Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

Q(β^-)=−1657 *7*; S(n)=10542.3 *10*; S(p)=6829.4 *10*; Q(α)=−9086.9 *20* 2021Wa16
S(2n)=23544.7 *10*, S(2p)=17294.3 *12* (2021Wa16).
The level scheme and placements of γ transitions are from $\gamma\gamma$-coin data in ^{27}Al(^{27}Al,3n3pγ) (1991Ca30), ^{10}B(^{40}Ca,2pγ) (1994Ca04), and ^{24}Mg(^{28}Si,n3pγ) (2002Br42).

^{48}V Levels

Band assignments are from (^{24}Mg,n3pγ) (2002Br42), unless otherwise noted.

Cross Reference (XREF) Flags

A	^{48}Cr ε decay (21.56 h)	G	^{46}Ti(^{3}He,p)	M	^{48}Ti(p,n)
B	^{10}B(^{40}Ca,2pγ),^{40}Ca(^{10}B,2pγ)	H	^{46}Ti(^{3}He,pγ)	N	^{48}Ti(p,n) IAS
C	^{27}Al(^{27}Al,3n3pγ),^{40}Ca(^{14}N,2n4pγ)	I	^{46}Ti(α,pnγ)	O	^{48}Ti(p,nγ)
D	^{28}Si(^{24}Mg,n3pγ),^{24}Mg(^{28}Si,n3pγ)	J	^{47}Ti(p,γ)	P	^{48}Ti(^{3}He,t)
E	^{34}S(^{16}O,pnγ)	K	^{47}Ti(p,γ):resonance	Q	^{50}Cr(p,^{3}He)
F	^{45}Sc(α,nγ)	L	^{47}Ti(^{3}He,d)	R	^{50}Cr(d,α)

E(level)[†]	J$^\pi$[&]	T$_{1/2}$[@]	XREF	Comments
0.0[a]	4$^+$	15.974 d *3*	ABCDEFGHIJ LMNOP R	%ε+%β^+=100 μ=2.012 *11* (1980Bu11,2019StZV) J$^\pi$: spin=4 from atomic beam (1978Re03,1966Re06); parity from L(^{3}He,t)=4 from 0$^+$. T$_{1/2}$: weighted average of 15.976 d *3* (1974Ts01) and 15.971 d *4* (1972Em01). Others: 16.15 d *17* (1957Va08); 16.23 d *3* (1975Al23) and 15.94 d *1* (1966Va26) are discrepant and considered as outliers. μ: from radiative detection of nuclear magnetic resonance (^{51}V standard) (1980Bu11). See also 2019StZV compilation.
308.29[b] *6*	2$^+$	7.11 ns *4*	AB DEFGHIJ LM OP R	μ=+0.44 *2* (1987Ra19,2019StZV) J$^\pi$: spin=2 from $\gamma(\theta)$ in (p,nγ) (1973SaZF); L(^{3}He,t)=L(^{3}He,p)=2 from 0$^+$. T$_{1/2}$: weighted average of 7.09 ns *7* (1967Au02), 7.21 ns *21* (1971Bo13), and 7.07 ns *14* (1969PaZT) from ^{48}Cr ε decay, 7.12 ns *4* (1973SaZF) and 7.21 ns *28* (1963Ba22) from (p,nγ), μ: from differential perturbed angular correlations (^{51}V standard). Other: +0.28 *10* from integral perturbed angular correlations of gamma following nuclear reactions with ^{51}V standard (1978Ta17); 1.63 *10* from γ-radiation anisotropy in nuclear orientation (1966Ca04). See also 2019StZV compilation.
420.69[b] *8*	1$^+$	<135 ps	ABCDEFGHI lM OP R	XREF: l(428). J$^\pi$: spin=1 from $\gamma(\theta)$ in (p,nγ); L(d,α)=L(^{3}He,p)=0+2 from 0$^+$; strong ε feeding (log *ft*=4.3) from 0$^+$ parent. T$_{1/2}$: from $\gamma\gamma\gamma$(t) in (^{14}N,2n4pγ) (2005Ma81). Others: <1 ns from $\gamma\gamma$(t) in (p,nγ) (1973SaYL) and DSAM in (^{24}Mg,n3pγ) (2002Br42).
427.89[c] *8*	5$^+$	6.4 ps *10*	BCDEF J l O	XREF: l(428). J$^\pi$: spin=5 from $\gamma(\theta)$ in (p,nγ) (1973SaZF) and (^{10}B,2pγ) (1973Hu08); parity from $\gamma(\theta$,pol) in (p,nγ) (1976Ri01).

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)†	Jπ&	$T_{1/2}$@	XREF	Comments
				$T_{1/2}$: weighted average of 8.3 ps *25* from (^{16}O,pnγ) (1974Ha66) and 6.1 ps *10* from in (α,nγ) (1975Br07), using RDM. Other: <14 ps from RDM in (^{10}B,2pγ) (1973Hu08).
518.65[d] *9*	1⁻	2.72 ns *6*	B DEF IJ LM O R	Jπ: spin=1 from γ(θ) in (^{10}B,2pγ) and (p,nγ); 537.2γ E2(+M3) from 3⁻. Other: L(^{3}He,d)=3 from 5/2⁻ gives π=+ for a group at 520 *15*. $T_{1/2}$: from γ(t) in (p,nγ) (1973SaZF). Other: 0.7 ns<$T_{1/2}$<6.9 ns from RDM in (^{10}B,2pγ) (1973Hu08).
613.36[b] *8*	4⁺	15.0 ps *8*	B DEFg J l OP r	XREF: g(622)l(616)r(622). Jπ: spin=4 from γ(θ) in (^{16}O,pnγ) and (p,nγ); 613.4γ M1+E2 to 4⁺. $T_{1/2}$: from RDM in (α,nγ) (1975Br07).
627.21[a] *13*	6⁺	76 ps *6*	BCDEFg l OP r	XREF: g(622)l(616)r(622). Jπ: spin=6 from γ(θ) in (p,nγ) (1973SaZF); 627.3γ E2 to 4⁺. $T_{1/2}$: weighted average of 77 ps *7* from γγγ(t) in (^{27}Al,3n3pγ), 73 ps *7* from RDM in (^{16}O,pnγ), and 76.9 ps *62* from RDM in (α,nγ). Other: 90 ps *42* from RDM in (^{40}Ca,2pγ).
745.01[d] *8*	2⁻	17.3 ps *18*	B DEF IJ M OP r	XREF: r(756). Jπ: spin=2 from γ(θ) in (^{16}O,pnγ) and (p,nγ); 310.8γ M1(+E2) from 3⁻. $T_{1/2}$: from RDM in (^{16}O,pnγ). Other: 2.8 ps<$T_{1/2}$<29 ps from RDM in (^{40}Ca,2pγ).
764.97[b] *7*	3⁺	≤2.6 ps	D F J l Op r	XREF: l(772)p(767)r(756). Jπ: spin=3 from γ(θ) in (p,nγ); 456.7γ M1+E2 to 2⁺. $T_{1/2}$: from RDM in (α,nγ) (1975Br07).
775.9 *5*	3,5		B E l p R	XREF: l(772)p(767). Jπ: stretched D to 4⁺.
1055.83[d] *10*	3⁻	4.5 ps *13*	B DEF IJ L OP R	XREF: L(1064)R(1071). Jπ: from γ(θ,pol) and γ(θ) in (p,nγ); L(^{3}He,t)=3 from 0⁺. Other: L(^{3}He,d)=3 from 5/2⁻ gives π=+ for a group at 1064 *15*. $T_{1/2}$: weighted average of 4.4 ps *18* from (^{16}O,pnγ) and 4.6 ps *13* from (α,nγ), using RDM.
1099.17[e] *14*	4⁻	4.5 ps *4*	BCDEF IJ OP r	XREF: r(1114). Jπ: from γ(θ) (1973SaZF) and γ(θ,pol) (1976Mo26) in (p,nγ). $T_{1/2}$: from RDM in (α,nγ). Other: 4.2 ps *10* from RDM in (^{16}O,pnγ).
1120.5 *15*	(2,3,4)⁺		G J L r	XREF: L(1100)r(1114). Jπ: 811.0γ to 2⁺, 1123.0γ to 4⁺; L(^{3}He,d)=3 from 5/2⁻.
1254.48[c] *22*	7⁺	0.41 ps *10*	BCDE G P R	XREF: R(1266). Jπ: spin=7 from γ(θ) in (^{16}O,pnγ) (1974Ta15); L(d,α)=6 from 0⁺. $T_{1/2}$: others: <3.5 ps from RDM in (^{16}O,pnγ), <6.9 ps from RDM in (^{10}B,2pγ).
1264.53[b] *16*	5⁺	≤1.9 ps	DEF OP	Jπ: spin=5 from γ(θ) in (p,nγ); 651.2γ M1+E2 to 4⁺. $T_{1/2}$: from RDM in (α,nγ) (1975Br07).
1326 *10*			P R	E(level): weighted average of 1333 *10* from (^{3}He,t) and 1318 *10* from (d,α).
1521.41 *10*	2⁺	≤3.0 ps	F L OP R	Jπ: spin=2 from γ(θ) in (p,nγ); L(^{3}He,d)=1 from 5/2⁻. $T_{1/2}$: from RDM in (α,nγ) (1975Br07).
1557.58[d] *13*	4⁻	0.97 ps *28*	B DEF I OP R	Jπ: spin=4 from γ(θ) in (p,nγ) and (^{16}O,pnγ); 812.4γ E2 to 2⁻.

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)[†]	Jπ[&]	$T_{1/2}$[@]	XREF	Comments
				$T_{1/2}$: others: <2.8 ps from RDM in (α,nγ), <6.9 ps from RDM in (^{16}O,pnγ).
1685.58[e] *20*	$5^{(-)}$	0.60 ps *7*	BCDEFg I OP	XREF: g(1687). Jπ: spin=5 from $\gamma(\theta)$ in (^{16}O,pnγ); member of $K^{\pi}=4^{-}$ rotational band. $T_{1/2}$: others: ≤3.0 ps from RDM in (α,nγ), <3.5 ps from RDM in (^{16}O,pnγ).
1691.5 *19*	$(2^+,3^-)$		g J R	XREF: g(1687)R(1698). Jπ: 1173.0γ to 1^-, 1691γ to 4^+.
1728 *10*	$5^+,6^+,7^+$		g P r	XREF: g(1736)r(1743). E(level): from (^{3}He,t). Others: 1736 *15* from (^{3}He,p) and 1743 *10* from (d,α) could be a doublet. Jπ: L(^{3}He,t)=6 from 0^+.
1750.2[b] *7*	(6^+)		D g P r	XREF: g(1736)r(1743). Jπ: 1322γ to 5^+; band assignment.
1764 *10*			l P R	XREF: l(1779). E(level): weighted average of 1767 *10* from (^{3}He,t) and 1760 *10* from (d,α). Jπ: L(3He,D)=1 for 1779 doublet.
1780.98 *14*	3^+		l OP R	XREF: l(1779)R(1793). Jπ: spin=3 from $\gamma(\theta)$ in (p,nγ); L(^{3}He,t)=4 from 0^+.
1998.45 *17*	$2^-,3^-$		L O R	XREF: R(2015). Jπ: L(^{3}He,d)=0 from $5/2^-$.
2062.16[d] *19*	$5^{(-)}$	0.76 ps *21*	B DE I R	XREF: R(2077). Jπ: spin=5 from $\gamma(\theta)$ in (^{16}O,pnγ); 1006.2γ (E2) to 3^-. $T_{1/2}$: from DSAM in (^{24}Mg,n3pγ).
2096.9[‡] *3*			g l OP	XREF: g(2112)l(2111). E(level): other: 2098 *10* from (^{3}He,t). Jπ: L(^{3}He,d)=1 for 2111 doublet.
2118.5[‡] *5*	$1^+,2^+,3^+$		g l OP R	XREF: g(2112)l(2111)R(2135). E(level): others: 2120 *10* from (He,t), 2135 *10* from (d,α). Jπ: L(^{3}He,t)=2 from 0^+.
2179.5[‡] *5*	1^+		L Op	XREF: p(2187). E(level): other: 2178 *15* from (^{3}He,d). Jπ: L(^{3}He,d)=1 from $5/2^-$ and L(^{3}He,t)=0 from 0^+. See comments for E(Level) of the 2196 level.
2196 *4*	$(3,4)^-$		J p r	XREF: p(2187)r(2202). E(level): In (^{3}He,t), 1975Ma13 give L=3 from 0^+ for a group at E=2187 *10* and 2016Ga23 give a contradicting L=0 for a group at E=2186 *10*, which could indicate a doublet, also considering that the 2196 level from (p,γ) with 1143γ to 3^- and 2196γ to 4^+ is consistent with L(^{3}He,t)=3 but not 0 while a level at E=2178 *15* from (^{3}He,d) with L(^{3}He,d)=1 from $5/2^-$ (1968Do06) is consistent with L(^{3}He,t)=0 but not 3. Also note that there is a 2179.5 level from (p,nγ). Therefore, the evaluator has assigned L(^{3}He,d)=1 (1968Do06) and L(^{3}He,t)=0 (2016Ga23) to the same level around 2180 and L(^{3}He,t)=0 (1975Ma13) to the 2196. Jπ: L(^{3}He,t)=3 from 0^+; 2196.0γ to 4^+, possible 1143.0γ to 3^-. See E(level) comments above.
2231.49[a] *24*	8^+	0.215 ps *35*	BCDE	Jπ: 977.2γ M1+E2, ΔJ=1 to 7^+; 394.8γ from J=9.
2258.1[‡] *9*	$1^+,2^+,3^+,4^+$		L OP R	XREF: L(2247)R(2270).

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)†	Jπ&	$T_{1/2}$@	XREF	Comments
				E(level): others: 2247 *15* from (^{3}He,d), 2258 *10* from (^{3}He,t), and 2270 *10* from (d,α). Jπ: L(^{3}He,d)=1+3 from 5/2$^-$.
2289.0‡ *10*	1$^+$		GH OP R	XREF: R(2305). E(level): others: 2289 *6* from (p,nγ), 2292 *15* from (^{3}He,p), 2287 *10* from (^{3}He,t), and 2305 *10* from (d,α). Jπ: L(^{3}He,p)=0+2 from 0$^+$; L(^{3}He,t)=0 from 0$^+$.
2321.7‡ *12*			Op R	XREF: p(2324)R(2305).
2333.1‡ *6*			Op r	XREF: p(2324)r(2342).
2338.1 *21*	(3,4$^+$)		J r	XREF: r(2342). Jπ: 2031γ to 2$^+$, 1724.5γ to 4$^+$; possible 1236γ to 4$^-$.
2372.7‡ *6*			Op	XREF: p(2385).
2391.2‡ *7*			Op r	XREF: p(2385)r(2390).
2398.31e *22*	6$^-$	0.222 ps *21*	BCDE I r	XREF: r(2390). Jπ: 1771.2γ D, ΔJ=0 to 6$^+$ and 712.4γ D, ΔJ=1 to J=5 give spin=6; M2 for 1299.3γ to 4$^-$ ruled out by RUL.
2408.2‡ *7*	1$^+$		GH L OP R	XREF: R(2415). E(level): others: 2409 *15* from (^{3}He,p), 2408 *5* from (^{3}He,pγ), 2411 *15* from (^{3}He,d), 2415 *10* from (d,α). Jπ: L(^{3}He,p)=0+2 from 0$^+$.
2447.4 *17*	(2$^+$,3$^-$)		g J l p	XREF: g(2464)l(2455)p(2456). Jπ: 1926γ to 1$^-$, 1837γ to 4$^+$. See also comments for 2458 level.
2458.2‡ *12*			g l Op	XREF: g(2464)l(2455)p(2456). Jπ: L(^{3}He,d)=1+3 from 5/2$^-$ for a group at 2455 *15*, L(^{3}He,p)=2 from 0$^+$ for a group at 2464 *15*.
2471.8‡ *12*	(2,3)$^-$		J OP R	E(level): others: 2473 *10* from (^{3}He,t), 2471 *10* from (d,α), 2471 *3* from (p,γ). Jπ: L(^{3}He,t)=3 from 0$^+$; 1955γ to 1$^-$, 2159γ to 2$^+$.
2495.3 *19*	(3$^+$,4,5$^-$)		J R	Jπ: 1439γ to 3$^-$, 2072γ to 5$^+$.
2574.8‡ *10*			g l Op	XREF: g(2578)l(2568)p(2580). Jπ: L(^{3}He,d)=1(+3) from 5/2$^-$ for a group at 2568 *15*.
2579.1‡ *12*			g l Op	XREF: g(2578)l(2568)p(2580). Jπ: L(^{3}He,d)=1(+3) from 5/2$^-$ for a group at 2568 *15*.
2586.6‡ *12*			g Op r	XREF: g(2578)p(2580)r(2595).
2604.7‡ *14*	(2$^+$,3,4$^+$)		J l Op r	XREF: l(2605)p(2610)r(2595). Jπ: 2300γ to 2$^+$, possible 1986.0γ to 4$^+$; L(^{3}He,t)=2 from 0$^+$ for a group at 2610 *10*. See comments for 2607.4 level.
2607.4‡ *14*	(1$^+$)		l Op R	XREF: l(2605)p(2610)R(2620). Jπ: L(^{3}He,t)=2 from 1975Ma13 for a group at 2610 *10* and 0 from 2016Ga23 for a group at 2611 *10* indicate a doublet, with the former (L=2) probably corresponding to the 2604.7 level and the latter (L=0) corresponding to the 2607.4 level in (p,nγ).
2626.3c *3*	9$^+$	0.56 ps *8*	BCDE	Jπ: spin=9 from γ(θ) in (^{16}O,pnγ); 1371.7γ E2(+M3) to 7$^+$. $T_{1/2}$: other: <1.2 ps from DSAM in (^{16}O,pnγ).
2703.2b *7*	(7$^+$)		D	Jπ: 953γ to (6$^+$); band assignment.
2715.7‡ *15*	4$^-$,5$^-$,6$^-$		G OP R	XREF: G(2694)R(2707). E(level): others: 2694 *15* from(^{3}He,p), 2715 *10* from (^{3}He,t), 2707 *10* from (d,α). Jπ: L(^{3}He,t)=5 from 0$^+$ for a group at 2715 *10*.
2760 *10*			P	

