

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde		NDS 128, 185 (2015)	10-Jul-2015

$Q(\beta^-)=3974.5$ 9; $S(n)=7311.24$ 13; $S(p)=9000.7$ 10; $Q(\alpha)=-9365$ 5 [2012Wa38](#)

 ^{52}V Levels

E(N),T(N) From $^{51}\text{V}(n,\gamma)$ E=0.75-11.3 MeV.

Cross Reference (XREF) Flags

A	^{52}Ti β^- decay (1.7 min)	E	$^{51}\text{V}(n,\gamma)$ E=thermal
B	$^{48}\text{Ca}(^7\text{Li},3n\gamma),(^{11}\text{B},\alpha3n\gamma)$	F	$^{51}\text{V}(d,p)$
C	$^{50}\text{Ti}(^3\text{He},p)$	G	$^{51}\text{V}(t,d)$
D	$^{50}\text{Ti}(\alpha,d)$	H	$^{51}\text{V}(n,\gamma)$ E=0.75-11.3 MeV

E(level) [†]	J^π ^c	$T_{1/2}$	XREF	Comments
0.0	3 ⁺	3.743 min 5	ABC EF	$\% \beta^- = 100$ $T_{1/2}$: from 1989Ab05 . Others: 1953Sa11 , 1954Ko07 , 1963Ma41 , 1965Bo42 , 1965Ko09 , 1968Re04 , 1969Wy01 . J^π : L(d,p)=1 from $7/2^-$, L($^3\text{He},p$)=2. XREF: C(19)f(20)g(20).
17.155 6	2 ⁺ ,3 ⁺	1.08 ns 22	A C Efg	$T_{1/2}$: from $\gamma\gamma(t)$ in (n, γ) E=thermal (1972Bo59). J^π : $\gamma\gamma(\theta)$ in (n, γ), M1 γ to 3 ⁺ .
22.764 3	+ ^e		BCDEfg	XREF: C(19)D(20)f(20)g(20). J^π : $\gamma\gamma(\theta)$ in (n, γ), E2(+M1) γ to 3 ⁺ .
141.610 6	1 ⁺		A C Efg	J^π : log $ft=4.04$ from 0 ⁺ .
147.845 3	+		Efg	XREF: f(145)g(150). J^π : from $\gamma(\text{circ pol})$, $\gamma\gamma(\theta)$ in (n, γ), L(t,d)=1 from $7/2^-$.
436.634 9	2 ⁺		C EFG	XREF: C(442)F(431). J^π : from $\gamma\gamma(\theta)$, $\gamma(\text{circ pol})$ in (n, γ), L(t,d)=1 from $7/2^-$.
793.544 12	3 ⁺		EF	XREF: F(787). J^π : from $\gamma\gamma(\theta)$, $\gamma(\text{circ pol})$ in (n, γ), L(d,p)=1 from $7/2^-$.
845.945 12	4 ⁺ ^d		C EFG	XREF: C(853)F(838)G(830).
881 ^a 14			F	
1289.843 22	(1) ⁺		C EFG	XREF: C(1297)F(1277)G(1305). J^π : L($^3\text{He},p$)=(0+2). L(t,d)=1+3.
1418.814 14	3 ⁺ ^d		C EFG	XREF: C(1423)F(1417)G(1436).
1493.06 20	+ ^e	1.8 ps 10	B F	$T_{1/2}$: from 0.7 ps to 2.8 ps in ($^7\text{Li},3n\gamma$) (1977Na12).
1558.848 16	4 ⁺ ^d		EFG	XREF: F(1557)G(1569).
1579.15 4			EF	
1664 [‡] 6	1 ⁺		C FG	XREF: C(1665)F(1660)G(1665). J^π : L($^3\text{He},p$)=0+2.
1732.568 17	(⁻)		EF	XREF: F(1729). J^π : $J \neq 2$ from $\gamma(\text{circ pol})$ in (n, γ), L(d,p)=(0) on $7/2^-$.
1759.618 20	3 ⁺		C EFG	XREF: C(1766)F(1756)g(1775). J^π : $\gamma(\text{circ pol})$ in (n, γ). L($^3\text{He},p$)=2.
1770.174 20			E g	
1795.116 16	2 ⁺ ^d		C Efg	XREF: C(1802)F(1792)g(1775).
1843 [@] 12	+		FG	J^π : L(d,p)=3 from $7/2^-$.
2100.834 13	3 ⁺ ^d		C EFG	XREF: C(2108)F(2097)G(2104).
2152 [‡] 10	1 ⁺		C FG	XREF: F(2143)G(2155).

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Adopted Levels, Gammas (continued) ^{52}V Levels (continued)

E(level) [†]	J ^π ^c	T _{1/2}	XREF	Comments
2168.637 17	4 ⁺ ^d		EF	J ^π : L(³ He,p)=0+2. XREF: F(2166).
2318.03 3	3 ⁺ ^d		C EFG	XREF: C(2325)F(2321).
2347 ^a			F	
2396 ^b 10	0 ⁺ ,(1 ⁺)		C	J ^π : L(³ He,p)=0+(2).
2427.656 19	2 ⁺ ,3 ⁺ ^d		C EFG	XREF: C(2435)F(2432)G(2438).
2473 ^a 13			F	
2538.846 22	+ ^d		EFG	XREF: F(2541)G(2533).
2543.0 3	(9 ⁺) ^e	5.5 ps 4	B	T _{1/2} : RDM, weighted average of 5.3 ps 4 (1976Br29) and 6.1 ps 7 (1977Na12) in (⁷ Li,3nγ).
2559.38 5			EF	
2591 ^b 10	1 ⁺		C	J ^π : L(³ He,p)=0+2.
2697 ^b 10	0 ⁺ ,(1 ⁺)		C	J ^π : L(³ He,p)=0+(2).
2743.05 5			E	
2775.84 4	+		C EFG	XREF: C(2785)F(2781)G(2768). J ^π : L(t,d)=1 from 7/2 ⁻ .
2824.58 3			EF	
2858.878 25	+ ^d		Efg	XREF: f(2865)g(2848).
2881 ^b 10	1 ⁺ ,2 ⁺ ,3 ⁺		C	J ^π : L(³ He,p)=2.
2910.40 5	+		EF	J ^π : L(d,p)=1 from 7/2 ⁻ .
2987.29 3			E	
3009.15 6	+		EF	J ^π : L(d,p)=1 from 7/2 ⁻ .
3059.54 4	(2,3) ⁺		C EFG	XREF: C(3066)F(3063)G(3058). J ^π : L(³ He,p)=(2), L(d,p)=1 from 7/2 ⁻ .
3149 ^b 15	1 ⁺ ,2 ⁺ ,3 ⁺		C	J ^π : L(³ He,p)=2.
3184.32 4			E	
3194.275 17	4 ⁺ ^d		EFG	
3198.91 6			E	
3243 ^{&} 10	+		C F	XREF: C(3249)F(3238). J ^π : L(d,p)=1+3 from 7/2 ⁻ .
3315.20 6	+		EFG	XREF: F(3314)G(3287). J ^π : L(d,p)=1 from 7/2 ⁻ .
3333.19 5			C E	
3450.04 5	-		EF	J ^π : L(d,p)=2 from 7/2 ⁻ .
3473.79 6	+		EFG	J ^π : L(t,d)=1+3 from 7/2 ⁻ .
3509 13	-		F	J ^π : L(d,p)=2 from 7/2 ⁻ .
3538.52 5	-		C EFG	XREF: C(3550)F(3548)G(3549). J ^π : L(t,d)=4, probable L(³ He,p)=1, and probable configuration (π f7/2)(ν g9/2).
3575.97 4	3 ⁺		C EF	XREF: C(3579)F(3586). J ^π : L(³ He,p)=2+4.
3644.97 6	+		EF	J ^π : L(d,p)=1 from 7/2 ⁻ .
3687 8	-		C G	XREF: C(3693)G(3684). J ^π : L(t,d)=4 from 7/2 ⁻ .
3729.61 5	3 ⁺ ^d		C Ef	XREF: C(3726)f(3740).
3733.15 3	+		Ef	XREF: f(3740). J ^π : L(d,p)=1 from 7/2 ⁻ .
3777.09 3	-		C E G	XREF: C(3781)G(3769). J ^π : L(t,d)=4 from 7/2 ⁻ .
3808.51 3	+		C E	XREF: C(3822). J ^π : L(³ He,p)=2.
3875 12	+		C G	XREF: C(3894)G(3867).

