*; $\alpha(N+..)=3.00\times10^{-5}$ *5* $\alpha(N)=3.70\times10^{-8}$ *6*; $\alpha(IPF)=3.00\times10^{-5}$ *5*
2757.6	$7/2^-$ to $13/2^-$	1314	100 *4*	1444.25	$11/2^-$	D,E2[j]			
		1506	35 *4*	1252.09	$9/2^-$	D,E2[j]			
2785.1	3/2 to 9/2	2785	100	0.0	$5/2^-$				
2793.2	$1/2^-$	1243.5[g] *5*	100[g] *23*	1549.65	$3/2^-$				
		2793.3[g] *10*	26[g] *5*	0.0	$5/2^-$				

$^{47}_{22}Ti_{25}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult. [‡]	δ [‡]	α [§]	Comments
2800.2		2800	100	0.0	$5/2^-$	D,E2 [j]			

$^{47}_{22}Ti_{25}$-12

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[s]	Comments
2809.5	5/2⁻,7/2,9/2⁻	1558	32 *5*	1252.09	9/2⁻	D,E2[j]			
		2810	100 *5*	0.0	5/2⁻	D,E2[j]			
2828.5	1/2⁻ to 7/2	412	97 *11*	2416.3	1/2⁻ to 7/2⁻	D[j]			
		1003	81 *11*	1825.0	3/2⁺,5/2⁺	D,E2[j]			
		2828	100 *11*	0.0	5/2⁻	D,E2[j]			
2838.9	3/2⁻ to 9/2⁻	2680	100 *5*	159.371	7/2⁻	D,E2[j]			
		2839	20 *5*	0.0	5/2⁻	D,E2[j]			
2846.3	5/2⁻ to 11/2⁻	1594	72 *7*	1252.09	9/2⁻	D,E2[j]			
		2687	100 *7*	159.371	7/2⁻	D,E2[j]			
2855?	1/2⁽⁻⁾,3/2,5/2⁺	2855[mu] *5*		0.0	5/2⁻				
3033.1	5/2⁻,7/2	773	28 *5*	2259.5	5/2⁺	D,E2[j]			
		1781	25 *5*	1252.09	9/2⁻	D,E2[j]			
		2874	100 *7*	159.371	7/2⁻	D,E2[j]			
		3033	23 *5*	0.0	5/2⁻	D,E2[j]			
3051.5	5/2⁻ to 11/2⁻	267	15 *6*	2785.1	3/2 to 9/2	D[j]			
		1800	100 *9*	1252.09	9/2⁻	D,E2[j]			
		2893	98 *9*	159.371	7/2⁻	D,E2			
3176.0	3/2⁻,5/2⁺	760	42 *12*	2416.3	1/2⁻ to 7/2⁻	D,E2[j]			
		811	46 *12*	2364.9	1/2⁺	D,E2[j]			
		1013	38 *12*	2163.2	3/2⁻	D,E2[j]			
		1351	62 *12*	1825.0	3/2⁺,5/2⁺	D,E2[j]			
		3017	100 *15*	159.371	7/2⁻	D,E2[j]			
		3176	96 *19*	0.0	5/2⁻	D,E2[j]			
3225.8	7/2⁻	1974	100 *6*	1252.09	9/2⁻				
		3067	46 *6*	159.371	7/2⁻				
		3226	13 *5*	0.0	5/2⁻				
3251.6	7/2⁻	955	27 *7*	2297.1	5/2⁻,7/2⁻	D,E2[j]			
		1808	64 *7*	1444.25	11/2⁻	(E2)[h]		0.000255 *4*	B(E2)(W.u.)=29 *10* α=0.000255 *4*; α(K)=3.08×10^{-5} *5*; α(L)=2.74×10^{-6} *4*; α(M)=3.51×10^{-7} *5*; α(N+..)=0.000222 *4* α(N)=1.91×10^{-8} *3*; α(IPF)=0.000222 *4*
		3093	100 *9*	159.371	7/2⁻	D,E2[j]			
		3252	31 *7*	0.0	5/2⁻	D,E2[j]			
3277.7	3/2⁻	1113	100 *10*	2166.7	5/2	D,E2[j]			
		1728	72 *10*	1549.65	3/2⁻	D,E2[j]			
3287.73	13/2⁻	605.47[&] *5*	44[#]	2682.30	11/2⁽⁻⁾	(M1(+E2))[a]	−0.00[cf] *4*	0.000255 *4*	B(M1)(W.u.)=0.055 +*11*−*18* α=0.000255 *4*; α(K)=0.000231 *4*; α(L)=2.08×10^{-5} *3*; α(M)=2.65×10^{-6} *4*;

13

From ENSDF

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J_i^{π}	E_{γ}†	I_{γ}†	E_f	J_f^{π}	Mult.‡	δ‡	$\alpha$$	Comments
									α(N+..)=1.440×10^{-7} *21* α(N)=1.440×10^{-7} *21* Mult.: D(+Q) from $\gamma(\theta)$ in (α,nγ). $\Delta\pi$=no from level scheme.