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)†	Jπ&	$T_{1/2}$@	XREF	Comments
2775 *10*	$1^+,2^+,3^+,4^+$		G L P R	XREF: G(2783)L(2786). E(level): from (^{3}He,t). Other: 2783 *15* from (^{3}He,p), 2786 *15* from (^{3}He,d), 2779 *10* from (d,α). Jπ: L(^{3}He,d)=1 from $5/2^-$.
2779.14[d] *25*	(6^-)	0.194 ps *28*	DE I	Jπ: 1221.1γ (E2), ΔJ=(2) to 4^-, 717.1γ (D), ΔJ=(1) to $5^{(-)}$.
2793.0‡ *16*	$(3,4)^-$		g J OP R	XREF: g(2783)R(2799). E(level): others: 2793 *10* from (^{3}He,t), 2799 *10* from (d,α). Jπ: $2^-,3^-,4^-$ from L(^{3}He,t)=3 for a group at 2793 *10* (1975Ma13) from 0^+; 2789γ to 4^+. Note that L(^{3}He,t)=0 from 2016Ga23 for a group at 2792 *10* is inconsistent, which could indicate a separate level around this energy.
2823.1‡ *12*	(4^-)		G J OP R	XREF: O(?)R(2837). E(level): others: 2828 *15* from (^{3}He,p), 2817 *10* from (^{3}He,t), 2837 *10* from (d,α). Jπ: L(^{3}He,t)=(5) from 0^+; 2055γ to 3^+, 2825γ to 4^+.
2885 *10*			P R	E(level): weighted average of 2893 *10* from (^{3}He,t) and 2876 *10* from (d,α).
2915.2‡ *18*			O	E(level): from (p,nγ).
2925 *10*			l R	XREF: l(2937). E(level): from (d,α). Jπ: L(^{3}He,d)=1(+3) from a group at 2937 *15*.
2954 *10*			l P R	XREF: l(2937). E(level): weighted average of 2949 *10* from (^{3}He,t) and 2959 *10* from (d,α). Jπ: L(^{3}He,d)=1(+3) from a group at 2937 *15*.
2969.2‡ *18*			O	
2985 *10*			R	E(level): from (d,α).
3012 *3*	$(1^+,2,3,4^+)$		J l	XREF: l(3031). Jπ: 2704γ to 2^+, possible 2250γ to 3^+.
3022.6‡ *20*	0^+		GH l NOPQ	T=2 XREF: l(3031). E(level): others: 3018 *15* from (^{3}He,p), 3020 *30* from (p,^{3}He). Jπ: (^{3}He,p)=L(^{3}He,t)=L(p,^{3}He)=0 from 0^+; identified as IAS of ^{48}Ti ground state. 1968Do06 in (^{3}He,d) report the IAS at 3043 *15*, which is weakly excited as mentioned by the authors, while in their earlier study in (^{3}He,p) (1968Do03), the strongly excited IAS is identified at 3018 *15*, which is consistent with E(IAS)=3022 *15* (1972Be38), 3021 (1975Ma13) and 3018 *10* (2016Ga23) in (^{3}He,t).
3048.7‡ *20*			L O R	E(level): others: 3043 *15* from (^{3}He,d), 3043 *10* from (d,α). Jπ: 1968Do06 in (^{3}He,d) report the state at 3043 *15* as the IAS of ^{48}Ti ground state, but also state that the (^{3}He,d) transition to this state is weak and non-stripping. See comments for 3022.6 level.
3074 *3*	$1^+,2^+,3^+,4^+$		g J L P	XREF: g(3085). Jπ: L(^{3}He,d)=1 from $5/2^-$ for a group at 3075 *15*.
3101 *10*			g P R	XREF: g(3085). E(level): from (d,α). Other: 3103 *15* from (^{3}He,t).
3168 *15*	$1^+,2^+,3^+,4^+$		L	Jπ: L(^{3}He,d)=1 from $5/2^-$.
3174.5[e] *3*	(7^-)	0.139 ps *14*	BCDE I	Jπ: 775.5γ D, ΔJ=1 to 6^-; member of $K^\pi=4^-$ rotational band; spin=7 suggested by 775.5γ(θ) in (^{16}O,pnγ).

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)[†]	Jπ[&]	$T_{1/2}$[@]	XREF	Comments
3200.5?[‡] *25*			OP	XREF: P(3198). E(level): other: 3198 *15* from (^{3}He,t).
3210.2[b] *5*	(8$^+$)		D	Jπ: 584γ to 9$^+$, possible 1459γ to (6$^+$); band assignment.
3243.4 *22*	(2)$^+$		J L P	XREF: P(3266). Jπ: 3243γ to 4$^+$, 2725γ to 1$^-$; L(^{3}He,d)=1 from 5/2$^-$.
3294 *15*	1$^+$,2$^+$,3$^+$,4$^+$		L p	XREF: p(3310). Jπ: L(^{3}He,d)=1 from 5/2$^-$.
3322 *15*	1$^+$,2$^+$,3$^+$,4$^+$		L p	XREF: p(3310). Jπ: L(^{3}He,d)=1 from 5/2$^-$.
3382 *10*	1$^+$		L P	E(level): weighted average of 3371 *15* from (^{3}He,d) and 3387 *10* from (^{3}He,t). Jπ: L(^{3}He,d)=1 from 5/2$^-$; L(^{3}He,t)=0 from 0$^+$.
3423.3[d] *3*	(7$^-$)	0.132 ps *28*	DE I	Jπ: 1026.1γ to 6$^-$, 1362.0γ to 5$^{(-)}$; band assignment.
3451 *15*	1$^+$,2$^+$,3$^+$,4$^+$		L P	E(level): weighted average of 3440 *15* from (^{3}He,d) and 3461 *15* from (^{3}He,t). Jπ: L(^{3}He,d)=1 from 5/2$^-$.
3507 *15*	1$^+$,2$^+$,3$^+$,4$^+$		L P	E(level): weighted average of 3523 *15* from (^{3}He,d) and 3490 *15* from (^{3}He,t). Jπ: L(^{3}He,d)=1 from 5/2$^-$.
3565 *3*	(3,4)$^+$		J L P	XREF: P(3557). Jπ: L(^{3}He,d)=1 from 5/2$^-$; 3137γ to 5$^+$.
3633 *15*			P	
3660 *15*			P	
3702 *6*	1$^+$		GH L	XREF: L(3693). Jπ: L(^{3}He,p)=0+2 from 0$^+$.
3736 *15*	1$^+$,2$^+$,3$^+$,4$^+$		L P	XREF: P(3722). Jπ: L(^{3}He,d)=1 from 5/2$^-$.
3806 *15*	1$^+$,2$^+$,3$^+$,4$^+$		G L P	E(level): weighted average of 3801 *15* from (^{3}He,d) and 3810 *15* from (^{3}He,t). Jπ: L(^{3}He,d)=1 from 5/2$^-$.
3866 *5*	1$^+$		GH P	Jπ: L(^{3}He,p)=0+2 from 0$^+$; L(^{3}He,t)=0 from 0$^+$.
3945 *10*	0$^+$,1$^+$		P	Jπ: L(^{3}He,t)=0 from 0$^+$.
3981.0[e] *3*	(8$^-$)	0.152 ps *21*	BCDE I	Jπ: 806.4γ D, ΔJ=1 to (7$^-$); band assignment.
4024 *15*	(2)$^+$		L N P	E(level): weighted average of 4017 *15* from (^{3}He,d) and 4030 *15* from (^{3}He,t). Jπ: L(^{3}He,d)=3 from 5/2$^-$; IAS of ^{48}Ti 983, 2$^+$ level.
4073.4[f] *4*	(8$^-$)	0.097 ps *28*	D	Jπ: 898.9γ to (7$^-$), 1676γ to 6$^-$; band assignment.
4086 *15*	1$^+$,2$^+$,3$^+$,4$^+$		L	Jπ: L(^{3}He,d)=1 from 5/2$^-$.
4150.1[a] *5*	(10$^+$)		DE I	XREF: I(?). Jπ: 1523.5γ to 9$^+$, 1918.5γ to 8$^+$; band assignment.
4181 *10*	0$^+$,1$^+$		P	
4201 *10*	(0$^+$,1$^+$)		P	
4245 *10*	0$^+$,1$^+$		P	
4306.8[c] *4*	(11$^+$)	0.36 ps *4*	BCDE	Jπ: 1680.4γ to 9$^+$; band assignment.
4360.6[d] *5*	(8$^-$)	0.083 ps *28*	D	Jπ: 937.4γ to (7$^-$), 1581.3γ to (6$^-$); band assignment.
4368.3[b] *8*	(9$^+$)		D	Jπ: 1158γ to (8$^+$); band assignment.
4395.8[e] *3*	(9$^-$)	0.90 ps *14*	BCD I	Jπ: 414.5γ D, ΔJ=1 to (8$^-$); band assignment.
4456 *10*	0$^+$,1$^+$		P	Jπ: L(^{3}He,t)=0 from 0$^+$.
4554 *10*	0$^+$,1$^+$		P	Jπ: L(^{3}He,t)=0 from 0$^+$.
4581.0[f] *3*	(9$^-$)	0.39 ps *4*	D P	Jπ: 1406.4γ to (7$^-$), 507.7γ to (8$^-$); band assignment.
4595 *10*	0$^+$,1$^+$		P	Jπ: L(^{3}He,t)=0 from 0$^+$.
4674.9? *10*			C g P	
4684 *10*	1$^+$		gH P	E(level): weighted average of 4698 *15* from (^{3}He,p) and 4678

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)†	Jπ&	$T_{1/2}$@	XREF		Comments
					10 from (^{3}He,t). Jπ: L(^{3}He,p)=0+2 from 0^+; L(^{3}He,t)=0 from 0^+.
4781 *12*	1^+		GH	P	E(level): weighted average of 4798 *15* from (^{3}He,p) and 4773 *10* from (^{3}He,t). Jπ: L(^{3}He,p)=0+2 from 0^+; L(^{3}He,t)=0 from 0^+.
4857 *10*	$0^+,1^+$			P	Jπ: L(^{3}He,t)=0 from 0^+.
4924 *10*	$0^+,1^+$			P	Jπ: L(^{3}He,t)=0 from 0^+.
4968.8[b] *6*	(10^+)		CD	P	Jπ: 2343γ to 9^+, 662γ to (11^+), possible 1759γ to (8^+); band assignment.
4971 *10*	$0^+,1^+$			P	
5067 *10*	$0^+,1^+$			P	
5130 *10*	$0^+,1^+$			P	
5164 *10*	$0^+,1^+$			P	
5199 *10*	$0^+,1^+$			P	
5204.0[f] *5*	(10^-)	0.28 ps *7*	D	P	Jπ: 807.9γ to (9^-); band assignment.
5246 *10*	$(0^+,1^+)$			P	
5277 *10*	$0^+,1^+$			P	
5388 *10*	$0^+,1^+$			P	
5430 *10*	$0^+,1^+$			P	
5477 *10*				P	
5516 *10*				P	
5567 *10*	$0^+,1^+$			P	
5568.7[b] *6*	(11^+)		D	P	Jπ: 600γ to (10^+); band assignment.
5702 *10*	$0^+,1^+$			P	
5739 *10*	$0^+,1^+$			P	
5766 *10*	$0^+,1^+$			P	
5820 *10*	$0^+,1^+$			P	
5897.8[f] *4*	(11^-)	0.62 ps *7*	D	P	Jπ: 693.4γ to (10^-); band assignment.
5913 *10*				P	
5965 *10*	$0^+,1^+$			P	
6005 *10*	$0^+,1^+$			P	
6085 *10*				P	
6192 *10*	$0^+,1^+$			P	
6208 *10*	$0^+,1^+$			P	
6214.7[a] *7*	(12^+)		D	P	Jπ: 646.0γ to (11^+); band assignment.
6243.4[c] *8*	(13^+)	0.194 ps *28*	BCD		Jπ: 1937γ to (11^+); band assignment.
6280 *10*	$0^+,1^+$			P	
6401 *10*	$0^+,1^+$			P	
6464 *10*	$0^+,1^+$			P	
6501 *10*	$0^+,1^+$			P	
6516 *10*	$(0^+,1^+)$			P	
6548 *10*	$0^+,1^+$			P	
6568 *10*	$(0^+,1^+)$			P	
6603 *10*	$(0^+,1^+)$			P	
6641 *10*	$0^+,1^+$			P	
6697 *10*	$0^+,1^+$			P	
6748 *10*				P	
6770 *10*	$0^+,1^+$			P	
6819 *10*	$0^+,1^+$			P	
6874 *10*	$0^+,1^+$			P	
6924 *10*	$0^+,1^+$			P	
6950 *10*	$0^+,1^+$			P	
6982 *10*	$0^+,1^+$			P	
7038 *10*	$0^+,1^+$			P	

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)[†]	Jπ[&]	$T_{1/2}$[@]	XREF		Comments
7061 *10*	$0^+,1^+$			P	
7106 *10*	$0^+,1^+$			P	
7163 *10*	$0^+,1^+$			P	
7219 *10*	$0^+,1^+$			P	
7247 *10*				P	
7308 *10*	$0^+,1^+$			P	
7334.0[f] *11*	(12^-)	0.118 ps *21*	D		Jπ: 2130γ to (10^-); band assignment.
7334.8[b] *9*	(12^+)		D		Jπ: 1766γ to (11^+); band assignment.
7350 *10*				P	
7374 *10*	$0^+,1^+$			P	
7398 *10*	$0^+,1^+$			P	
7428 *10*	$0^+,1^+$			P	
7455 *10*	$0^+,1^+$			P	
7496 *10*	$0^+,1^+$			P	
7520 *10*	$0^+,1^+$			P	
7558 *10*	$0^+,1^+$			P	
7580 *10*	$0^+,1^+$			P	
7639 *10*	$0^+,1^+$			P	
7702.3[#] *14*			K	p	XREF: p(7693). Jπ: L(^{3}He,t)=0 from 0^+ for a group at 7693 *10*.
7705.9[#] *14*			K	p	XREF: p(7693).
7708.8[#] *14*			K		
7712.0[#] *14*			K		
7717.3[#] *14*			K		
7723.5[#] *14*			K	p	XREF: p(7728). Jπ: L(^{3}He,t)=0 from 0^+ for a group at 7728 *10*.
7730.2[#] *14*			K	p	XREF: p(7728).
7746.2[#] *14*			K	p	XREF: p(7749). Jπ: L(^{3}He,t)=0 from 0^+ for a group at 7749 *10*.
7750.8[#] *14*			K	p	XREF: p(7749).
7755.2[#] *14*			K	p	XREF: p(7749).
7767.6[#] *14*			K		
7772.7[#] *14*			K		
7777.8[#] *14*			K		
7781.3[#] *14*			K		
7788.5[#] *14*			K		
7791.1[#] *14*			K		
7794.1[#] *14*			K		
7796.9[#] *14*			K		
7804.0[#] *14*			K	p	XREF: p(7810).
7805.7[#] *14*			K	p	XREF: p(7810).
7809.4[#] *14*			K	p	XREF: p(7810). Jπ: L(^{3}He,t)=0 from 0^+ for a group at 7810 *10*.
7815.5[#] *14*			K	p	XREF: p(7810).
7821.5[#] *14*			K		
7825.4[#] *14*			K		
7830.9[#] *14*			K	p	XREF: p(7838).
7834.6[#] *14*			K	p	XREF: p(7838).
7837.8[#] *14*			K	p	XREF: p(7838).

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)[†]	Jπ[&]	$T_{1/2}$[@]	XREF		Comments
					Jπ: L(^{3}He,t)=0 from 0^+ for a group at 7838 *10*.
7840.5[#] *14*			K	p	XREF: p(7838).
7842.8[#] *14*			K	p	XREF: p(7838).
7846.1[#] *14*			K	p	XREF: p(7838).
7850.1[#] *14*			K		
7851.9[#] *14*			K		
7856.3[#] *14*			K	p	XREF: p(7862).
7857.9[#] *14*			K	p	XREF: p(7862).
7862.6[#] *14*			K	p	XREF: p(7862).
7863.5[#] *14*			K	p	XREF: p(7862).
7869.7[#] *14*			K	p	XREF: p(7862).
7873.0[#] *14*			K		
7875.0[#] *14*			K		
7879.3[#] *14*			K		
7883.6[#] *14*			K		
7886.4[#] *14*			K		
7893.8[#] *14*			K		
7895.3[#] *14*			K		
7899.0[#] *14*			K		
7904.3[#] *14*			K	p	XREF: p(7909).
7908.9[#] *14*			K	p	XREF: p(7909). Jπ: L(^{3}He,t)=0 from 0^+ for a group at 7909 *10*.
7912.0[#] *14*			K	p	XREF: p(7909).
7916.6[#] *14*			K	p	XREF: p(7909).
7920.1[#] *14*			K	P	
7924.1[#] *14*			K		
7926.5[#] *14*			K		
7928.1[#] *14*			K		
7931.3[#] *14*			K		
7933.6[#] *14*			K		
7938.2[#] *14*			K		
7941.4[#] *14*			K		
7943.5[#] *14*			K		
7944.0[f] *10*	(13$^-$)	0.090 ps *14*	D		Jπ: 2046γ to (11$^-$); band assignment.
7948.6[#] *14*			K	p	XREF: p(7955).
7952.1[#] *14*			K	p	XREF: p(7955).
7953.8[#] *14*			K	p	XREF: p(7955).
7957.2[#] *14*			K	p	XREF: p(7955).
7960.0[#] *14*			K	p	XREF: p(7955).
7964.2[#] *14*			K		
7967.2[#] *14*			K		
7968.9[#] *14*			K		
7971.9[#] *14*			K		
7973.1[b] *8*	(13$^+$)	<0.14 ps	D		Jπ: 639γ to (12$^+$); band assignment.
7973.6[#] *14*			K		