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Adopted Levels, Gammas (continued) ^{52}V Levels (continued)

E(level) [†]	J ^π ^c	XREF	Comments
3940 10	-	G	J ^π : L(t,d)=3 from 7/2 ⁻ .
3960 ^a 10	+	F	J ^π : L(t,d)=4 from 7/2 ⁻ .
4034 10	-	G	J ^π : L(d,p)=1 from 7/2 ⁻ .
4108.70 5		C E	J ^π : L(t,d)=4 from 7/2 ⁻ .
4120 10	-	G	J ^π : L(t,d)=4 from 7/2 ⁻ .
4278.72 4	-	C E G	XREF: C(4276)G(4307). J ^π : L(t,d)=4 from 7/2 ⁻ .
4285.26 6		E	
4327 15	(8) ⁻	CD FG	XREF: D(4320)F(4320)G(4307). J ^π : L(α,d)=7. Strongest (t,d) level with L=4.
4419.59 6		C E fG	XREF: f(4430)G(4429). J ^π : L(d,p)=2 from 7/2 ⁻ , L(t,d)=1+3 from 7/2 ⁻ .
4455 15	-	C f	XREF: f(4430). J ^π : L(d,p)=2 from 7/2 ⁻ .
4483.29 5		C E	XREF: C(4496).
4518.91 4		E	
4533 10	-	G	J ^π : L(t,d)=4 from 7/2 ⁻ .
4557 15	1 ⁺ ,2 ⁺ ,3 ⁺	C	J ^π : L(³ He,p)=2.
4609.45 5	1 ⁺	C E G	XREF: C(4622). J ^π : L(³ He,p)=0+2.
4717 [#] 8	+	C G	XREF: C(4721)G(4715). J ^π : L(t,d)=3 from 7/2 ⁻ .
4755.19 9		E	
4772 10	+	G	J ^π : L(t,d)=1 from 7/2 ⁻ .
4904 [#] 8	+	C G	XREF: C(4910)G(4902). J ^π : L(t,d)=3 from 7/2 ⁻ .
4951 ^b 15		C	
4986 [#] 9	(1,2,3) ⁺	C G	XREF: C(5000)G(4980). J ^π : L(³ He,p)=(2), L(t,d)=1+3.
5038.88 6		E	
5080 [#] 8	-	C G	XREF: C(5070)G(5085). J ^π : L(t,d)=4 from 7/2 ⁻ .
5096 ^b 15		C	
5187 10	-	G	J ^π : L(t,d)=4 from 7/2 ⁻ .
5233 ^b 15		C	
5276 [#] 8	+	C G	XREF: C(5273)G(5277). J ^π : L(t,d)=1 from 7/2 ⁻ .
5344 [#] 11	+	C G	XREF: C(5360)G(5337). J ^π : L(t,d)=1 from 7/2 ⁻ .
5410 ^b 15	(1 ⁺ ,2 ⁺ ,3 ⁺)	C	J ^π : L(³ He,p)=(2).
5488 [#] 12	+	C G	XREF: C(5506)G(5480). J ^π : L(t,d)=1 from 7/2 ⁻ .
5548 [#] 8	-	C G	J ^π : L(t,d)=4 from 7/2 ⁻ .
5600 ^b 15		C	
5646 [#] 8	+	C G	J ^π : L(t,d)=1 from 7/2 ⁻ .
5711 ^b 15		C	
5744 [#] 8	(1,2,3) ⁺	C G	J ^π : L(³ He,p)=(2), L(t,d)=3 from 7/2 ⁻ .
5813 ^b 15		C	
5851 [#] 8	+	C G	XREF: G(5845). J ^π : L(t,d)=3 from 7/2 ⁻ .

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Adopted Levels, Gammas (continued)

<u>^{52}V Levels (continued)</u>					
E(level) [†]	$J^{\pi c}$	$T_{1/2}$	XREF		Comments
5946 [#] 8	+		C	G	XREF: C(5936)G(5951). J^{π} : L(t,d)=3 from $7/2^-$.
6021 ^b 15			C		
6086 [#] 8	+		C	G	XREF: C(6084)G(6087). J^{π} : L(t,d)=3 from $7/2^-$.
6167 [#] 8	+		C	G	XREF: G(6166). J^{π} : L(t,d)=1+3 from $7/2^-$.
6225 ^b 15			C		
6277 [#] 10	+		C	G	XREF: C(6292)G(6270). J^{π} : L(t,d)=1 from $7/2^-$.
6326 ^b 15			C		
6374 ^b 15			C		
6406 [#] 8	+		C	G	XREF: C(6414)G(6403). J^{π} : L(t,d)=1+3 from $7/2^-$.
6472 ^b 15			C		
6519 [#] 8	+		C	G	XREF: C(6524)G(6517). J^{π} : L(t,d)=3 from $7/2^-$.
6557 ^b 15			C		
6590 ^b 15			C		
6640 ^b 15	1 ⁺ ,2 ⁺ ,3 ⁺		C		J^{π} : L(^3He ,p)=2.
6675 ^b 15			C		
6744 ^b 15			C		
6809 ^b 15			C		
6844 ^b 15			C		
6887 [#] 12			C	g	XREF: C(6886)g(6890).
6919 ^b 15			C	g	XREF: g(6890).
7110 25				G	
7311.22 3			DE	G	XREF: G(7320).
7540 25				G	
7850 25				G	
8050 25				G	
8250 25		3.7 keV 4		GH	XREF: H(8200).
8400 25				G	
8.62×10 ³		3.3 keV 4		H	
8760 25				G	
8838 ^b 15	0 ⁺		C		T=4 J^{π} : L(^3He ,p)=0. Identified as IAS ^{52}Ti g.s. in $^{50}\text{Ti}(\mathbf{^3}\text{He},\text{p})$.
9060 25				G	
9310 25				G	
9510 25				G	
9.60×10 ³		11.7 keV 12		H	
10080 25				G	
10650 25				G	

[†] Levels connected by gammas are from least squares fit, levels not connected by gammas are from $^{51}\text{V}(\text{t,d})$, except as noted.

