Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Wang Jimin and Huang Xiaolong	NDS 144, 1 (2017)	1-Mar-2016

Q(β^-)=−752.45 *21*; S(n)=11051.15 *8*; S(p)=8061.2 *4*; Q(α)=−10292.2 *20* 2017Wa10

Other Reactions:

^{51}V(p,p) (1976Kr13): E=9.5-10 MeV; measured σ(E; Eα,θ); deduced $\Gamma(\alpha)$=2300 eV *400* from an autocorrelation analysis.

^{51}V(γ,X): (γ,γ), (γ,n), (γ,pn), (γ,2n), (γ,α).

1970Ar08: E=12-30 MeV; measured σ(E,θ=150°), deduced giant dipole resonance Γ: E1=19.3 MeV, Γ=3 MeV, Γ(γ)=0.80 MeV, Γ(n)=0.80 MeV.

1990An13: E=20, 24 MeV; measured $\Gamma\alpha/\Gamma_n=1.8\times10^{-2}$ for Eγ=20 MeV, $\Gamma\alpha/\Gamma_n=2.5\times10^{-2}$ for Eγ=24 MeV.

^{50}V(π^+,K$^+$):

1989Ch32: E not given; measured σ(E(κ+)).

1989Ha07: E=1050 MeV/C; (λ)-hypernuclear spectra calculated by using shell model and DWIA.

^{51}V(pol t,t), (t,t′):

For optical-model analysis of $\sigma(\theta)$ and $\alpha(\theta)$, see 1984Fi01 (E=11 MeV) and 1987En06 (E=33 MeV).

For possible giant multipole resonance effects, see 1984Sl04 (E=10 MeV) and 1986ZyZZ (E=33 MeV).

^{51}V(^{3}He,^{3}He), (^{3}He,dp):

For cross section measurements, see 1981Bi16 (E=27.2 MeV).

For discussion of elastic and inelastic breakup of ^{3}He particle, see 1980Ud01 (E=90 MeV), 1980Sh17 (E=90 MeV), 1980Ma07 (E=90 MeV), 1986Si02 (E=10-60 MeV), and 1985Go19 (E=90 MeV).

For discussion of strong-absorption model, see 1981Ra05 (E=29.6 MeV).

^{51}V Levels

For shell-model calculated levels, see 1986Ku01, 1985Yo01, and 1984Zy02.

For shell-model calculation of isovector electromagnetic transitions and Gamow-Teller β decay in ^{51}Cr and ^{51}Ti, see 1988Yo03.

IAR and IAS were investigated in ^{50}Ti(p,γ), ^{50}Ti(p,p),(p,p′),(p,p′γ),(p,n) IAR, and ^{50}Ti(^{3}He,d),(^{3}He,dp);

Analog states between ^{51}V and ^{51}Ti were discussed (1972Mo43,1973Ro40,1973Pr18,1973Sn01,1974To10).

Cross Reference (XREF) Flags

A	(HI,xnγ)	L	^{51}V(p,p′)	W	^{48}Ti(α,pγ)
B	^{48}Ti(α,p)	M	^{51}V(p,p′γ)	X	^{50}Ti(α,t)
C	^{50}Ti(p,γ)	N	^{51}V(d,d′), (d,pn)	Y	^{52}Cr(d,^{3}He)
D	^{50}Ti(p,p′),(p,p′γ),(p,n) IAR	O	^{51}V(α,α′)	Z	^{50}Ti(^{16}O,^{15}N)
E	^{50}Ti(^{3}He,d)	P	Coulomb excitation	Others:	
F	^{50}Ti(^{3}He,dγ), (d,nγ)	Q	^{52}Cr(t,α)	AA	^{51}V(γ,γ)
G	^{50}V(n,γ) E=thermal	R	^{52}Cr(^{13}C,^{14}N)	AB	^{51}V(γ,γ′)
H	^{50}V(d,p)	S	^{53}Cr(d,α)	AC	^{51}V(π,π′)
I	^{51}V(e,e′)	T	^{51}Ti β^- decay	AD	^{52}Cr(n,d)
J	^{51}V(n,n′)	U	^{51}Cr ε decay		
K	^{51}V(n,n′γ)	V	^{48}Ca(^{16}O,^{13}B), (^{36}S,^{33}Al)		

E(level)[†‡]	J$^\pi$	T$_{1/2}$[@]	XREF	Comments
0.0[m]	7/2$^-$	stable		Q=−0.043 *5* (1989Un01,2014StZZ) J$^\pi$: J=7/2 from paramagnetic resonance (1976Fu06); L=3 in ^{50}Ti(^{3}He,d) and ^{52}Cr(d,^{3}He). μ=+5.14870573 *18* (^{2}H standard, Nuclear Magnetic Resonance (NMR), 1981Ha26, 2014StZZ). Q: from Laser Resonance Fluorescence Spectroscopy (LRFS) (1989Un01). Others: −0.052 *10* (Atomic Beam Magnetic Resonance (AB), 1967Ch09,1967Ch10), −0.033 *10* (Proton Pick-up Reaction: Spectroscopic Factors (PPR), 1973Cl10).
320.0835 *4*	5/2$^-$	184 ps *6*		μ=+3.9 *3* (1968Ke09,2014StZZ); B(E2)↑=0.0121 *14*

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	XREF	Comments
				Jπ: E1 γ from 1/2+ 2547 to 928, M1+E2 γ from 928 to 320, and M1+E2 γ from 320 to 7/2− g.s. uniquely establish Jπ(320)=5/2−, Jπ(928)=3/2−. $T_{1/2}$: from γ(t) in (p,p′γ). Others: 180 ps 10 (βγ(t), 1976BeXW), 190 ps *30* (βγ(t), 1970Si21) and 177 ps 42 (βγ(t), 1962We06) in ^{51}Ti β− decay; 190 ps *40* in Coul.Ex., 180 ps *20* in (γ,γ). B(E2)↑: From weighted average of 0.0135 *14* (1971DaZM), 0.0092 *30* (1970Hu12), 0.0092 *19* (1967Af03), 0.013 *2* (1962Ri09), 0.0130 *26* (1960Go08), 0.012 *3* (1960Ad01). μ: from Integral Perturbed Angular Distribution after Coulomb Excitation (CEAD) (1968Ke09). Others: +4.0 *7* (1963Kr02), +4.4 *8* (1974VaYR).
470?			B	
928.64 *4*	3/2−	8.7 ps *8*	ABC EF HIJKLMNO	XREF: Others: AB, AC B(E2)↑=0.0040 *3* Jπ: see 320 level. B(E2)↑: From weighted average of 0.0044 *5* (1971DaZM), 0.0032 *6* (1970Hu12), 0.0043 *3* (1970Ho16), 0.0031 *6* (1967Af03), 0.0043 *9* (1960Go08). $T_{1/2}$: from adopted B(E2) and branching (0.860 *10*). Others: >3 ps (1980Va08); <10 ps (1976Wh01) in (d,nγ); ≤ 31 ps (βγ(t), 1976BeXW) and 70 ps *25* (βγ(t), 1970Si21) in ^{51}Ti β− decay;
1010?			B	
1190?			N	
1609.236[m] *18*	11/2−	0.52 ps *5*	AB EFGHIJKLMNO	XREF: Others: AB, AC B(E2)↑=0.0134 *8* XREF: E(1601). Jπ: E2 γ to 7/2− g.s., L=1 for 6+ target in (d,p). B(E2)↑: From weighted average of 0.010 *2* (1967Af03), 0.013 *3* (1968An20), 0.012 *6* (1968Ke09), 0.0136 *8* (1972WaYZ), 0.0116 *20* (1970Hu12), 0.0141 *14* (1970Ho16), and 0.0150 *15* (1971DaZM). $T_{1/2}$: from weighted av of 0.35 ps *8* in (p,p′γ), 0.49 ps *7* from Doppler-broadened lineshape analysis in Coul. ex., 0.59 ps *4* from adopted B(E2) and 0.44 ps *8* in (α,pγ). Others: 0.14 ps *1* in (γ,γ′), 0.49 ps *+42−14* in (n,n′γ).
1813.249 *16*	9/2−	0.54 ps *10*	BC FGHIJKLMNOP S VW	XREF: Others: AB, AC B(E2)↑=0.0036 *7* Jπ: M1+E2 γ to 7/2− g.s., E2 γ to 5/2− 320. B(E2)↑: From weighted average of 0.0031 *7* (1970Hu12) and 0.0046 *10* (1970Ho16). $T_{1/2}$: weighted av of 0.48 ps *10* in ^{48}Ti(α,pγ), 0.64 ps *19* in ^{51}V(p,p′γ), 0.71 ps *+14−11* from adopted B(E2), 0.48 ps *10* in (α,nγ), 0.62 ps *+55−21* in (n,n′γ). Others: 0.28 ps in (n,n′γ), 0.07 ps *1* in (γ,γ′).
1910			B	
2410.75 *9*	3/2−	13.9[&] fs *21*	BC EF HIJKLMNO Z	XREF: Others: AC XREF: C(2412)I(2400)J(2415). Jπ: L=1 in ^{50}Ti(^{3}He,d), E2 γ to 7/2−. $T_{1/2}$: other: 19 fs *6* in ^{51}V(p,p′γ), ≤40 (α,pγ).

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	XREF	Comments
2546.4 *6*	1/2+	>0.7 ps	BC EF JK M O	XREF: B(2540). Jπ: L=0 in ^{50}Ti(^{3}He,d) and ^{52}Cr(d,^{3}He). $T_{1/2}$: from (p,p′γ).
2600			R	
2677.46 *11*	(3/2)+	0.58 ps *10*	BC EF JKLM O	XREF: B(2670)E(2667). Jπ: L=2 and J dependence of σ(θ) in ^{52}Cr(d,^{3}He) and ^{50}Ti(^{3}He,d). $T_{1/2}$: from weghted av. of 0.62 ps *14* in ^{48}Ti(α,pγ) and 0.36 ps *+31−13* in ^{51}V(p,p′γ) (taking the midpoint of region of overlap). Other: 0.6 ps +6-3 in (n,n′γ).
2699.631[m] *24*	15/2−	5.5 ps *4*	A FGHIJK MNO	XREF: Others: AC XREF: H(2694)J(2685)AC(2690). Jπ: J=15/2 from γ(θ) to 11/2− in (HI,xnγ), L=4 in ^{51}V(p,p′). $T_{1/2}$: from RDM in (HI,xnγ). Other: >0.7 ps in ^{51}V(p,p′γ), ≥0.8 ps in (α,pγ).
2790 *8*			J LM	
2870?			B	
3083.52 *12*	(5/2)−	10.4[&] fs *+35−21*	BC E H JKLMN	XREF: Others: AB XREF: B(3075)N(3070). Jπ: σ(Eγ,θ) and compound-nucleus calculations in ^{51}V(n,n′γ), L=3 in ^{50}Ti(^{3}He,d). $T_{1/2}$: others: <2.0 fs in ^{51}V(p,p′γ), 8 fs *4* in (γ,γ′).
3150	(3/2−)		B	Jπ: L=(1) and J dependence of σ(θ) in ^{48}Ti(α,p).
3215.5 *4*	3/2−	26[&] fs *+14−10*	C E I KLM	XREF: E(3208)I(3210). Jπ: L=1 in ^{50}Ti(^{3}He,d) and (^{3}He,dp); J=3/2 from γ(θ)′s in ^{50}Ti(p,γ).
3264.39 *17*	(5/2)−	53[&] fs *+12−7*	C h KLM	Jπ: π=− based on M1+E2 8372γ from 5/2− 11587.9; J=5/2 from comparison with Hauser-Feshbach prediction and decay properties in ^{51}V(p,p′γ). $T_{1/2}$: other: 15 fs *3* in ^{51}V(p,p′γ).
3279.99 *24*	(5/2)	139 fs *+21−14*	C h KLM	XREF: Others: AC XREF: AC(3270). Jπ: comparison with Hauser-Feshbach predictions and decay properties in ^{51}V(p,p′γ). $T_{1/2}$: from (p,p′γ). Other: 159 fs *+77−55* in (n,n′γ).
3310?			B	
3320?	−		O	Jπ: L=2 in ^{51}V(α,α′).
3372 *10*	1/2−,3/2−		E	Jπ: L=1 in ^{50}Ti(^{3}He,d).
3377.68[l] *4*	9/2−	56[&] fs *7*	GH KL	Jπ: L=1 in ^{50}V(d,p), γ to 7/2− g.s; (5/2−) from (n,n′γ). $T_{1/2}$: other: 27 fs *4* in (γ,γ′).
3381.1 *10*	(3/2−,5/2−)	73 fs *+17−14*	I M	XREF: Others: AC XREF: I(3390). Jπ: γ to 7/2− g.s., J=3/2−,5/2− from comparison with Hauser-Feshbach predictions and decay properties in

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	XREF	Comments
				^{51}V(p,p′γ).
				$T_{1/2}$: from (p,p′γ).
3383.2 *6*	(9/2,11/2⁻)	55 fs *18*	i LM	XREF: i(3390)L(3382).
				Jπ: γ′s to 11/2⁻ and 7/2⁻ gives 7/2⁻,9/2,11/2⁻, Hauser-Feshbach calculation suggests 9/2 or 11/2.
				$T_{1/2}$: from weighted av. of 67 *14* in (p,p′γ) and 29 *21* in ^{51}V(n,n′γ).
3385.587[n] *23*	13/2⁻	>0.87[a] ps	A GHi K	XREF: i(3390).
				Jπ: M1+E2 γ to 11/2⁻, γ(θ) in (HI,xnγ).
3395.02 *3*	(13/2⁻)	15 fs *+9−7*	G i KLM	XREF: i(3390).
				$T_{1/2}$: from (p,p′γ). Other: <104 fs in (n,n′γ).
				Jπ: γ′s to 9/2⁻ and 11/2⁻, J=13/2⁻ from comparison with Hauser-Feshbach calculation and decay properties in ^{51}V(p,p′γ).
3412.8 *7*			B MN	XREF: B(3400)N(3400).
3443.91 *21*		7[&] fs	K	Jπ: γ to 3/2⁻ suggest (1/2⁻ to 7/2⁻).
3454.09 *19*	9/2⁻	5.8[&] fs *20*	H KLM O	XREF: Others: AB
				XREF: H(3444).
				Jπ: E2 γ to 5/2⁻, L=1 in ^{50}V(d,p).
				$T_{1/2}$: From weighted av. of 10 *3* in (n,n′γ) and 4.9 *14* in (γ,γ′). other: <2.0 fs in ^{51}V(p,p′γ).
3516.94 *4*	9/2⁻	17[&] fs *3*	GH KLM	XREF: Others: AB, AC
				XREF: AC(3520).
				Jπ: L=1 in ^{50}V(d,p), γ to 5/2⁻ g.s.
				$T_{1/2}$: other: 28 fs *12* from (p,p′γ), 18 fs *6* from (γ,γ′).
3555.5 *10*			C K	
3562.6 *6*			C K	XREF: Others: AB
				Jπ: γ to 7/2⁻, g.s. suggest (3/2⁻ to 11/2⁻).
3568.2 *10*		0.08 ps *+11−6*	h LM	XREF: L(3562).
				$T_{1/2}$: from (p,p′γ).
				Jπ: γ to 5/2⁻ suggest (1/2⁻ to 9/2⁻).
3576.78 *20*	(3/2⁻,5/2,7/2⁻)	0.06 ps *+9−4*	C h KLM	XREF: Others: AB
				$T_{1/2}$: from (p,p′γ).
				Jπ: γ′s to 7/2⁻ and 5/2⁻, γ from 3/2⁻.
3614.065 *23*	(9/2,11/2)⁻	187[&] fs *35*	BC GH KLM O	Jπ: L=1 in ^{50}V(d,p), γ′s to 7/2⁻,g.s.
3623.1 *4*	(3/2⁻)		C K	Jπ: J=(3/2⁻) in ^{51}V(n,n′γ).
3632.03 *19*	⁻	13[&] fs *3*	KLM Q	XREF: Others: AB
				Jπ: L=2 in ^{51}V(p,p′).
				$T_{1/2}$: other: 12 fs *+14−3* in (p,p′γ).
3663.1 *20*	1/2⁻,3/2⁻		C E KL	XREF: Others: AB
				Jπ: L=1 in ^{50}Ti(^{3}He,d).
3667.5 *5*			C	XREF: Others: AC
				XREF: AC(3670).
3678.5 *5*	(3/2⁻)	34[&] ps *4*	C KLM	XREF: Others: AB
				XREF: M(3683).
				Jπ: γ to 7/2⁻ g.s., σ(Eγ,θ) and Iγ measurements and compound nucleus

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	XREF	Comments
				calculation in ^{51}V(n,n′γ). $T_{1/2}$: other: 45 fs *+28−14* in (p,p′γ), 17 fs *3* in (γ,γ′).
3680.8 *7*			C	
3723.1 *20*			K	
3743? *8*			C L	E(level): may be a doublet.
3748.2 *10*	1/2+		Q	Jπ: L=0 in ^{52}Cr(t,α).
3765.3? *8*			C	
3779.5 *4*	(5/2,7/2)+	26[&] fs *5*	C H KL	XREF: Others: AB Jπ: γ′s to 5/2− and 7/2− g.s., L=3 in ^{51}V(p,p′).
3796.5 *3*	(3/2,5/2,7/2,7/2)−	24[&] fs *6*	H KL	XREF: Others: AB Jπ: γ′s to 3/2− and 7/2− g.s., L=2 in ^{51}V(p,p′).
3803.62 *3*	(9/2,11/2)−		C G K	XREF: Others: AC Jπ: L=1 in ^{50}V(d,p), γ to 7/2−.
3810?			B	
3840?			O	
3873.72[n] *3*	15/2−	<0.15[a] ps	A GH KL	XREF: H(3869). Jπ: γ(θ) in (HI,xnγ), M1+E2 γ to 15/2−, L=1 in ^{50}V(d,p).
3873.93 *11*			BC	XREF: B(3870).
3902.36 *3*	(9/2,11/2)+	37[&] fs *19*	G KL	XREF: Others: AC XREF: L(3900)AC(3900). Jπ: γ′s to 9/2− and 11/2−, L=3 in ^{51}V(p,p′).
3919.46 *4*	9/2−	12[&] fs *4*	B GHI KL N	XREF: Others: AB XREF: B(3910)I(3910)N(3910). Jπ: L=1 in ^{50}V(d,p), γ to 5/2−. $T_{1/2}$: Weighted av. of 14 *4* in (n,n′γ) and 10 *4* in (γ,γ′).
3939 *8*	+		H L	XREF: H(3932). Jπ: L=3 in ^{51}V(p,p′).
3943.33 *3*		90[&] fs *14*	G K	
4002.56 *4*	(7/2−,9/2−)	0.17[&] fs *+11−6*	B G KL	XREF: Others: AB, AC XREF: AC(4000). Jπ: γ′s to 7/2− and 5/2−, γ from 9/2−,11/2−.
4025.3 *2*		<17[&] fs	KL	Jπ: γ to 9/2− suggest (5/2− to 13/2−).
4030 *4*			C O	
4052.5 *5*	(−)	66[&] fs *21*	KL	Jπ: π=(−) based on L=(2) in ^{51}V(p,p′), J=(1/2 to 7/2) based on γ to 5/2−.
4124.03 *4*	(7/2,9/2,11/2)−	8[&] fs *3*	GH KL	Jπ: γ′s to 11/2− and 7/2−, L=2 in ^{51}V(p,p′).
4180	(1/2)−		B	Jπ: L=1 and J dependence of σ(θ) in ^{48}Ti(α,p).
4200? *3*	3/2+,5/2+		C Q	Jπ: L=2 in ^{52}Cr(t,α).
4224.80 *4*	(9/2,11/2)−		GH	XREF: H(4218). Jπ: from L=1+3 in ^{50}V(d,p), γ to 7/2−.
4239.5 *6*	1/2−,3/2−		C E	XREF: E(4226). Jπ: L=1 in ^{50}Ti(^{3}He,d).
4265.5 *11*	(1/2)−		BC E	XREF: Others: AC XREF: B(4260)E(4252)AC(4270). Jπ: L=1 and J dependence of σ(θ) in ^{50}Ti(^{3}He,d).
4323.0 *2*				XREF: Others: AB E(level): From ^{50}V(γ,γ′).