$^{47}_{22}Ti_{25}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[†]	E_f	J^{π}_f	Mult.[‡]	δ[‡]	α[s]	Comments
3287.73	13/2⁻	1843.36[&] *6*	100[#]	1444.25	11/2⁻	(M1(+E2))[ao]	−0.00[n] *6*	0.000216 *4*	B(M1)(W.u.)=0.044 *+9−14* α=0.000216 *4*; α(K)=2.71×10^{-5} *4*; α(L)=2.41×10^{-6} *4*; α(M)=3.09×10^{-7} *5*; α(N+..)=0.000186 *3* α(N)=1.684×10^{-8} *24*; α(IPF)=0.000186 *3*
		2037[#]	11[#]	1252.09	9/2⁻	(E2)[h]		0.000359 *6*	B(E2)(W.u.)=0.22 *+5−7* α=0.000359 *6*; α(K)=2.47×10^{-5} *4*; α(L)=2.20×10^{-6} *3*; α(M)=2.81×10^{-7} *4*; α(N+..)=0.000332 *5* α(N)=1.531×10^{-8} *22*; α(IPF)=0.000332 *5*
3368.9	7/2⁻,9/2,11/2⁻	1925	64 *10*	1444.25	11/2⁻	D,E2[j]			
		3210	100 *10*	159.371	7/2⁻	D,E2[j]			
3400.5	7/2⁻ to 13/2	348	86 *14*	3051.5	5/2⁻ to 11/2⁻	D[j]			
		718	52 *10*	2682.30	11/2$^{(-)}$	D,E2[j]			
		1956	100 *12*	1444.25	11/2⁻	D,E2[j]			
3434.6	1/2⁻ to 7/2	1610	79 *9*	1825.0	3/2⁺,5/2⁺	D,E2[j]			
		3435	100 *9*	0.0	5/2⁻	D,E2[j]			
3484.5	(3/2⁻)	3325	100	159.371	7/2⁻	(E2)		0.000931 *14*	B(E2)(W.u.)=4.6 *16* α=0.000931 *14*; α(K)=1.087×10^{-5} *16*; α(L)=9.66×10^{-7} *14*; α(M)=1.236×10^{-7} *18* α(N+..)=0.000919 *13* α(N)=6.74×10^{-9} *10*; α(IPF)=0.000919 *13* Mult.: D,E2 from comparison to RUL. ΔJ^{π}=2,Nofrom level scheme.
3515.5	1/2⁺	1151	80 *13*	2364.9	1/2⁺	D,E2[j]			
		1691	100 *13*	1825.0	3/2⁺,5/2⁺	D,E2[j]			
		3516[u]	37 *11*	0.0	5/2⁻	D,E2[j]			Mult.: D,E2 from comparison to RUL. Discrepant with ΔJ^{π}=2,yes from level scheme.
3544.8	3/2⁻,5/2⁺	1180	19 *6*	2364.9	1/2⁺	D,E2[j]			
		1720	48 *8*	1825.0	3/2⁺,5/2⁺	D,E2[j]			
		3386	100 *10*	159.371	7/2⁻	D,E2[j]			
		3545	42 *8*	0.0	5/2⁻	D,E2[j]			
3553.6	3/2⁻ to 11/2⁻	3395	100	159.371	7/2⁻	D,E2[j]			