[‡] From weighted average of values in $^{50}\text{Ti}(\mathbf{^3}\text{He},\text{p})$, $^{51}\text{V}(\text{d},\text{p})$, and $^{51}\text{V}(\text{t,d})$.

[#] From weighted average of values in $^{50}\text{Ti}(\mathbf{^3}\text{He},\text{p})$ and $^{51}\text{V}(\text{t,d})$.

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Adopted Levels, Gammas (continued) ^{52}V Levels (continued)

@ From weighted average of values in $^{51}\text{V}(\text{d,p})$ and $^{51}\text{V}(\text{t,d})$.

& From weighted average of values in $^{50}\text{Ti}(\text{}^3\text{He,p})$ and $^{51}\text{V}(\text{d,p})$.

^a From $^{51}\text{V}(\text{d,p})$.

^b From $^{50}\text{Ti}(\text{}^3\text{He,p})$.

^c L values from $^{51}\text{V}(\text{d,p})$ do not impose many restrictions on the range of J values. Allowed spins are, therefore, not listed when only L from (d,p) is available. Refer to (d,p) data set. Parities, when given alone, are based on L in (d,p), except as noted.

^d J is from $\gamma(\text{circ pol})$ in (n, γ). π is from $L(\text{d,p})=1$.

^e On the basis of comparison of yield with a fusion-evaporation calculation and of the level structure predicted by a shell-model calculation (1984De15), in ($^7\text{Li},3\text{n}\gamma$), propose $J^\pi=5^+,7^+$, and 9^+ , respectively, for levels at 22, 1493, and 2543.

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	δ	$\alpha^@$	Comments
17.155	$2^+,3^+$	17.153 6	100	0.0	3^+	M1		7 3	ce(K)=5.4 23; ce(L)=0.51 22; ce(M)=0.06 3; ce(N)=0.0029 14; $\alpha(\text{exp})=4.6$ 18 (1972Bo59) B(M1)(W.u.)=0.97 20 $\delta, \text{Mult.}$: Mult from $\alpha(\text{K})\text{exp}$ in (n, γ). $\delta=0.066$ +34-66 from $\alpha(\text{exp})$ in (n, γ). From RUL one expects $\delta < 0.0064$.
22.764	$+$	22.764 3	100	0.0	3^+	E2(+M1)	>0.63	7×10^1 4	$\alpha(\text{exp})=65$ +63-33 (1966Va03); $\alpha(\text{K})=6.0 \times 10^1$ 4; $\alpha(\text{L})=10$ 6 $\delta, \text{Mult.}$: from (n, γ).
141.610	1^+	124.453 3	100	17.155	$2^+,3^+$	[M1,E2]			
147.845	$+$	125.082 3	100 20	22.764	$+$				
		147.845 4	17 4	0.0	3^+				
436.634	2^+	295.004 9	49	141.610	1^+				
		419.468 23	70	17.155	$2^+,3^+$				
		436.61 3	100 21	0.0	3^+				
793.544	3^+	356.87 5	1.2	436.634	2^+				
		645.69 3	100 23	147.845	$+$				
		776.41 4	1.2 2	17.155	$2^+,3^+$				
		793.54 3	28 5	0.0	3^+				
845.945	4^+	698.13 3	13 3	147.845	$+$				
		823.19 3	100 20	22.764	$+$				
		845.98 3	80 17	0.0	3^+				
1289.843	(1) $^+$	1148.28& 5	35& 7	141.610	1^+				
		1272.64 4	100 18	17.155	$2^+,3^+$				
1418.814	3^+	572.89 5	6.6 13	845.945	4^+				
		981.98 8	29 6	436.634	2^+				
		1270.91 4	17 4	147.845	$+$				
		1401.65 3	100 21	17.155	$2^+,3^+$				
		1418.78 3	100 21	0.0	3^+				
1493.06	$+$	1470.27& 20	100& 20	22.764	$+$				
1558.848	4^+	712.90 3	16 3	845.945	4^+				
		1410.97 3	2.7 6	147.845	$+$				
		1536.17 9	0.93 18	22.764	$+$				
		1541.77 8	0.51 10	17.155	$2^+,3^+$				
		1558.79 3	100 19	0.0	3^+				
1579.15		1579.12 4	100	0.0	3^+				
1732.568	($-$)	886.66 3	100 21	845.945	4^+				

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Adopted Levels, Gammas (continued)

$\gamma(^{52}\text{V})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	Comments		
1732.568	$(^-)$	1584.70 5	23 5	147.845	$^+$				
		1591.6 3	4.5 9	141.610	1^+				
		1709.78 3	79 15	22.764	$^+$				
		1732.53 4	100 21	0.0	3^+				
1759.618	3^+	965.6 4	2.3 4	793.544	3^+				
		1322.92 3	92 19	436.634	2^+				
		1611.77 4	100 21	147.845	$^+$				
		1618.05 9	5.2 10	141.610	1^+				
		1742.50 4	29 6	17.155	$2^+, 3^+$				
1770.174		1333.60 5	100 19	436.634	2^+				
		1622.42 5	84 18	147.845	$^+$				
		1747.33 4	40 8	22.764	$^+$				
1795.116	2^+	505.27 3	6.1 12	1289.843	$(1)^+$				
		1001.62 4	35 7	793.544	3^+				
		1358.50 3	94 18	436.634	2^+				
		1647.30 10	0.73 15	147.845	$^+$				
		1653.46 4	3.7 7	141.610	1^+				
		1777.91 6	100 21	17.155	$2^+, 3^+$				
		1795.05 3	7.9 15	0.0	3^+				
2100.834	3^+	541.79 18	1.9 4	1558.848	4^+				
		682.02 3	23 4	1418.814	3^+				
		1254.87 3	33 6	845.945	4^+				
		1307.28 3	54 11	793.544	3^+				
		1664.18 3	77 16	436.634	2^+				
		1952.92 4	100 21	147.845	$^+$				
		2083.64 3	55 6	17.155	$2^+, 3^+$				
		2100.83 4	42 4	0.0	3^+				
		2168.637	4^+	1325 1	15	845.945	4^+		
				1375.06 3	6.1 12	793.544	3^+		
2020.76 4	15.5 15			147.845	$^+$				
2145.84 3	100 9			22.764	$^+$				
2151.41 6	2.48 24			17.155	$2^+, 3^+$				
2168.59 5	7.5 8			0.0	3^+				
2318.03	3^+			899.02 9	67 13	1418.814	3^+		
		1472.05 6	51 10	845.945	4^+				
		1524.56 5	53 11	793.544	3^+				
		2170.24 6	96 10	147.845	$^+$				
		2300.76 6	42 4	17.155	$2^+, 3^+$				
		2317.79 8	100 10	0.0	3^+				
		2427.656	$2^+, 3^+$	1634.04 3	82 17	793.544	3^+		
1991.44 15	2.3 5			436.634	2^+				
2286.03 4	32 3			141.610	1^+				
2410.44 5	100 9			17.155	$2^+, 3^+$				
2427.59 4	40 5			0.0	3^+				
2538.846	$^+$			806.45 8	15 3	1732.568	$(^-)$		
		979.94 12	15 3	1558.848	4^+				
		1120.04 14	8.7 17	1418.814	3^+				
		1692.96 4	28 5	845.945	4^+				
		1744.92 22	6.1 12	793.544	3^+				
		2515.98 7	100 10	22.764	$^+$				
		2543.0	(9^+)	1049.98 \ddagger # 18	100 \ddagger	1493.06	$^+$	[E2]	B(E2)(W.u.)=7.0 5
2559.38	2122.66 7			100 10	436.634	2^+			
2417.83& 9	47& 4			141.610	1^+				
2559.36 9	50 4			0.0	3^+				
2743.05		972.6 3	9.7 16	1770.174					