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	J^π	$T_{1/2}$[@]	XREF	Comments
4340			L	
4445 *15*	5/2$^-$,7/2$^-$		E	J$^\pi$: L=3 in ^{50}Ti(^{3}He,d).
4446.70 *3*	(9/2,11/2)$^-$		GH	XREF: H(4439). J$^\pi$: L=1 in ^{50}V(d,p), γ to 7/2$^-$ g.s.
4450.7 *2*			B	XREF: Others: AB E(level): From ^{51}V(γ,γ').
4463.8 *2*				XREF: Others: AB E(level): From ^{51}V(γ,γ').
4465.4 *11*	(3/2$^-$,5/2$^-$,7/2$^-$)		C	J$^\pi$: (M1) γ from 5/2$^-$.
4493.93 *3*	(11/2,13/2)$^-$		GH	XREF: H(4487). J$^\pi$: L=1 in ^{50}V(d,p), 591.55γ to (9/2,11/2)$^-$ and 1794.37γ to 15/2$^-$.
4505	1/2$^+$		Q	J$^\pi$: L=0 in ^{52}Cr(t,α).
4512 *10*	$^+$		H L	J$^\pi$: L=3 in ^{51}V(p,p$'$).
4521 *15*	5/2$^-$,7/2$^-$		E	J$^\pi$: L=3 in ^{50}Ti(^{3}He,d).
4535.4 *11*	(3/2)$^-$		C	J$^\pi$: M1+E2 γ from 5/2$^-$, $\gamma(\theta)$ in ^{50}Ti(p,γ).
4560.54 *4*	(9/2,11/2)$^-$		GH	XREF: Others: AB XREF: H(4551)AB(4558.9). J$^\pi$: L=1 in ^{50}V(d,p), γ to 7/2$^-$ g.s.
4582.81 *4*	(9/2)$^-$		GH	XREF: H(4576). J$^\pi$: L=1 in ^{50}V(d,p), γ to 5/2$^-$.
4633 *15*	5/2$^-$,7/2$^-$		E	J$^\pi$: L=3 in ^{50}Ti(^{3}He,d).
4651.0 *6*			C H	XREF: H(4646).
4660.2 *4*			C	
4670?	(−)		L	J$^\pi$: π=(−) from L=(2) in ^{51}V(p,p$'$).
4680?			B	
4688.6 *11*			C	
4755? *15*	(5/2$^-$,7/2$^-$)		E	J$^\pi$: L=(3) in ^{50}Ti(^{3}He,d).
4768.5 *3*				XREF: Others: AB E(level): From ^{51}V(γ,γ').
4770.0 *5*	5/2$^-$		C	J$^\pi$: M1+E2 γ from 3/2$^-$, $\gamma(\theta)$ in ^{50}Ti(p,γ).
4775.4 *3*	9/2$^-$,11/2$^-$		H	XREF: Others: AB E(level): From ^{51}V(γ,γ'). J$^\pi$: L=1 in ^{50}V(d,p).
4790	$^-$		L	J$^\pi$: L=2 in ^{51}V(p,p$'$).
4810			B	
4820.83[n] *10*	17/2$^-$	0.14[a] ps *4*	A H	XREF: H(4813). J$^\pi$: M1+E2 γ from 19/2$^-$, E2 γ to 13/2$^-$.
4838.3 *15*	(9/2,11/2)$^-$		H	XREF: Others: AB E(level): From ^{51}V(γ,γ'). J$^\pi$: L=1+3 in ^{50}V(d,p). J=9/2$^-$,11/2$^-$ proposed by 1999Ka65 in (γ,γ').
4843.4 *3*	3/2$^-$		C	XREF: Others: AB E(level): γ from 5/2$^-$ 11592 in ^{50}Ti(p,γ). 4843.4 *3* in (γ,γ'). J$^\pi$: M1+E2 γ from 5/2$^-$, $\gamma(\theta)$ in ^{50}Ti(p,γ).
4849 *15*	1/2$^-$,3/2$^-$		B E	XREF: B(4850). J$^\pi$: L=1 in ^{50}Ti(^{3}He,d).
4861.4 *6*	3/2$^-$		C	J$^\pi$: M1+E2 γ from 3/2$^-$, $\gamma(\theta)$ in ^{50}Ti(p,γ).
4885.3 *3*				XREF: Others: AB E(level): From ^{51}V(γ,γ').
4894.24 *5*	(11/2,13/2,15/2)$^-$		GH	XREF: H(4887). J$^\pi$: L=1 in ^{50}V(d,p), γ's to 11/2$^-$ and 15/2$^-$.
4907	1/2$^+$		Q	J$^\pi$: L=0 in ^{52}Cr(t,α).
4916.15 *5*	(9/2$^-$,11/2$^-$,13/2$^-$)		G	J$^\pi$: 997.07γ to 9/2$^-$, 1520.66γ to (13/2$^-$).

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	XREF	Comments
4920	(−)		L	Jπ: L=(4) in ^{51}V(p,p′).
4936.1 *6*				XREF: Others: AB
				E(level): From ^{51}V(γ,γ′).
4944.6 *6*			C H	
4949.5 *5*				XREF: Others: AB
4964 *15*	1/2−,3/2−		E	Jπ: L=1 in ^{50}Ti(^{3}He,d).
4977.7 *5*				XREF: Others: AB
				E(level): From ^{51}V(γ,γ′).
5019.92 *4*			GH	XREF: H(5023).
				Jπ: γ to 9/2− suggest (5/2− to 13/2−).
5030.26 *7*			G	Jπ: γ to 9/2− suggest (5/2− to 13/2−).
5037 *10*	−		H O	Jπ: L=3 in ^{50}V(d,p).
5065	3/2+,5/2+		C Q	Jπ: L=2 in ^{52}Cr(t,α).
5069.8 *3*				XREF: Others: AB
				E(level): From ^{51}V(γ,γ′).
5080.2? *4*	−		L	XREF: Others: AB
				Jπ: L=4 in ^{51}V(p,p′).
				E(level): From ^{51}V(γ,γ′).
5104 *15*	1/2+		E	Jπ: L=0 in ^{50}Ti(^{3}He,d).
5113.29 *5*	(11/2,13/2)−		C GH	XREF: H(5109).
				Jπ: L=1 in ^{50}V(d,p), γ′s to 9/2− and 15/2−.
5127 *15*	3/2+,5/2+		E	Jπ: L=2 in ^{50}Ti(^{3}He,d).
5138.0 *8*			C	XREF: Others: AB
5142 *15*	−		H	Jπ: L=1 in ^{50}V(d,p).
5160? *15*	−		H	Jπ: L=1 in ^{50}V(d,p).
5182.6 *7*	3/2+,5/2+		C E L	XREF: E(5170)L(5170).
				Jπ: L=2 in ^{50}Ti(^{3}He,d).
5188.43 *3*	(11/2,13/2,15/2)−		GH	XREF: H(5199).
				Jπ: L=1 in ^{50}V(d,p), γ to 15/2−.
5208.52 *4*			G	XREF: Others: AB
				Jπ: γ to 7/2− suggest (3/2− to 11/2−).
5249.0 *5*			H	XREF: Others: AB
				E(level): From ^{51}V(γ,γ′).
5256.02 *4*	(11/2,13/2,15/2)−		G	Jπ: L=1 in ^{50}V(d,p), γ′s to 15/2− and 11/2−.
5260?			O	
5292.3 *5*			C	XREF: Others: AB
				E(level): From ^{51}V(γ,γ′).
5308.16[l] *6*	(9/2)−		GH	XREF: H(5303).
				Jπ: L=1 in ^{50}V(d,p), γ to 5/2−.
5312.0 *5*	(3/2−,5/2−)		C L	Jπ: π=(−) from L=(2) in ^{51}V(p,p′); J=(3/2,5/2) from γ(θ) from 3/2− in ^{50}Ti(p,γ).
5325.46 *5*			G	XREF: Others: AB
				Jπ: γ to 7/2− suggest (3/2− to 11/2−).
5333.26 *4*			G	Jπ: γ to 9/2− suggest (5/2− to 13/2−).
5341.0 *7*	1/2−,3/2−		C E	Jπ: L=1 in ^{50}Ti(^{3}He,d).
5349.6 *11*	−		C L	Jπ: L=2 in ^{51}V(p,p′).
5355 *2*			C	
5394[l] *15*	−		H	Jπ: L=1+3 in ^{50}V(d,p).
5400.8 *4*				XREF: Others: AB
				E(level): From ^{51}V(γ,γ′).
5403.73 *7*			G	Jπ: γ to 9/2− suggest (5/2− to 13/2−).
5424[l] *15*	(−)		H	Jπ: L=(3) in ^{50}V(d,p).
5433.46[n] *12*	19/2−	0.16[a] ps *5*	A	Jπ: M1+E2 γ to 17/2−, γ(θ) in (HI,xnγ).
5440[l] *15*	1/2−,3/2−		E H	Jπ: L=1 in ^{50}Ti(^{3}He,d).

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	J$^{\pi}$	XREF	Comments
5461.4 *5*	$^{-}$	H	XREF: Others: AB XREF: H(5467). E(level): From ^{51}V(γ,γ'). J$^{\pi}$: L=1 in ^{50}V(d,p).
5478.0 *5*			XREF: Others: AB E(level): From ^{51}V(γ,γ').
5496	3/2^{+},5/2^{+}	O	J$^{\pi}$: L=2 in ^{52}Cr(t,α).
5497 *15*	1/2^{-},3/2^{-}	E	J$^{\pi}$: L=1 in ^{50}Ti(^{3}He,d).
5502 *15*	$^{-}$	H	J$^{\pi}$: L=1 in ^{50}V(d,p).
5507.6 *10*		C	
5511.9 *4*			XREF: Others: AB E(level): From ^{51}V(γ,γ').
5585 *15*	1/2^{-},3/2^{-}	E	J$^{\pi}$: L=1 in ^{50}Ti(^{3}He,d).
5590.8 *4*	$^{-}$	H	XREF: Others: AB XREF: H(5586). J$^{\pi}$: L=1 in ^{50}V(d,p). E(level): From ^{51}V(γ,γ').
5600	3/2^{+},5/2^{+}	O	J$^{\pi}$: L=2 in ^{52}Cr(t,α).
5616.7 *5*	(9/2,11/2)$^{-}$	H	XREF: Others: AB XREF: H(5620). E(level): From ^{51}V(γ,γ'). J$^{\pi}$: L=1+3 in ^{50}V(d,p). J=9/2^{-},11/2^{-} proposed by 1999Ka65 in (γ,γ'). J$^{\pi}$: L=1+3 in ^{50}V(d,p).
5628.62 *5*	(11/2^{-},13/2^{-})	G	J$^{\pi}$: γ's to 9/2^{-} and 15/2^{-}.
5689.4 *5*	$^{-}$	E H O	XREF: Others: AB XREF: E(5703)H(5685). E(level): From ^{51}V(γ,γ'). J$^{\pi}$: L=1 in ^{50}V(d,p).
5720 *15*	1/2^{-},3/2^{-}	E H	J$^{\pi}$: L=1 in ^{50}Ti(^{3}He,d).
5734 *2*		C	
5786.7 *6*	$^{-}$	H	XREF: Others: AB XREF: H(5799). E(level): From ^{51}V(γ,γ'). J$^{\pi}$: L=1 in ^{50}V(d,p).
5808.09 *6*	(11/2^{-})	G R	XREF: R(5800). J$^{\pi}$: γ's to 7/2^{-} and 15/2^{-}.
5817.71 *7*	(11/2^{-},13/2^{-})	G	J$^{\pi}$: γ's to 15/2^{-} and 9/2^{-}.
5838.2 *4*			XREF: Others: AB E(level): From ^{51}V(γ,γ').
5849.81 *4*	(9/2^{-},11/2,13/2^{-})	G	XREF: Others: AB J$^{\pi}$: γ's to 9/2^{-} and 13/2^{-}.
5899 *15*	$^{-}$	E H	XREF: E(5907). J$^{\pi}$: L=1 in ^{50}V(d,p).
5913.59 *5*	(11/2^{-},13/2^{-})	G	J$^{\pi}$: γ's to 9/2^{-} and 15/2^{-}.
5943.23 *6*	(9/2^{-},11/2,13/2^{-})	GH	XREF: H(5936). J$^{\pi}$: γ's to 9/2^{-} and 13/2^{-}.
5948.51 *6*	(9/2^{-},11/2,13/2^{-})	G	J$^{\pi}$: γ's to 9/2^{-} and 13/2^{-}.
5958? *2*		C H	
5961 *20*		E	
5981.38 *7*	(9/2^{-},11/2^{-})	G	J$^{\pi}$: γ's to 7/2^{-} and 13/2^{-}.
6005 *15*	11/2^{+},13/2^{+}	H	J$^{\pi}$: L=0 in ^{50}V(d,p).
6038.62 *6*	(9/2^{-},11/2^{-})	G	J$^{\pi}$: γ's to 7/2^{-} and 13/2^{-}.
6046.3 *8*	(1/2^{-})	C H	XREF: H(6051). J$^{\pi}$: (M1) γ from 3/2^{-}, $\gamma(\theta)$ in ^{50}Ti(p,γ).

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	XREF	Comments
6056.5 *4*			C	XREF: Others: AB E(level): From ^{51}V(γ,γ′).
6059.38 *7*	(9/2,11/2,13/2)$^-$		GH	XREF: H(6051). Jπ: L=1 in ^{50}V(d,p), γ to 13/2$^-$ and 9/2$^-$.
6073 *15*	$^-$		H	Jπ: L=1 in ^{50}V(d,p).
6100.76 *9*	(9/2$^-$,11/2,13/2$^-$)		C GH	Jπ: γ′s to 9/2$^-$ and 13/2$^-$.
6114.18 *6*	(11/2$^-$,13/2$^-$)		G	Jπ: γ′s to 9/2$^-$ and 15/2$^-$.
6137.1 *5*				XREF: Others: AB E(level): From ^{51}V(γ,γ′).
6172.1 *7*	(1/2$^-$,3/2$^-$)		E H	XREF: Others: AB XREF: E(6165)H(6159). E(level): From ^{51}V(γ,γ′). Jπ: L=(1) in ^{50}Ti(^{3}He,d).
6181.0 *8*			H	XREF: Others: AB XREF: H(6183). E(level): From ^{51}V(γ,γ′).
6200.3 *5*			H	XREF: Others: AB XREF: H(6190). E(level): From ^{51}V(γ,γ′).
6220.8 *8*			C	
6228.3 *5*				XREF: Others: AB E(level): From ^{51}V(γ,γ′).
6241.0 *4*				XREF: Others: AB E(level): From ^{51}V(γ,γ′).
6247.57[n] *16*	(21/2$^-$)	0.15[a] ps *10*	A	Jπ: (M1+E2) γ to 19/2$^-$, γ(θ) in (HI,xnγ).
6260.03 *5*	(11/2,13/2)$^-$		GH	XREF: H(6253). Jπ: L=1 in ^{50}V(d,p), γ′s to 9/2$^-$ and 15/2$^-$.
6264.49 *7*	(9/2$^-$,11/2,13/2$^-$)		G	Jπ: γ′s to 9/2$^-$ and 13/2$^-$.
6266.55 *8*	(11/2$^-$)		E G	XREF: Others: AB XREF: E(6278). Jπ: γ′s to 7/2$^-$ and 15/2$^-$.
6297.15 *7*	(9/2,11/2,13/2)$^-$		GH	XREF: Others: AB XREF: H(6291). Jπ: L=1 in ^{50}V(d,p), γ′s to 9/2$^-$ and 13/2$^-$.
6319 *2*			C H	XREF: H(6310).
6344 *15*			E H	XREF: E(6355).
6361.7 *5*				XREF: Others: AB E(level): From ^{51}V(γ,γ′).
6379.85 *6*	(9/2,11/2,13/2)$^-$		GH	XREF: H(6383). Jπ: L=1 in ^{50}V(d,p), γ′s to 9/2$^-$ and 13/2$^-$.
6402.8 *6*			E	XREF: Others: AB XREF: E(6413). E(level): From ^{51}V(γ,γ′).
6437.76 *5*	(11/2$^-$,13/2$^-$)		E G	XREF: E(6444). Jπ: γ′s to 9/2$^-$ and 15/2$^-$.
6455? *15*	$^-$		H	Jπ: L=1 in ^{50}V(d,p).
6464.12 *6*	(9/2$^-$,11/2,13/2$^-$)		G	Jπ: γ′s to 9/2$^-$ and 13/2$^-$.
6485.40 *8*	(9/2,11/2,13/2)$^-$		GH	Jπ: L=1 in ^{50}V(d,p), γ′s to 9/2$^-$ and 13/2$^-$.
6495.94 *8*	(11/2$^-$,13/2$^-$)		E G	XREF: E(6506). Jπ: γ′s to 9/2$^-$ and 15/2$^-$.
6529 *15*			H	
6567.4 *5*			H	XREF: Others: AB XREF: H(6563). E(level): From ^{51}V(γ,γ′).
6570.44 *7*	(11/2,13/2)$^-$		G	Jπ: L=1 in ^{50}V(d,p), γ′s to 9/2$^-$ and 15/2$^-$.

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	$T_{1/2}$[@]	XREF	Comments
6579.42 *8*	(9/2⁻)		G	Jπ: γ's to 5/2⁻ and 13/2⁻.
6605? *15*			H	
6636.0 *7*				XREF: Others: AB E(level): From ^{51}V(γ,γ').
6650[l] *2*			C H	
6675.45 *9*	(11/2⁻,13/2⁻)		G	Jπ: γ's to 9/2⁻ and 15/2⁻.
6694 *30*	(1/2⁻,3/2⁻)		E	Jπ: L=(1) in ^{50}Ti(^{3}He,d).
6747 *30*			E	
6830.66 *7*	(11/2⁻,13/2⁻)		E G	XREF: E(6806). Jπ: γ's to 9/2⁻ and 15/2⁻.
6888 *2*			C E	XREF: E(6866).
6931.20 *6*	(11/2⁻,13/2⁻)		E G	XREF: E(6939). Jπ: γ's to 9/2⁻ and 15/2⁻.
6977.40 *6*	(9/2⁻,11/2,13/2⁻)		E G	XREF: E(6989). Jπ: γ's to 9/2⁻ and 13/2⁻.
7047 *30*			E	
7152 *30*			E	
7272 *30*			E	
7334.6[n] *5*	(23/2⁻)	0.28[a] ps *+7−11*	A	Jπ: (M1+E2) γ to (21/2⁻), γ(θ) in (HI,xnγ).
7348 *30*			E	
7393 *30*			E	
7442 *30*			E	
7540 *30*			E	
7590 *30*			E	
7633 *30*			E	
7682 *30*			E	
7710 *30*			E	
7940 *30*			E	
8060.6 *11*			D	
8171 *30*			E	
8211.0[n] *7*	(25/2⁻)		A E	XREF: E(8218). Jπ: from band member.
8305 *30*			E	
8501? *30*			E R	
9399.7[b] *4*	3/2⁻[#]	7 eV *2*	CDE	Γγ=0.28 *11*; Γp=7 *2* XREF: E(9390). Γp,Γγ: from ^{50}Ti(p,γ). $T_{1/2}$: from (p,γ).
9404.80[b] *25*	3/2⁻[#]	47 eV *6*	CD	Γγ=1.6 *3*; Γp=45 *5* Γp,Γγ: from ^{50}Ti(p,γ). $T_{1/2}$: from (p,γ).
9411.5[b] *4*	3/2⁻[#]	9 eV *2*	CD	Γγ=0.36 *14*; Γp=9 *2* Γp,Γγ: from ^{50}Ti(p,γ). $T_{1/2}$: from (p,γ).
10545[c] *10*	1/2⁻[#]	4.1 keV	DE	XREF: D(10560). $T_{1/2}$: from (p,p),(p,p'γ).
10856[d]	7/2⁻[#]		CD	
10988[e]	5/2⁻[#]		C	
11587.9[f] *4*	5/2⁻[#]	3.9 keV *10*	CDE	XREF: E(11570). $T_{1/2}$: from ^{50}Ti(p,p), (p,p'γ).
11603.7[g] *4*	3/2⁻[#]	4.1 keV *10*	CD	$T_{1/2}$: from ^{50}Ti(p,p), (p,p'γ).
11800?	#		R	

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Adopted Levels, Gammas (continued)

^{51}V Levels (continued)

E(level)[†‡]	Jπ	XREF	Comments
12300[h] *10*	1/2−[#]	D	
12359[i] *10*	5/2−[#]	D	
12555[j] *10*	3/2−[#]	D	
13217[k] *10*	9/2+[#]	DE	XREF: E(13200).