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[s]	Comments
3567.97	17/2⁻	819.09[&] *5*	100[#]	2748.87	15/2⁻	M1+E2[an]	−0.16[n] *9*	1.38×10^{-4} *3*	B(M1)(W.u.)=0.57 *18*; B(E2)(W.u.)=60 *+70−60* $\alpha=1.38\times10^{-4}$ *3*; α(K)=0.000125 *3*; α(L)=1.120×10^{-5} *24*; α(M)=1.43×10^{-6} *3*; α(N+..)=7.79×10^{-8} *17* α(N)=7.79×10^{-8} *17* δ: other: −0.02 *3* recommended by 1980Kr22 and 1978Kr19.
3582.7	(3/2⁻)	3424	100	159.371	7/2⁻	D,E2[j]			
3622.5	5/2⁻ to 13/2⁻	2370	100	1252.09	9/2⁻	D,E2[j]			
3676.1	3/2⁻	3676	100	0.0	5/2⁻	D,E2[j]			
3701.8	7/2,9/2,11/2,13/2⁻	1034	92 *19*	2668.0	9/2,13/2	D[j]			
		2450	100 *19*	1252.09	9/2⁻	D,E2[j]			
3727.1	(13/2⁻)	1321[#]	100[#]	2406.2	(9/2⁻)	D,Q[l]			
		2475[#]	7.5[#]	1252.09	9/2⁻				
3780.0	3/2⁽⁻⁾ to 9/2⁻	3621	56 *12*	159.371	7/2⁻	D,(E2)[j]			
		3780	100 *12*	0.0	5/2⁻	D,E2[j]			
3827.1	7/2⁻	2383	100	1444.25	11/2⁻	(E2)		0.000521 *8*	α=0.000521 *8*; α(K)=1.87×10^{-5} *3*; α(L)=1.665×10^{-6} *24*; α(M)=2.13×10^{-7} *3*; α(N+..)=0.000500 *7* α(N)=1.161×10^{-8} *17*; α(IPF)=0.000500 *7* B(E2)(W.u.)=43 *23* Mult.: D,E2 from comparison to RUL. ΔJ^π=2,Nofrom level scheme.
3923	3/2⁻	3925[m] *5*	100[m]	0.0	5/2⁻	D,Q			Mult.: from $\gamma\gamma(\theta)$ in (n,γ).
3993.94	15/2⁻	267[#]	1.2[#]	3727.1	(13/2⁻)	(M1(+E2))		0.001620 *23*	$\delta\leq0.015$ *+4−7* α=0.001620 *23*; α(K)=0.001466 *21*; α(L)=0.0001327 *19*; α(M)=1.697×10^{-5} *24* α(N+..)=9.14×10^{-7} *13* α(N)=9.14×10^{-7} *13* B(M1)(W.u.)=0.12 *+12−5* Mult.: D from comparison to RUL. $\Delta\pi$=no from level scheme.
		706.21[&] *5*	100[#]	3287.73	13/2⁻	(M1(+E2))[ao]		0.00024 *6*	$\delta\leq0.0\geq-0.019$ *+10−5* B(M1)(W.u.)=0.6 *+3−5* α=0.00024 *6*; α(K)=0.00022 *6*;

From ENSDF

Adopted Levels, Gammas (continued)

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[s]	Comments
									α(L)=2.0×10^{-5} *5*; α(M)=2.5×10^{-6} *7*; α(N+..)=1.4×10^{-7} *4* α(N)=1.4×10^{-7} *4* δ: −3.0 *30* from $\gamma(\theta)$ in (^{14}C,3nγ);≤0.019 *+4−10* from comparison to RUL.
3993.94	15/2$^-$	2550[#]	12[#]	1444.25	11/2$^-$	(E2)[h]		0.000599 *9*	B(E2)(W.u.)=0.6 *+3−5* α=0.000599 *9*; α(K)=1.667×10^{-5} *24*; α(L)=1.484×10^{-6} *21*; α(M)=1.90×10^{-7} *3*; α(N+..)=0.000580 *9* α(N)=1.034×10^{-8} *15*; α(IPF)=0.000580 *9*
4494.11	19/2$^-$	926.12[&] *6*	100[#]	3567.97	17/2$^-$	(M1+E2)[a]	−0.05[cn] *4*	1.07×10^{-4} *2*	B(M1)(W.u.)=0.23 *6*; B(E2)(W.u.)=1.70 *+272−17* α=1.07×10^{-4} *2*; α(K)=9.69×10^{-5} *14*; α(L)=8.66×10^{-6} *13*; α(M)=1.108×10^{-6} *16*; α(N+..)=6.03×10^{-8} *9* α(N)=6.03×10^{-8} *9* Mult.: D+Q from $\gamma(\theta)$ in (^{12}C,3nγ). $\Delta\pi$=no from level scheme.
		1745[#]	10[#]	2748.87	15/2$^-$	(E2)[p]		0.000229 *4*	B(E2)(W.u.)=2.8 *8* α=0.000229 *4*; α(K)=3.29×10^{-5} *5*; α(L)=2.94×10^{-6} *5*; α(M)=3.76×10^{-7} *6*; α(N+..)=0.000193 *3* α(N)=2.04×10^{-8} *3*; α(IPF)=0.000193 *3*
4672.90	17/2$^-$	678.95[&] *8*	100[#]	3993.94	15/2$^-$	(M1(+E2))[ao]		0.000200 *3*	δ≤0.021 *6*≥−0.021 *6* B(M1)↓=0.39 *20* α=0.000200 *3*; α(K)=0.000182 *3*; α(L)=1.629×10^{-5} *23*; α(M)=2.08×10^{-6} *3*; α(N+..)=1.132×10^{-7} *16* α(N)=1.132×10^{-7} *16* δ: −0.4 *5* from $\gamma(\theta)$ in (^{14}C,3nγ);≤0.021 *6* from comparison to RUL.
		1385[#]	33[#]	3287.73	13/2$^-$	(E2)[p]		1.08×10^{-4}	B(E2)(W.u.)=20 *11* α=1.08×10^{-4}; α(K)=5.25×10^{-5} *8*; α(L)=4.68×10^{-6} *7*; α(M)=5.99×10^{-7} *9*; α(N+..)=5.03×10^{-5} *7* α(N)=3.25×10^{-8} *5*; α(IPF)=5.03×10^{-5} *7*
		1924[#]	17[#]	2748.87	15/2$^-$	D,E2[j]			
5197.44	21/2$^-$	703.32[&] *5*	86[#d]	4494.11	19/2$^-$	(M1(+E2))[aq]		0.00022 *9*	δ≤+0.02≥−0.028 *6* B(M1)(W.u.)=0.6 *5* α=0.00022 *9*; α(K)=0.00020 *8*; α(L)=0.000018; α(M)=2.25×10^{-6} *10*; α(N+..)=1.22×10^{-7} *5*