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Adopted Levels, Gammas (continued) $\gamma(^{52}\text{V})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π		
2743.05		1897.58 25	9.7 16	845.945	4 ⁺		
		2601.43 10	20.2 24	141.610	1 ⁺		
		2725.83 9	52 6	17.155	2 ⁺ ,3 ⁺		
		2742.96 6	100 10	0.0	3 ⁺		
2775.84	+	1486.20 15	8.8 16	1289.843	(1) ⁺		
		1930.04 10	31 6	845.945	4 ⁺		
		2758.61 4	100 10	17.155	2 ⁺ ,3 ⁺		
2824.58		2030.75 9	23.4 21	793.544	3 ⁺		
		2387.93 4	100 10	436.634	2 ⁺		
2858.878	+	2807.35 4	81 8	17.155	2 ⁺ ,3 ⁺		
		758.43 23	1.6 3	2100.834	3 ⁺		
		2065.27 5	7.1 7	793.544	3 ⁺		
		2420 1	100	436.634	2 ⁺		
		2710.97 4	34 3	147.845	+		
		2841.64 4	59 6	17.155	2 ⁺ ,3 ⁺		
		2858.62 13	2.9 3	0.0	3 ⁺		
		2472.73 6	100 11	436.634	2 ⁺		
2910.40	+	2911.64 9	43 5	0.0	3 ⁺		
		2550.60 19	8.6 7	436.634	2 ⁺		
2987.29		2839.24 & 20	19 & 2	147.845	+		
		2970.15 5	59 6	17.155	2 ⁺ ,3 ⁺		
		2987.13 4	100 10	0.0	3 ⁺		
		2163.20 6	100 10	845.945	4 ⁺		
		2216.3 4	15.6 11	793.544	3 ⁺		
3009.15	+	2860.59 24	30 3	147.845	+		
		3008.96 13	20.0 11	0.0	3 ⁺		
		1641.6 3	10.8 22	1418.814	3 ⁺		
		1769.70 4	100 20	1289.843	(1) ⁺		
3059.54	(2,3) ⁺	2266.06 9	34 3	793.544	3 ⁺		
		2622.73 7	91 10	436.634	2 ⁺		
		3059.33 7	87 4	0.0	3 ⁺		
		1765.42 6	48 10	1418.814	3 ⁺		
		1894.11 & 23	12.9 & 22	1289.843	(1) ⁺		
3184.32		2338.16 9	37 3	845.945	4 ⁺		
		2390.82 5	100 10	793.544	3 ⁺		
		2747.42 21	16.1 21	436.634	2 ⁺		
		3184.14 25	7.5 11	0.0	3 ⁺		
		3194.275	4 ⁺	655.41 4	12.5 25	2538.846	+
				1093.38 5	13 3	2100.834	3 ⁺
				1399.44 11	4.6 9	1795.116	2 ⁺
				1424.11 3	32 6	1770.174	
				1635.42 4	26 5	1558.848	4 ⁺
				1775.42 3	100 20	1418.814	3 ⁺
				2348.21 8	12.8 12	845.945	4 ⁺
				3046.30 5	32.0 16	147.845	+
3171.35 7	5.31 25			22.764	+		
3198.91				2352.76 16	23 3	845.945	4 ⁺
				3051.05 8	64 3	147.845	+
				3176.07 11	100 4	22.764	+
		3198.29 25	13.0 14	0.0	3 ⁺		
3315.20	+	2469.05 8	100 9	845.945	4 ⁺		
		3292.42 10	71 3	22.764	+		
		3315.34 14	41 3	0.0	3 ⁺		
3333.19		1537.6 3	12 3	1795.116	2 ⁺		
		1573.54 14	21 4	1759.618	3 ⁺		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) $\gamma(^{52}\text{V})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π
3333.19		1914.27 8	40 9	1418.814	3 ⁺
		2896.37 13	16.1 18	436.634	2 ⁺
		3310.48 10	19.6 9	22.764	+
		3333.12 10	100 5	0.0	3 ⁺
3450.04	-	1131.99 11	44 9	2318.03	3 ⁺
		1891.38 21	12.9 22	1558.848	4 ⁺
		2656.46 9	100 10	793.544	3 ⁺
		3427.15 7	99 5	22.764	+
		3432.46 & 18	10.8 & 11	17.155	2 ⁺ ,3 ⁺
3473.79	+	1894.11 & 23	23 & 4	1579.15	
		2054.98 15	40 4	1418.814	3 ⁺
		2627.70 8	100 9	845.945	4 ⁺
		3326.3 3	15.1 19	147.845	+
		3473.75 8	94 6	0.0	3 ⁺
3538.52	-	2692.74 17	14.7 15	845.945	4 ⁺
		2744.8 5	10.3 7	793.544	3 ⁺
		3101.71 6	100 5	436.634	2 ⁺
		3390.61 7	71 4	147.845	+
3575.97	3 ⁺	1148.28 & 5	67 & 14	2427.656	2 ⁺ ,3 ⁺
		1996.78 & 14	14 & 3	1579.15	
		3139.26 6	100 5	436.634	2 ⁺
		3558.69 6	97 5	17.155	2 ⁺ ,3 ⁺
3644.97	+	2799.00 23	26 3	845.945	4 ⁺
		2851.24 11	63 6	793.544	3 ⁺
		3622.06 8	100 6	22.764	+
		3645.00 13	46 3	0.0	3 ⁺
3729.61	3 ⁺	1301.95 9	55 10	2427.656	2 ⁺ ,3 ⁺
		1996.78 & 14	28 & 6	1732.568	(-)
		2439.27 24	16.4 15	1289.843	(1) ⁺
		2883.73 10	73 7	845.945	4 ⁺
		3706.71 7	100 4	22.764	+
3733.15	+	1564.55 5	25 5	2168.637	4 ⁺
		1973.48 6	20 4	1759.618	3 ⁺
		2313.69 & 23	4.8 & 4	1418.814	3 ⁺
		2442.86 19	4.8 4	1289.843	(1) ⁺
		2939.54 6	25 3	793.544	3 ⁺
		3296.54 11	26.0 15	436.634	2 ⁺
		3584.9 3	4.0 4	147.845	+
		3593.5 7	2.6 4	141.610	1 ⁺
		3715.80 6	100 5	17.155	2 ⁺ ,3 ⁺
		3777.09	-	2006.95 6	97 10
2218.2 3	10.8 8			1558.848	4 ⁺
2931.07 4	100 10			845.945	4 ⁺
3340.8 5	3.1 8			436.634	2 ⁺
3629.06 7	50.8 23			147.845	+
3754.05 7	97 5			22.764	+
3760.03 12	13.8 8			17.155	2 ⁺ ,3 ⁺
3776.78 20	9.2 8			0.0	3 ⁺
3808.51	+			1065.77 18	12 3
		2038.29 5	80 8	1770.174	
		2076.00 7	28 3	1732.568	(-)
		2249.39 9	18.5 16	1558.848	4 ⁺
		2962.46 5	100.0 16	845.945	4 ⁺
		3014.96 7	73 4	793.544	3 ⁺