[†] Only levels with γ information and IAR are given for unbound states and resonance levels. For additional resonances, see ^{50}Ti(p,γ), ^{50}Ti(p,p′),(p,p′γ),(p,n) IAR.

[‡] For bound states connected by gammas, E(level)′s are from adopted γ radiations, using least-squares fit to data. Eγ′s are from ^{51}Cr ε decay for the first excited state, and from ^{51}V(n,n′γ) for the rest, except as noted. 1980Ka40 in (n,n′γ) propose a level at 3600 deexciting via transitions with energy 1991.4 *10* and 3599.2 *3*. This level is not reported by any other source. The 1991γ can be accounted for by the 3803 level, where its branching, relative to the 2194.8γ is consistent with that from (n,γ). There is a 3598.9γ placed from the 3920 level. It is not clear how the authors resolved these two peaks since their resolution at Eγ=1332 is 4 keV. The evaluator has reassigned the 1991γ to the 3803 level, and has deleted the 3600 level. E(level)′s of 5800-9000 in ^{50}Ti(^{3}He,d) (1969Pu02) are not adopted since the values appear to be shifted about 60 keV systematical high.

[#] Adopted J^{π} for resonance states from ^{51}Ti(p,p),(p,p′),(p,p′γ),(p,n) IAR and ^{50}Ti(p,γ), based on σ(E(p),θ) and γ(θ) measurements, and IAR and IAS analysis.

[@] From DSA method for bound state and resonance parameter analysis for resonance state in ^{50}Cr(p,γ) and ^{50}Cr(p,p), (p,p′), except as noted.

[&] From DSA method in ^{51}V(n,n′γ).

[a] From DSA method in (HI,xnγ).

[b] IAR of 3/2− g.s. in ^{51}Ti.

[c] IAR of 1/2− 1167 in ^{51}Ti.

[d] IAR of 7/2− 1437 in ^{51}Ti.

[e] IAR of 5/2− 1567 in ^{51}Ti.

[f] IAR of 5/2− 2144 in ^{51}Ti.

[g] IAR of 3/2− 2198 in ^{51}Ti.

[h] IAR of 1/2− 2906 in ^{51}Ti.

[i] IAR of (5/2,7/2)− 2919 in ^{51}Ti.

[j] IAR of 3/2− 3174 in ^{51}Ti.

[k] IAR of 9/2+ 3771 in ^{51}Ti.

[l] Multiplet.

[m] Band(A): band-1, α=−1/2 member: 7/2− to 15/2− (from (HI,xnγ)).

[n] Band(B): band-2. Member: 13/2− to 25/2− (from (HI,xnγ)).

Adopted Levels, Gammas (continued)

$\gamma(^{51}V)$

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[&]	α[f]	Comments
320.0835	$5/2^-$	320.0824 *4*	100	0.0	$7/2^-$	M1+E2	+0.47 *3*	0.00181 *5*	B(E2)(W.u.)=14.5 *12*; B(M1)(W.u.)=0.00300 *11* δ: from weighted av of +0.43 *3* in $^{51}V(\gamma,\gamma)$, +0.52 *7* from pulsed beam in Coul. ex., and 0.49 *3* from B(E2)=0.0132 *14* in Coul. ex. and adopted $T_{1/2}$=184 ps *6*. Other: 0.3 *+6−3* from (α,pγ).
928.64	$3/2^-$	608.55 *5*	16.3[a] *12*	320.0835	$5/2^-$	M1+E2	+6.8 *8*	0.00054	α(K)=0.00048 B(E2)(W.u.)=10.0 *13*; B(M1)(W.u.)=3.8×10^{-5} *10* E_γ: From ^{51}Ti β^- decay. δ: From weighted average value. Weighted av. is +6.8 *8* or −0.16 *2* based on +6.5 *7* or −0.14 *2* (1969Ha46); −0.18 *2* or +9 *2* (1963Ro15), assuming $\delta(320\gamma)$=+0.45 *3* in ^{51}Ti β^- decay. Other: <−4.7 in $^{51}V(p,p'\gamma)$.
		928.63 *6*	100.0[a] *12*	0.0	$7/2^-$	E2		0.00017	α(K)=0.00015 B(E2)(W.u.)=7.6 *8* E_γ: From ^{51}Ti β^- decay. Mult.,δ: mult=E2(+M3) and δ(M3,E2)=−0.03 *9* in ^{48}Ti(α,pγ); $\delta<4\times10^{-4}$ from RUL.
1609.236	$11/2^-$	1609.22[d] *3*	100	0.0	$7/2^-$	E2			B(E2)(W.u.)=8.5 *7*
1813.249	$9/2^-$	204.0 *8*	1.4 *7*	1609.236	$11/2^-$				E_γ,I_γ: from $^{51}V(p,p'\gamma)$.
		1493.16[d] *3*	32.1 *20*	320.0835	$5/2^-$	E2			B(E2)(W.u.)=2.8 *5* I_γ: from weighted av of 31 *6* (n,γ) and 33.3 *20* (α,pγ). Mult.,δ: mult=E2(+M3) and δ(M3,E2)=−0.05 *18* in ^{48}Ti(α,pγ). From RUL=1 one expects δ<0.001 (evaluator).
		1813.24[d] *3*	100.0 *20*	0.0	$7/2^-$	M1+E2	−3.8[a] *+6−8*		B(E2)(W.u.)=3.1 *5*; B(M1)(W.u.)=0.00031 *11* I_γ: from (α,pγ).
2410.75	$3/2^-$	1482.6 *3*	12.0 *11*	928.64	$3/2^-$				I_γ: from (p,γ). Iγ(1483γ)=20 in (n,n′γ) and 23 *3* in (p,p′γ).
		2090.4 *1*	100 *3*	320.0835	$5/2^-$	M1+E2	+0.36[a] *15*		B(E2)(W.u.)=7 *6*; B(M1)(W.u.)=0.110 *20* I_γ: from (p,γ). δ: δ>3.3 or δ=+0.36 *15* in ^{48}Ti(α,pγ); small value favored; B(E2)(W.u.)>44 if δ>3.3.
		2411.1 *2*	27 *3*	0.0	$7/2^-$	E2			B(E2)(W.u.)=8.6 *16* I_γ: from weighted av of 31 *5* in (p,p′γ), 28 *3* in (p,γ), and 23 *4* in (α,pγ). δ: δ(M3,E2)=0.0 *+4−8* in ^{48}Ti(α,pγ); $\delta<9\times10^{-4}$ if upper limit of RUL is 1.
2546.4	$1/2^+$	1619 *1*	100	928.64	$3/2^-$	E1			B(E1)(W.u.) < 0.00017
2677.46	$(3/2)^+$	1748.8 *1*	100	928.64	$3/2^-$	E1			B(E1)(W.u.)=0.00016 *3*
2699.631	$15/2^-$	1090.37[d] *3*	100	1609.236	$11/2^-$	E2		0.00011	α(K)=0.00010 B(E2)(W.u.)=5.9 *5*

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
							δ: δ(M3,E2)=−0.11 *+10−17* in ^{48}Ti(α,pγ), from RUL=1 one expects δ<0.065.
3083.52	(5/2)$^-$	672.2[h]	15 *3*	2410.75	3/2$^-$		E_γ: observed only in ^{50}Ti(p,γ). I_γ: from (p,γ).
		2155.0 *2*	77[c] *6*	928.64	3/2$^-$		
		2763.3 *2*	100[c] *7*	320.0835	5/2$^-$		
		3083.2 *2*	58[c] *10*	0.0	7/2$^-$		
3215.5	3/2$^-$	805	55[c] *5*	2410.75	3/2$^-$		
		2287.0 *5*	100[c] *6*	928.64	3/2$^-$		
		2895[h]	29[c] *5*	320.0835	5/2$^-$		
3264.39	(5/2)$^-$	854.9[c]	1.1[c]	2410.75	3/2$^-$		E_γ: The 855γ is reported only in (p,γ).
		2334.9 *2*	11[c]	928.64	3/2$^-$		E_γ: 2334γ is assigned by 1980Ka40 in (n,n′γ) to the 3264 level only (it is not reported by 1970PoZZ or 1982Ab06). Based on (n,γ), at least part of this transition should be placed with 3943 level. I_γ: Iγ(2338γ)/Iγ(2946γ)=0.69 *+28−21* in (p,p′γ).
		2945.2 *3*	100[c]	320.0835	5/2$^-$		
3279.99	(5/2)	869.9[ch]	25[c]	2410.75	3/2$^-$		
		2352.2 *4*	56[c]	928.64	3/2$^-$		
		2959.3 *3*	100[c]	320.0835	5/2$^-$		
3377.68	9/2$^-$	3057.61[d] *7*	13.0[d] *7*	320.0835	5/2$^-$		
		3377.57[d] *6*	100[d] *5*	0.0	7/2$^-$		
3381.1	(3/2$^-$,5/2$^-$)	3381[b]	100[b]	0.0	7/2$^-$		
3383.2	(9/2,11/2$^-$)	1569[b]	21[b] *3*	1813.249	9/2$^-$		
		1775[b]	43[b] *5*	1609.236	11/2$^-$		I_γ: might include a contribution from the 3386 level seen in (n,n′γ) and (n,γ), which decays mainly to the 1609 level. If so, then the branching given for the 1775γ would be too large. The (p,p′γ) work would not be able to resolve two closely spaced 3383 levels.
		3383[b]	100[b] *16*	0.0	7/2$^-$		
3385.587	13/2$^-$	685.94[d] *3*	3.1[d] *6*	2699.631	15/2$^-$		
		1572.39[d] *7*	1.15[d] *25*	1813.249	9/2$^-$		
		1776.38[d] *4*	100[d] *20*	1609.236	11/2$^-$	M1+E2	B(E2)(W.u.) < 3.1; B(M1)(W.u.) < 0.0043
3395.02	(13/2$^-$)	1581.80 *4*	100 *10*	1813.249	9/2$^-$		I_γ: from weighted av of (p,p′γ) and (n,γ).
		1785.72 *4*	77 *12*	1609.236	11/2$^-$		I_γ: from weighted av of (p,p′γ) and (n,γ). E_γ: 1782.2γ entirely to the 3396 level by 1970PoZZ in (n,n′γ).
3412.8		3093[c]	100[c]	320.0835	5/2$^-$		
3443.91		2515.2 *2*	100	928.64	3/2$^-$		
3454.09	9/2$^-$	3133.8 *2*	100	320.0835	5/2$^-$	[E2]	B(E2)(W.u.)=10 *3*. E_γ: the 3133γ is unassigned in (n,γ) E=thermal, and the 3453γ is placed from the 6830 level. The energies and branching are reasonably consistent with the values of 1980Ka40 in (n,n′γ) so it is possible that the 3454 level is being populated in (n,γ).

$^{51}_{23}V_{28}$-13

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	Comments
3454.09	9/2$^-$	3454.6 *5*	61	0.0	7/2$^-$		E_γ: observed only in ^{51}V(n,n′γ). See also notes in 3133γ of this level.
3516.94	9/2$^-$	1703.80[gd] *10*	10.2[gd] *20*	1813.249	9/2$^-$		
		3196.86[d] *8*	31.8[d] *16*	320.0835	5/2$^-$		
		3516.81[d] *7*	100[d] *5*	0.0	7/2$^-$		
3555.5		3555.4 *10*	100	0.0	7/2$^-$		
3562.6		3562.5 *10*	100	0.0	7/2$^-$		
3568.2		3248[b]	100[b]	320.0835	5/2$^-$		
3576.78	(3/2$^-$,5/2,7/2$^-$)	3256.2 *3*	67 *7*	320.0835	5/2$^-$		I_γ: from (p,γ). The value (I(3256γ)/I(3577γ)=1.5) from (n,n′γ) may be a misprint. In (p,p′γ) only the 3576γ is reported.
		3577.2 *3*	100[c] *7*	0.0	7/2$^-$		
3614.065	(9/2,11/2)$^-$	1800.80[d] *4*	29[d] *6*	1813.249	9/2$^-$		
		2004.83[d] *4*	100[d] *20*	1609.236	11/2$^-$		E_γ: Other: 2005.6 *1* in (n,n′γ).
		3613.76[d] *8*	3.32[d] *17*	0.0	7/2$^-$		
3623.1	(3/2$^-$)	2695.8[c]	37[c]	928.64	3/2$^-$		E_γ: the 2696γ is reported only in (p,γ) and the 3626γ is only in (n,n′γ) by 1970PoZZ. There is an unlabelled peak at 2696 in the spectrum of 1970PoZZ.
		3303.8 *5*	100 *8*	320.0835	5/2$^-$		
		3624	27 *8*	0.0	7/2$^-$		
3632.03	$^-$	3311.8 *2*	100[b] *7*	320.0835	5/2$^-$		
		3632.1 *5*	32[b] *7*	0.0	7/2$^-$		
3663.1	1/2$^-$,3/2$^-$	3663 *2*	100	0.0	7/2$^-$		
3667.5		1256[c]	39[c]	2410.75	3/2$^-$		
		2739[c]	10[c]	928.64	3/2$^-$		
		3348[c]	100[c]	320.0835	5/2$^-$		
3678.5	(3/2$^-$)	3678.4 *5*	100	0.0	7/2$^-$		
3680.8		597[c]	33[c]	3083.52	(5/2)$^-$		
		3681[c]	100[c]	0.0	7/2$^-$		
3723.1		3723 *2*	100	0.0	7/2$^-$		
3748.2	1/2$^+$	3428[c]	100[c]	320.0835	5/2$^-$		
3765.3?		3445[c]	100[c]	320.0835	5/2$^-$		
3779.5	(5/2,7/2)$^+$	3460.0 *5*	100	320.0835	5/2$^-$	[E1][@]	B(E1)(W.u.)=0.00027 *6*
		3778.9 *4*	67	0.0	7/2$^-$	[E1][@]	B(E1)(W.u.)=0.00014 *3* I_γ: Iγ(3460γ):Iγ(3779γ)=(0.3:0.2) from 1980Ka40, other (44 *15*):(54 *15*) from 1970PoZZ.
3796.5	(3/2,5/2,7/2)$^-$	2867.4 *3*	67	928.64	3/2$^-$		
		3797.5 *5*	100	0.0	7/2$^-$		
3803.62	(9/2,11/2)$^-$	1990.32[d] *4*	96[d] *20*	1813.249	9/2$^-$		
		2194.33[d] *5*	100[d] *11*	1609.236	11/2$^-$		
		3803.58[d] *10*	45.4[d] *23*	0.0	7/2$^-$		

$^{51}_{23}V_{28}$-14

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[f]	Comments
3873.72	15/2$^-$	488.11 *4*	10.3 *21*	3385.587	13/2$^-$	M1+E2	0.0008 *3*	α(K)=0.0007 *3*
		1174.04 *3*	100 *19*	2699.631	15/2$^-$	M1+E2		
		2264.78[d] *18*	1.03[d] *10*	1609.236	11/2$^-$			
3873.93		2945[ch]	9[c]	928.64	3/2$^-$			
		3554[c]	73[c]	320.0835	5/2$^-$			
		3874[c]	100[c]	0.0	7/2$^-$			
3902.36	(9/2,11/2)$^+$	2089.07[d] *4*	48[d] *5*	1813.249	9/2$^-$	[E1][@]		B(E1)(W.u.)=0.0005 *3*.
		2293.06[d] *4*	100[d] *11*	1609.236	11/2$^-$	[E1][@]		B(E1)(W.u.)=0.0007 *4*.
3919.46	9/2$^-$	541.87[gd] *13*	≤4.3[gd]	3377.68	9/2$^-$			
		2106.22[d] *6*	80[d] *8*	1813.249	9/2$^-$			
		2310.3 *4*	80 *8*	1609.236	11/2$^-$			E_γ,I_γ: from (n,n′γ).
		3599.19[gd] *7*	≤182[gd]	320.0835	5/2$^-$			
		3919.27[d] *7*	100[d] *5*	0.0	7/2$^-$			
3943.33		2130.08[d] *4*	60[d] *6*	1813.249	9/2$^-$			
		2334.04[d] *5*	100[d] *10*	1609.236	11/2$^-$			
		3014.4 *5*	20 *3*	928.64	3/2$^-$			E_γ,I_γ: from (n,n′γ).
		3622.89[d] *15*	2.89[d] *13*	320.0835	5/2$^-$			
4002.56	(7/2$^-$,9/2$^-$)	3681.68[d] *22*	18.9[d] *10*	320.0835	5/2$^-$			
		4002.34[d] *7*	100[d] *5*	0.0	7/2$^-$			
4025.3		2212.0 *2*	100	1813.249	9/2$^-$			
4052.5	(−)	3732.3 *5*	100	320.0835	5/2$^-$			
4124.03	(7/2,9/2,11/2)$^-$	746.36[d] *22*	0.79[d] *17*	3377.68	9/2$^-$			
		2514.79 *5*	100 *10*	1609.236	11/2$^-$			I_γ: from (n,γ).
		4123.68 *9*	11.9 *6*	0.0	7/2$^-$			I_γ: from (n,γ).
4224.80	(9/2,11/2)$^-$	610.82[d] *10*	5.5[d] *11*	3614.065	(9/2,11/2)$^-$			
		707.76[d] *14*	3.7[d] *7*	3516.94	9/2$^-$			
		2411.38[d] *6*	100[d] *10*	1813.249	9/2$^-$			
		2615.53[d] *5*	94[d] *9*	1609.236	11/2$^-$			
		4224.77[gd] *22*	3.5[gd] *1*	0.0	7/2$^-$			
4239.5	1/2$^-$,3/2$^-$	1828[c]	100[c]	2410.75	3/2$^-$			
		3920[c]	67[c]	320.0835	5/2$^-$			
4265.5	(1/2)$^-$	3945[h]		320.0835	5/2$^-$			E_γ: from ^{50}Ti(p,γ).
		4265[h]		0.0	7/2$^-$			E_γ: from ^{50}Ti(p,γ).
4446.70	(9/2,11/2)$^-$	544.37[d] *7*	4.8[d] *10*	3902.36	(9/2,11/2)$^+$			
		832.59[d] *3*	100[d] *20*	3614.065	(9/2,11/2)$^-$			
		1051.54[gd] *15*	3.0[gd] *6*	3395.02	(13/2$^-$)			
		1061.14[d] *3*	28[d] *6*	3385.587	13/2$^-$			