From ENSDF

$^{47}_{22}Ti_{25}$-17

$\gamma(^{47}Ti)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[s]	Comments
									α(N)=1.22×10^{-7} *5* Mult.: D(+Q) from $\gamma(\theta)$ in (^{14}C,3nγ). $\Delta\pi$=yes from level scheme. δ: −0.18 *20* from $\gamma(\theta)$ in (^{14}C,3nγ);≤0.028 *6* from comparison to RUL.
5197.44	21/2$^-$	1629.83[&] *40*	100[#d]	3567.97	17/2$^-$	(E2)[p]		0.000183 *3*	B(E2)(W.u.)=5.E+1 *4* α=0.000183 *3*; α(K)=3.76×10^{-5} *6*; α(L)=3.36×10^{-6} *5*; α(M)=4.29×10^{-7} *6*; α(N+..)=0.0001416 *20* α(N)=2.33×10^{-8} *4*; α(IPF)=0.0001416 *20*
5355	1/2$^-$	5365[mu] *10*		0.0	5/2$^-$				
5372		2807[ru]		2619.4	7/2$^-$				
5746?		3145[mu] *5*		2599.6	3/2$^-$,5/2,7/2				
		3189[mu] *5*		2548.2	3/2$^-$				
		3335[tmu] *5*		2416.3	1/2$^-$ to 7/2$^-$				
		3335[tmu] *5*		2406.2	(9/2$^-$)				
6088.60	23/2$^-$	891.13[&] *20*	100[#]	5197.44	21/2$^-$	(M1+E2)[aq]	−0.09[n] *8*	1.15×10^{-4} *2*	B(M1)(W.u.)=0.8 *5*; B(E2)(W.u.)=20.1 *+375−20* α=1.15×10^{-4} *2*; α(K)=0.0001048 *17*; α(L)=9.37×10^{-6} *16*; α(M)=1.199×10^{-6} *20* α(N+..)=6.52×10^{-8} *11* α(N)=6.52×10^{-8} *11* Mult.: D+Q from $\gamma(\theta)$ in (^{14}C,3nγ). $\Delta\pi$=yes from level scheme.
		1595[#]	14[#]	4494.11	19/2$^-$	(E2)[h]		0.0001700 *24*	B(E2)(W.u.)=19 *12* α=0.0001700 *24*; α(K)=3.93×10^{-5} *6*; α(L)=3.50×10^{-6} *5*; α(M)=4.48×10^{-7} *7*; α(N+..)=0.0001266 *18* α(N)=2.44×10^{-8} *4*; α(IPF)=0.0001266 *18*
6366.4	(21/2$^-$)	1693.2[&] *9*	100[#]	4672.90	17/2$^-$	D,E2[e]			
		1873[#]	60[#]	4494.11	19/2$^-$	D,E2[j]			
		2798[#]	20[#]	3567.97	17/2$^-$	D,E2[j]			
7349.0	7/2$^-$	4123[r]	67[r]	3211	5/2$^-$,7/2$^-$				
		7189[r]	100[r]	159.371	7/2$^-$				
7480.6	$^-$	7480[r]		0.0	5/2$^-$				
8005.1	27/2$^-$	1916.45[&] *20*	100[#]	6088.60	23/2$^-$	(E2(+M3))	−0.0 *3*	3.03×10^{-4} *15*	B(E2)(W.u.)=4.4 *10* α=3.03×10^{-4} *15*; α(K)=2.8×10^{-5} *4*;

γ(^{47}Ti) (continued)

E_i(level)	E_γ†	Comments
		α(L)=2.5×10^{-6} *4*; α(M)=3.1×10^{-7} *4*; α(N+..)=0.000273 *18* α(N)=1.71×10^{-8} *23*; α(IPF)=0.000273 *18* Mult.,δ: D(+Q), +0.3 *4*, or E2(+M3), −0.0 *3*, from $\gamma(\theta)$ in (^{14}C,3nγ) and comparison to RUL. J→J or J→J-2 from angular anisotropy in (^{40}Ca,3pγ). ≠ D(+Q) from level scheme.