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) $\gamma(^{52}\text{V})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π
3808.51	+	3785.48 8	22.8 11	22.764	+
4108.70		2313.69 & 23	10.1 & 8	1795.116	2 ⁺
		2529.66 24	7.8 8	1579.15	
		2818.56 18	11.7 16	1289.843	(1) ⁺
		3671.83 6	100 5	436.634	2 ⁺
		3967.06 12	14.1 8	141.610	1 ⁺
		4091.70 15	10.1 8	17.155	2 ⁺ ,3 ⁺
		4108.59 15	14.1 8	0.0	3 ⁺
4278.72	-	1739.95 3	13 3	2538.846	+
		2109.81 11	100 10	2168.637	4 ⁺
		2546.09 20	16.9 14	1732.568	(-)
		3432.46 & 18	14.1 & 14	845.945	4 ⁺
		3484.64 10	35.2 14	793.544	3 ⁺
		4129.82 18	76 4	147.845	+
		4255.08 15	29.6 14	22.764	+
4285.26		1726.14 16	29 6	2559.38	
		2706.0 5	10.2 20	1579.15	
		3491.43 9	53.1 20	793.544	3 ⁺
		4137.30 16	28.6 20	147.845	+
		4267.8 3	12.2 20	17.155	2 ⁺ ,3 ⁺
		4285.11 8	100 4	0.0	3 ⁺
4419.59		1508.49 10	18 3	2910.40	+
		1643.77 16	15 3	2775.84	+
		1860.8 5	2.8 7	2559.38	
		2319.08 9	100 10	2100.834	3 ⁺
		2649.13 24	6.3 7	1770.174	
		2660.6 4	3.5 7	1759.618	3 ⁺
		3983.01 12	14.0 7	436.634	2 ⁺
4483.29		1571.54 19	25 6	2910.40	+
		1740.0 3	12 3	2743.05	
		2382.67 14	25 3	2100.834	3 ⁺
		2724.14 & 20	36 & 4	1759.618	3 ⁺
		2904.14 18	15.2 14	1579.15	
		4046.2 6	5.6 14	436.634	2 ⁺
		4341.49 10	38.9 14	141.610	1 ⁺
		4466.00 8	100 6	17.155	2 ⁺ ,3 ⁺
4518.91		1979.96 5	100 20	2538.846	+
		2417.83 & 9	53 & 5	2100.834	3 ⁺
		2724.14 & 20	43 & 5	1795.116	2 ⁺
		2786.63 14	25 3	1732.568	(-)
		3725.39 10	46.7 17	793.544	3 ⁺
		4370.86 13	28.3 17	147.845	+
4609.45	1 ⁺	1749.9 4	13 3	2858.878	+
		1833.75 7	53 11	2775.84	+
		2070.48 6	100 10	2538.846	+
		2839.24 & 20	44 & 5	1770.174	
		2876.4 3	11.3 16	1732.568	(-)
		3815.21 22	12.9 16	793.544	3 ⁺
		4461.18 19	17.7 16	147.845	+
		4586.63 10	41.9 16	22.764	+
4755.19		1695.74 14	100 21	3059.54	(2,3) ⁺
		2586.54 19	74 5	2168.637	4 ⁺
		3022.76 22	63 5	1732.568	(-)
		4317.9 4	26 5	436.634	2 ⁺

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) $\gamma(^{52}\text{V})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π
4755.19		4606.74 20	47 5	147.845	+	5038.88		4192.79 7	100 5	845.945	4 ⁺
5038.88		1853.8 5	4.0 10	3184.32				5015.81 12	23.5 10	22.764	+
		2213.96 21	8.5 10	2824.58				5038.80 16	8.0 5	0.0	3 ⁺
		3479.85 21	7.0 5	1558.848	4 ⁺						

† From $^{51}\text{V}(n,\gamma)$, except as noted.

‡ From $^{48}\text{Ca}(^7\text{Li},3n\gamma),(^{11}\text{B},\alpha 3n\gamma)$.

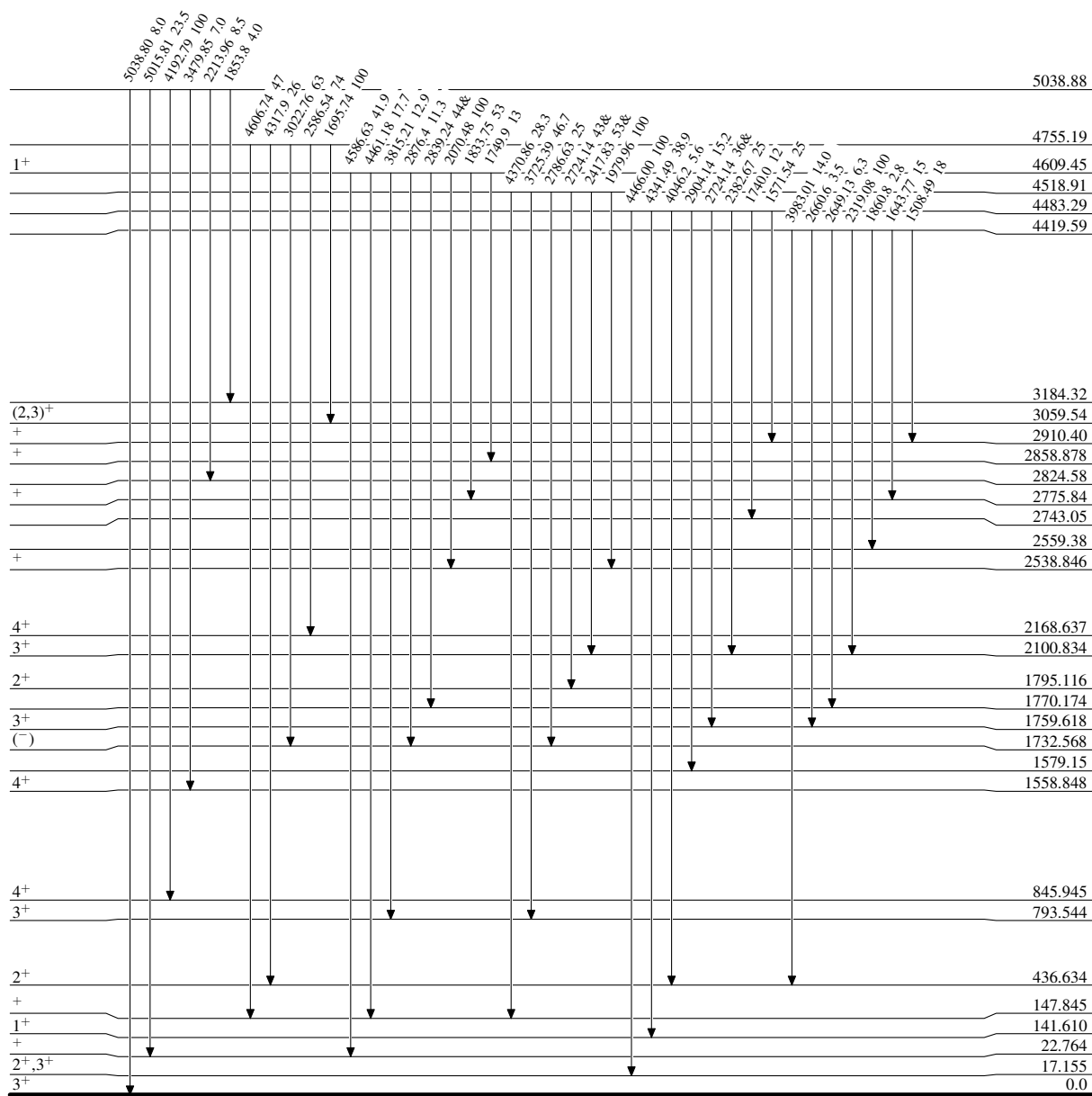
$B(E2)(\text{W.u.})\downarrow=7.0 5$.