$^{51}_{23}V_{28}$-15

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[f]	Comments
4446.70	(9/2,11/2)$^-$	2632.71[d] *24*	2.11[d] *22*	1813.249	9/2$^-$			
		2837.38[d] *7*	42[d] *4*	1609.236	11/2$^-$			
		4446.6[g] *5*	0.79[g] *4*	0.0	7/2$^-$			I_γ: from (n,γ).
4493.93	(11/2,13/2)$^-$	591.55[d] *4*	38[d] *8*	3902.36	(9/2,11/2)$^+$			
		620.16[d] *4*	72[d] *14*	3873.72	15/2$^-$			
		879.84[d] *7*	22[d] *5*	3614.065	(9/2,11/2)$^-$			
		1794.37[d] *4*	92[d] *18*	2699.631	15/2$^-$			
		2884.52[d] *6*	100[d] *9*	1609.236	11/2$^-$			
4560.54	(9/2,11/2)$^-$	557.90[d] *6*	15[d] *3*	4002.56	(7/2$^-$,9/2$^-$)			
		617.38[d] *23*	3.7[d] *8*	3943.33				
		1043.60[d] *7*	23[d] *5*	3516.94	9/2$^-$			
		1165.19[d] *12*	41[d] *8*	3395.02	(13/2$^-$)			
		2951.31[d] *6*	100[d] *10*	1609.236	11/2$^-$			
		4560.36[d] *14*	48.9[d] *24*	0.0	7/2$^-$			
4582.81	(9/2)$^-$	580.17[d] *7*	42[d] *8*	4002.56	(7/2$^-$,9/2$^-$)			
		779.07[d] *19*	15[d] *3*	3803.62	(9/2,11/2)$^-$			
		1187.78[d] *5*	100[d] *21*	3395.02	(13/2$^-$)			
		2769.5[d] *3*	13.1[d] *14*	1813.249	9/2$^-$			
		4262.33[d] *17*	31.7[d] *17*	320.0835	5/2$^-$			
4651.0		3722[c]	54[c]	928.64	3/2$^-$			
		4331[c]	100[c]	320.0835	5/2$^-$			
4660.2		1445[c]	17[c]	3215.5	3/2$^-$			
		1577[c]	17[c]	3083.52	(5/2)$^-$			
		2115[h]		2546.4	1/2$^+$			E_γ: from ^{50}Ti(p,γ).
		3732[c]	83[c]	928.64	3/2$^-$			
		4341[c]	100[c]	320.0835	5/2$^-$			
		4661		0.0	7/2$^-$			E_γ: from ^{50}Ti(p,γ).
4770.0	5/2$^-$	1686[c]	7[c]	3083.52	(5/2)$^-$			
		3841[c]	21[c]	928.64	3/2$^-$			
		4770[c]	100[c]	0.0	7/2$^-$			
4820.83	17/2$^-$	947.1[e] *1*	100.0[e] *11*	3873.72	15/2$^-$	M1+E2	0.00014 *2*	α(K)=0.00013 *2*
		1434[e] *1*	10[e] *3*	3385.587	13/2$^-$	E2		B(E2)(W.u.)=4.7 *15*
4861.4	3/2$^-$	1646[c]	22[c]	3215.5	3/2$^-$			
		2450[c]	11[c]	2410.75	3/2$^-$			
		3933[c]	100[c]	928.64	3/2$^-$			
4894.24	(11/2,13/2,15/2)$^-$	1020.44[d] *7*	29[d] *5*	3873.72	15/2$^-$			
		1280.20[d] *6*	42[d] *9*	3614.065	(9/2,11/2)$^-$			

$^{51}_{23}V_{28}$-16

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π
4894.24	(11/2,13/2,15/2)$^-$	3284.90[d] *7*	100[d] *5*	1609.236	11/2$^-$
4916.15	(9/2$^-$,11/2$^-$,13/2$^-$)	972.62[d] *8*	40[d] *9*	3943.33	
		997.07[d] *20*	13[d] *3*	3919.46	9/2$^-$
		1302.12[d] *5*	100[d] *20*	3614.065	(9/2,11/2)$^-$
		1520.66[d] *23*	16[d] *3*	3395.02	(13/2$^-$)
		3306.20[d] *37*	11.4[d] *6*	1609.236	11/2$^-$
4944.6		1368[c]	100[c]	3576.78	(3/2$^-$,5/2,7/2$^-$)
		1729[c]	27[c]	3215.5	3/2$^-$
		1861[c]	91[c]	3083.52	(5/2)$^-$
5019.92		1100.50[gd] *15*	<33[gd]	3919.46	9/2$^-$
		3206.53[d] *7*	100[d] *5*	1813.249	9/2$^-$
5030.26		1644.64[d] *8*	100[d] *22*	3385.587	13/2$^-$
		3216.6[d] *3*	35.7[d] *17*	1813.249	9/2$^-$
		3420.67[d] *13*	56[d] *3*	1609.236	11/2$^-$
5113.29	(11/2,13/2)$^-$	2413.54[d] *7*	100[d] *10*	2699.631	15/2$^-$
		3299.87[d] *10*	33.4[d] *16*	1813.249	9/2$^-$
		3503.61[d] *14*	60[d] *3*	1609.236	11/2$^-$
5138.0		1561[c]	6[c]	3576.78	(3/2$^-$,5/2,7/2$^-$)
		5138[c]	100[c]	0.0	7/2$^-$
5182.6	3/2$^+$,5/2$^+$	2771[c]	60[c]	2410.75	3/2$^-$
		4863[c]	100[c]	320.0835	5/2$^-$
5188.43	(11/2,13/2,15/2)$^-$	1245.08[d] *3*	62[d] *12*	3943.33	
		1802.79[d] *4*	100[d] *23*	3385.587	13/2$^-$
		2488.78[d] *6*	50[d] *5*	2699.631	15/2$^-$
5208.52		1084.77[d] *20*	2.5[d] *5*	4124.03	(7/2,9/2,11/2)$^-$
		1265.31[d] *6*	17[d] *3*	3943.33	
		1288.70[gd] *20*	4.5[gd] *9*	3919.46	9/2$^-$
		3395.00[d] *7*	34.1[d] *19*	1813.249	9/2$^-$
		3599.19[gd] *7*	100[gd] *5*	1609.236	11/2$^-$
		5208.08[d] *17*	17.2[d] *9*	0.0	7/2$^-$
5256.02	(11/2,13/2,15/2)$^-$	695.98[d] *20*	6.3[d] *12*	4560.54	(9/2,11/2)$^-$
		762.06[d] *6*	14[d] *3*	4493.93	(11/2,13/2)$^-$
		809.37[d] *9*	8.8[d] *17*	4446.70	(9/2,11/2)$^-$
		1382.06[d] *12*	11.4[d] *23*	3873.72	15/2$^-$
		1642.14[d] *11*	15[d] *3*	3614.065	(9/2,11/2)$^-$
		1870.32[d] *4*	52[d] *10*	3385.587	13/2$^-$

$^{51}_{23}V_{28}$-17

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	α[f]	Comments
5256.02	(11/2,13/2,15/2)$^-$	2556.33[d] *5*	100[d] *10*	2699.631	15/2$^-$			
5308.16	(9/2)$^-$	1305.18[d] *23*	64[d] *13*	4002.56	(7/2$^-$,9/2$^-$)			
		1388.78[d] *25*	34[d] *7*	3919.46	9/2$^-$			
		3494.74[d] *11*	93[d] *5*	1813.249	9/2$^-$			
		3699.06[d] *13*	100[d] *5*	1609.236	11/2$^-$			
		4988.1[d] *3*	48.2[d] *24*	320.0835	5/2$^-$			
5312.0	(3/2$^-$,5/2$^-$)	4383[c]	100[c]	928.64	3/2$^-$			
		4992[c]	100[c]	320.0835	5/2$^-$			
		5312[c]	50[c]	0.0	7/2$^-$			
5325.46		1100.50[gd] *15*	29[gd] *7*	4224.80	(9/2,11/2)$^-$			
		1382.06[d] *12*	27[d] *5*	3943.33				
		3715.90[d] *10*	100[d] *5*	1609.236	11/2$^-$			
		5325.19[d] *19*	20.1[d] *11*	0.0	7/2$^-$			
5333.26		313.42 *7*		5019.92				E_γ: from ^{50}V(n,γ).
		1108.52[gd] *18*	9.2[gd] *19*	4224.80	(9/2,11/2)$^-$			
		1330.68[gd] *11*	22[gd] *5*	4002.56	(7/2$^-$,9/2$^-$)			
		1719.12[d] *7*	33[d] *6*	3614.065	(9/2,11/2)$^-$			
		1938.22[d] *4*	77[d] *16*	3395.02	(13/2$^-$)			
		1955.45[d] *13*	31[d] *6*	3377.68	9/2$^-$			
		3519.81[d] *9*	100[d] *5*	1813.249	9/2$^-$			
		3723.6[d] *4*	14.1[d] *6*	1609.236	11/2$^-$			
5341.0	1/2$^-$,3/2$^-$	1928[c]	67[c]	3412.8				
		5021[c]	100[c]	320.0835	5/2$^-$			
5349.6	$^-$	4420[c]	100[c]	928.64	3/2$^-$			
5403.73		909.72[d] *24*	134[d] *3*	4493.93	(11/2,13/2)$^-$			
		1501.0[d] *3*	22[d] *5*	3902.36	(9/2,11/2)$^+$			
		1886.65[d] *15*	64[d] *13*	3516.94	9/2$^-$			
		2009.0[gd] *4*	27[gd] *3*	3395.02	(13/2$^-$)			
		2018.59[gd] *22*	37[gd] *4*	3385.587	13/2$^-$			
		3590.46[d] *11*	100[d] *5*	1813.249	9/2$^-$			
5433.46	19/2$^-$	612.6[e] *1*	100[e] *4*	4820.83	17/2$^-$	M1+E2	0.00041 *12*	α(K)=0.00037 *11*
		1559.8[e] *2*	54[e] *4*	3873.72	15/2$^-$	E2		B(E2)(W.u.)=12 *4*
5507.6		2424[c]	43[c]	3083.52	(5/2)$^-$			
		3096[ch]	[c]	2410.75	3/2$^-$			
		4579[ch]	[c]	928.64	3/2$^-$			
		5188[ch]	100[c]	320.0835	5/2$^-$			

$^{51}_{23}V_{28}$-18

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π
5628.62	(11/2$^-$,13/2$^-$)	597.89[gd] *16*	8.9[gd] *19*	5030.26	
		608.65[d] *10*	11.2[d] *23*	5019.92	
		1046.2[gd] *3*	5.9[gd] *12*	4582.81	(9/2)$^-$
		2233.82[d] *15*	26[d] *3*	3395.02	(13/2$^-$)
		2243.03[d] *6*	100[d] *9*	3385.587	13/2$^-$
		2928.78[d] *11*	60[d] *6*	2699.631	15/2$^-$
		3815.49[d] *11*	49.5[d] *25*	1813.249	9/2$^-$
		4018.95[d] *12*	14.5[d] *8*	1609.236	11/2$^-$
5808.09	(11/2$^-$)	599.91[d] *17*	51[d] *10*	5208.52	
		694.37[d] *17*	84[d] *17*	5113.29	(11/2,13/2)$^-$
		1224.71[d] *22*	39[d] *8*	4582.81	(9/2)$^-$
		1314.29[d] *11*	81[d] *16*	4493.93	(11/2,13/2)$^-$
		1683.92[d] *10*	100[d] *21*	4124.03	(7/2,9/2,11/2)$^-$
		2422.72[d] *14*	74[d] *7*	3385.587	13/2$^-$
		3108.1[gd] *4*	17.1[gd] *7*	2699.631	15/2$^-$
		5807.5[d] *9*	7.1[d] *7*	0.0	7/2$^-$
5817.71	(11/2$^-$,13/2$^-$)	704.38[d] *16*	22[d] *5*	5113.29	(11/2,13/2)$^-$
		1257.09[d] *15*	55[d] *11*	4560.54	(9/2,11/2)$^-$
		1874.76[d] *16*	40[d] *2*	3943.33	
		2301.04[d] *19*	61[d] *6*	3516.94	9/2$^-$
		3117.81[d] *9*	100[d] *5*	2699.631	15/2$^-$
5849.81	(9/2$^-$,11/2,13/2$^-$)	524.30[d] *4*	20[d] *4*	5325.46	
		541.87[gd] *13*	18[gd] *4*	5308.16	(9/2)$^-$
		829.79[gd] *10*	33[gd] *7*	5019.92	
		1288.70[gd] *20*	34[gd] *7*	4560.54	(9/2,11/2)$^-$
		1847.39[d] *9*	54[d] *11*	4002.56	(7/2$^-$,9/2$^-$)
		2235.86[d] *11*	94[d] *11*	3614.065	(9/2,11/2)$^-$
		2463.94[d] *16*	42[d] *4*	3385.587	13/2$^-$
		4036.47[d] *8*	100[d] *5*	1813.249	9/2$^-$
5913.59	(11/2$^-$,13/2$^-$)	893.50[gd] *9*	38[gd] *8*	5019.92	
		1330.68[gd] *11*	50[gd] *11*	4582.81	(9/2)$^-$
		1353.19[d] *9*	57[d] *11*	4560.54	(9/2,11/2)$^-$
		1970.12[gd] *9*	50[gd] *11*	3943.33	
		2011.1[d] *6*	16.8[d] *18*	3902.36	(9/2,11/2)$^+$
		2528.02[d] *7*	100[d] *11*	3385.587	13/2$^-$

$^{51}_{23}V_{28}$-19

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π
5913.59	(11/2$^-$,13/2$^-$)	3213.34[d] *20*	42.5[d] *21*	2699.631	15/2$^-$
		4100.6 *4*	6.4 *4*	1813.249	9/2$^-$
5943.23	(9/2$^-$,11/2,13/2$^-$)	829.79[gd] *10*	42[gd] *8*	5113.29	(11/2,13/2)$^-$
		1449.07[d] *20*	30[d] *6*	4493.93	(11/2,13/2)$^-$
		1819.27[gd] *10*	68[gd] *14*	4124.03	(7/2,9/2,11/2)$^-$
		2426.29[d] *10*	100[d] *10*	3516.94	9/2$^-$
		4129.9[d] *3*	32.3[d] *18*	1813.249	9/2$^-$
5948.51	(9/2$^-$,11/2,13/2$^-$)	640.31[d] *12*	17[d] *4*	5308.16	(9/2)$^-$
		692.31[d] *10*	28[d] *6*	5256.02	(11/2,13/2,15/2)$^-$
		928.70[d] *8*	52[d] *10*	5019.92	
		2431.52[d] *14*	47[d] *5*	3516.94	9/2$^-$
		2571.1[d] *3*	14.6[d] *13*	3377.68	9/2$^-$
		4338.79[d] *17*	100[d] *5*	1609.236	11/2$^-$
5981.38	(9/2$^-$,11/2$^-$)	868.08[d] *15*	32[d] *6*	5113.29	(11/2,13/2)$^-$
		2604.1[d] *6*	13.5[d] *12*	3377.68	9/2$^-$
		4168.01[d] *9*	100[d] *5*	1813.249	9/2$^-$
		5980.74[d] *13*	76[d] *4*	0.0	7/2$^-$
6038.62	(9/2$^-$,11/2$^-$)	2643.69[d] *15*	83[d] *8*	3395.02	(13/2$^-$)
		2653.14[d] *17*	35[d] *3*	3385.587	13/2$^-$
		2661.02[d] *14*	44[d] *4*	3377.68	9/2$^-$
		4224.77[gd] *22*	22.8[gd] *9*	1813.249	9/2$^-$
		4428.96[d] *9*	100[d] *5*	1609.236	11/2$^-$
		6039.0[d] *4*	10.2[d] *5*	0.0	7/2$^-$
6046.3	(1/2$^-$)	5117[c]	100[c]	928.64	3/2$^-$
6059.38	(9/2,11/2,13/2)$^-$	1038.88[d] *41*	7.6[d] *16*	5019.92	
		1498.73 *12*	47.9 *95*	4560.54	(9/2,11/2)$^-$
		2255.4[gd] *4*	15.9[gd] *16*	3803.62	(9/2,11/2)$^-$
		2445.16[d] *10*	100[d] *10*	3614.065	(9/2,11/2)$^-$
		2664.1[d] *4*	11.1[d] *13*	3395.02	(13/2$^-$)
		2674.18[d] *15*	37[d] *4*	3385.587	13/2$^-$
6100.76	(9/2$^-$,11/2,13/2$^-$)	2198.05[d] *17*	79[d] *8*	3902.36	(9/2,11/2)$^+$
		2486.58[d] *14*	100[d] *10*	3614.065	(9/2,11/2)$^-$
		2584.7[d] *3*	57[d] *5*	3516.94	9/2$^-$
		2706.1[gd] *6*	18.5[gd] *22*	3395.02	(13/2$^-$)
		2715.07[d] *18*	62[d] *7*	3385.587	13/2$^-$

$^{51}_{23}V_{28}$-20

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	α[f]	Comments
6100.76	(9/2$^-$,11/2,13/2$^-$)	2723.9[d] *8*	22.8[d] *22*	3377.68	9/2$^-$			
6114.18	(11/2$^-$,13/2$^-$)	2212.7[gd] *4*	4.8[gd] *5*	3902.36	(9/2,11/2)$^+$			
		2310.52[d] *5*	100[d] *9*	3803.62	(9/2,11/2)$^-$			
		2719.5[d] *5*	2.5[d] *3*	3395.02	(13/2$^-$)			
		3414.57[gd] *25*	11.5[gd] *5*	2699.631	15/2$^-$			
		4300.33[d] *17*	28.7[d] *15*	1813.249	9/2$^-$			
6220.8		2644[c]	100[c]	3576.78	(3/2$^-$,5/2,7/2$^-$)			
6247.57	(21/2$^-$)	814.1[e] *1*	100[e]	5433.46	19/2$^-$	(M1+E2)	0.00020 *4*	α(K)=0.00018 *4*
		1427[eh]	<3[e]	4820.83	17/2$^-$			
6260.03	(11/2,13/2)$^-$	926.8[d] *3*	4.9[d] *10*	5333.26				
		934.57[d] *3*	100[d] *20*	5325.46				
		1051.54[gd] *15*	8.5[gd] *18*	5208.52				
		2357.80[d] *18*	9.8[d] *10*	3902.36	(9/2,11/2)$^+$			
		3559.93[d] *16*	24.1[d] *13*	2699.631	15/2$^-$			
		4446.6[gd] *5*	2.3[gd] *1*	1813.249	9/2$^-$			
6264.49	(9/2$^-$,11/2,13/2$^-$)	931.72[d] *31*	9[d] *2*	5333.26				
		1703.8[gd] *1*	38[gd] *8*	4560.54	(9/2,11/2)$^-$			
		2345.3[gd] *5*	17[gd] *2*	3919.46	9/2$^-$			
		2361.4[gd] *5*	14[gd] *1*	3902.36	(9/2,11/2)$^+$			
		2461.3[gd] *3*	16[gd] *2*	3803.62	(9/2,11/2)$^-$			
		2747.37[d] *10*	40[d] *4*	3516.94	9/2$^-$			
		4655.41 *17*	100 *5*	1609.236	11/2$^-$			
6266.55	(11/2$^-$)	2363.5[d] *4*	9.7[d] *10*	3902.36	(9/2,11/2)$^+$			
		2880.59[d] *18*	10.5[d] *11*	3385.587	13/2$^-$			
		3567.06[d] *20*	11.8[d] *6*	2699.631	15/2$^-$			
		4657.03[d] *13*	100[d] *5*	1609.236	11/2$^-$			
		6266.30 *13*	25.0 *13*	0.0	7/2$^-$			
6297.15	(9/2,11/2,13/2)$^-$	893.50[gd] *9*	26[gd] *5*	5403.73				
		1108.52[gd] *18*	14[gd] *3*	5188.43	(11/2,13/2,15/2)$^-$			
		2353.8[d] *4*	10[d] *1*	3943.33				
		2377.4[gd] *4*	9.2[gd] *10*	3919.46	9/2$^-$			
		4483.68[d] *10*	100[d] *5*	1813.249	9/2$^-$			
		5975.0[gd] *7*	3.2[gd] *3*	320.0835	5/2$^-$			
6379.85	(9/2,11/2,13/2)$^-$	1046.2[gd] *3*	25[gd] *5*	5333.26				
		1819.27[gd] *10*	100[gd] *20*	4560.54	(9/2,11/2)$^-$			