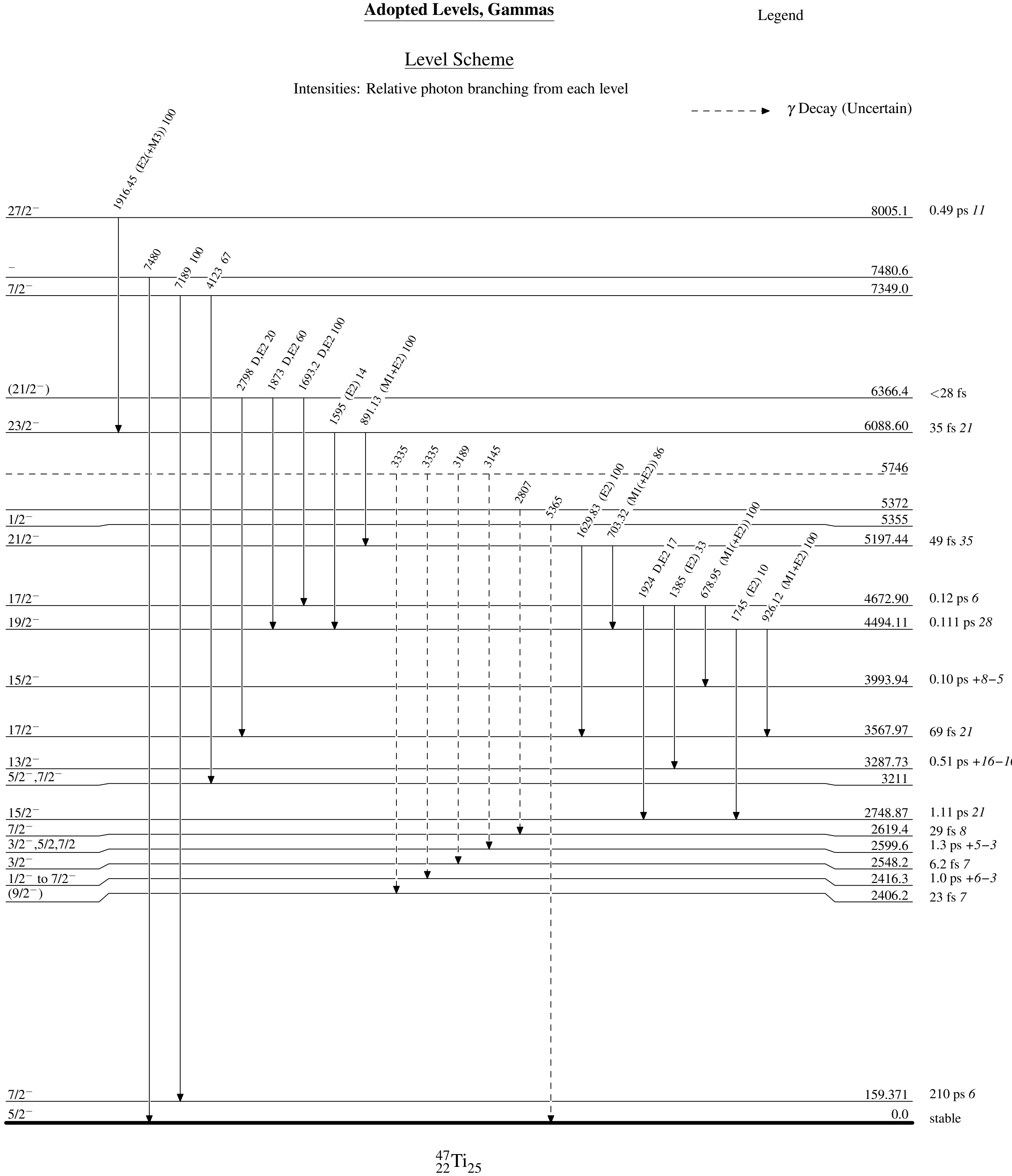
† From (p,p′γ), (α,nγ), and (^{3}He,$\alpha\gamma$), except as noted.
‡ From $\gamma(\theta)$ and linear polarization in (α,nγ) and comparison to RUL, except as noted.
# From (^{40}Ca,3pγ).
@ Value from $T_{1/2}$ and B(E2)↑=0.034 *6*; sign from $\gamma(\theta)$ in (α,nγ) and (d,pγ). Note that 1980Kr22, 1978Kr19 adopt −0.030 *7* from an average of $\gamma(\theta)$ results ranging from −0.00 *3* to −0.25 *+25−15*; this average was dominated by −0.027 *3* from (^{3}He,$\alpha\gamma$). Except for −0.00 *3* from from (^{7}Li,3npγ) other measurements ranged from −0.05 *2* to −0.25 *+25−15* consistent with the B(E2)↑ result.
& From (^{14}C,3nγ).
a Stretched dipole from angular anisotropy in (^{40}Ca,3pγ).
b The g.s. transition is observed only in a (p,p′γ) and (^{3}He,$\alpha\gamma$) study, a (p,p′γ) and (α,nγ), a (^{40}Ca,3pγ), and a Coulomb excitation study and the branching ratios derived from Coulomb excitation are discrepant with the others. There are several possible causes for these disagreements: 1. The 1253γ intensity may be too low to observe in the other measurements. 2. The geometry in the (p,p′γ) studies may be such that the observed transition is a sum of the 1093 and 159 γ′s. 3. The assumption of no contamination from the 1444 to 160 transition in Coulomb excitation may not be valid. 4. There may be contamination from deexcitation of the 1250 (3/2$^-$,1/2$^-$), state which would be dependent both on the reaction mechanism and on the incident energy.
c As recommended by 1980Kr22 and 1978Kr19. Multipolarities were assumed to be M1, E2, or M1+E2.
d Iγ(192γ)/Iγ(1285γ)=0.129 *3* and Iγ(703γ)/Iγ(1630γ)=3.1 *9* in (^{14}C,3nγ) discrepant.
e J→J or J→J-2 from angular anisotropy in (^{40}Ca,3pγ). ≠ M2 from comparison to RUL.
f From $\gamma(\theta)$ in (^{3}He,$\alpha\gamma$) and comparison to RUL.
g From β^+ decay.
h D,E2 from comparison to RUL. $\Delta J^\pi=^{2,}$Nofrom level scheme.
i D,E2 from comparison to RUL. $\Delta\pi$=yes from level scheme.
j From comparison to RUL.
k Iγ(962γ):Iγ(1154γ):Iγ(2247γ)=0.3:3:1 from (^{40}Ca,3pγ) discrepant.
l J→J or J→J-2 from angular anisotropy in (^{40}Ca,3pγ).
m From (n,γ).
n From $\gamma(\theta)$ in (^{14}C,3nγ). δ given for adopted J′s.
o D(+Q) from $\gamma(\theta)$ in (^{14}C,3nγ). $\Delta\pi$=no from level scheme.
p J→J or J→J-2 from angular anisotropy in (^{40}Ca,3pγ). ≠ M2 from comparison to RUL. $\Delta J^\pi=^{2,}$Nofrom level scheme.
q Stretched dipole from $\gamma(\theta)$ in (^{14}C,3nγ).
r From (^{3}He,pγ). ≈50% of the decay from the 7346-keV state has not been observed.
s Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