@ 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.

& Multiply placed with undivided intensity.

Adopted Levels, GammasLevel Scheme

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

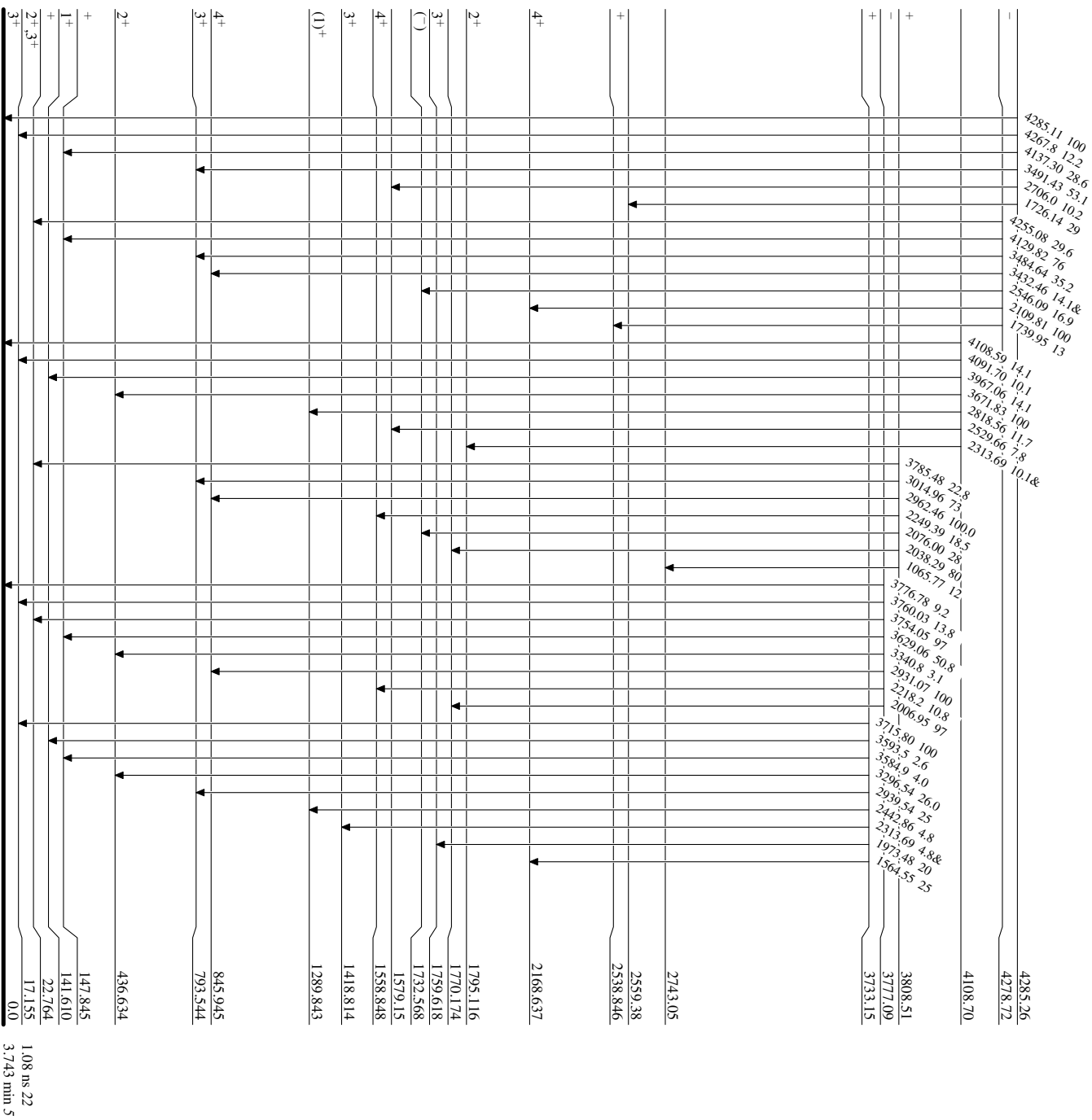


1.08 ns 22
3.743 min 5

Adopted Levels, Gammas

Level Scheme (continued)