$^{51}_{23}V_{28}$-21

γ(^{51}V) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†]	I$_\gamma$[‡]	E$_f$	J$^\pi_f$
6379.85	(9/2,11/2,13/2)$^-$	2154.91[d] 21	56[d] 6	4224.80	(9/2,11/2)$^-$
		2255.4[gd] 4	33[gd] 3	4124.03	(7/2,9/2,11/2)$^-$
		2377.4[gd] 4	24[gd] 3	4002.56	(7/2$^-$,9/2$^-$)
		2436.57[d] 15	58[d] 6	3943.33	
		2984.89[d] 15	63[d] 7	3395.02	(13/2$^-$)
		2994.13[d] 11	63[d] 7	3385.587	13/2$^-$
6437.76	(11/2$^-$,13/2$^-$)	1249.90[d] 21	10.4[d] 22	5188.43	(11/2,13/2,15/2)$^-$
		2212.7[gd] 4	7.8[gd] 9	4224.80	(9/2,11/2)$^-$
		2494.37[d] 7	50[d] 5	3943.33	
		2824.5[d] 6	6.1[d] 7	3614.065	(9/2,11/2)$^-$
		3052.03[d] 7	100[d] 5	3385.587	13/2$^-$
		4828.23[d] 9	62[d] 3	1609.236	11/2$^-$
6464.12	(9/2$^-$,11/2,13/2$^-$)	613.8[d] 3	7.3[d] 13	5849.81	(9/2$^-$,11/2,13/2$^-$)
		1275.39[d] 13	33.7[d] 67	5188.43	(11/2,13/2,15/2)$^-$
		1881.24[d] 12	100[d] 20	4582.81	(9/2)$^-$
		1970.12[gd] 9	47[gd] 9	4493.93	(11/2,13/2)$^-$
		2461.3[gd] 3	17.0[gd] 17	4002.56	(7/2$^-$,9/2$^-$)
		2561.98[d] 11	40.7[d] 40	3902.36	(9/2,11/2)$^+$
		2947.25[d] 18	222.7[d] 23	3516.94	9/2$^-$
6485.40	(9/2,11/2,13/2)$^-$	1229.56[d] 18	33[d] 7	5256.02	(11/2,13/2,15/2)$^-$
		2361.4[gd] 5	20[gd] 2	4124.03	(7/2,9/2,11/2)$^-$
		2871.05[d] 14	38[d] 4	3614.065	(9/2,11/2)$^-$
		3108.1[gd] 4	11.1[gd] 5	3377.68	9/2$^-$
		4875.96[d] 10	100[d] 5	1609.236	11/2$^-$
		6163.9[d] 5	9.7[d] 5	320.0835	5/2$^-$
6495.94	(11/2$^-$,13/2$^-$)	546.7[d] 3	18[d] 3	5948.51	(9/2$^-$,11/2,13/2$^-$)
		582.22[d] 11	48[d] 10	5913.59	(11/2$^-$,13/2$^-$)
		2692.8[d] 5	56[d] 5	3803.62	(9/2,11/2)$^-$
		3796.34[d] 11	100[d] 5	2699.631	15/2$^-$
		4683.0[d] 7	14.3[d] 7	1813.249	9/2$^-$
		4886.4[d] 3	42.2[d] 20	1609.236	11/2$^-$
6570.44	(11/2,13/2)$^-$	531.64[d] 14	22[d] 5	6038.62	(9/2$^-$,11/2$^-$)
		2009.0[gd] 4	37[gd] 4	4560.54	(9/2,11/2)$^-$
		2345.4[gd] 5	27[gd] 3	4224.80	(9/2,11/2)$^-$
		2696.5[d] 5	19[d] 2	3873.72	15/2$^-$

$^{51}_{23}V_{28}$-22

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π
6570.44	(11/2,13/2)$^-$	3184.91[d] 9	84[d] 4	3385.587	13/2$^-$
		4756.6[d] 4	25[d] 1	1813.249	9/2$^-$
		4960.91 10	100 5	1609.236	11/2$^-$
6579.42	(9/2$^-$)	597.89[gd] 16	59[gd] 12	5981.38	(9/2$^-$,11/2$^-$)
		2018.59[gd] 22	100[gd] 10	4560.54	(9/2,11/2)$^-$
		2636.6[d] 3	39[d] 4	3943.33	
		2676.86[d] 17	98[d] 10	3902.36	(9/2,11/2)$^+$
		2706.1[gd] 6	17[gd] 2	3873.72	15/2$^-$
		2775.91[d] 16	68[d] 7	3803.62	(9/2,11/2)$^-$
		3194.09[d] 22	78[d] 4	3385.587	13/2$^-$
		3200.3[d] 8	25[d] 1	3377.68	9/2$^-$
		6258.2[d] 4	83[d] 4	320.0835	5/2$^-$
6675.45	(11/2$^-$,13/2$^-$)	1759.8[d] 3	47[d] 10	4916.15	(9/2$^-$,11/2$^-$,13/2$^-$)
		2228.4[d] 4	43[d] 4	4446.70	(9/2,11/2)$^-$
		2732.9[d] 4	52[d] 5	3943.33	
		2755.4[d] 6	37[d] 4	3919.46	9/2$^-$
		2801.45[d] 19	72[d] 7	3873.72	15/2$^-$
		3061.34[d] 20	67[d] 3	3614.065	(9/2,11/2)$^-$
		3289.38[d] 25	38[d] 2	3385.587	13/2$^-$
		5065.83[d] 16	100[d] 5	1609.236	11/2$^-$
6830.66	(11/2$^-$,13/2$^-$)	1914.39[d] 7	72[d] 14	4916.15	(9/2$^-$,11/2$^-$,13/2$^-$)
		2245.7[d] 8	9.5[d] 11	4582.81	(9/2)$^-$
		2336.6[d] 5	30[d] 3	4493.93	(11/2,13/2)$^-$
		2956.98[d] 12	100[d] 10	3873.72	15/2$^-$
		3436.2[d] 5	12.9[d] 8	3395.02	(13/2$^-$)
		3444.5[d] 5	10.6[d] 4	3385.587	13/2$^-$
		3453.30[d] 22	33.8[d] 15	3377.68	9/2$^-$
		5017.4[d] 4	10.2[d] 4	1813.249	9/2$^-$
6931.20	(11/2$^-$,13/2$^-$)	3028.4[d] 3	31.4[d] 15	3902.36	(9/2,11/2)$^+$
		3127.42[d] 10	55[d] 3	3803.62	(9/2,11/2)$^-$
		3318.2[d] 4	9.9[d] 4	3614.065	(9/2,11/2)$^-$
		3414.57[gd] 25	32.6[gd] 15	3516.94	9/2$^-$
		3544.6[d] 4	10.6[d] 4	3385.587	13/2$^-$
		4231.34[d] 9	100[d] 5	2699.631	15/2$^-$
		5321.80[d] 14	53[d] 3	1609.236	11/2$^-$

$^{51}_{23}V_{28}$-23

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[f]	Comments
6977.40	(9/2$^-$,11/2,13/2$^-$)	1768.83[d] *7*	100[d] *19*	5208.52				
		1864.02[d] *12*	33[d] *7*	5113.29	(11/2,13/2)$^-$			
		2417.7[d] *4*	11[d] *1*	4560.54	(9/2,11/2)$^-$			
		3074.78[d] *19*	33.2[d] *16*	3902.36	(9/2,11/2)$^+$			
		3460.43[d] *11*	46.5[d] *23*	3516.94	9/2$^-$			
		5163.6[d] *4*	10.3[d] *7*	1813.249	9/2$^-$			
7334.6	(23/2$^-$)	1087.0[e] *4*	100[e]	6247.57	(21/2$^-$)	(M1+E2)	0.00010 *1*	α(K)=9.2×10^{-5} *11*
		1901[eh]	<10[e]	5433.46	19/2$^-$			
8211.0	(25/2$^-$)	876.1[eh] *5*		7334.6	(23/2$^-$)			
9399.7	3/2$^-$	4261[c]	22[c]	5138.0				
		4629[c]	31[c]	4770.0	5/2$^-$			
		5527[c]	25[c]	3873.93				
		5823[c]	22[c]	3576.78	(3/2$^-$,5/2,7/2$^-$)			
		6314[c]	22[c]	3083.52	(5/2)$^-$			
		6724[c]	9[c]	2677.46	(3/2)$^+$	[E1][@]		B(E1)(W.u.)=0.0008 *3*
		6987[c]	12[c]	2410.75	3/2$^-$			
		8470[c]	22[c]	928.64	3/2$^-$			
		9079[c]	100[c]	320.0835	5/2$^-$			
		9399[c]	16[c]	0.0	7/2$^-$	[E2][@]		B(E2)(W.u.)=0.6 *2*
9404.80	3/2$^-$	3184[c]	3.6[c]	6220.8				
		3359[c]	3.6[c]	6046.3	(1/2$^-$)			
		3897[c]	11[c]	5507.6				
		4056[c]	7.0[c]	5349.6	–			
		4064[c]	3.6[c]	5341.0	1/2$^-$,3/2$^-$			
		4093[c]	7.0[c]	5312.0	(3/2$^-$,5/2$^-$)	(M1+E2)		B(E2)(W.u.) < 86; B(M1)(W.u.) < 0.63
		4222[c]	3.6[c]	5182.6	3/2$^+$,5/2$^+$			
		4267[c]	21[c]	5138.0				
		4460[c]	7.0[c]	4944.6				
		4543[c]	25[c]	4861.4	3/2$^-$	M1+E2		δ: −0.09 *1* or +5.9 *5* in ^{50}Ti(p,γ). B(M1)(W.u.)=0.047 *9*, B(E2)(W.u.)=0.043 *13* if δ=−0.09 *1*; B(M1)(W.u.)=0.0013 *4*, B(E2)(W.u.)=5.2 *10* if δ=+5.9 *5*.
		4635[c]	14[c]	4770.0	5/2$^-$	M1+E2		δ: +0.01 *3* or −5.0 *10* in ^{50}Ti(p,γ). B(M1)(W.u.)=0.021 *4*, B(E2)(W.u.)=0.0002 *+14−2* if δ=+0.01 *3*; B(M1)(W.u.)=0.0008 *4*, B(E2)(W.u.)=2.1 *4* if δ=−5.0 *10*.
		4744[c]	25[c]	4660.2				
		4754[c]	21[c]	4651.0				
		5140[c]	[c]	4265.5	(1/2)$^-$	M1+E2		δ: +0.26 *10* or >15 in ^{50}Ti(p,γ).

$^{51}_{23}V_{28}$-24

Adopted Levels, Gammas (continued)

γ(^{51}V) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[&]	Comments
								B(M1)(W.u.)=0.022 *5*, B(E2)(W.u.)=0.13 *10* if δ=+2.6 *10*; B(M1)(W.u.)<0.00012, B(E2)(W.u.)>1.6 if δ>15.
9404.80	3/2$^-$	5165[c]	3.6[c]	4239.5	1/2$^-$,3/2$^-$			
		5640[c]	7[c]	3765.3?				
		5788[c]	3.6[c]	3614.065	(9/2,11/2)$^-$			
		5829[c]	3.6[c]	3576.78	(3/2$^-$,5/2,7/2$^-$)			
		5992[c]	3.6[c]	3412.8				
		6321[c]	11[c]	3083.52	(5/2)$^-$	M1+E2		δ: +0.00 *2* or −4.7 *4* in ^{50}Ti(p,γ). B(M1)(W.u.)=0.0098 *19* if δ=+0.00 *2*; B(M1)(W.u.)=0.00042 *11*, B(E2)(W.u.)=0.54 *10* if δ=−4.7 *4*.
		6858	14	2546.4	1/2$^+$	E1(+M2)		δ: +0.014 *17* or −1.79 *8* from ^{50}Ti(p,γ). B(E1)(W.u.)=0.00019 *4*, B(M2)(W.u.)=0004 *+9−4* if δ=+0.014 *17*.
		6992	7	2410.75	3/2$^-$	M1+E2		δ: −0.25 *3* or >23 in ^{50}Ti(p,γ). B(M1)(W.u.)=0.0034 *7*, B(E2)(W.u.)=0.010 *3* if δ=−0.25 *3*; B(M1)(W.u.)<8.1×10^{-6}, B(E2)(W.u.)>0.14 if δ>23.
		8475[c]	46[c]	928.64	3/2$^-$	M1+E2		δ: −0.077 *6* or +5.5 *2* in ^{50}Ti(p,γ). B(M1)(W.u.)=0.00049 *10*, B(E2)(W.u.)=0.47 *9* if δ=+5.5 *2*; B(M1)(W.u.)=0.015 *3*, B(E2)(W.u.)=0.0029 *7* if δ=−0.077 *6*.
		9084[c]	100[c]	320.0835	5/2$^-$	M1+E2	−0.080 *4*	δ: −0.080 *4* or −3.32 *5* in ^{50}Ti(p,γ). B(M1)(W.u.)=0.028 *6*, B(E2)(W.u.)=0.0050 *11* if δ=−0.080 *4*; B(M1)(W.u.)=0.0024 *5*, B(E2)(W.u.)=0.72 *14* if δ=−3.32 *5*.
		9404[c]	4.4[c]	0.0	7/2$^-$	E2(+M3)		B(E2)(W.u.)=0.83 *8*
9411.5	3/2$^-$	4273[c]	45[c]	5138.0				
		4641[c]	32[c]	4770.0	5/2$^-$			
		4755[c]	100[c]	4660.2				
		6144[c]	45[c]	3264.39	(5/2)$^-$			
		6327[c]	14[c]	3083.52	(5/2)$^-$			
		6733[c]	73[c]	2677.46	(3/2)$^+$			
		6999[c]	18[c]	2410.75	3/2$^-$			
		9093[c]	77[c]	320.0835	5/2$^-$			
		9410[c]	5[c]	0.0	7/2$^-$			
11587.9	5/2$^-$	6744[c]	16[c]	4843.4	3/2$^-$	M1(+E2)	−0.05 *11*	B(E2)(W.u.)=0.0009 (1971Pr04); B(M1)(W.u.)=0.0078
		7052[c]	7.7[c]	4535.4	(3/2)$^-$	M1+E2	+0.2	B(E2)(W.u.)=0.0075 (1971Pr04); B(M1)(W.u.)=0.0041
		7122[c]	4.8[c]	4465.4	(3/2$^-$,5/2$^-$,7/2$^-$)	(M1)		B(M1)(W.u.)=0.0026 (1971Pr04)
		7920[c]	9.3[c]	3667.5		M1+E2	+4.1	B(E2)(W.u.)=0.1 (1971Pr04); B(M1)(W.u.)=0.0002
		8321[c]	3.2[c]	3264.39	(5/2)$^-$	M1		B(M1)(W.u.)=0.0008 (1971Pr04)
		8372[c]	6.1[c]	3215.5	3/2$^-$	M1+E2	+0.05	B(E2)(W.u.)=0.0001 (1971Pr04); B(M1)(W.u.)=0.0016
		8504[c]	11[c]	3083.52	(5/2)$^-$	M1(+E2)	−0.3 *4*	B(E2)(W.u.)=0.0075 (1971Pr04); B(M1)(W.u.)=0.0029
		9176[c]	41[c]	2410.75	3/2$^-$	M1+E2	−0.22 *3*	B(E2)(W.u.)=0.0116 (1971Pr04); B(M1)(W.u.)=0.0082
		10658[c]	20[c]	928.64	3/2$^-$	M1+E2	−0.16 *12*	B(E2)(W.u.)=0.0015 (1971Pr04); B(M1)(W.u.)=0.0027
		11267[c]	100[c]	320.0835	5/2$^-$	M1(+E2)	+0.05 *5*	B(E2)(W.u.)=0.0006 (1971Pr04); B(M1)(W.u.)=0.0117

$^{51}_{23}V_{28}$-25

Adopted Levels, Gammas (continued)

$\gamma(^{51}V)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[&]	Comments
11587.9	5/2$^-$	11587[c]	99[c]	0.0	7/2$^-$	M1(+E2)	−0.03 *4*	B(E2)(W.u.)=0.0001 (1971Pr04); B(M1)(W.u.)=0.0108
11603.7	3/2$^-$	6914[c]	18[c]	4688.6				
		6952[c]	30[c]	4651.0				
		7991[ch]	30[c]	3614.065	(9/2,11/2)$^-$			E_γ: may be misplaced. 3611 level deduced by 7996γ transition from this level is different from that seen in other reactions.
		8047[c]	19[c]	3555.5				
		8335[c]	69[c]	3264.39	(5/2)$^-$			
		8925[c]	100[c]	2677.46	(3/2)$^+$			
		9057[c]	22[c]	2546.4	1/2$^+$			
		9191[c]	68[c]	2410.75	3/2$^-$			
		10674[c]	44[c]	928.64	3/2$^-$			
		11283[c]	58[c]	320.0835	5/2$^-$			

† From ^{51}V(n,n′γ) and/or ^{51}Cr ε decay, except as noted.
‡ Relative photon branching from each level; values from ^{51}V(n,n′γ), except as noted.
# From ^{48}Ti(α,pγ), ^{50}Ti(p,γ) and (HI,xnγ) based on $\gamma(\theta)$, $T_{1/2}$.
@ From comparison to RUL (comparison between calculated γ's strengths from adopted $T_{1/2}$, Eγ, Iγ, and recommended upper limits).
& Phase convention of 1970Kr03. Values from ^{50}Ti(p,γ), except as noted.
[a] From ^{48}Ti(α,pγ).
[b] From ^{51}V(p,p′γ).
[c] From ^{50}Ti(p,γ). Values with uncertainties are from 1974McZT. Other values are from 1973Ro40, except where noted otherwise.
[d] From ^{50}V(n,γ),E=thermal.
[e] From (HI,xnγ).
[f] 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.
[g] Multiply placed with undivided intensity.
[h] Placement of transition in the level scheme is uncertain.