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)[†]	J$^{\pi}$[&]	XREF		Comments
7976.9[#] *14*		K		
7980.6[#] *14*		K		
7985.1[#] *14*		K	p	XREF: p(7990).
7987.5[#] *14*		K	p	XREF: p(7990). J$^{\pi}$: L(^{3}He,t)=(0) from 0^{+} for a group at 7990 *10*.
7998.1[#] *14*		K	p	XREF: p(7990).
8002.6[#] *14*		K		
8006.3[#] *14*		K		
8011.8[#] *14*		K		
8014.2[#] *14*		K		
8018.3[#] *14*		K		
8022.4[#] *14*		K		
8028.9[#] *14*		K		
8032.3[#] *14*		K		
8037.2[#] *14*		K		
8039.5[#] *14*		K	p	XREF: p(8049).
8041.9[#] *14*		K	p	XREF: p(8049).
8043.6[#] *14*		K	p	XREF: p(8049).
8048.2[#] *14*		K	p	XREF: p(8049). J$^{\pi}$: L(^{3}He,t)=0 from 0^{+} for a group at 8049 *10*.
8053.6[#] *14*		K	p	XREF: p(8049).
8057.7[#] *14*		K	p	XREF: p(8049).
8059.5[#] *14*		K		
8061.8[#] *14*		K		
8070.5[#] *14*		K		
8074.7[#] *14*		K		
8077.9[#] *14*		K	p	XREF: p(8086).
8081.5[#] *14*		K	p	XREF: p(8086).
8084.4[#] *14*		K	p	XREF: p(8086). J$^{\pi}$: L(^{3}He,t)=0 from 0^{+} for a group at 8086 *10*.
8088.9[#] *14*		K	p	XREF: p(8086).
8090.8[#] *14*		K	p	XREF: p(8086).
8093.4[#] *14*		K	p	XREF: p(8086).
8095.8[#] *14*		K		
8098.3[#] *14*		K		
8100.7[#] *14*		K		
8102.6[#] *14*		K		
8106.7[#] *14*		K		
8112.0[#] *14*		K	p	XREF: p(8119).
8115.1[#] *14*		K	p	XREF: p(8119).
8117.5[#] *14*		K	p	XREF: p(8119). J$^{\pi}$: L(^{3}He,t)=(0) from 0^{+} for a group at 8119 *10*.
8161 *10*	0^{+},1^{+}		P	
8216 *10*	(0^{+},1^{+})		P	
8262 *10*	0^{+},1^{+}		P	
8279 *10*	0^{+},1^{+}		P	

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)†	Jπ&	$T_{1/2}$@	XREF	Comments
8286.4? *10*	(15,13)		B	Jπ: 2045γ ΔJ=2 or ΔJ=0 D to (13^+).
8316 *10*	0^+,1^+		P	
8353 *10*	0^+,1^+		P	
8401 *10*	(0^+,1^+)		P	
8440 *10*	0^+,1^+		P	
8465 *10*	0^+,1^+		P	
8495.6[a] *9*	(14^+)	<0.07 ps	D	Jπ: 522.8γ to (13^+); band assignment.
8505 *10*	0^+,1^+		P	
8530 *10*	(0^+,1^+)		P	
8572 *10*	(0^+,1^+)		P	
8589.0? *20*	(14)		B P	Jπ: 2344γ D, ΔJ=1 to (13^+).
8600 *10*	(0^+,1^+)		P	
8645 *10*	0^+,1^+		P	
8666 *10*	(0^+,1^+)		P	
8712.6[c] *10*	(15^+)	0.118 ps *28*	D	Jπ: 217.1γ to (14^+); band assignment.
8744 *10*	(0^+,1^+)		P	
8767 *10*	0^+,1^+		P	
8821 *10*			P	
8887 *10*	0^+,1^+		P	
8904 *10*	(0^+,1^+)		P	
8967 *10*	0^+,1^+		P	
8998 *10*	(0^+,1^+)		P	
9027 *10*	0^+,1^+		P	
9061 *10*	0^+,1^+		P	
9105 *10*	0^+,1^+		P	
9157 *10*	(0^+,1^+)		P	
9198 *10*	(0^+,1^+)		P	
9220 *10*	0^+,1^+		P	
9232 *10*	0^+,1^+		P	
9268 *10*			P	
9301 *10*	0^+,1^+		P	
9333 *10*	0^+,1^+		P	
9362 *10*			P	
9397 *10*	0^+,1^+		P	
9446 *10*	0^+,1^+		P	
9492 *10*	0^+,1^+		P	
9606 *10*	0^+,1^+		P	
9651 *10*	(0^+,1^+)		P	
9699 *10*			P	
9732 *10*	0^+,1^+		P	
9770 *10*	0^+,1^+		P	
9808 *10*	0^+,1^+		P	
9846 *10*	0^+,1^+		P	
9891 *10*	0^+,1^+		P	
9910.1[f] *23*	(14^-)	<0.056 ps	D	Jπ: 2576γ to (12^-); band assignment.
9930 *10*	0^+,1^+		P	
9962 *10*	0^+,1^+		P	
10008 *10*	0^+,1^+		P	
10038 *10*			P	
10073 *10*	0^+,1^+		P	
10107 *10*	0^+,1^+		P	
10133 *10*	0^+,1^+		P	
10179 *10*			P	
10237 *10*	0^+,1^+		P	
10258 *10*	(0^+,1^+)		P	

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)†	Jπ&	$T_{1/2}$@	XREF	Comments
10286 *10*			P	
10334 *10*	$0^+,1^+$		P	
10373 *10*	$0^+,1^+$		P	
10446 *10*	$0^+,1^+$		P	
10449.5[f] *14*	(15^-)	<0.056 ps	D	Jπ: 2505γ to (13^-); band assignment.
10470 *10*	$0^+,1^+$		P	
10509 *10*	$0^+,1^+$		P	
10564 *10*	$0^+,1^+$		P	
10585 *10*	$0^+,1^+$		P	
10626 *10*	$0^+,1^+$		P	
10653 *10*			P	
10707 *10*	$0^+,1^+$		P	
10735 *10*	$0^+,1^+$		P	
10777 *10*	$0^+,1^+$		P	
10823 *10*	$0^+,1^+$		P	
10856 *10*			P	
10901 *10*			P	
10955 *10*			P	
10984 *10*	$(0^+,1^+)$		P	
11017 *10*	$0^+,1^+$		P	
11061 *10*	$(0^+,1^+)$		P	
11102 *10*	$(0^+,1^+)$		P	
11139 *10*	$0^+,1^+$		P	
11174 *10*	$0^+,1^+$		P	
11207 *10*			P	
11280 *10*	$(0^+,1^+)$		P	
11302 *10*	$0^+,1^+$		P	
11335 *10*	$0^+,1^+$		P	
11349 *10*	$0^+,1^+$		P	
11419 *10*			P	
11466 *10*			P	
11512 *10*			P	
11565 *10*			P	
11636 *10*	$0^+,1^+$		P	
11669 *10*	$0^+,1^+$		P	
11707 *10*			P	
11768 *10*			P	
11794 *10*			P	
11858 *10*			P	
11883 *10*			P	
11942 *10*	$0^+,1^+$		P	
11991 *10*	$(0^+,1^+)$		P	
12008 *21*	$(0^+,1^+)$		P	
12046 *21*	$(0^+,1^+)$		P	
12133 *21*	$(0^+,1^+)$		P	
12169 *21*	$(0^+,1^+)$		P	
12233 *21*	$(0^+,1^+)$		P	
12275 *21*	$0^+,1^+$		P	
12321 *21*			P	
12346 *21*	$0^+,1^+$		P	
12398 *21*	$(0^+,1^+)$		P	
12482 *21*	$0^+,1^+$		P	
12538 *21*	$0^+,1^+$		P	
12618 *21*			P	
12643.7[f] *13*	(16^-)		D	Jπ: 2194γ to (15^-); band assignment.

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Adopted Levels, Gammas (continued)

^{48}V Levels (continued)

E(level)[†]	Jπ[&]	XREF	Comments
12646 *21*	$(0^+,1^+)$	P	
12675 *21*		P	
13281.7[f] *15*	(17^-)	D	Jπ: 638γ to (16^-); band assignment.

[†] From a least-squares fit to γ-ray energies assuming ΔEγ=1 keV where not given for levels connected by γ transitions, and from particle-transfer reactions in other cases, unless otherwise noted.
[‡] From (p,nγ) based on Eγ data (1973SaYJ), which are not explicitly given by the authors.
[#] From (p,γ):resonance (1961Du03).
[@] From DSAM in (^{24}Mg,n3pγ) (2002Br42), unless otherwise noted.
[&] For levels from (^{3}He,t) up to 12675, $0^+,1^+$ from L(^{3}He,t)=0 from 0^+ and $(0^+,1^+)$ from L(^{3}He,t)=(0), unless otherwise noted.
[a] Band(A): $K^\pi=4^+$, $\alpha=0$, g.s. yrast band.
[b] Band(B): $K^\pi=1^+$, yrare band. Configuration=π3/2[321]-ν5/2[312] (2002Br42).
[c] Band(C): $K^\pi=4^+$, $\alpha=1$, g.s. yrast band.
[d] Band(D): $K^\pi=1^-$ rotational band.
[e] Band(E): $K^\pi=4^-$ rotational band.
[f] Band(F): $K^\pi=8^-$ rotational band. Configuration=$d^{-1}_{3/2}\otimes f^{n+1}_{7/2}$ (2002Br42).

Adopted Levels, Gammas (continued)

$\gamma(^{48}V)$

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[†]	Comments
308.29	2^+	308.27 *6*	100	0.0	4^+	E2		0.00515 *7*	B(E2)(W.u.)=2.745 *16* α(K)=0.00466 *7*; α(L)=0.000432 *6*; α(M)=5.64×10^{-5} *8* α(N)=2.85×10^{-6} *4* E_γ: weighted average of 308.24 *6* from ^{48}Cr ε decay (21.56 h), 308.9 *5* from (^{40}Ca,2pγ), 308.3 *1* from (^{24}Mg,n3pγ), 308.2 *2* from (^{16}O,pnγ), 308.5 *8* from (p,γ), and 308.3 *1* from (p,nγ). Mult.: from ce data and $\gamma\gamma(\theta$,pol) in ^{48}Cr ε decay (1979PrZU,1968We01).
420.69	1^+	112.39 *8*	100.0 *21*	308.29	2^+	M1+E2	0.016 *+29−15*	0.0164 *5*	α(K)=0.0148 *4*; α(L)=0.00139 *4*; α(M)=0.000182 *5* α(N)=9.29×10^{-6} *25* E_γ: weighted average of 112.31 *8* from ^{48}Cr ε decay (21.56 h), 112.4 *1* from (^{24}Mg,n3pγ), 112.4 *2* from (^{16}O,pnγ), and 112.5 *1* from (p,nγ). Other: 112.2 *5* from (^{40}Ca,2pγ). I_γ: from ^{48}Cr ε decay. Mult.: from ce data and $\gamma\gamma(\theta$,pol) in ^{48}Cr ε decay (1979PrZU,1968We01). δ: from $\gamma\gamma(\theta)$ in ^{48}Cr ε decay (1968We01). Other: −0.14<δ<−0.02 from $\gamma(\theta)$ in (p,nγ) (1973SaZF).
427.89	5^+	420.5[&] 427.9 *1*	<0.031 100	0.0 0.0	4^+ 4^+	M1+E2	−0.135 *15*	0.000650 *10*	E_γ,I_γ: from ^{48}Cr ε decay. B(M1)(W.u.)=0.043 *+8−6*; B(E2)(W.u.)=10.6 *+33−25* α=0.000650 *10*; α(K)=0.000588 *9*; α(L)=5.39×10^{-5} *8*; α(M)=7.06×10^{-6} *11* α(N)=3.67×10^{-7} *6* E_γ: from (p,nγ). Others: 428.2 *5* from (^{40}Ca,2pγ), 427.8 *4* from (^{24}Mg,n3pγ), 427.9 *2* from (^{16}O,pnγ), and 428.0 *12* from (p,γ). Mult.: from $\gamma(\theta$,pol) and $\gamma(\theta)$ in (p,nγ) (1976Ri01,1973SaZF). δ: from $\gamma(\theta)$ in (p,nγ) (1973SaZF). Other: 0.13 *8* from $\gamma(\theta$,pol) in (p,nγ) (1976Ri01), −0.13 *3* from $\gamma(\theta)$ in (^{16}O,pnγ) (1974Ta15).
518.65	1^-	97.9 *1*	51 *4*	420.69	1^+	(E1)		0.0338 *5*	B(E1)(W.u.)=6.7×10^{-5} *4* α(K)=0.0306 *4*; α(L)=0.00279 *4*; α(M)=0.000363 *5* α(N)=1.825×10^{-5} *26* E_γ: weighted average of 97.7 *1* from (^{24}Mg,n3pγ), 98.0 *2* from (^{16}O,pnγ), and 98.0 *1* from (p,nγ). Other: 99.0 *10* from (^{40}Ca,2pγ). I_γ: unweighted average of 50 *13* from (^{40}Ca,2pγ), 52 *11* from

$^{48}_{23}V_{25}$-14

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									(^{24}Mg,n3pγ), 40.8 *28* from (^{16}O,pnγ), and 61.3 *32* from (p,nγ). Mult.,δ: D(+Q) with δ=+0.15 *23* from γ(θ) in (p,nγ); Δπ=yes from level scheme; M2 is less likely based on RUL. Other: δ(Q/D)=0.0 *2* from (^{16}O,pnγ).
518.65	1⁻	210.4 *1*	100.0 *28*	308.29	2⁺	(E1+M2)	+0.04 *3*	0.00324 *7*	B(E1)(W.u.)=1.316×10^{-5} *+49−50* α(K)=0.00294 *6*; α(L)=0.000268 *6*; α(M)=3.50×10^{-5} *8* α(N)=1.80×10^{-6} *4* B(M2)(W.u.)=2.2 *+46−18* exceeds RUL=1.0. E_γ: weighted average of 210.8 *5* from (^{40}Ca,2pγ), 210.3 *1* from (^{24}Mg,n3pγ), 210.4 *2* from (^{16}O,pnγ), 210.7 *8* from (p,γ), and 210.4 *1* from (p,nγ). I_γ: from (^{16}O,pnγ). Others: 100 *13* from (^{40}Ca,2pγ), 100 *11* from (^{24}Mg,n3pγ), and 100.0 *32* from (p,nγ). Mult.: D+Q from γ(θ) in (p,nγ); Δπ=yes from level scheme. δ: from γ(θ) in (p,nγ). Other: +0.03 *5* from (^{16}O,pnγ).
613.36	4⁺	185.5 *1*	12.4 *23*	427.89	5⁺	(M1(+E2))	+0.025 *45*	0.00459 *14*	B(M1)(W.u.)=0.025 *+7−6*; B(E2)(W.u.)<11 α(K)=0.00415 *13*; α(L)=0.000385 *12*; α(M)=5.05×10^{-5} *16* α(N)=2.60×10^{-6} *8* E_γ: from (^{24}Mg,n3pγ) and (p,nγ). Others: 185.5 *5* from (^{16}O,pnγ). I_γ: from (^{24}Mg,n3pγ) and (p,nγ). Others: 12.4 *34* from (^{16}O,pnγ). Mult.,δ: D(+Q) from γ(θ) in (p,nγ); Δπ=no from level scheme. Other: δ(Q/D)=+0.01 *9* from γ(θ) in (^{16}O,pnγ).
		305[&]	<5.6	308.29	2⁺				E_γ,I_γ: from (^{24}Mg,n3pγ) only.
		613.4 *1*	100.0 *23*	0.0	4⁺	M1+E2	−0.30 *7*	0.000306 *10*	B(M1)(W.u.)=0.00506 *+32−41*; B(E2)(W.u.)=3.0 *+14−12* α=0.000306 *10*; α(K)=0.000277 *9*; α(L)=2.53×10^{-5} *8*; α(M)=3.32×10^{-6} *11* α(N)=1.73×10^{-7} *5* E_γ: from (^{24}Mg,n3pγ) and (p,nγ). Others: 613.5 *2* from (^{16}O,pnγ); 616.1 *15* from (p,γ) is discrepant. I_γ: from (^{24}Mg,n3pγ) and (p,nγ). Others: 100.0 *34* from (^{16}O,pnγ). Mult.: from γ(θ) and γ(pol) in (p,nγ) and γ(θ) in (^{16}O,pnγ). δ: unweighted average of −0.44 *10* (1974Ta15) from (^{16}O,pnγ) (1974Ta15), −0.19 *2* (1973SaZF) and −0.28 *5* (1976Ri01) from (p,nγ).
627.21	6⁺	199.3 *2*	65 *9*	427.89	5⁺	M1+E2	−0.14 *2*	0.00426 *14*	B(M1)(W.u.)=0.0141 *+19−17*; B(E2)(W.u.)=17 *+6−5* α(K)=0.00385 *13*; α(L)=0.000358 *12*; α(M)=4.68×10^{-5} *16* α(N)=2.40×10^{-6} *8* E_γ: from (^{24}Mg,n3pγ), (^{16}O,pnγ), and (p,nγ). Other: 199.6 *5*