$^{47}_{22}$Ti$_{25}$-19

$\gamma(^{47}Ti)$ (continued)

[t] Multiply placed.
[u] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

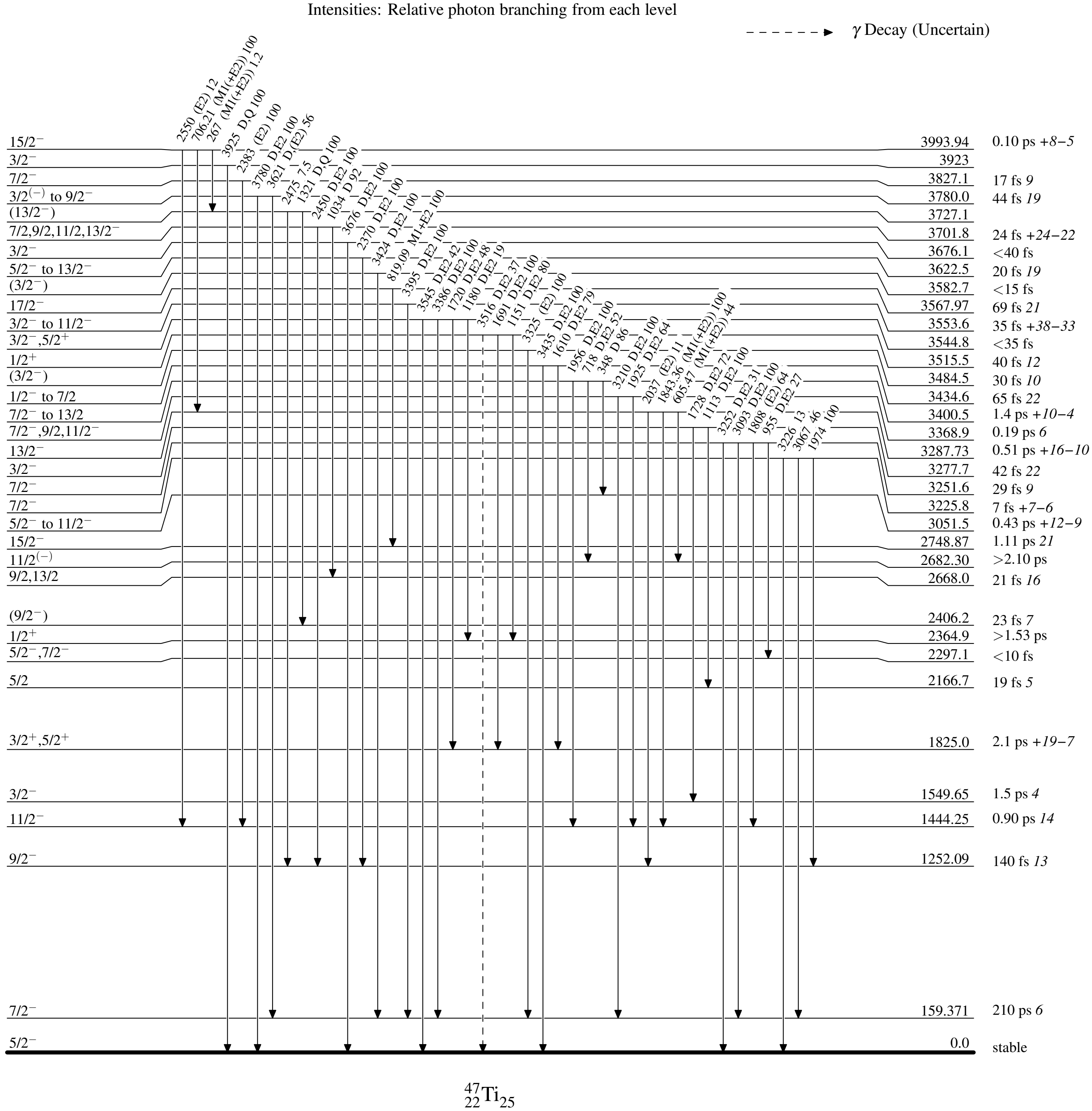