$^{51}_{23}V_{28}$-26

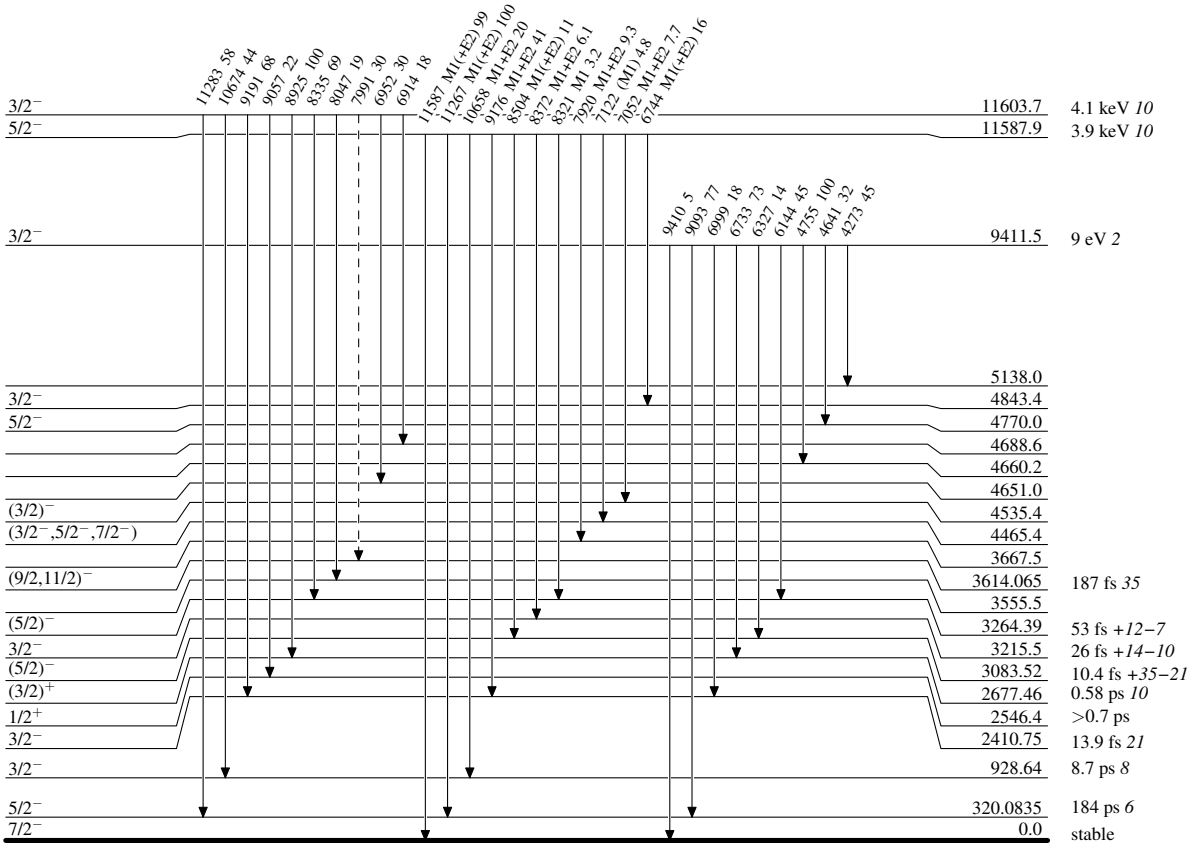
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

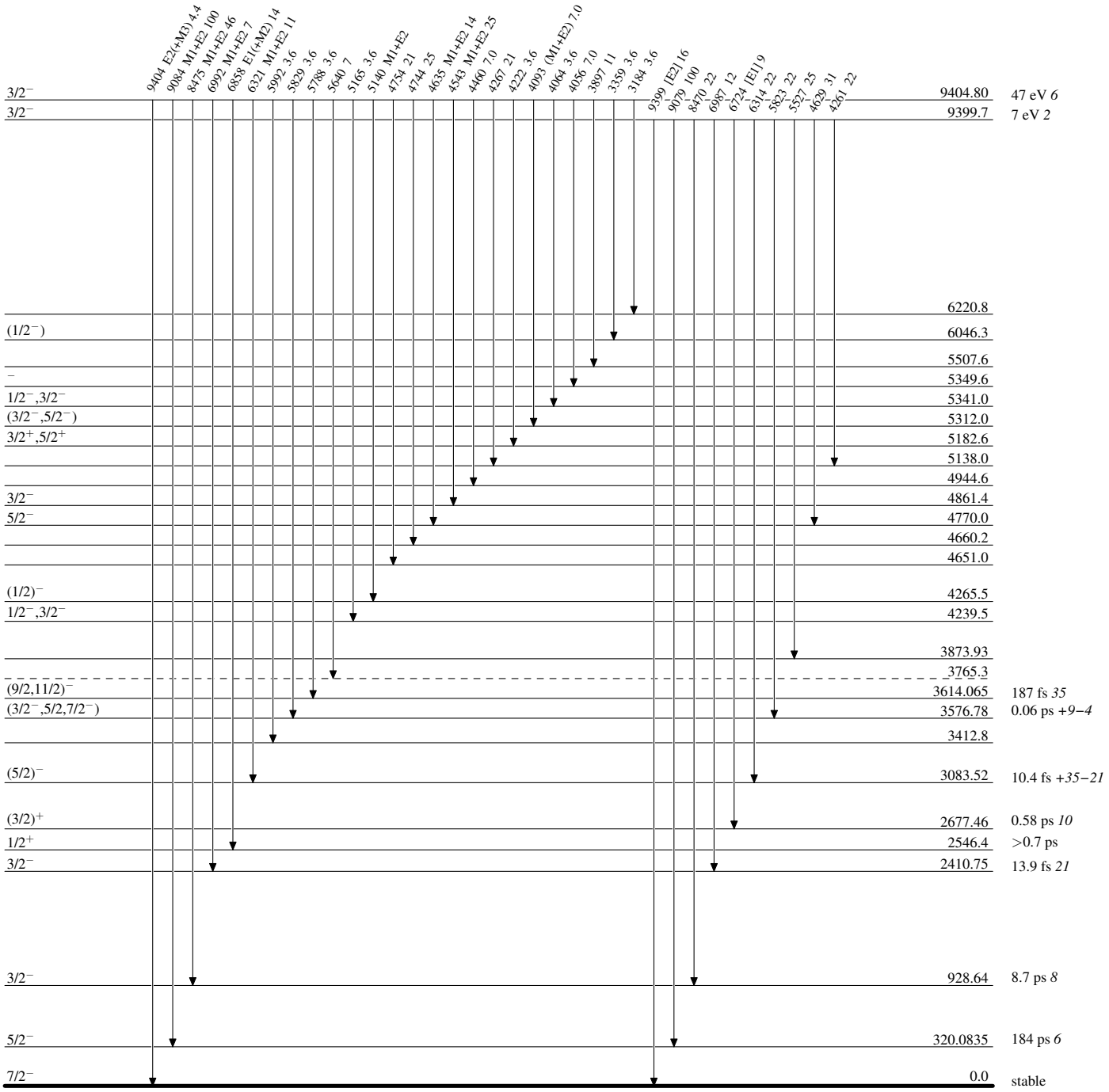


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{51}_{23}V_{28}$

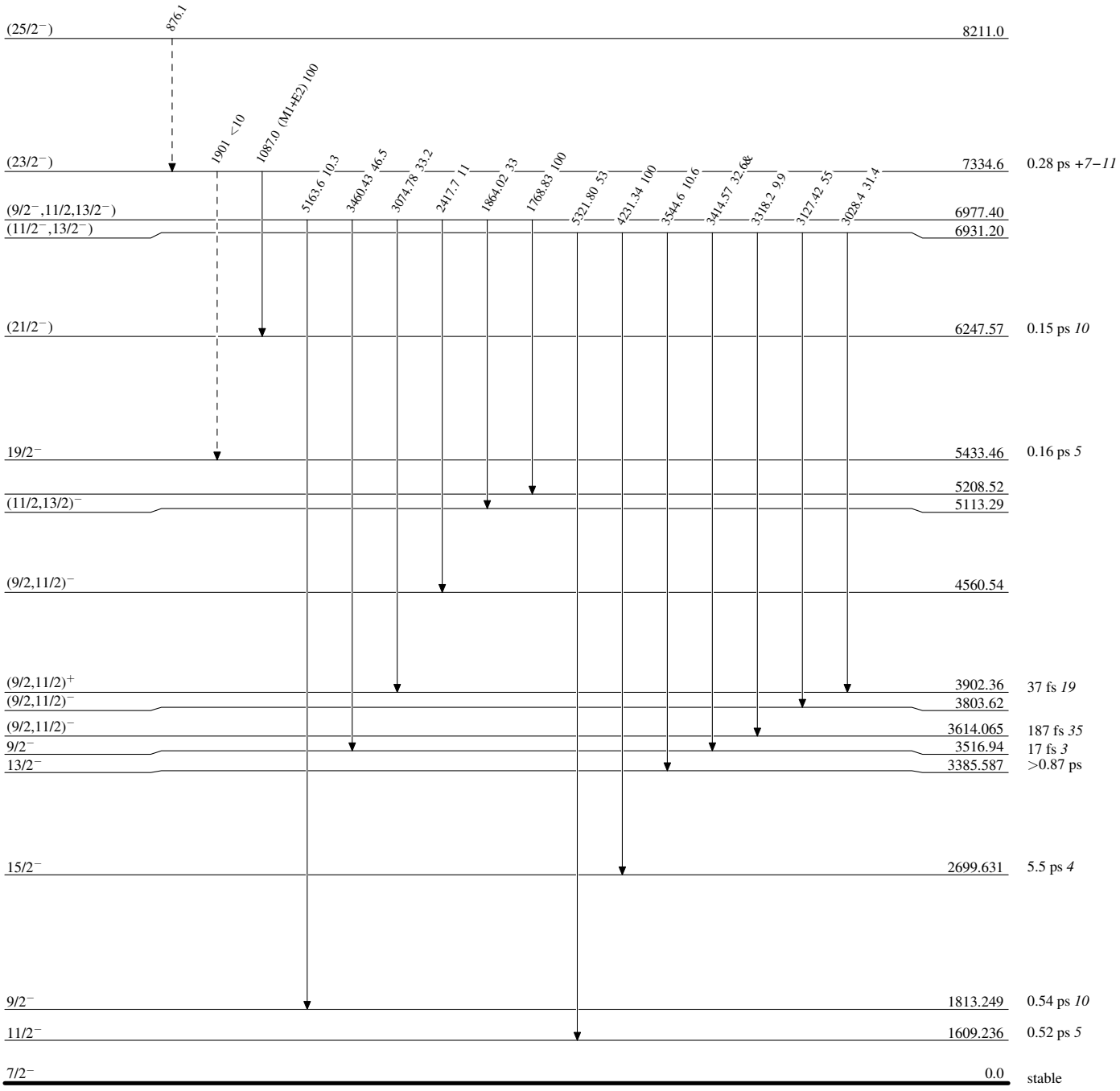
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

– – – – – – ► γ Decay (Uncertain)

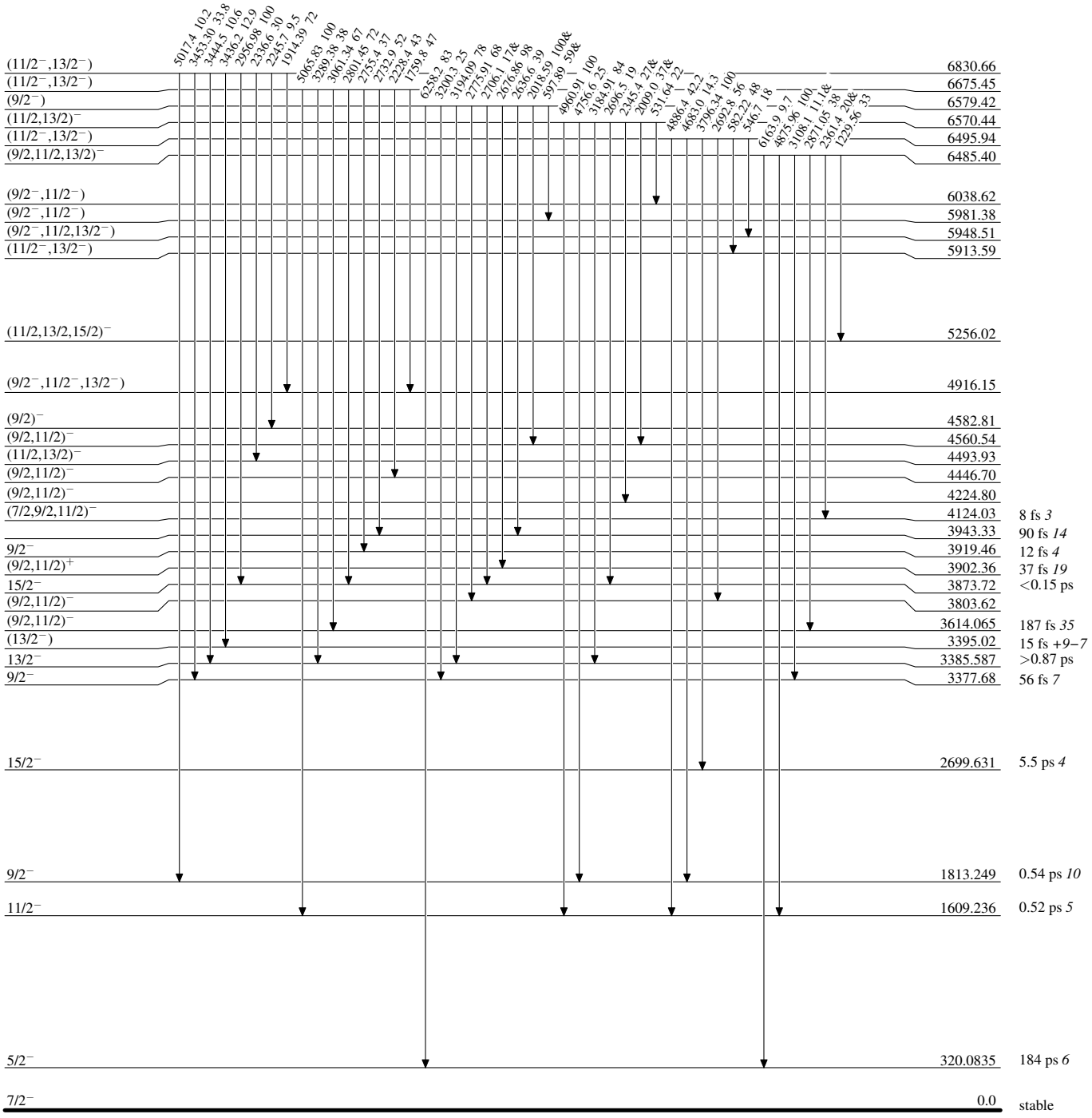


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

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

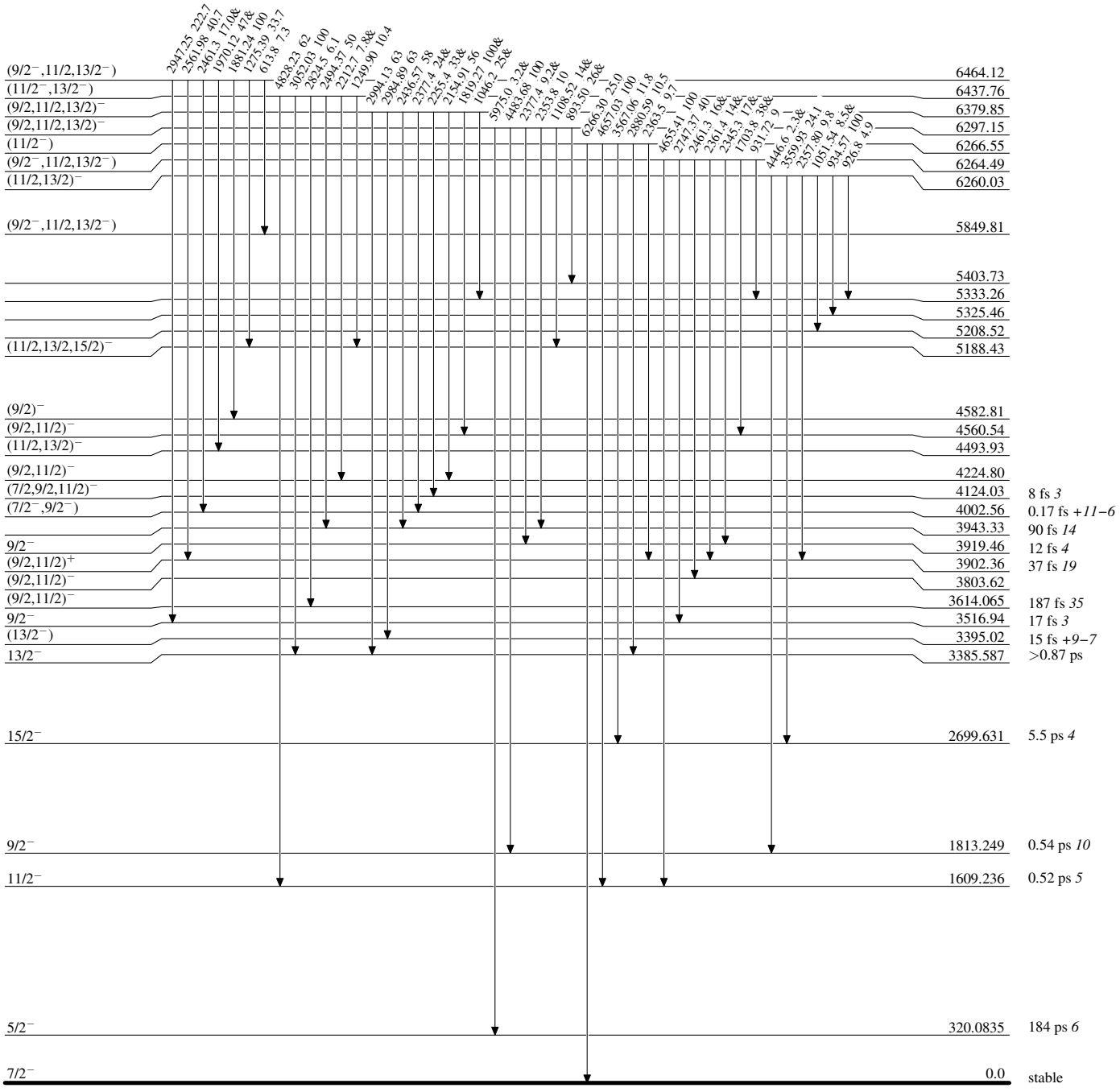


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{51}_{23}V_{28}$

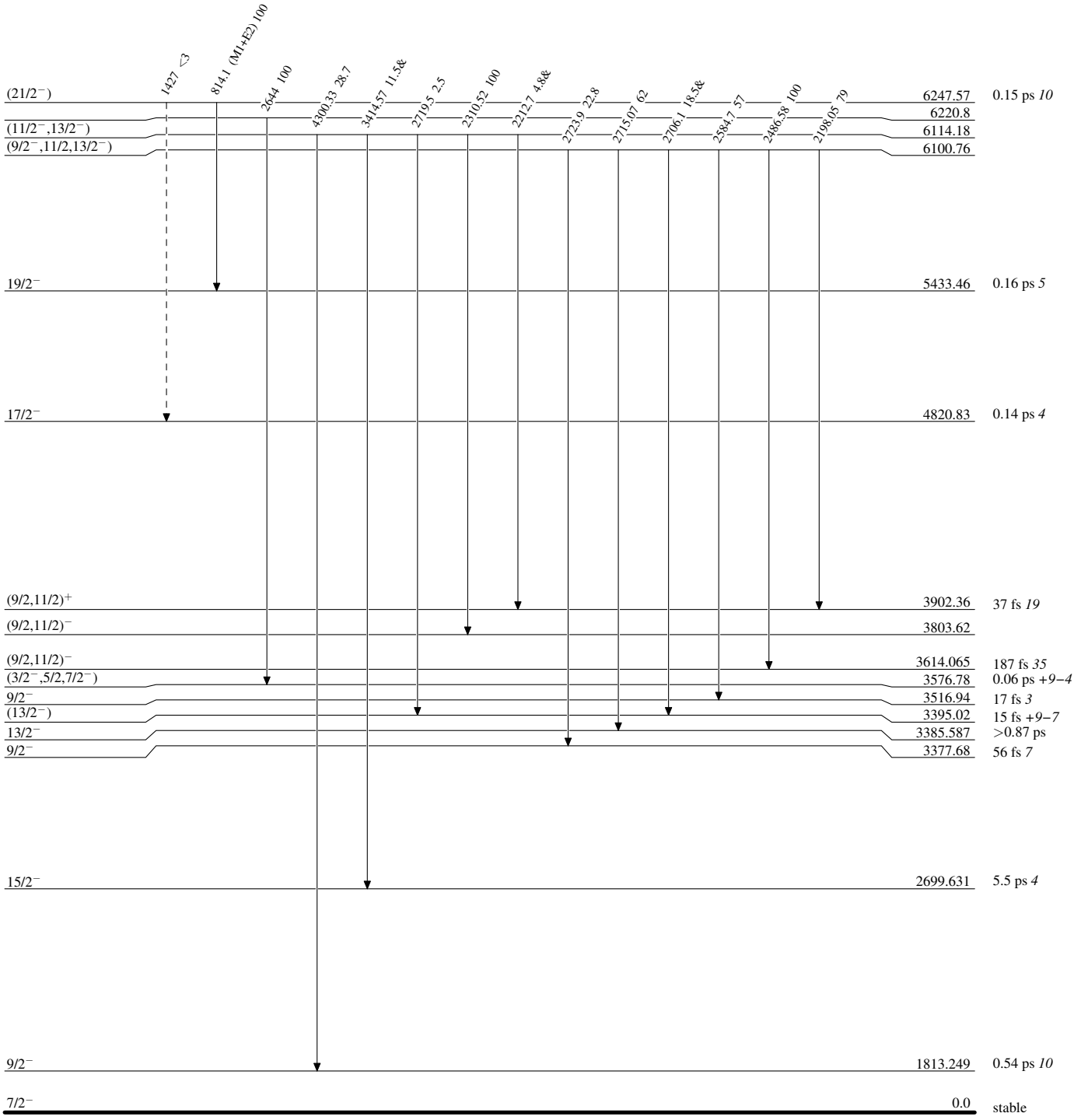
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)

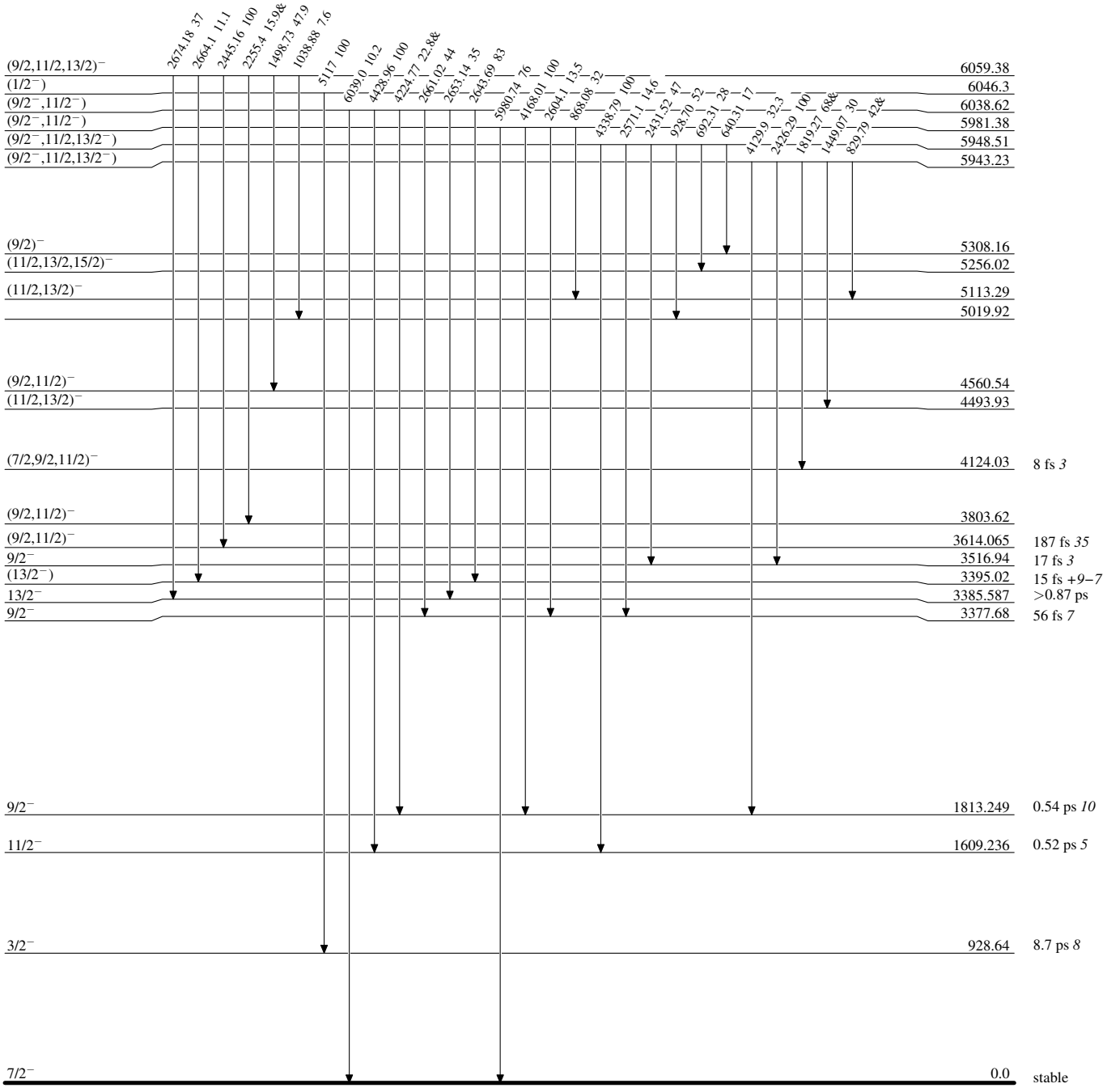


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

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

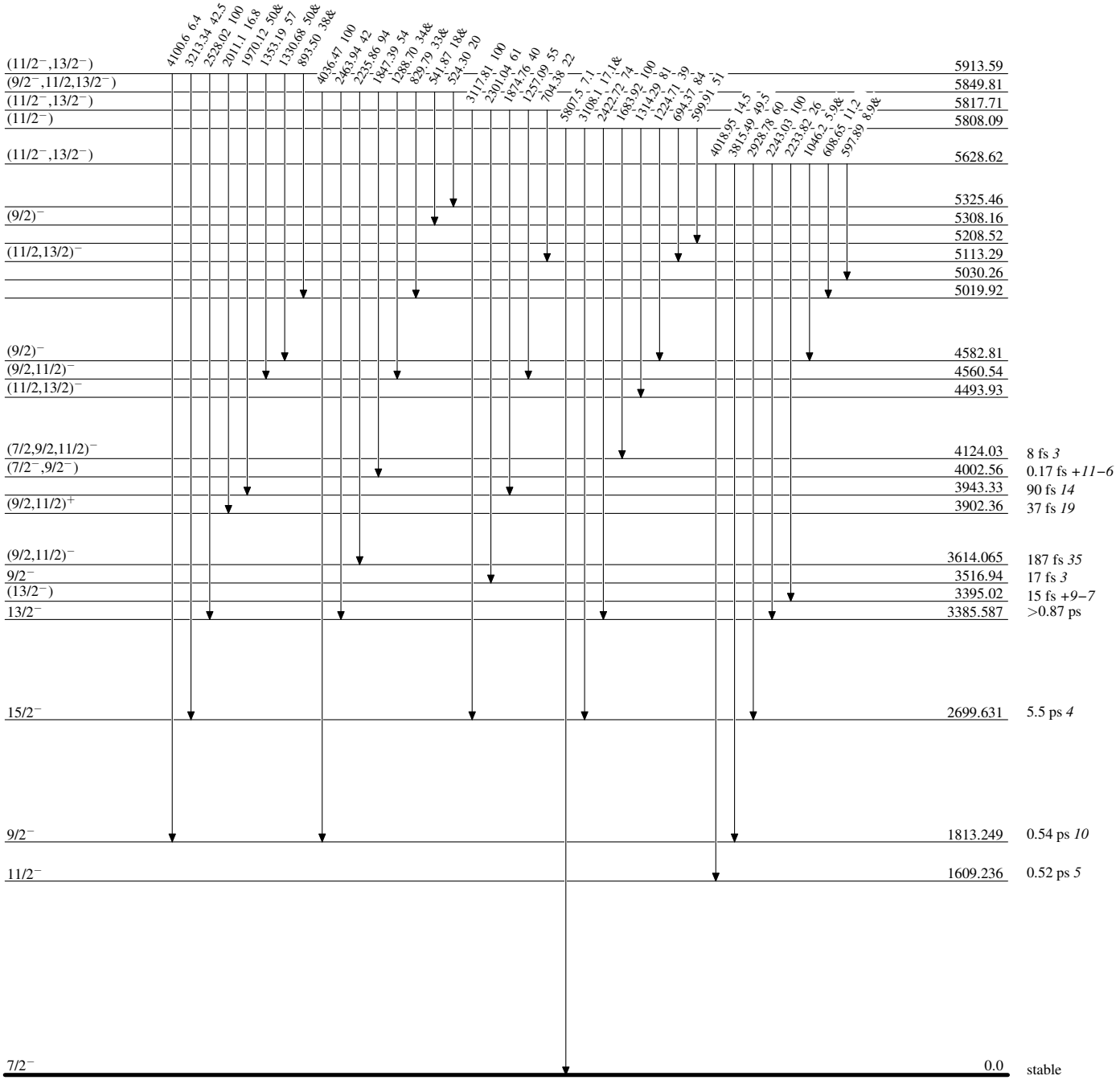


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

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

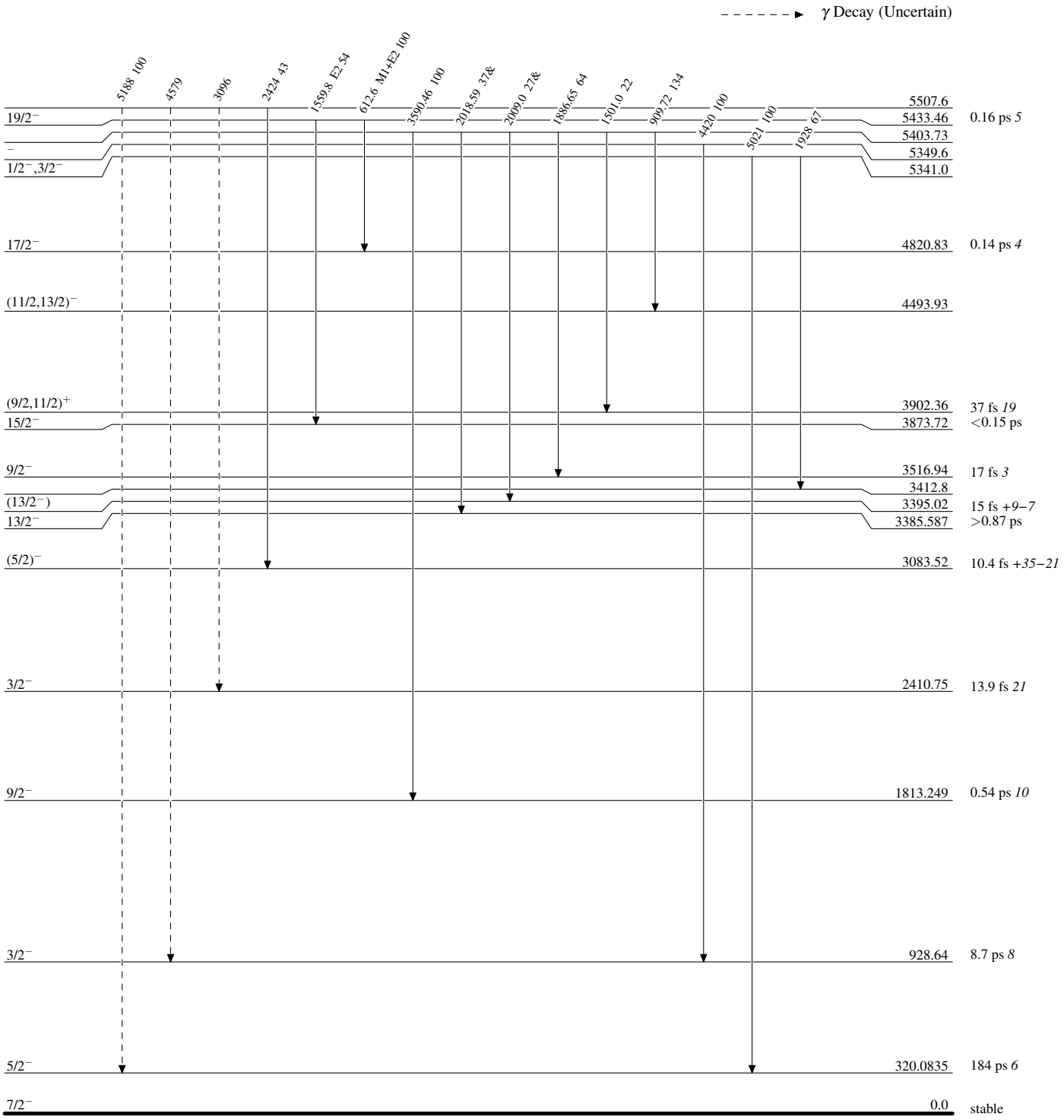


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

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

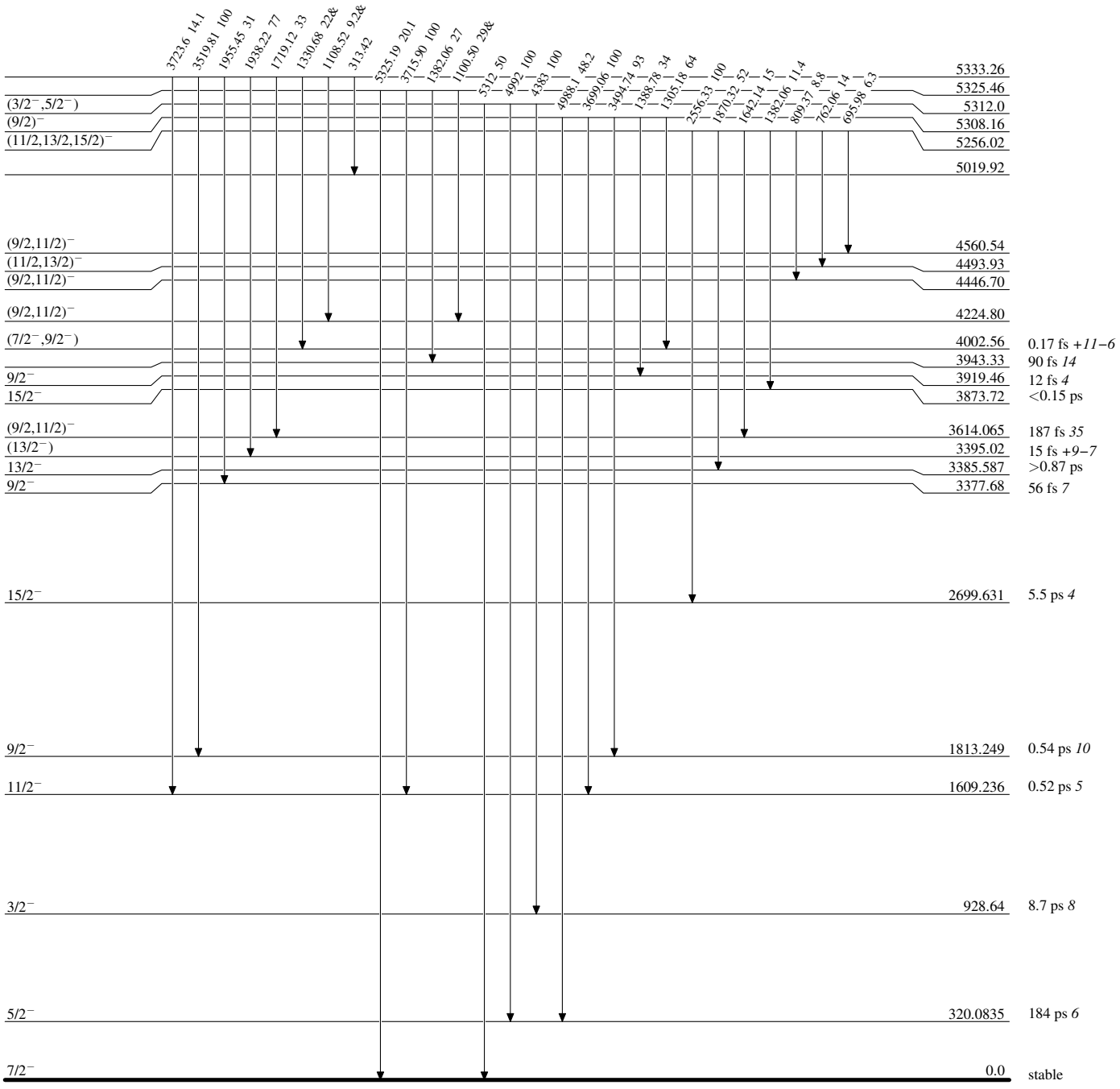


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

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

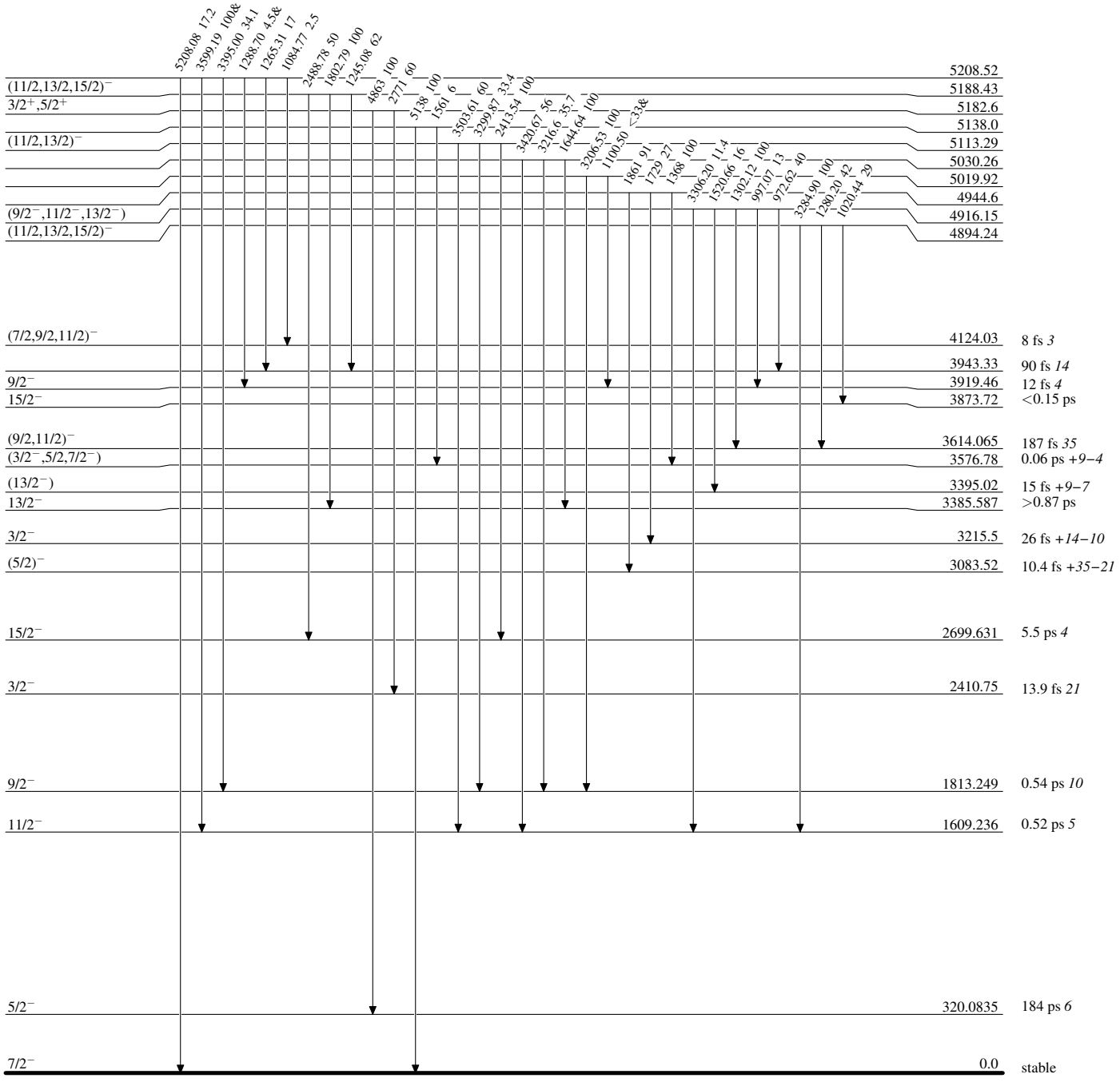


$^{51}_{23}V_{28}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{51}_{23}V_{28}$