$^{48}_{23}V_{25}$-15

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									from (^{40}Ca,2pγ), I_γ: unweighted average of 44.0 *10* from (^{40}Ca,2pγ), 75 *9* from (^{24}Mg,n3pγ), 82 *15* from (^{16}O,pnγ), and 59 *8* from (p,nγ). Mult.: from γ(θ,pol) in (^{16}O,pnγ) (1976Ri01). δ: from γ(θ) in (^{16}O,pnγ) (1974Ta15). Others: −0.11 *9* from γ(θ,pol) in (^{16}O,pnγ) (1976Ri01), −0.23<δ<+0.03 from (p,nγ) (1973SaZF).
627.21	6$^+$	627.3 *2*	100 *8*	0.0	4$^+$	E2		0.000485 *7*	B(E2)(W.u.)=4.47 *+49−42* α=0.000485 *7*; α(K)=0.000439 *6*; α(L)=4.02×10^{-5} *6*; α(M)=5.26×10^{-6} *7* α(N)=2.71×10^{-7} *4* E_γ: from (p,nγ). Others: 627.7 *5* from (^{40}Ca,2pγ), 627.2 *3* from (^{24}Mg,n3pγ), and 627.2 *4* from (^{16}O,pnγ). I_γ: from (p,nγ). Others: 100 *10* from (^{40}Ca,2pγ), 100 *9* from (^{24}Mg,n3pγ), and 100 *15* from (^{16}O,pnγ). Mult.: Q from γ(θ) in (p,nγ); M2 ruled out by RUL.
745.01	2$^-$	226.3 *1*	100.0 *11*	518.65	1$^-$	M1+E2	−0.07 *1*	0.00287 *4*	B(M1)(W.u.)=0.100 *+12−10*; B(E2)(W.u.)=24 *+8−7* α(K)=0.00260 *4*; α(L)=0.000240 *4*; α(M)=3.15×10^{-5} *5* α(N)=1.623×10^{-6} *25* E_γ: from (^{24}Mg,n3pγ). Others: 226.4 *5* from (^{40}Ca,2pγ), 226.3 *2* from (^{16}O,pnγ), 227.2 *8* from (p,γ), and 226.3 *1* from (p,nγ). I_γ: from (p,nγ). Others: 100.0 *22* from (^{24}Mg,n3pγ) and 100.0 *22* from (^{16}O,pnγ). Mult.: M1+E2 with δ(E2/M1)=−0.14 *12* or E1+M2 with δ(M2/E1)=−2.7 *6* from γ(θ,pol) in (p,nγ) (1976Ri01), with the latter ruled out by RUL. δ: from γ(θ) in (p,nγ) (1973SaZF). Other: −0.14 *12* from γ(θ,pol) in (p,nγ) (1976Ri01), −0.02 *4* from γ(θ) in (^{16}O,pnγ).
		324.3 *1*	3.37 *33*	420.69	1$^+$	(E1(+M2))	−0.03 *19*	0.00091 *19*	B(E1)(W.u.)=2.7×10^{-5} *+7−6* α=0.00091 *19*; α(K)=0.00082 *17*; α(L)=7.5×10^{-5} *16*; α(M)=9.8×10^{-6} *21* α(N)=5.1×10^{-7} *11* E_γ: from (^{24}Mg,n3pγ). Others: 324.2 *5* from (^{16}O,pnγ) and 324.2 *1* from (p,nγ). I_γ: from (p,nγ). Others: 3.4 *9* from (^{24}Mg,n3pγ) and 3.3 *11* from (^{16}O,pnγ). Mult.,δ: D(+Q) from γ(θ) in (p,nγ) (1973SaZF); Δπ=yes from level scheme.
		436.7 *1*	5.3 *4*	308.29	2$^+$	(E1(+M2))	−0.04 *18*	0.00040 *8*	B(E1)(W.u.)=1.73×10^{-5} *37* α=0.00040 *8*; α(K)=0.00037 *7*; α(L)=3.3×10^{-5} *6*; α(M)=4.4×10^{-6} *8* α(N)=2.3×10^{-7} *4*

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.	δ	α †	Comments
									E_γ: weighted average of 436.6 *1* from (^{24}Mg,n3pγ) and 436.8 *1* from (p,nγ). Other: 436.7 *5* from (^{16}O,pnγ). I_γ: from (p,nγ). Others: 5.3 *10* from (^{24}Mg,n3pγ) and 5.4 *22* from (^{16}O,pnγ). Mult.,δ: D(+Q) from γ(θ) in (p,nγ) (1973SaZF); Δπ=yes from level scheme.
764.97	3+	151.7 *2*	6.0 *6*	613.36	4+	[M1]		0.00757 *11*	α(K)=0.00684 *10*; α(L)=0.000638 *9*; α(M)=8.35×10^{-5} *12* α(N)=4.28×10^{-6} *6* Mult.: assumed based on comparions with RUL for $T_{1/2}$≤2.6 ps.
		344&		420.69	1+				
		456.7 *1*	100 *4*	308.29	2+	M1+E2	−0.02 *1*	0.000546 *8*	α=0.000546 *8*; α(K)=0.000495 *7*; α(L)=4.53×10^{-5} *6*; α(M)=5.93×10^{-6} *8* α(N)=3.09×10^{-7} *4* E_γ: from (^{24}Mg,n3pγ) and (p,nγ). Other: 457.2 *15* from (p,γ). I_γ: from (p,nγ). Other: 100 *20* from (p,γ). Mult.: M1(+E2) with δ=0.00 *5* or E1+M2 with δ=−3.4 *10* for J(765)=3 from γ(θ,pol) in (p,nγ) (1976Ri01), with the latter ruled out by RUL. δ: from γ(θ) in (p,nγ) (1973SaZF). Other: 0.00 *5* from γ(θ,pol) in (p,nγ) (1976Ri01).
		764.9 *1*	82 *4*	0.0	4+	(M1(+E2))	−0.025 *25*	0.0001809 *25*	α=0.0001809 *25*; α(K)=0.0001640 *23*; α(L)=1.493×10^{-5} *21*; α(M)=1.957×10^{-6} *27* α(N)=1.022×10^{-7} *14* E_γ: from (^{24}Mg,n3pγ) and (p,nγ). Other: 767.4 *15* from (p,γ) is discrepant. I_γ: from (p,nγ). Mult.,δ: D(+Q) from γ(θ) in (p,nγ); Δπ=no from level scheme.
775.9	3,5	775.9 *5*	100	0.0	4+	D			E_γ: weighted average of 775.8 *5* from (^{40}Ca,2pγ) and 776.2 *10* from (^{16}O,pnγ). Mult.: strong stretched dipole from γ anisotropy in (^{16}O,pnγ) (1974Ta15).
1055.83	3−	310.8 *1*	100.0 *33*	745.01	2−	M1(+E2)	−0.025 *45*	1.32×10^{-3} *2*	B(M1)(W.u.)=0.13 *+6−4*; B(E2)(W.u.)<25 α(K)=0.001193 *22*; α(L)=0.0001098 *20*; α(M)=1.438×10^{-5} *26* α(N)=7.45×10^{-7} *14* E_γ: from (p,nγ) and (^{24}Mg,n3pγ). Other: 310.8 *2* from (^{16}O,pnγ). I_γ: from (p,nγ) and (^{16}O,pnγ). Other: 100.0 *34* from (^{24}Mg,n3pγ).

$^{48}_{23}V_{25}$-17

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.	δ	α †	Comments
									Other: 310.8 *2* from (^{16}O,pnγ).
									I_γ: from (p,nγ) and (^{16}O,pnγ). Other: 100.0 *34* from (^{24}Mg,n3pγ).
									Mult.: from γ(θ,pol) and γ(θ) in (p,nγ) (1976Ri01,1973SaZF).
									δ: from γ(θ) in (^{16}O,pnγ) (1974Ta15). Other: 0.05 *9* from γ(θ,pol) in (p,nγ) (1976Ri01).
1055.83	3$^-$	441 &	11.1	613.36	4$^+$	[E1]		0.000390 *5*	B(E1)(W.u.)=1.2×10^{-4} *+6−3*
									α=0.000390 *5*; α(K)=0.000353 *5*; α(L)=3.22×10^{-5} *5*; α(M)=4.21×10^{-6} *6*
									α(N)=2.182×10^{-7} *31*
									E_γ,I_γ: from (^{40}Ca,2pγ) only (1994Ca04).
		537.2 *1*	6.3 *11*	518.65	1$^-$	E2(+M3)	−0.06 *9*	0.00079 *5*	B(E2)(W.u.)=14 *+11−6*
									α=0.00079 *5*; α(K)=0.00071 *4*; α(L)=6.6×10^{-5} *4*; α(M)=8.6×10^{-6} *5*
									α(N)=4.40×10^{-7} *28*
									E_γ: from (^{24}Mg,n3pγ). Others: 537.2 *10* from (^{16}O,pnγ), 537.0 *15* from (p,γ), and 537.2 *2* from (p,nγ).
									I_γ: weighted average of 5.6 *11* from (^{24}Mg,n3pγ), 9.9 *33* from (^{16}O,pnγ), and 8.7 *33* from (p,nγ).
									Mult.,δ: Q(+O) from γ(θ) in (^{16}O,pnγ) (1974Ta15); M2(+E3) ruled out by RUL.
		1056.1 *4*	5.6 *23*	0.0	4$^+$	[E1]		5.40×10^{-5} *8*	B(E1)(W.u.)=4.4×10^{-6} *+26−18*
									α=5.40×10^{-5} *8*; α(K)=4.89×10^{-5} *7*; α(L)=4.44×10^{-6} *6*; α(M)=5.81×10^{-7} *8*
									α(N)=3.03×10^{-8} *4*
									E_γ,I_γ: other: 1057.0 *25* from (p,γ) with I(1057γ)/I(537γ)=2.3 *8*/3 *1* (1972Bb14).
1099.17	4$^-$	486	3.4	613.36	4$^+$	[E1]		0.000303 *4*	B(E1)(W.u.)=3.1×10^{-5} *7*
									α=0.000303 *4*; α(K)=0.000275 *4*; α(L)=2.499×10^{-5} *35*; α(M)=3.27×10^{-6} *5*
									α(N)=1.697×10^{-7} *24*
									E_γ,I_γ: from (^{40}Ca,2pγ) only (1994Ca04).
		671.3 *4*	4.1 *9*	427.89	5$^+$	[E1]		0.0001385 *19*	B(E1)(W.u.)=1.44×10^{-5} *33*
									α=0.0001385 *19*; α(K)=0.0001255 *18*; α(L)=1.141×10^{-5} *16*; α(M)=1.494×10^{-6} *21*
									α(N)=7.78×10^{-8} *11*
									E_γ: weighted average of 671.2 *4* from (^{24}Mg,n3pγ) and 671.6 *10* from (^{16}O,pnγ).
		1099.3 *2*	100.0 *9*	0.0	4$^+$	E1(+M2)	≤0.052	5.03×10^{-5} *7*	B(E1)(W.u.)=8.0×10^{-5} *+9−8*; B(M2)(W.u.)<0.9
									α=5.03×10^{-5} *7*; α(K)=4.56×10^{-5} *7*; α(L)=4.13×10^{-6} *6*;

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Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									α(M)=5.41×10^{-7} *8* α(N)=2.82×10^{-8} *4* E_γ: weighted average of 1100.0 *10* from (^{40}Ca,2pγ), 1099.2 *4* from (^{24}Mg,n3pγ), 1099.2 *2* from (^{16}O,pnγ), and 1099.3 *2* from (p,nγ). Other: 1102.5 *25* from (p,γ). Mult.: from α(K)exp and γ(θ,pol) in (p,nγ). δ: from α(K)exp=4.0×10^{-5} *6* in (p,nγ) (1977Sa03). Other: −0.015 *155* from γ(θ,pol) in (p,nγ) (1976Mo26).
1120.5	(2,3,4)$^+$	811.0[#] *20*	52[#] *22*	308.29	2$^+$				
		1123.0[#] *30*	100[#] *22*	0.0	4$^+$				
1254.48	7$^+$	627.5 *4*	100.00 *31*	627.21	6$^+$	(M1(+E2))	−0.05 *7*	0.000274 *5*	B(M1)(W.u.)=0.21 *+7−5*; B(E2)(W.u.)≤25 α=0.000274 *5*; α(K)=0.000248 *4*; α(L)=2.27×10^{-5} *4*; α(M)=2.97×10^{-6} *5* α(N)=1.548×10^{-7} *26* E_γ: weighted average of 627.7 *5* from (^{40}Ca,2pγ), 627.4 *4* from (^{24}Mg,n3pγ), and 627.7 *8* from (^{16}O,pnγ). Mult.,δ: D(+Q) from γ(θ) in (^{16}O,pnγ); Δπ=no from level scheme.
		826.5 *3*	2.04 *31*	427.89	5$^+$	[E2]		0.0002233 *31*	B(E2)(W.u.)=6.9 *+25−16* α=0.0002233 *31*; α(K)=0.0002023 *28*; α(L)=1.847×10^{-5} *26*; α(M)=2.419×10^{-6} *34* α(N)=1.254×10^{-7} *18*
1264.53	5$^+$	499[&]	<6.3	764.97	3$^+$	[E2]		0.000984 *14*	α=0.000984 *14*; α(K)=0.000891 *12*; α(L)=8.19×10^{-5} *11*; α(M)=1.071×10^{-5} *15* α(N)=5.49×10^{-7} *8*
		637.3 *2*	31 *5*	627.21	6$^+$	[M1,E2]		3.6×10^{-4} *10*	E_γ,I_γ: from (^{24}Mg,n3pγ) only. α=3.6×10^{-4} *10*; α(K)=3.3×10^{-4} *9*; α(L)=3.0×10^{-5} *8*; α(M)=3.9×10^{-6} *11* α(N)=2.0×10^{-7} *5*
		651.2 *2*	100 *5*	613.36	4$^+$	M1+E2	−0.22 *12*	0.000261 *11*	I_γ: weighted average of 27 *6* from (^{24}Mg,n3pγ) and 33 *5* from (p,nγ). α=0.000261 *11*; α(K)=0.000237 *10*; α(L)=2.16×10^{-5} *9*; α(M)=2.83×10^{-6} *12* α(N)=1.47×10^{-7} *6* E_γ: from (^{24}Mg,n3pγ) and (p,nγ). Other: 651.9 *10* from (^{16}O,pnγ).

$^{48}_{23}V_{25}$-19

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.	δ	α †	Comments
									I_γ: from (p,nγ). Other: 100 *6* from (^{24}Mg,n3pγ). Mult.: M1+E2 with δ=−0.32 *14* or E1+M2 with δ=−4 *2* for J(1265)=5 from γ(θ,pol) in (p,nγ) (1976Ri01), with the latter ruled out by RUL. δ: weighted average of −0.32 *14* (1976Ri01) and −0.15 *12* (1973SaZF) in (p,nγ).
1264.53	5+	836&	<6.3	427.89	5+	[M1,E2]		0.000184 *33*	α=0.000184 *33*; α(K)=0.000166 *30*; α(L)=1.52×10^{-5} *27*; α(M)=2.0×10^{-6} *4* α(N)=1.03×10^{-7} *18* E_γ,I_γ: from (^{24}Mg,n3pγ) only.
		1264&	<6.3	0.0	4+	[M1,E2]		9.1×10^{-5} *10*	α=9.1×10^{-5} *10*; α(K)=6.7×10^{-5} *6*; α(L)=6.1×10^{-6} *5*; α(M)=8.0×10^{-7} *7* α(N)=4.2×10^{-8} *4*; α(IPF)=1.77×10^{-5} *31* E_γ,I_γ: from (^{24}Mg,n3pγ) only.
1521.41	2+	756.4 *1*	44 *5*	764.97	3+	(M1(+E2))	+0.06 *8*	0.0001854 *30*	α=0.0001854 *30*; α(K)=0.0001680 *27*; α(L)=1.530×10^{-5} *25*; α(M)=2.005×10^{-6} *33* α(N)=1.047×10^{-7} *17* E_γ,I_γ: from (p,nγ). Mult.,δ: D(+Q) from γ(θ) in (p,nγ); Δπ=no from level scheme.
		1101.0 *2*	78 *9*	420.69	1+	(M1(+E2))	−0.01 *4*	8.83×10^{-5} *12*	α=8.83×10^{-5} *12*; α(K)=7.94×10^{-5} *11*; α(L)=7.21×10^{-6} *10*; α(M)=9.46×10^{-7} *13* α(N)=4.95×10^{-8} *7*; α(IPF)=6.37×10^{-7} *10* E_γ,I_γ: from (p,nγ). Mult.,δ: D(+Q) from γ(θ) in (p,nγ); Δπ=no from level scheme.
		1212.9 *2*	100 *9*	308.29	2+	(M1+E2)	+0.21 *7*	8.13×10^{-5} *13*	α=8.13×10^{-5} *13*; α(K)=6.66×10^{-5} *10*; α(L)=6.05×10^{-6} *9*; α(M)=7.93×10^{-7} *12* α(N)=4.15×10^{-8} *6*; α(IPF)=7.83×10^{-6} *15* E_γ,I_γ: from (p,nγ). Mult.,δ: D+Q from γ(θ) in (p,nγ); Δπ=no from level scheme.
1557.58	4−	458&	19.4	1099.17	4−	[M1,E2]		9.×10^{-4} *4*	B(M1)(W.u.)=0.032 *+14−9* (if pure M1); B(E2)(W.u.)=3.8×10^{2} *+17−11* (if pure E2) α=9.E−4 *4*; α(K)=8.3×10^{-4} *34*; α(L)=7.7×10^{-5} *32*; α(M)=1.0×10^{-5} *4* α(N)=5.2×10^{-7} *21* E_γ,I_γ: from (^{40}Ca,2pγ) only (1994Ca04).
		501.8 *1*	100 *4*	1055.83	3−	M1+E2	−0.10 *3*	0.000449 *7*	B(M1)(W.u.)=0.12 *+5−3*; B(E2)(W.u.)=12 *+11−6* α=0.000449 *7*; α(K)=0.000406 *7*; α(L)=3.72×10^{-5} *6*; α(M)=4.87×10^{-6} *8*

$^{48}_{23}V_{25}$-20

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									α(N)=2.53×10^{-7} *4* E_γ: weighted average of 501.7 *1* from (^{24}Mg,n3pγ), 501.9 *2* from (^{16}O,pnγ), and 501.8 *1* from (p,nγ). I_γ: from (^{24}Mg,n3pγ). Others: 100 *10* from (^{16}O,pnγ) and 100 *5* from (p,nγ). Mult.: M1+E2 with δ=−0.23 *17* or E1+M2 with δ=−1.8 *5* for J(1558)=4 from γ(θ,pol) in (p,nγ) (1976Ri01), with the latter ruled out by RUL. δ: weighted average of −0.09 *3* from γ(θ) in (p,nγ) (1973SaZF) and −0.12 *4* from γ(θ) in (^{16}O,pnγ) (1974Ta15). Other: −0.23 *17* from γ(θ,pol) in (p,nγ) (1976Ri01).
1557.58	4$^-$	812.4 *2*	24 *5*	745.01	2$^-$	E2		0.0002337 *33*	B(E2)(W.u.)=27 *+12−7* α=0.0002337 *33*; α(K)=0.0002117 *30*; α(L)=1.934×10^{-5} *27*; α(M)=2.532×10^{-6} *35* α(N)=1.313×10^{-7} *18* E_γ: from (^{24}Mg,n3pγ). Others: 812.7 *10* from (^{16}O,pnγ) and 812.2 *3* from (p,nγ). I_γ: weighted average of 18 *4* from (^{24}Mg,n3pγ), 41 *10* from (^{16}O,pnγ), and 28 *5* from (p,nγ). Mult.: Q from γ(θ) in (p,nγ) and (Q) from γ anisotropy in (^{16}O,pnγ); M2 ruled out by RUL.
1685.58	5$^{(-)}$	586.4 *2*	100.0 *22*	1099.17	4$^-$	(M1(+E2))	−0.03 *6*	0.000316 *5*	B(M1)(W.u.)=0.165 *+26−21*; B(E2)(W.u.)<11 α=0.000316 *5*; α(K)=0.000287 *4*; α(L)=2.62×10^{-5} *4*; α(M)=3.43×10^{-6} *5* α(N)=1.787×10^{-7} *27* E_γ: weighted average of 586.5 *4* from (^{24}Mg,n3pγ), 586.4 *5* from (^{16}O,pnγ), and 586.3 *2* from (p,nγ). Mult.,δ: D(+Q) from γ(θ) in (^{16}O,pnγ); Δπ=(no) from level scheme. Other: stretched dipole D from γ anisotropy in (^{40}Ca,2pγ).
		1685.1 *6*	10.0 *19*	0.0	4$^+$	[E1]		0.000432 *6*	B(E1)(W.u.)=1.62×10^{-5} *+36−33* α=0.000432 *6*; α(K)=2.198×10^{-5} *31*; α(L)=1.989×10^{-6} *28*; α(M)=2.61×10^{-7} *4* α(N)=1.364×10^{-8} *19*; α(IPF)=0.000408 *6* E_γ: weighted average of 1685.3 *4* from (^{24}Mg,n3pγ) and 1683.6 *11* from (^{16}O,pnγ).
1691.5	(2$^+$,3$^-$)	1173.0[#] *30*	45[#] *15*	518.65	1$^-$				
		1691[#] *3*	100[#] *15*	0.0	4$^+$				
1750.2	(6$^+$)	486 *1*	18 *7*	1264.53	5$^+$				
		1124[&]	<5.9	627.21	6$^+$				