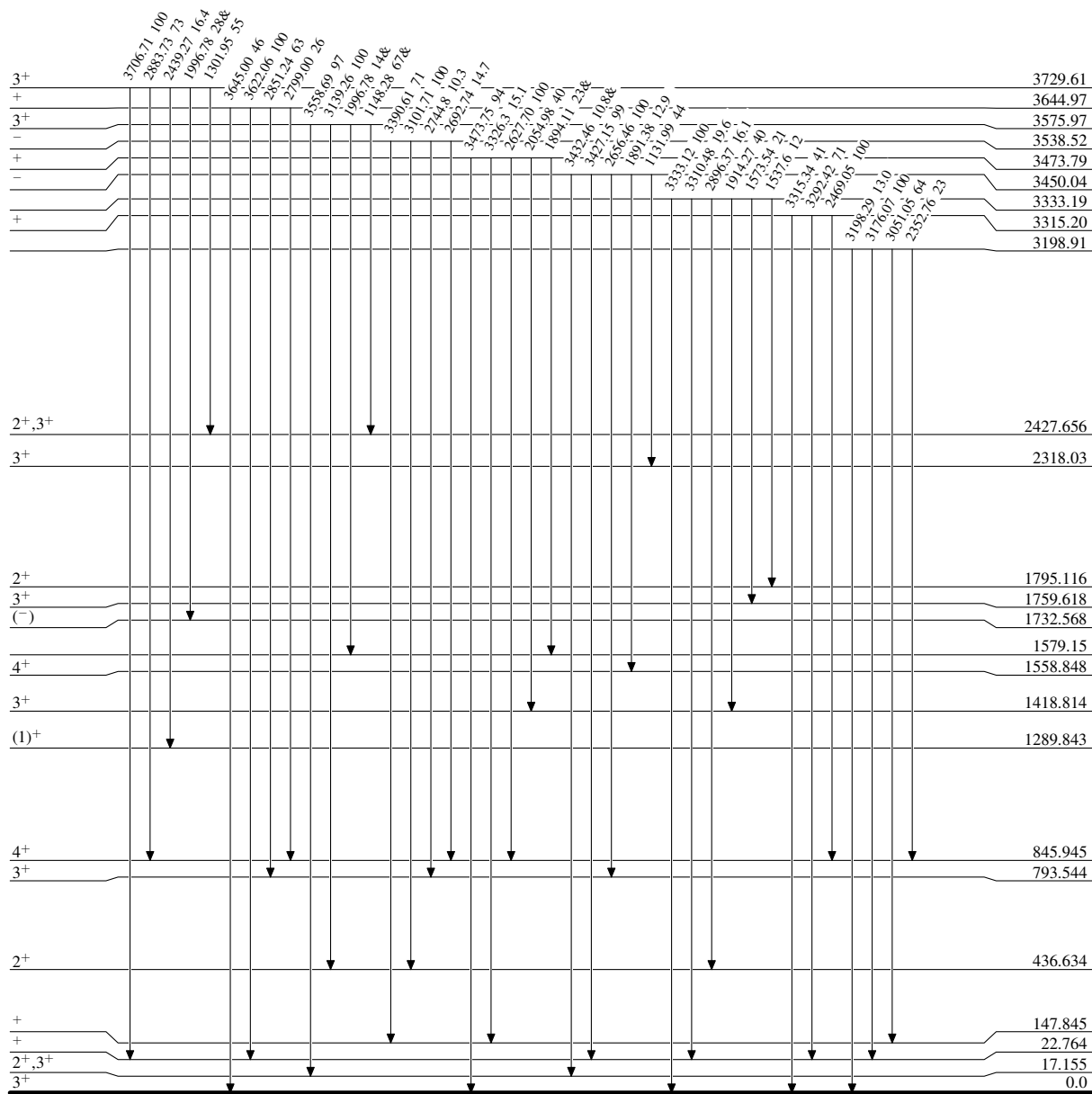
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



⁵²V
²³₂₉

Adopted Levels, Gammas**Level Scheme (continued)**

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



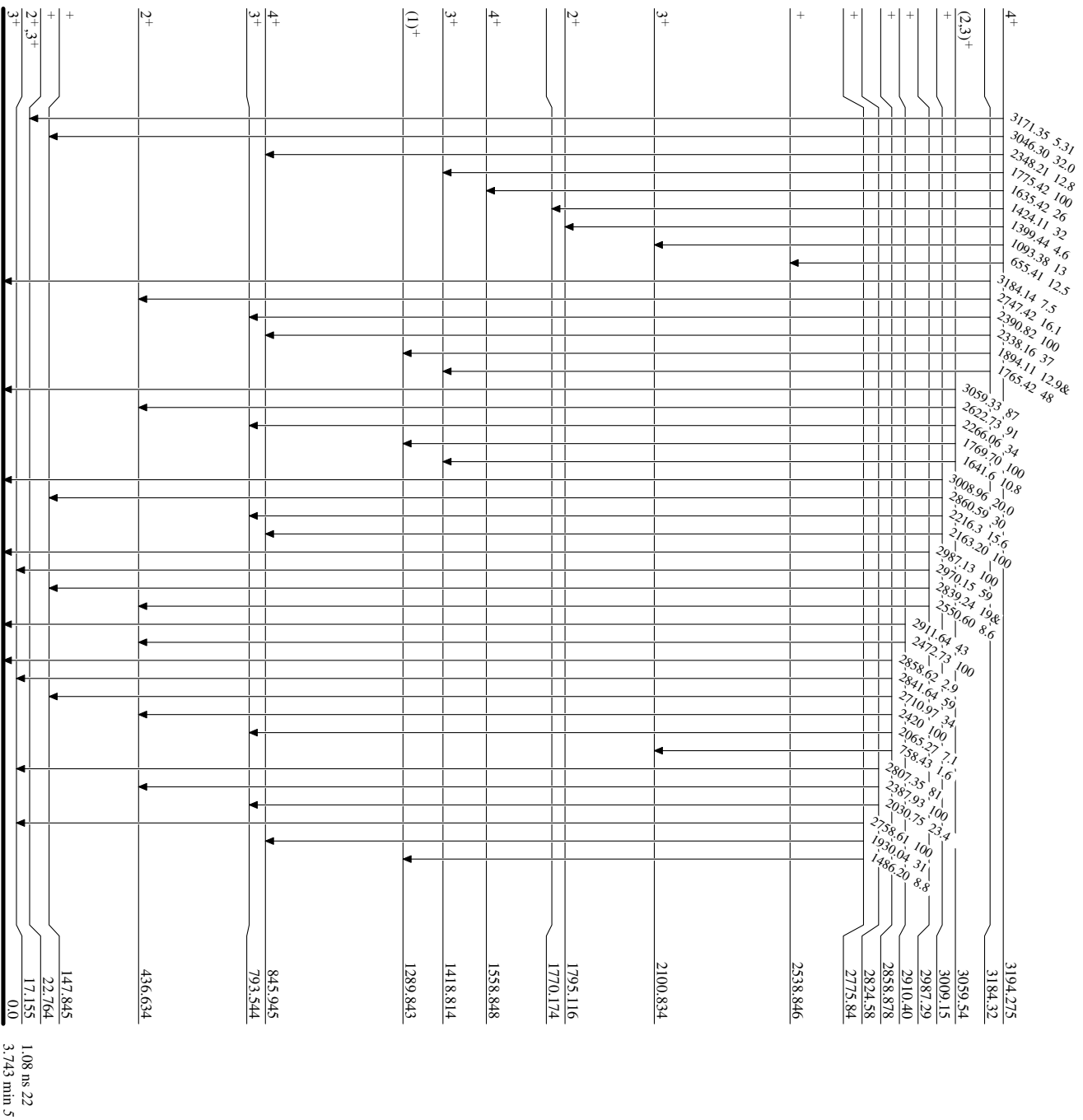
1.08 ns 22
3.743 min 5

$^{52}_{23}\text{V}_{29}$

Adopted Levels, Gammas

Level Scheme (continued)