Adopted Levels, Gammas

Legend

Level Scheme (continued)

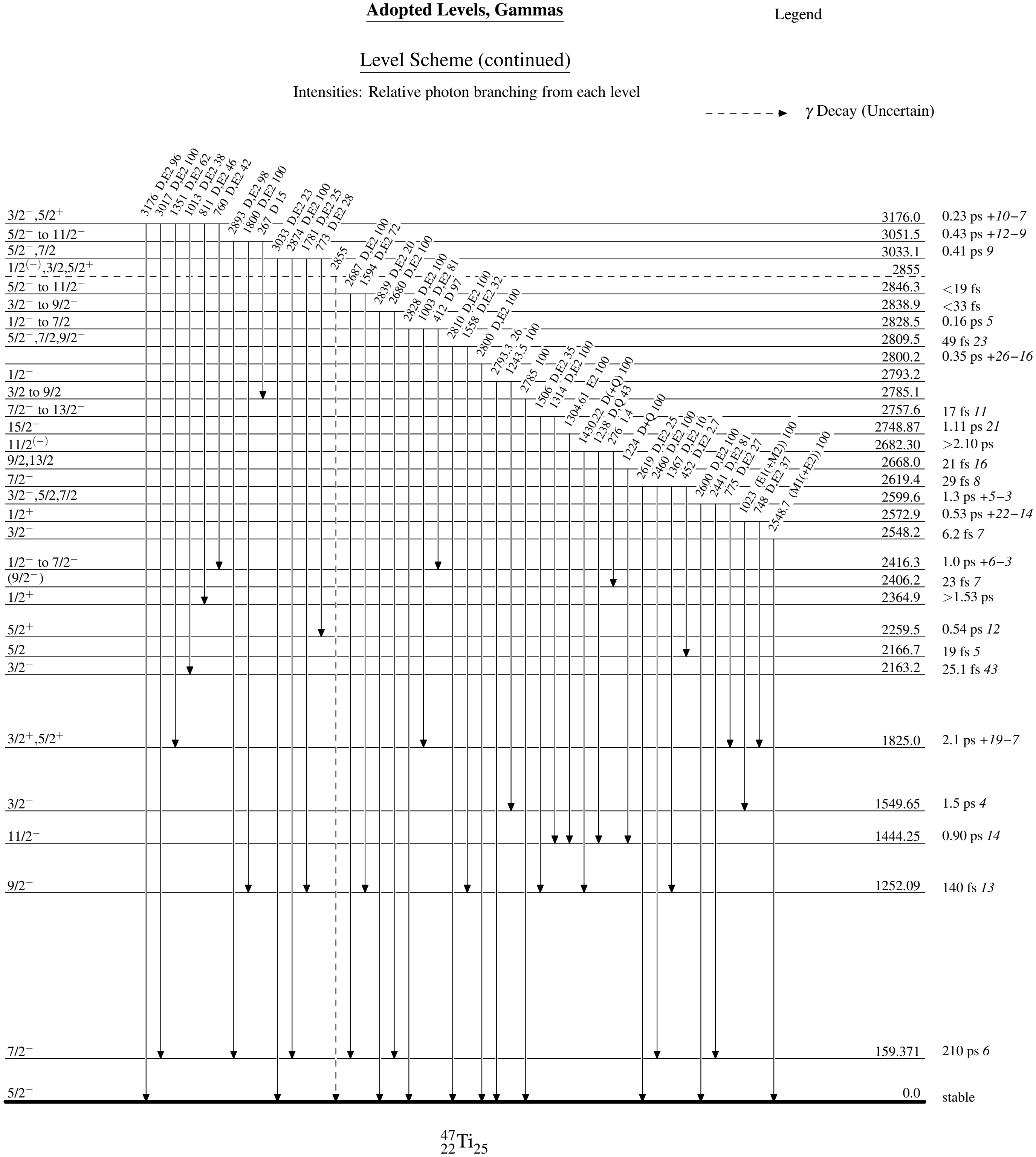
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