$^{48}_{23}V_{25}$-21

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.	δ	α †	Comments
1750.2	(6$^+$)	1137 &	<7.1	613.36	4$^+$				
		1322 *1*	100 *7*	427.89	5$^+$				
1780.98	3$^+$	1167.8 *2*	98 *12*	613.36	4$^+$	D(+Q)	−0.07 *14*		E_γ,I_γ: from (p,nγ). Mult.,δ: from γ(θ) in (p,nγ).
		1472.5 *2*	100 *12*	308.29	2$^+$	D(+Q)	−0.03 *10*		E_γ,I_γ: from (p,nγ). Mult.,δ: from γ(θ) in (p,nγ).
		1780.9 *3*	35 *7*	0.0	4$^+$				E_γ,I_γ: from (p,nγ).
1998.45	2$^-$,3$^-$	899.4 *2*		1099.17	4$^-$				E_γ: from (p,nγ) only.
		1253.3 *2*		745.01	2$^-$				E_γ: from (p,nγ) only.
2062.16	5$^{(-)}$	504.8 *2*	100 *8*	1557.58	4$^-$	(M1(+E2))	+0.07 *7*	0.000440 *10*	B(M1)(W.u.)=0.11 *+7−4*; B(E2)(W.u.)≤33 α=0.000440 *10*; α(K)=0.000399 *9*; α(L)=3.64×10^{-5} *8*; α(M)=4.78×10^{-6} *10* α(N)=2.49×10^{-7} *5* E_γ: weighted average of 504.7 *3* from (^{24}Mg,n3pγ) and 504.9 *2* from (^{16}O,pnγ). I_γ: from (^{24}Mg,n3pγ). Others: 100 *10* from (^{16}O,pnγ) and 100 *10* from (α,pnγ). Mult.,δ: D(+Q) from γ(θ) in (^{16}O,pnγ); Δπ=(no) from level scheme.
		1006.2 *3*	48 *8*	1055.83	3$^-$	(E2)		0.0001355 *19*	B(E2)(W.u.)=17 *+7−4* α=0.0001355 *19*; α(K)=0.0001228 *17*; α(L)=1.119×10^{-5} *16*; α(M)=1.466×10^{-6} *21* α(N)=7.62×10^{-8} *11* E_γ: from (^{24}Mg,n3pγ). Other: 1006.3 *10* from (^{16}O,pnγ), 1007.0 from (α,pnγ). I_γ: weighted average of 54 *8* from (^{24}Mg,n3pγ), 43 *10* from (^{16}O,pnγ), and 45 *10* from (α,pnγ). Mult.: (Q) from γ anisotropy in (^{16}O,pnγ); M2 ruled out by RUL.
		1447.1 & *15*	50	613.36	4$^+$	[E1]		0.000252 *4*	B(E1)(W.u.)=5.6×10^{-5} *+24−15* α=0.000252 *4*; α(K)=2.81×10^{-5} *4*; α(L)=2.54×10^{-6} *4*; α(M)=3.33×10^{-7} *5* α(N)=1.741×10^{-8} *25*; α(IPF)=0.0002214 *33* E_γ,I_γ: from (^{40}Ca,2pγ) only.
2196	(3,4)$^-$	1143.0 #& *30*	33 # *7*	1055.83	3$^-$				
		2196.0 # *35*	100 # *30*	0.0	4$^+$				
2231.49	8$^+$	977.2 *3*	100 *6*	1254.48	7$^+$	M1+E2	−0.34 *4*	0.0001142 *18*	B(M1)(W.u.)=0.053 *+11−8*; B(E2)(W.u.)=16.0 *+49−40* α=0.0001142 *18*; α(K)=0.0001035 *16*; α(L)=9.41×10^{-6} *15*; α(M)=1.233×10^{-6} *19*

$^{48}_{23}V_{25}$-22

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	α[†]	Comments
								α(N)=6.44×10^{-8} *10* E_γ: weighted average of 976.6 *4* from (^{24}Mg,n3pγ) and 977.3 *2* from (^{16}O,pnγ). Mult.,δ: D+Q with δ=−0.34 *4* from γ(θ) in (^{16}O,pnγ); E1+M2 with this δ value is ruled out by RUL; stretched dipole (ΔJ=1) from anisotropy in (^{40}Ca,2pγ).
2231.49	8$^+$	1604.1 *4*	85 *6*	627.21	6$^+$	(E2)	0.0001791 *25*	B(E2)(W.u.)=11.0 *+22−17* α=0.0001791 *25*; α(K)=4.41×10^{-5} *6*; α(L)=4.01×10^{-6} *6*; α(M)=5.25×10^{-7} *7* α(N)=2.74×10^{-8} *4*; α(IPF)=0.0001304 *18* E_γ: weighted average of 1604.2 *4* from (^{24}Mg,n3pγ) and 1603.4 *15* from (^{16}O,pnγ). I_γ: other: I(1604γ)/I(977γ)=100/75 from (^{40}Ca,2pγ). Mult.: stretched (ΔJ=2) quadrupole or ΔJ=0 dipole from angular anisotropy in (^{40}Ca,2pγ); M2 ruled out by RUL; Δπ=no from level scheme.
2289.0	1$^+$	1981 *6*		308.29	2$^+$			E_γ: from (^{3}He,pγ) only.
2338.1	(3,4$^+$)	1216.5[#] *40*	69[#] *13*	1120.5	(2,3,4)$^+$			
		1236[#&]		1099.17	4$^-$			
		1724.5[#] *30*	100[#] *17*	613.36	4$^+$			
		2031[#] *4*	33[#] *17*	308.29	2$^+$			
2398.31	6$^-$	712.4 *4*	100.0 *17*	1685.58	5$^{(-)}$	(M1)	0.0002095 *29*	B(M1)(W.u.)=0.208 *+23−19* α=0.0002095 *29*; α(K)=0.0001898 *27*; α(L)=1.730×10^{-5} *24*; α(M)=2.267×10^{-6} *32* α(N)=1.183×10^{-7} *17* E_γ: other: 712.7 *10* from (^{16}O,pnγ). Mult.: stretched dipole (ΔJ=1) from γ anisotropy in (^{40}Ca,2pγ); Δπ=no from level scheme.
		1299.3 *4*	7.9 *15*	1099.17	4$^-$	[E2]	0.0001040 *15*	B(E2)(W.u.)=4.0 *+9−8* α=0.0001040 *15*; α(K)=6.83×10^{-5} *10*; α(L)=6.21×10^{-6} *9*; α(M)=8.14×10^{-7} *11* α(N)=4.24×10^{-8} *6*; α(IPF)=2.87×10^{-5} *4*
		1771.2 *4*	7.6 *13*	627.21	6$^+$	(E1)	0.000495 *7*	B(E1)(W.u.)=2.39×10^{-5} *+49−43* α=0.000495 *7*; α(K)=2.036×10^{-5} *29*; α(L)=1.842×10^{-6} *26*; α(M)=2.413×10^{-7} *34* α(N)=1.263×10^{-8} *18*; α(IPF)=0.000473 *7* Mult.: γ anisotropy from (^{40}Ca,2pγ) suggests dipole, ΔJ=0; Δπ=yes from level scheme.
		1969[&]	16.4	427.89	5$^+$	[E1]	0.000637 *9*	B(E1)(W.u.)=3.8×10^{-5} *8* α=0.000637 *9*; α(K)=1.736×10^{-5} *24*; α(L)=1.570×10^{-6} *22*;

$^{48}_{23}V_{25}$-23

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									α(M)=2.058×10^{-7} *29* α(N)=1.077×10^{-8} *15*; α(IPF)=0.000617 *9*
2408.2	1$^+$	1989 *6*		420.69	1$^+$				E$_\gamma$: from (^{3}He,pγ) only.
		2098 *6*		308.29	2$^+$				E$_\gamma$: from (^{3}He,pγ) only.
2447.4	(2$^+$,3$^-$)	1388[#] *3*	100[#] *31*	1055.83	3$^-$				
		1837[#] *3*	94[#] *38*	613.36	4$^+$				
		1926[#] *4*	81[#] *38*	518.65	1$^-$				
		2451[#] *4*	≈50[#]	0.0	4$^+$				
2471.8	(2,3)$^-$	1955[#] *4*	≈4.1[#]	518.65	1$^-$				
		2159.0[#] *35*	100[#] *34*	308.29	2$^+$				
2495.3	(3$^+$,4,5$^-$)	1439[#] *3*	89[#] *26*	1055.83	3$^-$				
		2072[#] *4*	68[#] *32*	427.89	5$^+$				
		2493[#] *3*	100[#] *32*	0.0	4$^+$				
2604.7	(2$^+$,3,4$^+$)	913.0[#] *25*	59[#] *24*	1691.5	(2$^+$,3$^-$)				
		1986.0[#&] *35*		613.36	4$^+$				
		2300[#] *4*	100[#] *47*	308.29	2$^+$				
		2600[#] *5*	≈47[#]	0.0	4$^+$				
2626.3	9$^+$	394.8 *2*	82 *6*	2231.49	8$^+$	M1+E2	−0.08 *5*	0.000767 *18*	B(M1)(W.u.)=0.286 *+49−39*; B(E2)(W.u.)=29 *+51−22* α=0.000767 *18*; α(K)=0.000694 *16*; α(L)=6.37×10^{-5} *15*; α(M)=8.34×10^{-6} *20* α(N)=4.33×10^{-7} *10* E$_\gamma$: from (^{16}O,pnγ). Other: 394.9 *4* from (^{24}Mg,n3pγ). I$_\gamma$: from (^{24}Mg,n3pγ). Other: 49 from (^{40}Ca,2pγ). Mult.,δ: D+Q from γ(θ) in (^{16}O,pnγ); E1+M2 with the given δ is ruled out by RUL.
		1371.7 *3*	100 *6*	1254.48	7$^+$	E2(+M3)	−0.05 *8*	0.0001140 *21*	B(E2)(W.u.)=11.0 *+27−21* α=0.0001140 *21*; α(K)=6.11×10^{-5} *20*; α(L)=5.56×10^{-6} *18*; α(M)=7.28×10^{-7} *24* α(N)=3.80×10^{-8} *12*; α(IPF)=4.65×10^{-5} *9* E$_\gamma$: weighted average of 1371.4 *4* from (^{24}Mg,n3pγ) and 1371.9 *3* from (^{16}O,pnγ). I$_\gamma$: from (^{24}Mg,n3pγ). Mult.,δ: Q(+O) from γ(θ) in (^{16}O,pnγ); M2(+E3) ruled out by RUL. Other: γ anisotropy from (^{40}Ca,2pγ) consistent with ΔJ=0 or ΔJ=2.
2703.2	(7$^+$)	953 *1*	100 *10*	1750.2	(6$^+$)				
		1438[&]	<9.5	1264.53	5$^+$				
		1448[&] *1*	17 *6*	1254.48	7$^+$				

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	α[†]	Comments
2703.2	(7$^+$)	2076 *1*	41 *8*	627.21	6$^+$			
		2275[&]	<9.5	427.89	5$^+$			
2779.14	(6$^-$)	717.1 *4*	100 *7*	2062.16	5$^{(-)}$	(M1)	0.0002067 *29*	B(M1)(W.u.)=0.220 *+40−29* α=0.0002067 *29*; α(K)=0.0001873 *26*; α(L)=1.706×10^{-5} *24*; α(M)=2.236×10^{-6} *31* α(N)=1.167×10^{-7} *16* E_γ,I_γ: other: 716.9 *10* with Iγ=100 *15* from (^{16}O,pnγ). Mult.: (D), ΔJ=(1) from γ anisotropy in (^{16}O,pnγ); Δπ=(no) from level scheme.
		1221.1 *3*	40 *7*	1557.58	4$^-$	(E2)	9.89×10^{-5} *14*	B(E2)(W.u.)=30 *6* α=9.89×10^{-5} *14*; α(K)=7.83×10^{-5} *11*; α(L)=7.12×10^{-6} *10*; α(M)=9.33×10^{-7} *13* α(N)=4.86×10^{-8} *7*; α(IPF)=1.253×10^{-5} *18* E_γ: other: 1221.8 *15* from (^{16}O,pnγ). I_γ: weighted average of 39 *7* from (^{24}Mg,n3pγ) and 45 *15* from (^{16}O,pnγ). Mult.: (Q), ΔJ=(2) from γ anisotropy in (^{16}O,pnγ); (M2) ruled out by RUL.
2793.0	(3,4)$^-$	1669[#] *3*	100[#] *21*	1120.5	(2,3,4)$^+$			
		2789[#] *3*	83[#] *33*	0.0	4$^+$			
2823.1	(4$^-$)	2055[#] *4*	100[#] *53*	764.97	3$^+$			
		2825[#] *4*	27[#] *13*	0.0	4$^+$			
3012	(1$^+$,2,3,4$^+$)	2250[#&] *5*	≈12[#]	764.97	3$^+$			
		2704[#] *3*	≈100[#]	308.29	2$^+$			
3022.6	0$^+$	2598 *6*		420.69	1$^+$			E_γ: from (^{3}He,pγ).
3074	1$^+$,2$^+$,3$^+$,4$^+$	2766[#] *3*	100	308.29	2$^+$			
3174.5	(7$^-$)	775.5 *6*	100 *6*	2398.31	6$^-$	(M1)	0.0001758 *25*	B(M1)(W.u.)=0.242 *+31−24* α=0.0001758 *25*; α(K)=0.0001593 *22*; α(L)=1.451×10^{-5} *20*; α(M)=1.901×10^{-6} *27* α(N)=9.93×10^{-8} *14* E_γ: weighted average of 775.7 *4* from (^{24}Mg,n3pγ) and 774 *1* from (^{16}O,pnγ). Mult.: stretched D from γ anisotropy in (^{40}Ca,2pγ); (M1) from level scheme.
		1489.0 *4*	31 *6*	1685.58	5$^{(-)}$	[E2]	0.0001403 *20*	B(E2)(W.u.)=11.9 *23* α=0.0001403 *20*; α(K)=5.13×10^{-5} *7*; α(L)=4.66×10^{-6} *7*; α(M)=6.10×10^{-7} *9* α(N)=3.19×10^{-8} *4*; α(IPF)=8.37×10^{-5} *12*
		2547.4 *6*	9.16 *28*	627.21	6$^+$	[E1]	1.00×10^{-3} *1*	B(E1)(W.u.)=1.46×10^{-5} *+20−16* α(K)=1.206×10^{-5} *17*; α(L)=1.090×10^{-6} *15*;

$^{48}_{23}V_{25}$-25

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	α[†]	Comments
								α(M)=1.428×10^{-7} *20* α(N)=7.48×10^{-9} *10*; α(IPF)=0.000989 *14* I_γ: other: 40 from (^{40}Ca,2pγ).
3210.2	(8$^+$)	507 *1*	72 *15*	2703.2	(7$^+$)			
		584 *1*	85 *18*	2626.3	9$^+$			
		979[&]	<26	2231.49	8$^+$			
		1459[&]	<26	1750.2	(6$^+$)			
		1955 *1*	100 *18*	1254.48	7$^+$			
3243.4	(2)$^+$	2725[#] *3*	≈83[#]	518.65	1$^-$			
		3243[#] *3*	100[#] *50*	0.0	4$^+$			
3423.3	(7$^-$)	643.6 *4*	100 *17*	2779.14	(6$^-$)	[M1+E2]	3.5×10^{-4} *10*	B(M1)(W.u.)=0.22 *+7−5* (if pure M1) α=3.5×10^{-4} *10*; α(K)=3.2×10^{-4} *9*; α(L)=2.9×10^{-5} *8*; α(M)=3.8×10^{-6} *10* α(N)=2.0×10^{-7} *5* E_γ: other: 643.7 *10* from (^{16}O,pnγ). Mult.: pure E2 ruled out by RUL.
		1026.1 *6*	100 *17*	2398.31	6$^-$	[M1,E2]	0.000115 *15*	B(M1)(W.u.)=0.054 *+17−12* (if pure M1); B(E2)(W.u.)=127 *+39−27* (if pure E2) α=0.000115 *15*; α(K)=0.000104 *13*; α(L)=9.5×10^{-6} *12*; α(M)=1.24×10^{-6} *16* α(N)=6.5×10^{-8} *8*
		1362.0 *5*	86 *14*	2062.16	5$^{(-)}$	[E2]	0.0001122 *16*	B(E2)(W.u.)=27 *+8−6* α=0.0001122 *16*; α(K)=6.18×10^{-5} *9*; α(L)=5.61×10^{-6} *8*; α(M)=7.35×10^{-7} *10* α(N)=3.84×10^{-8} *5*; α(IPF)=4.41×10^{-5} *6*
3565	(3,4)$^+$	3137[#] *5*	75[#] *38*	427.89	5$^+$			
		3565[#] *3*	100[#] *50*	0.0	4$^+$			
3702	1$^+$	3394 *6*		308.29	2$^+$			E_γ: from (^{3}He,pγ).
3866	1$^+$	3445 *6*		420.69	1$^+$			E_γ: from (^{3}He,pγ).
		3558 *6*		308.29	2$^+$			E_γ: from (^{3}He,pγ).
3981.0	(8$^-$)	558 *1*	3.1 *9*	3423.3	(7$^-$)	[M1,E2]	5.2×10^{-4} *17*	B(M1)(W.u.)=0.0135 *+47−41* (if pure M1); B(E2)(W.u.)=107 *+37−33* (if pure E2) α=5.2×10^{-4} *17*; α(K)=4.7×10^{-4} *15*; α(L)=4.3×10^{-5} *14*; α(M)=5.7×10^{-6} *19* α(N)=2.9×10^{-7} *9* E_γ,I_γ: from (^{24}Mg,n3pγ).
		806.4 *4*	100 *7*	3174.5	(7$^-$)	(M1)	0.0001624 *23*	B(M1)(W.u.)=0.144 *+25−19* α=0.0001624 *23*; α(K)=0.0001471 *21*; α(L)=1.339×10^{-5} *19*; α(M)=1.755×10^{-6} *25* α(N)=9.17×10^{-8} *13*

$^{48}_{23}V_{25}$-26

Adopted Levels, Gammas (continued)

$\gamma(^{48}V)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									E_γ,I_γ: from (^{24}Mg,n3pγ). Other: 806.6 *10* from (^{16}O,pnγ). Mult.: stretched dipole from γ anisotropy in (^{40}Ca,2pγ) and (^{16}O,pnγ); $\Delta\pi$=(no) from level scheme.
3981.0	(8^-)	1349[&]	11.8	2626.3	9^+	[E1]		0.0001888 *26*	B(E1)(W.u.)=8.4×10^{-5} *+22−19* α=0.0001888 *26*; α(K)=3.16×10^{-5} *4*; α(L)=2.86×10^{-6} *4*; α(M)=3.75×10^{-7} *5* α(N)=1.958×10^{-8} *27*; α(IPF)=0.0001540 *22*
		1582.3 *4*	44 *6*	2398.31	6^-	(E2)		0.0001711 *24*	E_γ,I_γ: from (^{40}Ca,2pγ) only; level-energy difference=1354.7. B(E2)(W.u.)=8.3 *+17−14* α=0.0001711 *24*; α(K)=4.54×10^{-5} *6*; α(L)=4.12×10^{-6} *6*; α(M)=5.39×10^{-7} *8* α(N)=2.82×10^{-8} *4*; α(IPF)=0.0001210 *17*
		1744[&]	33	2231.49	8^+	[E1]		0.000475 *7*	E_γ,I_γ: other: 1588 with Iγ=50 from (^{40}Ca,2pγ). Mult.: stretched (ΔJ=2) quadrupole or ΔJ=0 dipole from angular anisotropy in (^{40}ca,2pγ); M2 ruled out by RUL; $\Delta\pi$=(no) from level scheme. B(E1)(W.u.)=1.09×10^{-4} *+27−23* α=0.000475 *7*; α(K)=2.084×10^{-5} *29*; α(L)=1.886×10^{-6} *26*; α(M)=2.471×10^{-7} *35* α(N)=1.293×10^{-8} *18*; α(IPF)=0.000452 *6*
4073.4	(8^-)	898.9 *5*	100 *8*	3174.5	(7^-)	[M1+E2]		0.000155 *25*	E_γ,I_γ: from (^{40}Ca,2pγ) only; level-energy difference=1749.5. B(M1)(W.u.)=0.19 *+8−5* (if pure M1) α=0.000155 *25*; α(K)=0.000140 *22*; α(L)=1.28×10^{-5} *21*; α(M)=1.68×10^{-6} *27* α(N)=8.7×10^{-8} *14* Mult.: pure E2 ruled out by RUL.
		1676 *1*	61 *8*	2398.31	6^-	[E2]		0.0002064 *29*	B(E2)(W.u.)=16 *+7−4* α=0.0002064 *29*; α(K)=4.05×10^{-5} *6*; α(L)=3.67×10^{-6} *5*; α(M)=4.81×10^{-7} *7* α(N)=2.516×10^{-8} *35*; α(IPF)=0.0001618 *23*
4150.1	(10^+)	941[&]	<2.6	3210.2	(8^+)				
		1523.5 *8*	100 *7*	2626.3	9^+				E_γ: other: 1523.5 *16* from (^{16}O,pnγ). Mult.: (Q) from γ anisotropy in (^{16}O,pnγ) for 1523.5γ, placed from a 3586, (7^-) level which is only tentatively proposed by 1974Ta15. But the level scheme here gives ΔJ=1.
		1918.5 *8*	28 *7*	2231.49	8^+				
4306.8	(11^+)	157.0 *4*	3.1 *6*	4150.1	(10^+)	[M1+E2]	<0.1	0.00723 *31*	B(M1)(W.u.)=0.47 *+17−14* α(K)=0.00654 *28*; α(L)=0.000609 *27*; α(M)=7.98×10^{-5} *35* α(N)=4.08×10^{-6} *17* δ: estimated from RUL=300 for B(E2)(W.u.).
		1680.4 *4*	100.0 *6*	2626.3	9^+	(E2)		0.0002081 *29*	B(E2)(W.u.)=11.0 *+14−11*

$^{48}_{23}V_{25}$-27

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	α[†]	Comments
								α=0.0002081 *29*; α(K)=4.03×10^{-5} *6*; α(L)=3.65×10^{-6} *5*; α(M)=4.79×10^{-7} *7* α(N)=2.503×10^{-8} *35*; α(IPF)=0.0001637 *23* E_γ: weighted average of 1680.3 *4* from (^{24}Mg,n3pγ) and 1680.5 *6* from (^{16}O,pnγ). Mult.: ΔJ=0 or stretched quadrupole (ΔJ=2) from γ anisotropy in (^{40}Ca,2pγ) and γ(θ) in (^{27}Al,3n3pγ); M2 ruled out by RUL; Δπ=(no) from level scheme.
4360.6	(8$^-$)	937.4 *6*	100 *11*	3423.3	(7$^-$)	[M1+E2]	0.000141 *21*	B(M1)(W.u.)=0.17 *+9−5* (if pure M1) α=0.000141 *21*; α(K)=0.000127 *19*; α(L)=1.16×10^{-5} *17*; α(M)=1.52×10^{-6} *23* α(N)=7.9×10^{-8} *12* Mult.: pure E2 ruled out by RUL.
		1581.3 *6*	85 *11*	2779.14	(6$^-$)	[E2]	0.0001707 *24*	B(E2)(W.u.)=31 *+16−8* α=0.0001707 *24*; α(K)=4.54×10^{-5} *6*; α(L)=4.12×10^{-6} *6*; α(M)=5.40×10^{-7} *8* α(N)=2.82×10^{-8} *4*; α(IPF)=0.0001206 *17*
4368.3	(9$^+$)	1158 *1*	100 *13*	3210.2	(8$^+$)			
		1665[&]	<18.2	2703.2	(7$^+$)			
		1742 *1*	82 *13*	2626.3	9$^+$			
		2137[&]	<27	2231.49	8$^+$			
4395.8	(9$^-$)	323 *1*	9 *4*	4073.4	(8$^-$)	[M1+E2]	0.0028 *16*	B(M1)(W.u.)=0.036 *+17−15* (if pure M1) α(K)=0.0025 *14*; α(L)=2.3×10^{-4} *13*; α(M)=3.0×10^{-5} *17* α(N)=1.5×10^{-6} *9* Mult.: pure E2 ruled out by RUL.
		414.5 *4*	100 *7*	3981.0	(8$^-$)	(M1)	0.000679 *10*	B(M1)(W.u.)=0.187 *+34−28* α=0.000679 *10*; α(K)=0.000615 *9*; α(L)=5.63×10^{-5} *8*; α(M)=7.38×10^{-6} *10* α(N)=3.84×10^{-7} *5* Mult.: stretched dipole (ΔJ=1) from γ anisotropy in (^{40}Ca,2pγ); Δπ=(no) from level scheme.
		1185.4 *5*	1.2 *5*	3210.2	(8$^+$)	[E1]	8.88×10^{-5} *13*	B(E1)(W.u.)=2.2×10^{-6} *+11−9* α=8.88×10^{-5} *13*; α(K)=3.96×10^{-5} *6*; α(L)=3.59×10^{-6} *5*; α(M)=4.70×10^{-7} *7* α(N)=2.453×10^{-8} *34*; α(IPF)=4.52×10^{-5} *7*
		1222[&]	<8.8	3174.5	(7$^-$)	[E2]	9.90×10^{-5} *14*	B(E2)(W.u.)=0.5 *+8−5* α=9.90×10^{-5} *14*; α(K)=7.82×10^{-5} *11*; α(L)=7.11×10^{-6} *10*; α(M)=9.32×10^{-7} *13* α(N)=4.86×10^{-8} *7*; α(IPF)=1.269×10^{-5} *18* I_γ: other: 31 from (^{40}Ca,2pγ).
		1769.3 *4*	62 *5*	2626.3	9$^+$	[E1]	0.000494 *7*	B(E1)(W.u.)=3.5×10^{-5} *+7−6*

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.	α †	Comments
								α=0.000494 *7*; α(K)=2.039×10^{-5} *29*; α(L)=1.845×10^{-6} *26*; α(M)=2.417×10^{-7} *34* α(N)=1.265×10^{-8} *18*; α(IPF)=0.000471 *7*
4395.8	(9$^-$)	2164.4 *4*	6.7 *16*	2231.49	8$^+$	[E1]	0.000769 *11*	B(E1)(W.u.)=2.1×10^{-6} *6* α=0.000769 *11*; α(K)=1.514×10^{-5} *21*; α(L)=1.368×10^{-6} *19*; α(M)=1.793×10^{-7} *25* α(N)=9.39×10^{-9} *13*; α(IPF)=0.000753 *11*
4581.0	(9$^-$)	507.7 *4*	59 *12*	4073.4	(8$^-$)	[M1+E2]	6.8×10^{-4} *25*	B(M1)(W.u.)=0.086 *+19−17* (if pure M1) α=6.8×10^{-4} *25*; α(K)=6.2×10^{-4} *23*; α(L)=5.7×10^{-5} *21*; α(M)=7.4×10^{-6} *27* α(N)=3.8×10^{-7} *14* Mult.: pure E2 ruled out by RUL.
		600.0 *4*	79 *12*	3981.0	(8$^-$)	[M1+E2]	4.3×10^{-4} *13*	B(M1)(W.u.)=0.070 *+13−11* (if pure M1) α=4.3×10^{-4} *13*; α(K)=3.9×10^{-4} *11*; α(L)=3.5×10^{-5} *11*; α(M)=4.6×10^{-6} *14* α(N)=2.4×10^{-7} *7* Mult.: pure E2 ruled out by RUL.
		1158.2 *5*	7.9 *18*	3423.3	(7$^-$)	[E2]	0.0001015 *14*	B(E2)(W.u.)=1.79 *+50−44* α=0.0001015 *14*; α(K)=8.82×10^{-5} *12*; α(L)=8.03×10^{-6} *11*; α(M)=1.052×10^{-6} *15* α(N)=5.48×10^{-8} *8*; α(IPF)=4.16×10^{-6} *7*
		1406.4 *5*	100 *15*	3174.5	(7$^-$)	[E2]	0.0001200 *17*	B(E2)(W.u.)=8.6 *+15−13* α=0.0001200 *17*; α(K)=5.77×10^{-5} *8*; α(L)=5.24×10^{-6} *7*; α(M)=6.87×10^{-7} *10* α(N)=3.59×10^{-8} *5*; α(IPF)=5.63×10^{-5} *8*
		2349.5 *6*	50 *12*	2231.49	8$^+$	[E1]	0.000887 *12*	B(E1)(W.u.)=1.71×10^{-5} *41* α=0.000887 *12*; α(K)=1.348×10^{-5} *19*; α(L)=1.218×10^{-6} *17*; α(M)=1.596×10^{-7} *22* α(N)=8.36×10^{-9} *12*; α(IPF)=0.000873 *12*
4674.9?		2048[&]		2626.3	9$^+$			E_γ: from (^{27}Al,3n3pγ) only.
4684	1$^+$	4368[@&] *6*		308.29	2$^+$			E_γ: from (^{3}He,pγ) only.
4781	1$^+$	4368[@&] *6*		420.69	1$^+$			E_γ: from (^{3}He,pγ) only.
4968.8	(10$^+$)	601[&]	<7.0	4368.3	(9$^+$)			
		662 *1*	5.8 *23*	4306.8	(11$^+$)			
		818 *1*	10.5 *23*	4150.1	(10$^+$)			
		1759[&]	<7.0	3210.2	(8$^+$)			
		2343 *1*	100 *11*	2626.3	9$^+$			
5204.0	(10$^-$)	623[&]	<5.3	4581.0	(9$^-$)	[M1,E2]	3.9×10^{-4} *11*	B(M1)(W.u.)<0.022 (if pure M1); B(E2)(W.u.)<139 (if pure E2) α=3.9×10^{-4} *11*; α(K)=3.5×10^{-4} *10*; α(L)=3.2×10^{-5} *9*;

$^{48}_{23}V_{25}$-29

Adopted Levels, Gammas (continued)

$\gamma(^{48}V)$ (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.	α †	Comments
								α(M)=4.2×10^{-6} *12* α(N)=2.2×10^{-7} *6*
5204.0	(10$^-$)	807.9 *5*	100.0 *21*	4395.8	(9$^-$)	[M1+E2]	0.00020 *4*	B(M1)(W.u.)=0.132 *+43−27* (if pure M1) α=0.00020 *4*; α(K)=0.000181 *34*; α(L)=1.65×10^{-5} *32*; α(M)=2.2×10^{-6} *4* α(N)=1.12×10^{-7} *21* Mult.: pure E2 ruled out by RUL.
		1132&	<5.3	4073.4	(8$^-$)	[E2]	0.0001048 *15*	B(E2)(W.u.)=2.5 *+46−25* α=0.0001048 *15*; α(K)=9.30×10^{-5} *13*; α(L)=8.46×10^{-6} *12*; α(M)=1.108×10^{-6} *16* α(N)=5.77×10^{-8} *8*; α(IPF)=2.252×10^{-6} *32*
		1224&	<5.3	3981.0	(8$^-$)	[E2]	9.90×10^{-5} *14*	B(E2)(W.u.)=1.7 *+31−17* α=9.90×10^{-5} *14*; α(K)=7.79×10^{-5} *11*; α(L)=7.09×10^{-6} *10*; α(M)=9.28×10^{-7} *13* α(N)=4.84×10^{-8} *7*; α(IPF)=1.304×10^{-5} *18*
		2578 *1*	5.3 *21*	2626.3	9$^+$	[E1]	1.02×10^{-3} *1*	B(E1)(W.u.)=5.0×10^{-6} *+26−20* α(K)=1.186×10^{-5} *17*; α(L)=1.072×10^{-6} *15*; α(M)=1.405×10^{-7} *20* α(N)=7.36×10^{-9} *10*; α(IPF)=0.001007 *14*
5568.7	(11$^+$)	600 *1*	33 *10*	4968.8	(10$^+$)			
		1201&	<8.3	4368.3	(9$^+$)			
		1262 *1*	100 *13*	4306.8	(11$^+$)			
		1418 *1*	33 *10*	4150.1	(10$^+$)			
5897.8	(11$^-$)	693.4 *8*	24 *6*	5204.0	(10$^-$)	[M1,E2]	0.00029 *7*	B(M1)(W.u.)=0.0142 *+39−36* (if pure M1); B(E2)(W.u.)=73 *+20−19* (if pure E2) α=0.00029 *7*; α(K)=0.00026 *6*; α(L)=2.4×10^{-5} *6*; α(M)=3.2×10^{-6} *8* α(N)=1.6×10^{-7} *4*
		929 *1*	36 *7*	4968.8	(10$^+$)	[E1]	6.92×10^{-5} *10*	B(E1)(W.u.)=2.06×10^{-4} *+48−41* α=6.92×10^{-5} *10*; α(K)=6.27×10^{-5} *9*; α(L)=5.69×10^{-6} *8*; α(M)=7.45×10^{-7} *11* α(N)=3.89×10^{-8} *6*
		1317.0 *4*	100 *13*	4581.0	(9$^-$)	[E2]	0.0001060 *15*	B(E2)(W.u.)=12.3 *+19−16* α=0.0001060 *15*; α(K)=6.64×10^{-5} *9*; α(L)=6.03×10^{-6} *8*; α(M)=7.90×10^{-7} *11* α(N)=4.12×10^{-8} *6*; α(IPF)=3.28×10^{-5} *5*
		1502 *1*	11 *4*	4395.8	(9$^-$)	[E2]	0.0001442 *20*	B(E2)(W.u.)=0.70 *+28−25* α=0.0001442 *20*; α(K)=5.04×10^{-5} *7*; α(L)=4.57×10^{-6} *6*; α(M)=5.99×10^{-7} *8* α(N)=3.13×10^{-8} *4*; α(IPF)=8.86×10^{-5} *13*
		1747 *1*	9.1 *16*	4150.1	(10$^+$)	[E1]	0.000478 *7*	B(E1)(W.u.)=7.8×10^{-6} *+19−16* α=0.000478 *7*; α(K)=2.079×10^{-5} *29*; α(L)=1.881×10^{-6} *26*;