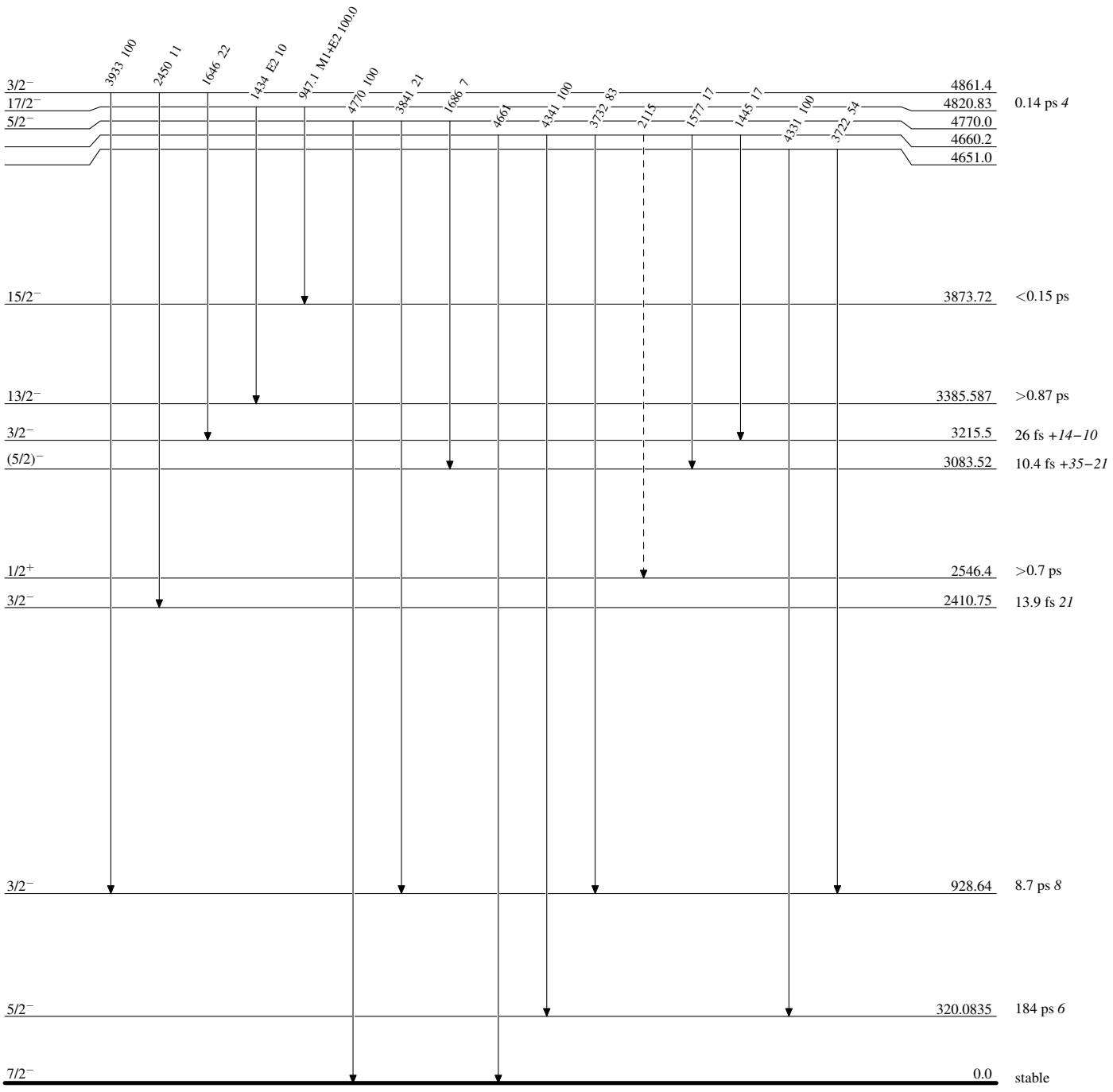
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{51}_{23}V_{28}$

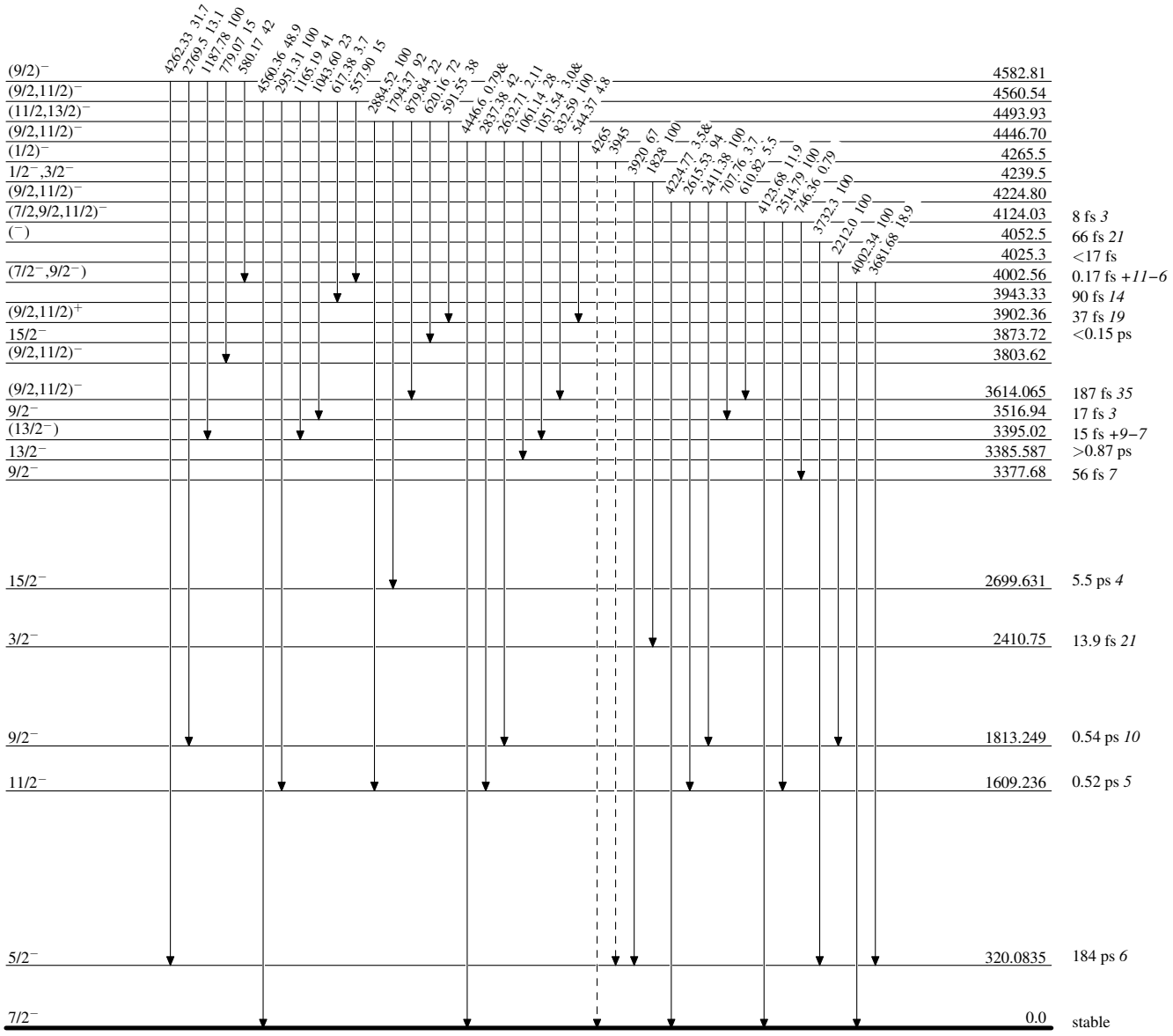
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{51}_{23}V_{28}$

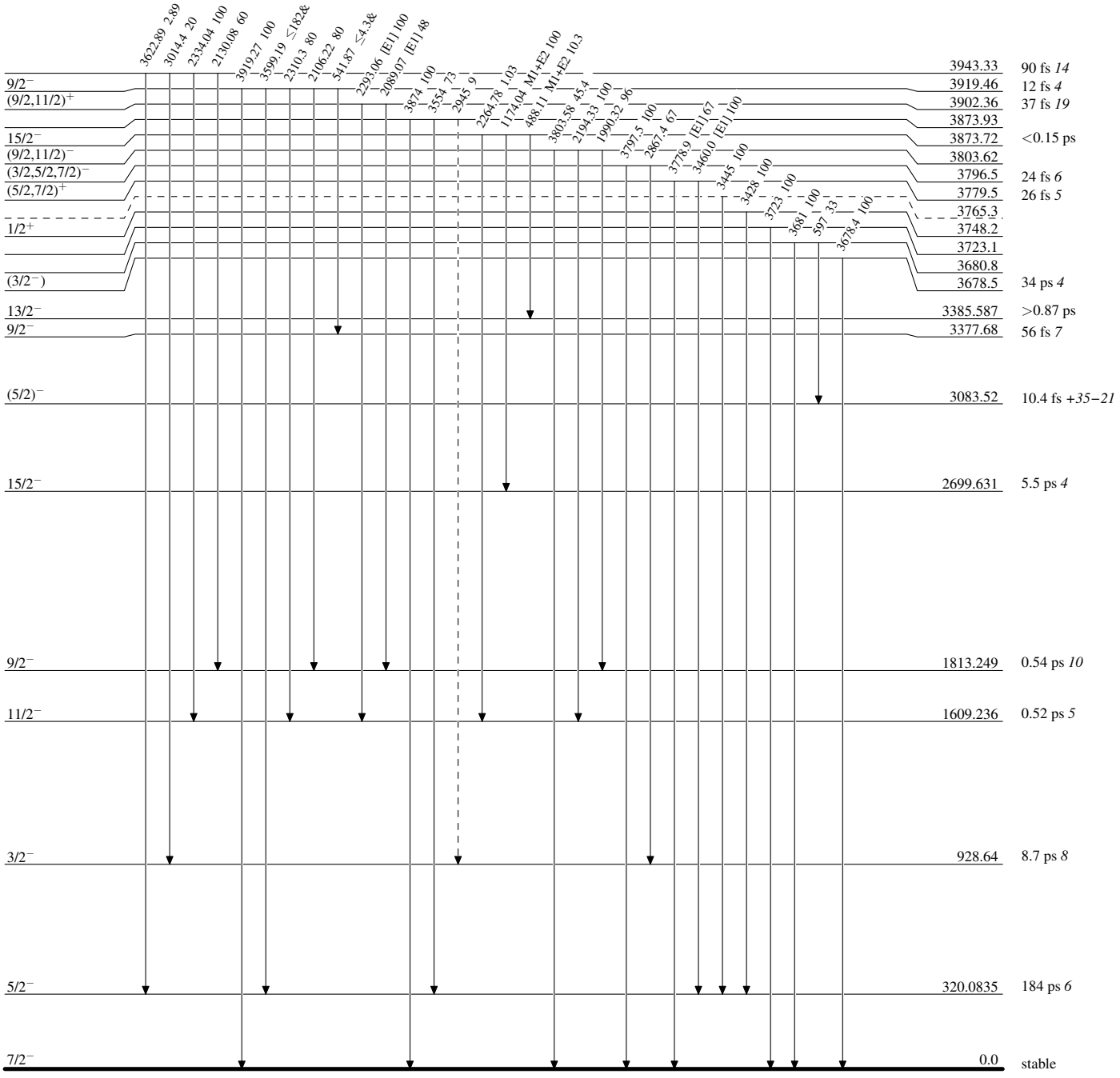
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{51}_{23}V_{28}$

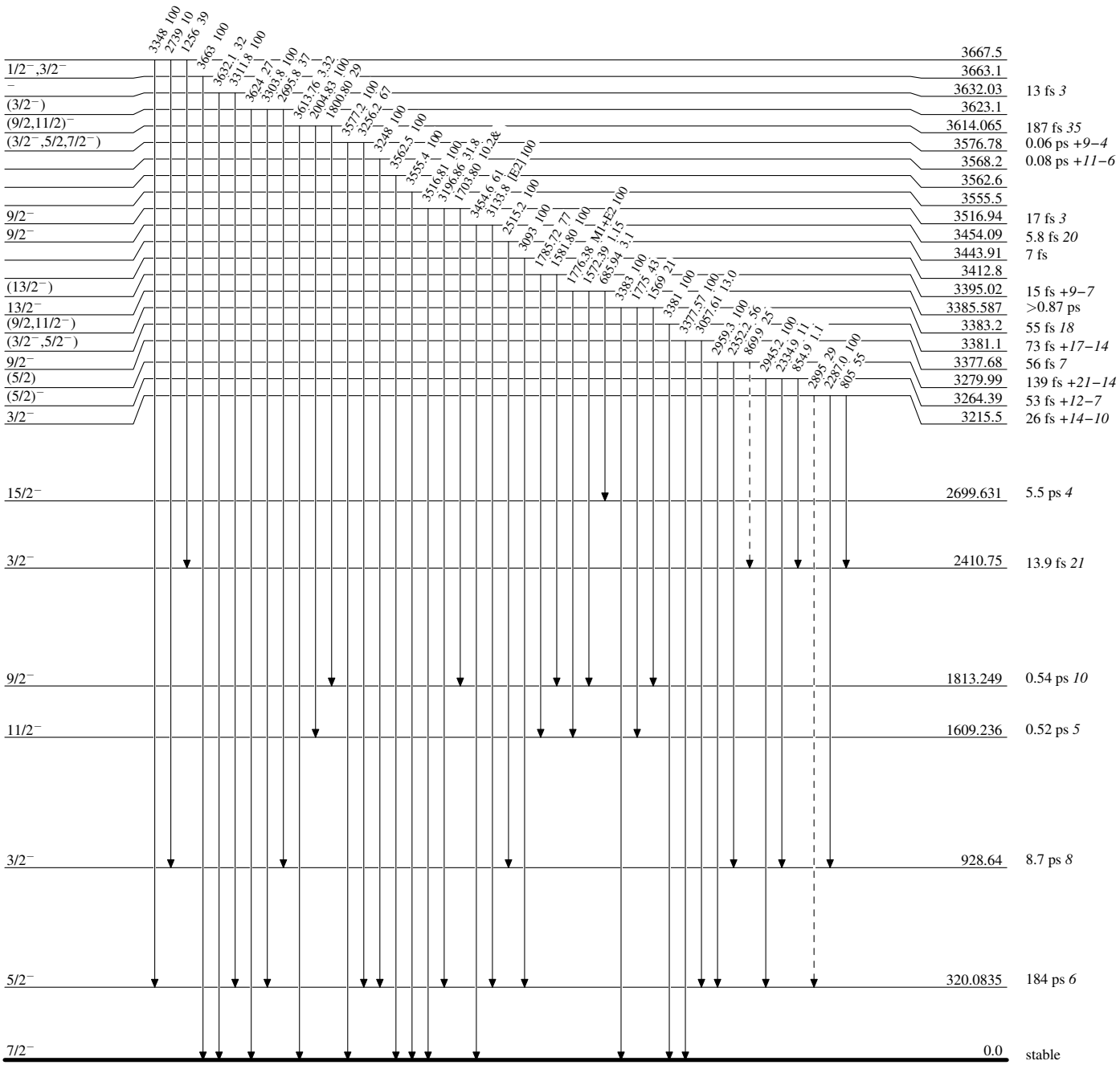
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

- - - - - - ► γ Decay (Uncertain)



$^{51}_{23}V_{28}$

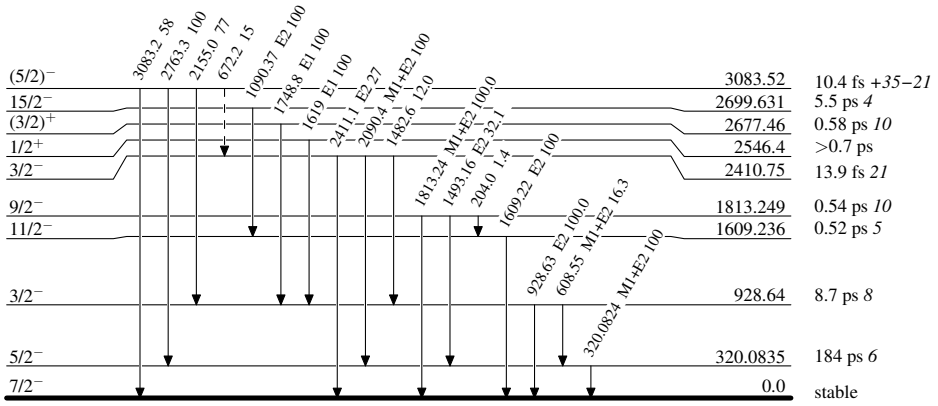
Adopted Levels, Gammas

Legend

Level Scheme (continued)

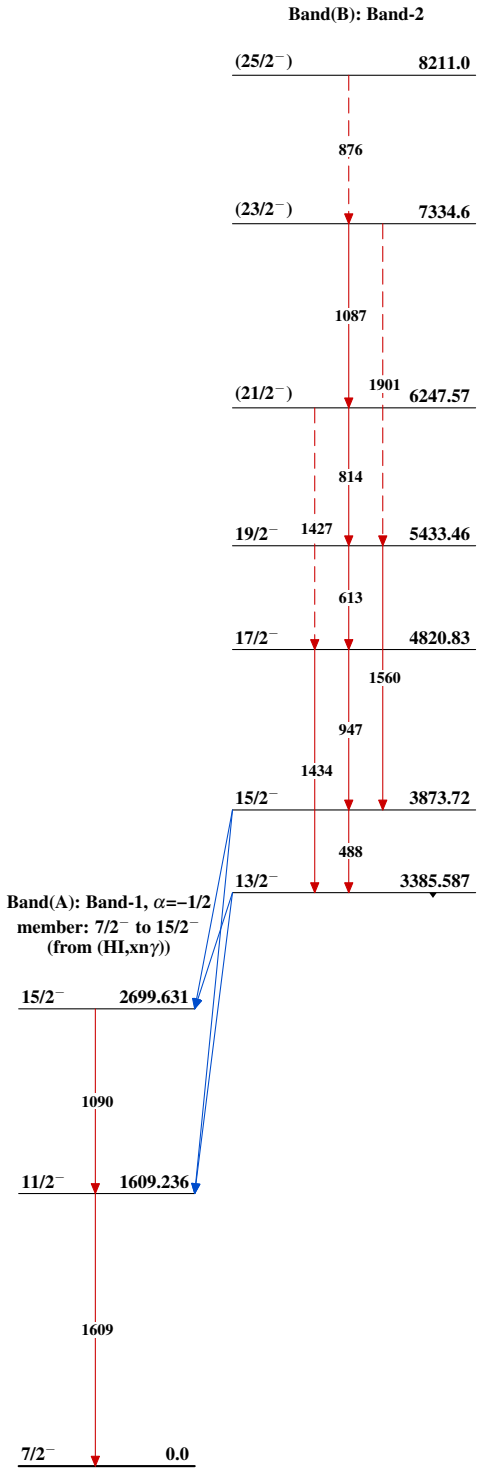
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

- - - - - - ► γ Decay (Uncertain)



$^{51}_{23}V_{28}$

Adopted Levels, Gammas



$^{51}_{23}V_{28}$