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

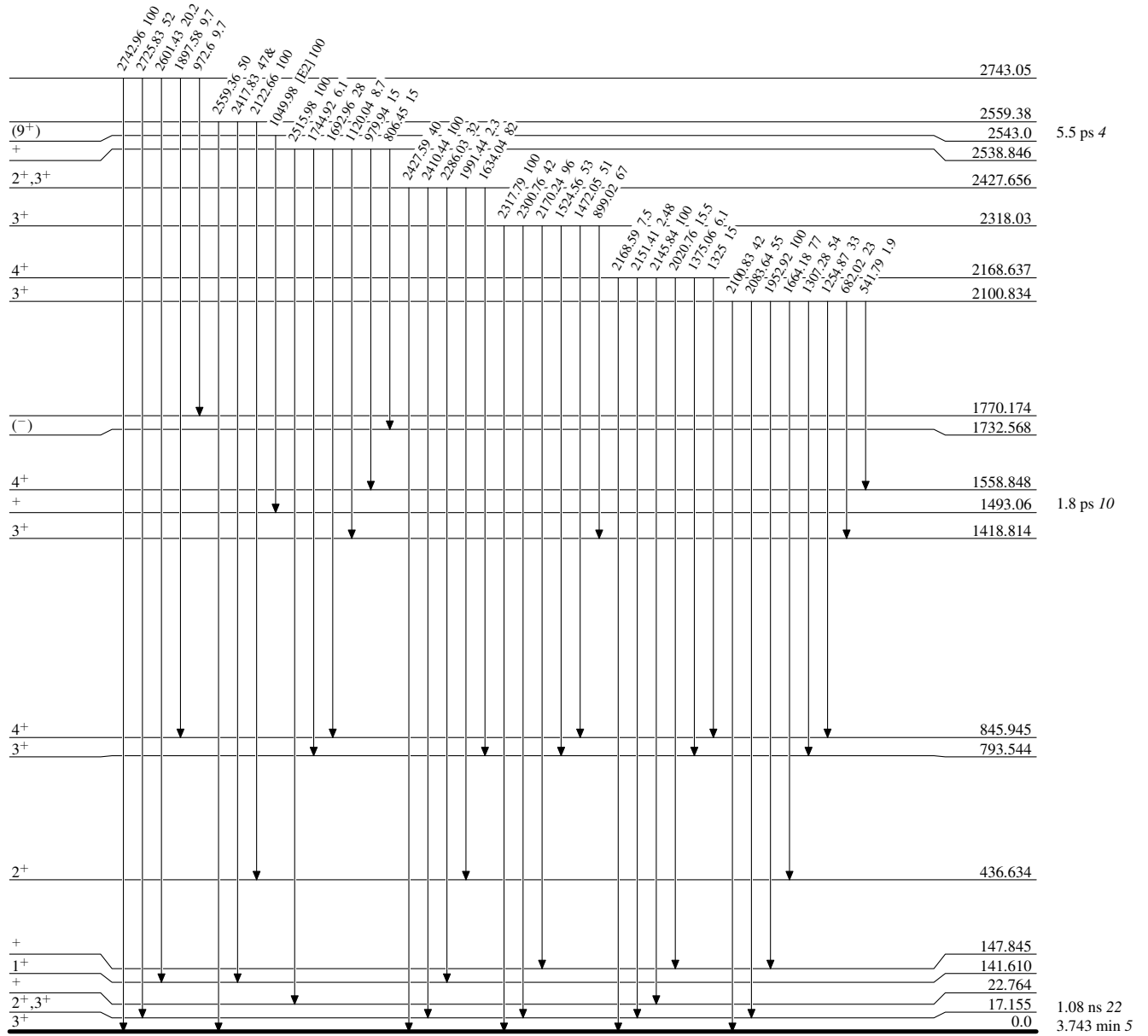


⁵²V₂₉

Adopted Levels, Gammas

Level Scheme (continued)

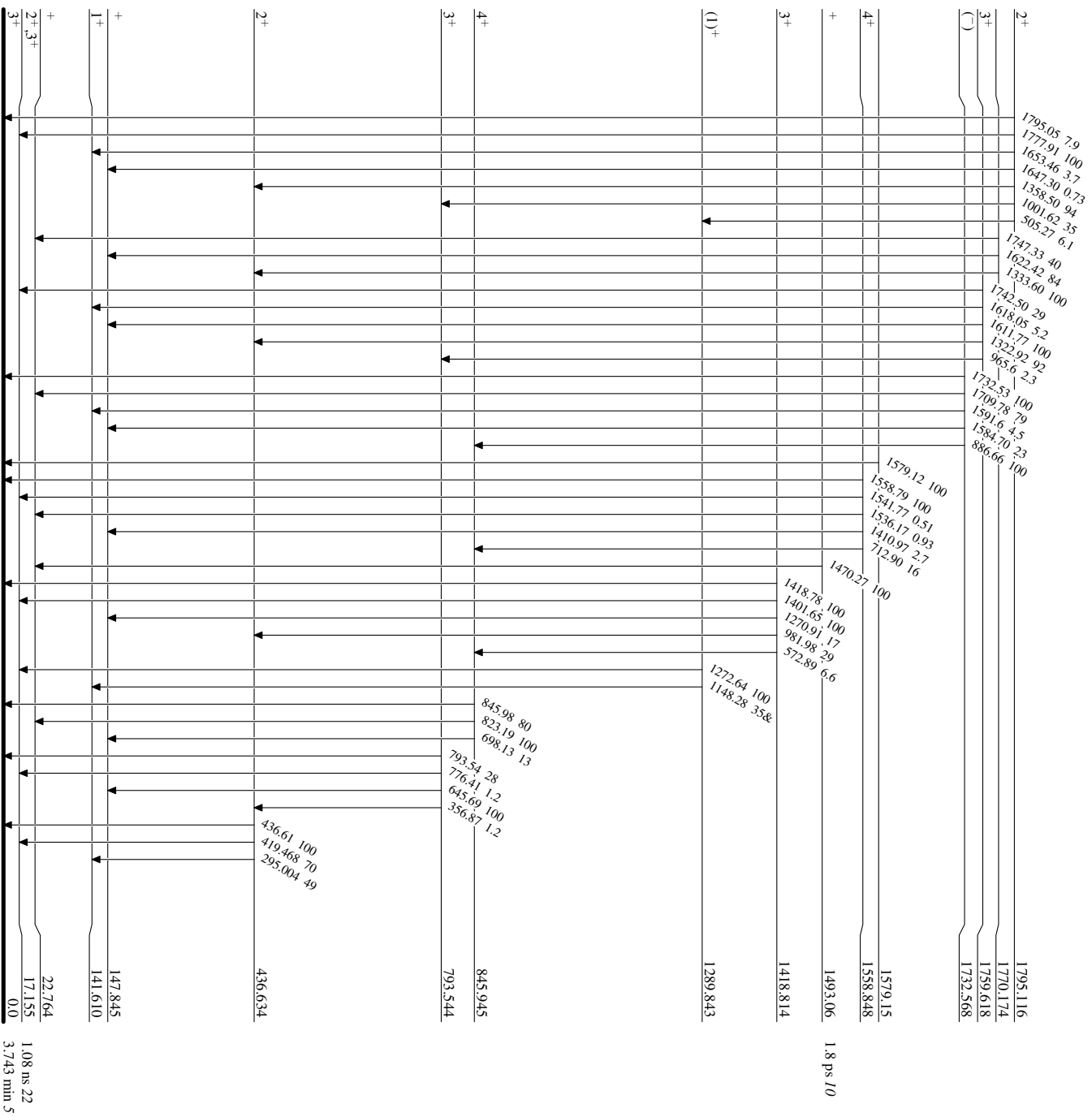
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

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



⁵²V₂₉

Adopted Levels, Gammas**Level Scheme (continued)**

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