$^{48}_{23}V_{25}$-30

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.	α †	Comments
								α(M)=2.465×10^{-7} *35* α(N)=1.290×10^{-8} *18*; α(IPF)=0.000455 *6*
6214.7	(12$^+$)	646.0 *8*	24 *8*	5568.7	(11$^+$)			
		1246 &	<3.7	4968.8	(10$^+$)			
		1908.4 *8*	100 *11*	4306.8	(11$^+$)			
		2064.0 *8*	61 *11*	4150.1	(10$^+$)			
6243.4	(13$^+$)	28 &	<3.0	6214.7	(12$^+$)	[M1]	0.738 *10*	α(K)=0.665 *9*; α(L)=0.0645 *9*; α(M)=0.00842 *12* α(N)=0.000419 *6*
		674 &	<3.0	5568.7	(11$^+$)	[E2]	0.000393 *5*	B(E2)(W.u.)=29 *+40−29* α=0.000393 *5*; α(K)=0.000356 *5*; α(L)=3.26×10^{-5} *5*; α(M)=4.26×10^{-6} *6* α(N)=2.201×10^{-7} *31*
		1937 *1*	100	4306.8	(11$^+$)	(E2)	0.000317 *4*	B(E2)(W.u.)=9.9 *+16−14* α=0.000317 *4*; α(K)=3.08×10^{-5} *4*; α(L)=2.79×10^{-6} *4*; α(M)=3.65×10^{-7} *5* α(N)=1.911×10^{-8} *27*; α(IPF)=0.000283 *4* Mult.: ΔJ=0 or stretched quadrupole (ΔJ=2) from γ anisotropy in (^{40}Ca,2pγ) and γ(θ) in (^{27}Al,3n3pγ); M2 ruled out by RUL; Δπ=(no) from level scheme.
7334.0	(12$^-$)	1437 &	<10.0	5897.8	(11$^-$)	[M1,E2]	0.000114 *13*	B(M1)(W.u.)<0.007 (if pure M1); B(E2)(W.u.)<8.4 (if pure E2) α=0.000114 *13*; α(K)=5.17×10^{-5} *35*; α(L)=4.69×10^{-6} *33*; α(M)=6.1×10^{-7} *4* α(N)=3.22×10^{-8} *22*; α(IPF)=5.7×10^{-5} *9*
		2130 *1*	100	5204.0	(10$^-$)	[E2]	0.000406 *6*	B(E2)(W.u.)=10.1 *+23−16* α=0.000406 *6*; α(K)=2.59×10^{-5} *4*; α(L)=2.344×10^{-6} *33*; α(M)=3.07×10^{-7} *4* α(N)=1.608×10^{-8} *23*; α(IPF)=0.000377 *5*
7334.8	(12$^+$)	1092 *1*	22 *6*	6243.4	(13$^+$)			
		1119 &	<9.7	6214.7	(12$^+$)			
		1766 *1*	100 *11*	5568.7	(11$^+$)			
		2365 &	<6.9	4968.8	(10$^+$)			
		3028 *2*	17 *4*	4306.8	(11$^+$)			
7944.0	(13$^-$)	608 &	<4.0	7334.0	(12$^-$)	[M1,E2]	4.1×10^{-4} *12*	B(M1)(W.u.)<0.05 (if pure M1) α=4.1×10^{-4} *12*; α(K)=3.7×10^{-4} *11*; α(L)=3.4×10^{-5} *10*; α(M)=4.5×10^{-6} *13* α(N)=2.3×10^{-7} *7*
		2046 *1*	100	5897.8	(11$^-$)	[E2]	0.000367 *5*	B(E2)(W.u.)=16.6 *+31−22* α=0.000367 *5*; α(K)=2.78×10^{-5} *4*; α(L)=2.521×10^{-6} *35*; α(M)=3.30×10^{-7} *5* α(N)=1.729×10^{-8} *24*; α(IPF)=0.000336 *5*
7973.1	(13$^+$)	639 *1*	100 *11*	7334.8	(12$^+$)	[M1,E2]	3.6×10^{-4} *10*	α=3.6×10^{-4} *10*; α(K)=3.3×10^{-4} *9*; α(L)=3.0×10^{-5} *8*; α(M)=3.9×10^{-6} *11* α(N)=2.0×10^{-7} *5*

$^{48}_{23}V_{25}$-31

Adopted Levels, Gammas (continued)

γ(^{48}V) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.	α[†]	Comments
7973.1	(13$^+$)	1730 *1*	55 *9*	6243.4	(13$^+$)	[M1,E2]	0.000205 *23*	α=0.000205 *23*; α(K)=3.63×10^{-5} *18*; α(L)=3.29×10^{-6} *16*; α(M)=4.32×10^{-7} *22* α(N)=2.26×10^{-8} *11*; α(IPF)=0.000164 *21*
		1759[&]	<9.1	6214.7	(12$^+$)	[M1,E2]	0.000215 *24*	α=0.000215 *24*; α(K)=3.52×10^{-5} *17*; α(L)=3.19×10^{-6} *16*; α(M)=4.19×10^{-7} *20* α(N)=2.19×10^{-8} *10*; α(IPF)=0.000176 *23*
		2404 *1*	27 *9*	5568.7	(11$^+$)	[E2]	0.000533 *7*	α=0.000533 *7*; α(K)=2.094×10^{-5} *29*; α(L)=1.896×10^{-6} *27*; α(M)=2.484×10^{-7} *35* α(N)=1.301×10^{-8} *18*; α(IPF)=0.000510 *7*
8286.4?	(15,13)	2045[&]	100	6243.4	(13$^+$)	D,Q		E_γ: from (^{40}Ca,2pγ) only. Mult.: ΔJ=0 dipole or ΔJ=2 stretched quadrupole from γ anisotropy in (^{40}Ca,2pγ).
8495.6	(14$^+$)	522.8 *8*	18 *4*	7973.1	(13$^+$)	[M1,E2]	6.3×10^{-4} *22*	α=6.3×10^{-4} *22*; α(K)=5.7×10^{-4} *20*; α(L)=5.2×10^{-5} *19*; α(M)=6.8×10^{-6} *24* α(N)=3.5×10^{-7} *12*
		1161[&]	<3.5	7334.8	(12$^+$)	[E2]	0.0001012 *14*	α=0.0001012 *14*; α(K)=8.77×10^{-5} *12*; α(L)=7.98×10^{-6} *11*; α(M)=1.046×10^{-6} *15* α(N)=5.45×10^{-8} *8*; α(IPF)=4.41×10^{-6} *6*
		2252 *1*	100 *4*	6243.4	(13$^+$)	[M1,E2]	0.00042 *4*	α=0.00042 *4*; α(K)=2.28×10^{-5} *8*; α(L)=2.06×10^{-6} *7*; α(M)=2.70×10^{-7} *9* α(N)=1.42×10^{-8} *5*; α(IPF)=0.00040 *4*
		2280[&]	<4.7	6214.7	(12$^+$)	[E2]	0.000476 *7*	α=0.000476 *7*; α(K)=2.295×10^{-5} *32*; α(L)=2.078×10^{-6} *29*; α(M)=2.72×10^{-7} *4* α(N)=1.426×10^{-8} *20*; α(IPF)=0.000450 *6*
8589.0?	(14)	2344[&]	100	6243.4	(13$^+$)	D		E_γ: from (^{40}Ca,2pγ) only. Mult.: stretched dipole (ΔJ=1) from γ anisotropy in (^{40}Ca,2pγ).
8712.6	(15$^+$)	217.1 *5*	13.6 *23*	8495.6	(14$^+$)	[M1+E2]	0.011 *8*	B(M1)(W.u.)=2.2 +*7*−*5* (if pure M1) α(K)=0.010 *7*; α(L)=9.E−4 *7*; α(M)=1.2×10^{-4} *9* α(N)=6.E−6 *4* Mult.: pure E2 ruled out by RUL.
		739[&]	<3.4	7973.1	(13$^+$)	[E2]	0.000303 *4*	B(E2)(W.u.)<84 α=0.000303 *4*; α(K)=0.000274 *4*; α(L)=2.506×10^{-5} *35*; α(M)=3.28×10^{-6} *5* α(N)=1.698×10^{-7} *24*
		2469 *1*	100.0 *23*	6243.4	(13$^+$)	[E2]	0.000564 *8*	B(E2)(W.u.)=4.4 +*13*−*9* α=0.000564 *8*; α(K)=2.001×10^{-5} *28*; α(L)=1.811×10^{-6} *25*; α(M)=2.373×10^{-7} *33* α(N)=1.243×10^{-8} *17*; α(IPF)=0.000541 *8*
9910.1	(14$^-$)	1968[&]	<8.0	7944.0	(13$^-$)	[M1,E2]	0.000300 *31*	α=0.000300 *31*; α(K)=2.88×10^{-5} *12*; α(L)=2.61×10^{-6} *11*;

$^{48}_{23}V_{25}$-32

Adopted Levels, Gammas (continued)

$\gamma(^{48}V)$ (continued)

E_i(level)	J_i^π	E_γ‡	I_γ‡	E_f	J_f^π	Mult.	α†	Comments
								α(M)=3.42×10^{-7} *14* α(N)=1.79×10^{-8} *7*; α(IPF)=0.000268 *30*
9910.1	(14$^-$)	2576 *2*	100	7334.0	(12$^-$)	[E2]	0.000613 *9*	α=0.000613 *9*; α(K)=1.863×10^{-5} *26*; α(L)=1.686×10^{-6} *24*; α(M)=2.209×10^{-7} *31* α(N)=1.157×10^{-8} *16*; α(IPF)=0.000592 *8*
10449.5	(15$^-$)	2505 *2*	100	7944.0	(13$^-$)	[E2]	0.000580 *8*	α=0.000580 *8*; α(K)=1.952×10^{-5} *27*; α(L)=1.767×10^{-6} *25*; α(M)=2.316×10^{-7} *33* α(N)=1.213×10^{-8} *17*; α(IPF)=0.000559 *8*
12643.7	(16$^-$)	2194 *1*	100 *40*	10449.5	(15$^-$)			
		2731&	<20.0	9910.1	(14$^-$)			
		3931	100 *40*	8712.6	(15$^+$)			
13281.7	(17$^-$)	638 *1*	25 *13*	12643.7	(16$^-$)			
		2832 *2*	100 *13*	10449.5	(15$^-$)			

† Additional information 1.
‡ From (^{24}Mg,n3pγ) (2002Br42), unless otherwise noted.
# From (p,γ).
@ Multiply placed.
& Placement of transition in the level scheme is uncertain.

$^{48}_{23}V_{25}$-33

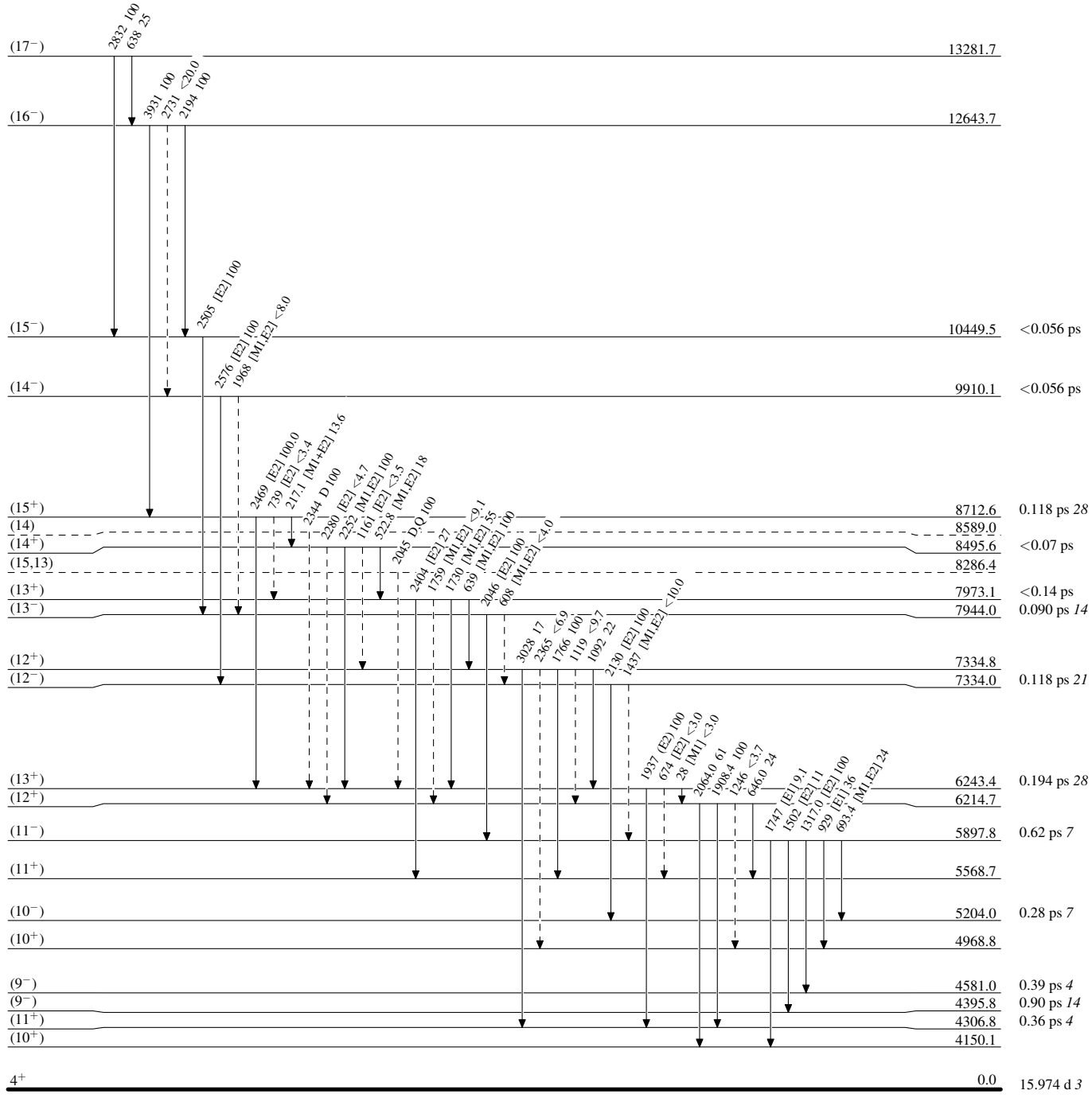
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{48}_{23}V_{25}$

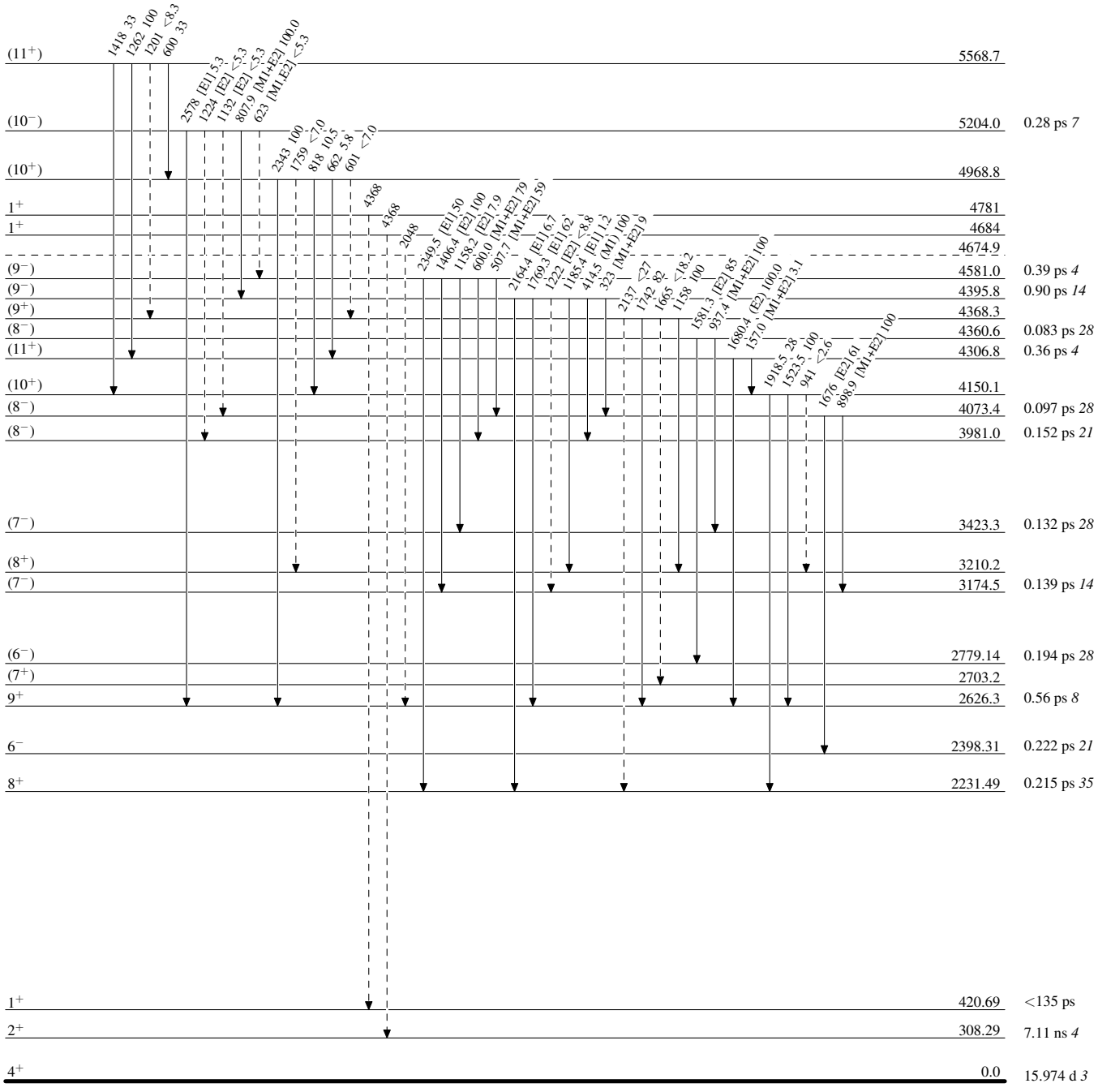
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{48}_{23}V_{25}$

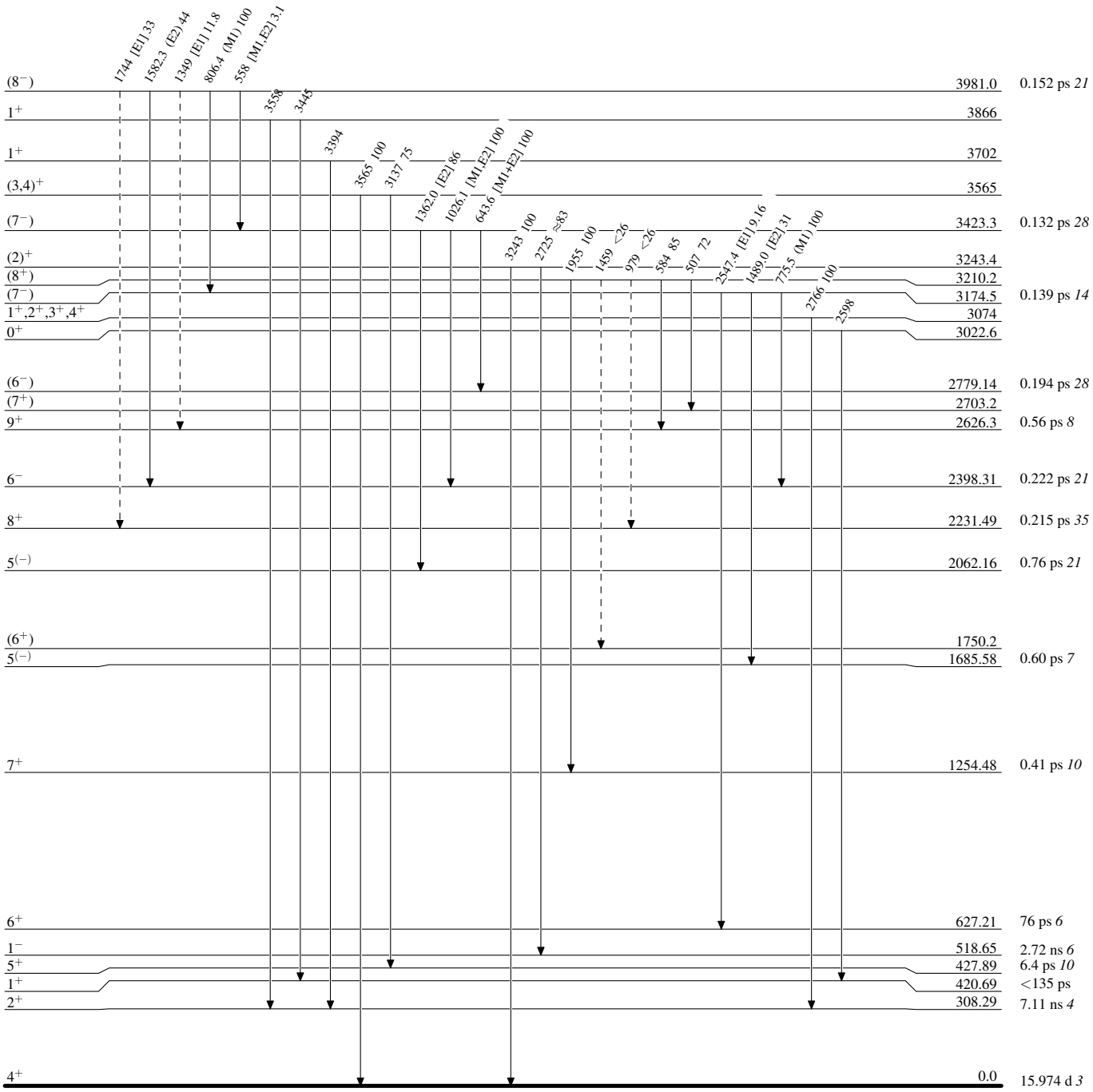
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{48}_{23}V_{25}$

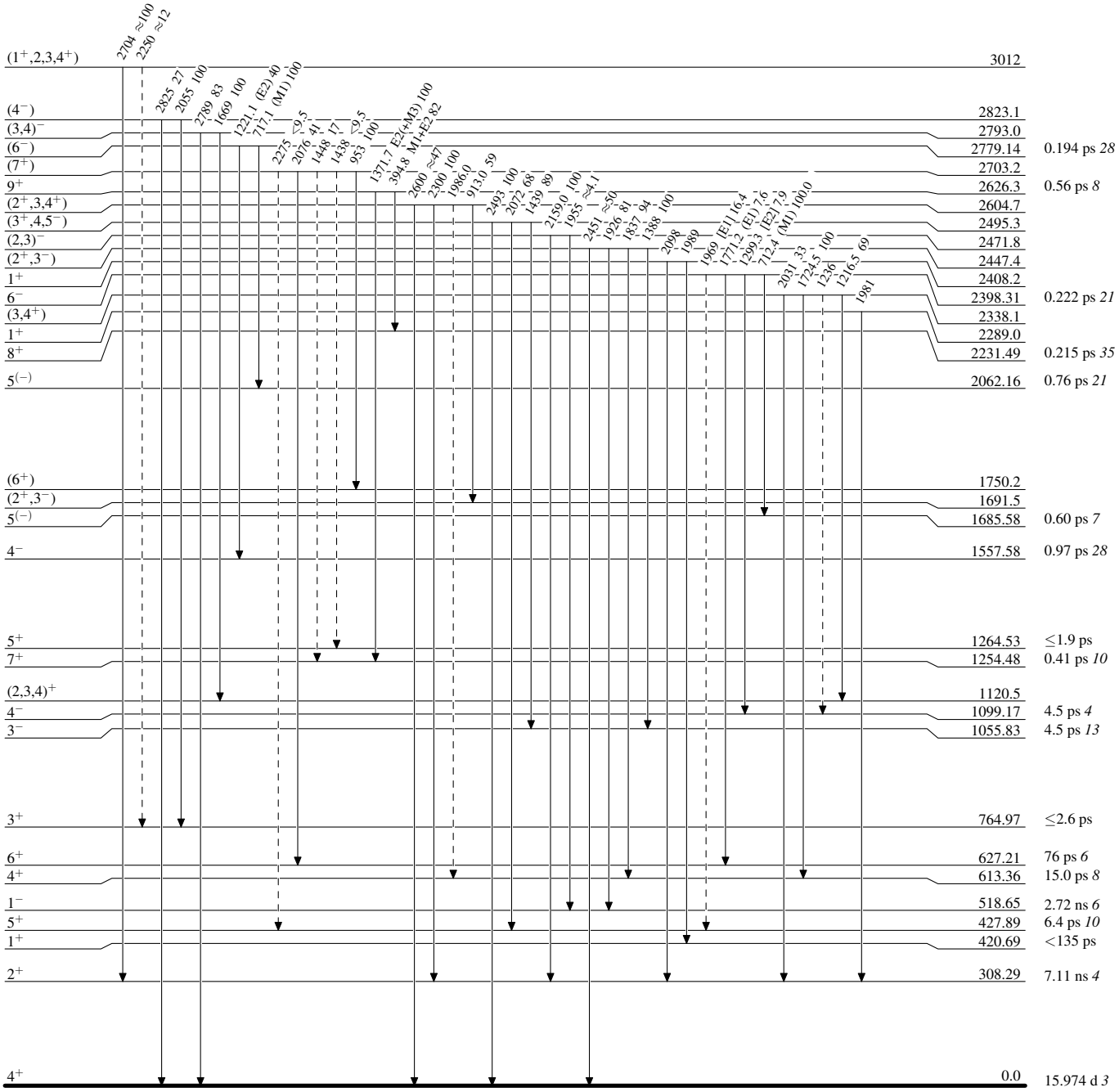
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{48}_{23}V_{25}$

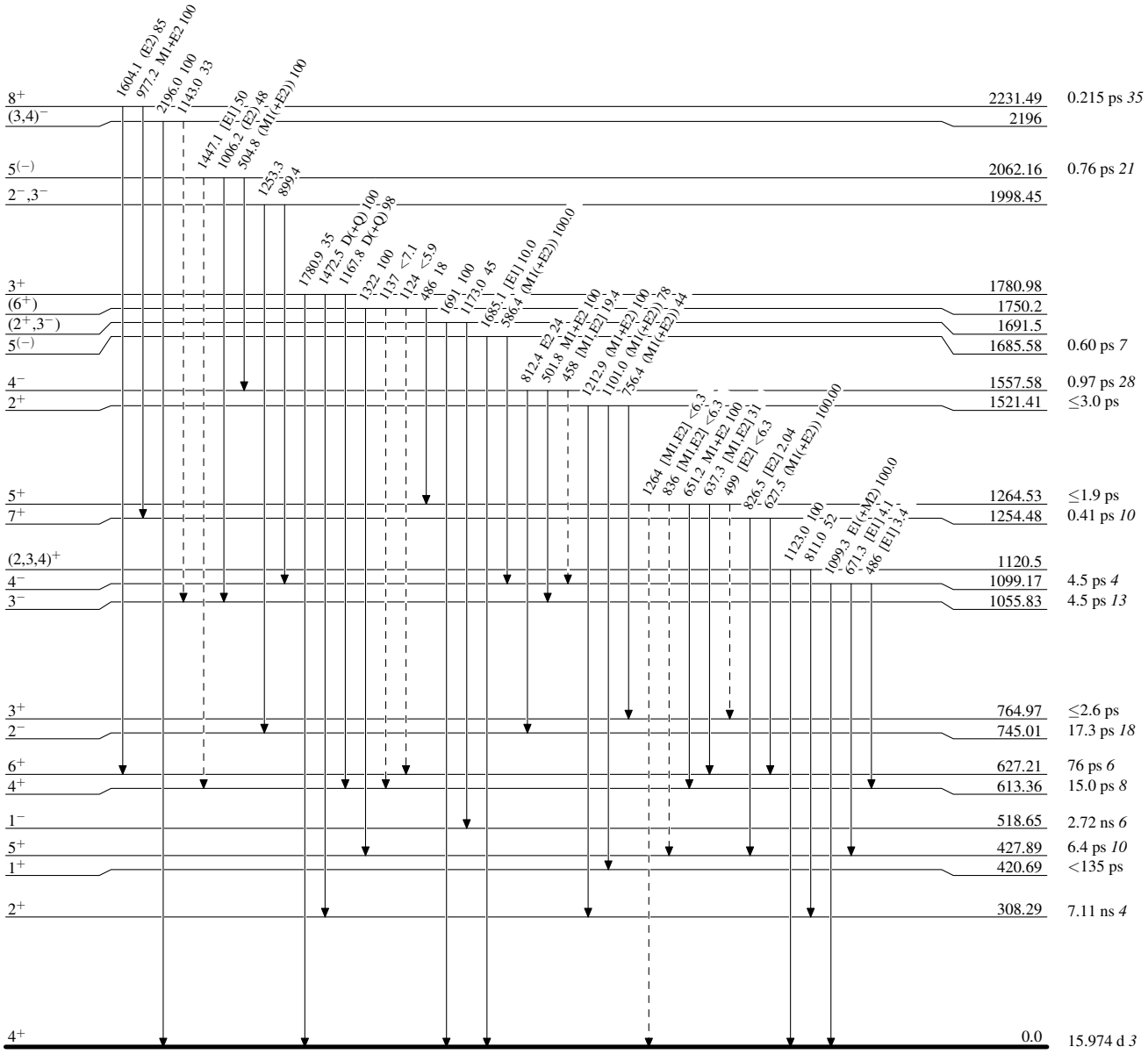
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{48}_{23}V_{25}$

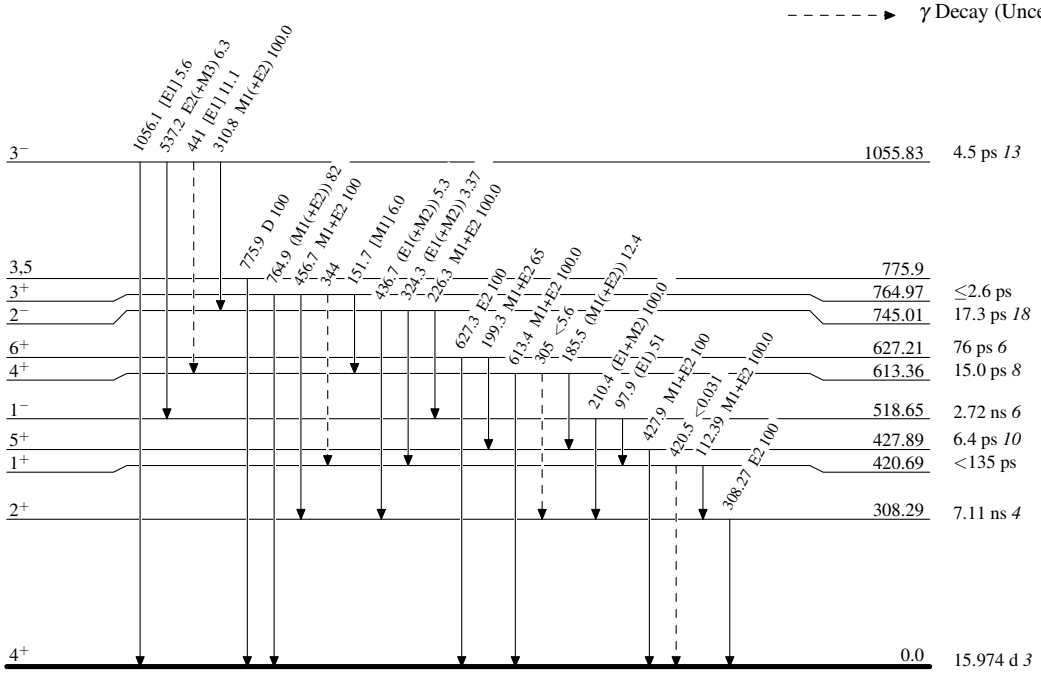
Adopted Levels, Gammas

Legend

Level Scheme (continued)

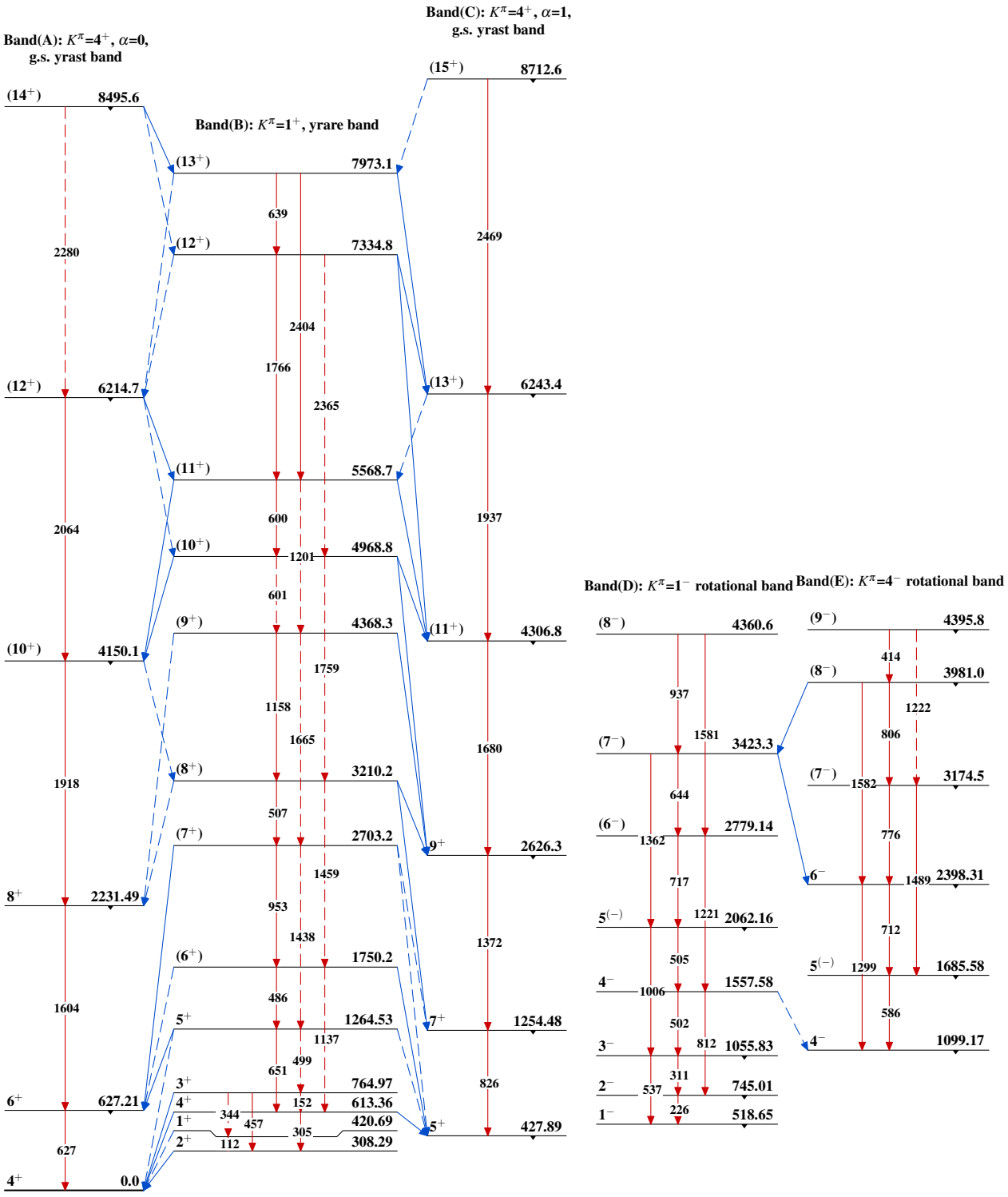
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



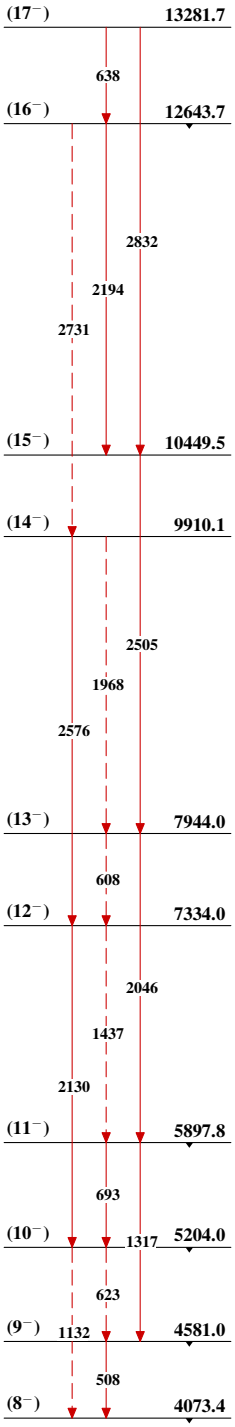
$^{48}_{23}V_{25}$

Adopted Levels, Gammas



Adopted Levels, Gammas (continued)

Band(F): $K^{\pi}=8^{-}$ rotational band



$^{48}_{23}V_{25}$