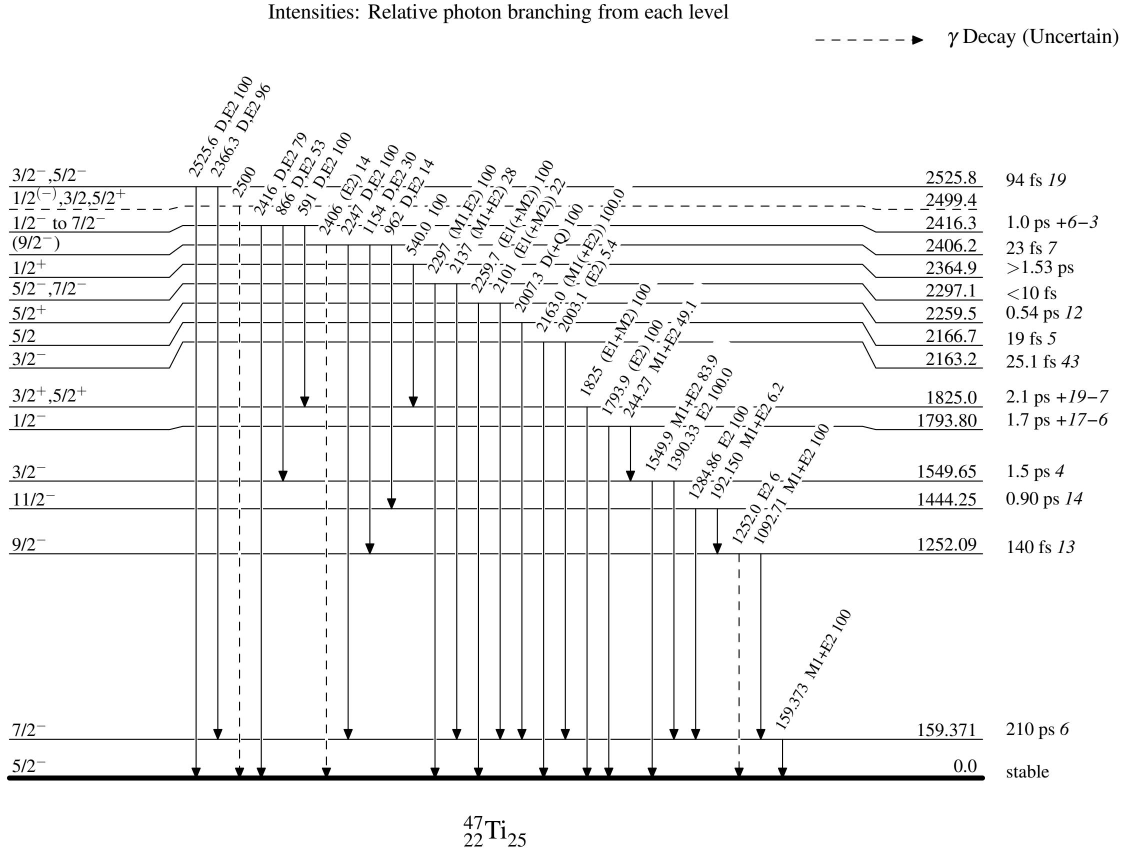
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas