Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Huo Junde	NDS 110,2689 (2009)	31-Mar-2007

Q(β^-)=3436 *4*; S(n)=8478 *4*; S(p)=9670 *8*; Q(α)=−7714 *5* 2012Wa38
Note: Current evaluation has used the following Q record 3436 3 *8479* 3 *9672* 8 −7721 5 2003Au03.

^{53}V Levels

Cross Reference (XREF) Flags

A ^{53}Ti β^- decay
B ^{48}Ca(^{11}B,2p4nγ)
C ^{51}V(t,p), (t,pγ)

E(level)†	J$^\pi$	$T_{1/2}$‡	XREF	Comments
0.0	7/2$^-$	1.543 min *14*	ABC	%β^-=100 $T_{1/2}$: weighted average of 1.557 min *22* (1997Sm10), 1.60 min *10* (1971Do02), 1.60 min *5* (1969Wa12), and 1.520 min *15* (1966Ra27). Other: 1.7 min (1956Sc54). J$^\pi$: L(t,p)=0.
127.60 *8*	(5/2)$^-$	≤0.7 ns	A C	J$^\pi$: (M1) γ to 7/2$^-$, Syst for seniority=3 states. π from L(t,p)=2.
228.41 *8*	(3/2)$^-$	4.0 ns *3*	A C	J$^\pi$: (M1) γ to (5/2)$^-$, Syst for seniority=3 states. π from L(t,p)=2.
1091.24 *18*	11/2$^-$	2.0 ps *3*	BC	$T_{1/2}$: from (^{11}B,2p4nγ). Other: >1.4 ps (t,pγ). J$^\pi$: γ to 7/2$^-$ is stretched E2 (^{11}B,2p4nγ), L(t,p)=2.
1266.0 *9*	(7/2,9/2)$^-$	>1.1 ps	C	J$^\pi$: γ's to 11/2$^-$, (5/2)$^-$, 7/2$^-$. π from L(t,p)=2.
1549.6 *8*	(3/2)$^-$	0.08 ps *+9−5*	A C	J$^\pi$: γ's to (3/2)$^-$, (5/2)$^-$; no γ to 7/2$^-$. π from L(t,p)=2.
1653 *4*	(9/2,11/2)$^-$	>0.45 ps	C	J$^\pi$: L(t,p)=2; γ to 7/2$^-$; no γ to <7/2.
1852 *4*	$^-$		C	J$^\pi$: L(t,p)=0+2.
1904.01 *21*	(5/2)$^-$		A C	XREF: C(1901). J$^\pi$: strong γ's to 7/2$^-$, (3/2)$^-$ with comparable Iγ and the two gammas assumed to be dipole transitions. π from L(t,p)=2.
1957.6 *6*	(1/2)$^-$	<0.03 ps	A	J$^\pi$: log *ft*=5.81 via (3/2)$^-$ parent, γ to (3/2)$^-$, no γ to 7/2$^-$.
2084.0 *5*	(3/2)$^-$		A C	XREF: C(2079). J$^\pi$: γ's to (3/2)$^-$, (5/2)$^-$; π from L(t,p)=2.
2332 *8*	$^-$		C	J$^\pi$: L(t,p)=2+4.
2357 *8*	$^-$		C	J$^\pi$: L(t,p)=2.
2420.4 *3*	15/2$^-$	0.9 ps *2*	BC	XREF: C(2421). $T_{1/2}$: from (^{11}B,2p4nγ). J$^\pi$: γ to 11/2$^-$ is stretched E2, π from L(t,p)=(0+2).
2524 *8*	$^-$		C	J$^\pi$: L(t,p)=0+2.
2550.6 *14*	(1/2)$^-$		A C	J$^\pi$: log *ft*=5.44 via (3/2)$^-$ parent, γ to (3/2,1/2)$^-$, no γ to 7/2$^-$.
2584.0 *4*	(3/2)$^-$		A C	XREF: C(2576). J$^\pi$: γ's to (5/2)$^-$, (3/2)$^-$, no γ to 7/2$^-$, π from L(t,p)=2.
2636 *8*	$^+$		C	J$^\pi$: L(t,p)=1+3.
2706 *8*	($^-$)		C	J$^\pi$: L(t,p)=(0+4).
2772 *8*	$^-$		C	J$^\pi$: L(t,p)=2.
2829.5 *4*	(5/2)$^-$		A C	J$^\pi$: log *ft*=4.83 via (3/2)$^-$ parent, γ's to 7/2$^-$ and 3/2$^-$ with comparable Iγ and both gammas assumed to be dipole transitions.
2888 *8*	$^+$		C	J$^\pi$: L(t,p)=1+3.
2930.5 *20*	(3/2)$^-$		A	J$^\pi$: γ to 3/2$^-$, log *ft*=5.78 via (3/2)$^-$ parent.
2967 *8*	$^-$		C	J$^\pi$: L(t,p)=(2)+4.
3062 *8*			C	
3107 *8*			C	
3158 *8*	$^-$		C	J$^\pi$: L(t,p)=2.
3263 *8*			C	

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Adopted Levels, Gammas (continued)

^{53}V Levels (continued)

E(level)†	J^π	$T_{1/2}$‡	XREF	Comments
3320 *8*			C	
3348 *8*			C	
3411 *8*			C	
3492 *8*			C	
3520 *8*			C	
3573 *8*			C	
3661 *8*			C	
3692 *8*			C	
3738 *8*			C	
3784 *8*			C	
3841 *8*			C	
3947 *8*			C	
3999 *8*			C	
4042 *8*			C	
4085.2 *6*	(17/2,19/2$^-$)	>0.7 ps	BC	XREF: C(4097). J^π: γ to 15/2. No γ to J=15/2$^-$. $T_{1/2}$: from (^{11}B,2p4nγ).
4143 *8*			C	
4187 *8*			C	
4218 *8*			C	
4263 *8*			C	
4306 *8*			C	
4345 *8*			C	
4392 *8*			C	
4428 *8*			C	
4497 *8*			C	
4593 *8*			C	
4669 *8*			C	

† Levels connected by gammas are from least-squares fit. Others from (t,p).
‡ From ^{51}V(t,p),(t,pγ), except as noted.

$\gamma(^{53}V)$

Eγ and branching ratio are from ^{53}Ti β^- decay, except as noted.

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.‡	α#	Comments
127.60	(5/2)$^-$	127.6 *1*	100	0.0	7/2$^-$	(M1)	0.01209	α(K)=0.01075; α(L)=0.00101 B(M1)(W.u.)≥0.015
228.41	(3/2)$^-$	100.8 *1*	51 *3*	127.60	(5/2)$^-$	(M1)	0.02227	α(K)=0.01978; α(L)=0.00187 B(M1)(W.u.)=0.00178 *18*
		228.4 *1*	100	0.0	7/2$^-$	[E2]	0.01599	α(K)=0.01421; α(L)=0.00134 B(E2)(W.u.)=12.5 *10*
1091.24	11/2$^-$	1091.23† *18*	100†	0.0	7/2$^-$	E2		B(E2)(W.u.)=15.5 *24*
1266.0	(7/2,9/2)$^-$	175.0‡ *14*	14‡ *3*	1091.24	11/2$^-$			
		1138.3‡ *16*	44‡ *13*	127.60	(5/2)$^-$			
		1265.7‡ *16*	100‡ *13*	0.0	7/2$^-$			
1549.6	(3/2)$^-$	1321.1 *15*	56 *11*	228.41	(3/2)$^-$			
		1421.7 *9*	100 *15*	127.60	(5/2)$^-$	M1,E2		
1653	(9/2,11/2)$^-$	1652.5‡ *34*	100‡	0.0	7/2$^-$			
1904.01	(5/2)$^-$	1675.5 *3*	100 *11*	228.41	(3/2)$^-$			

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Adopted Levels, Gammas (continued)

$\gamma(^{53}V)$ (continued)

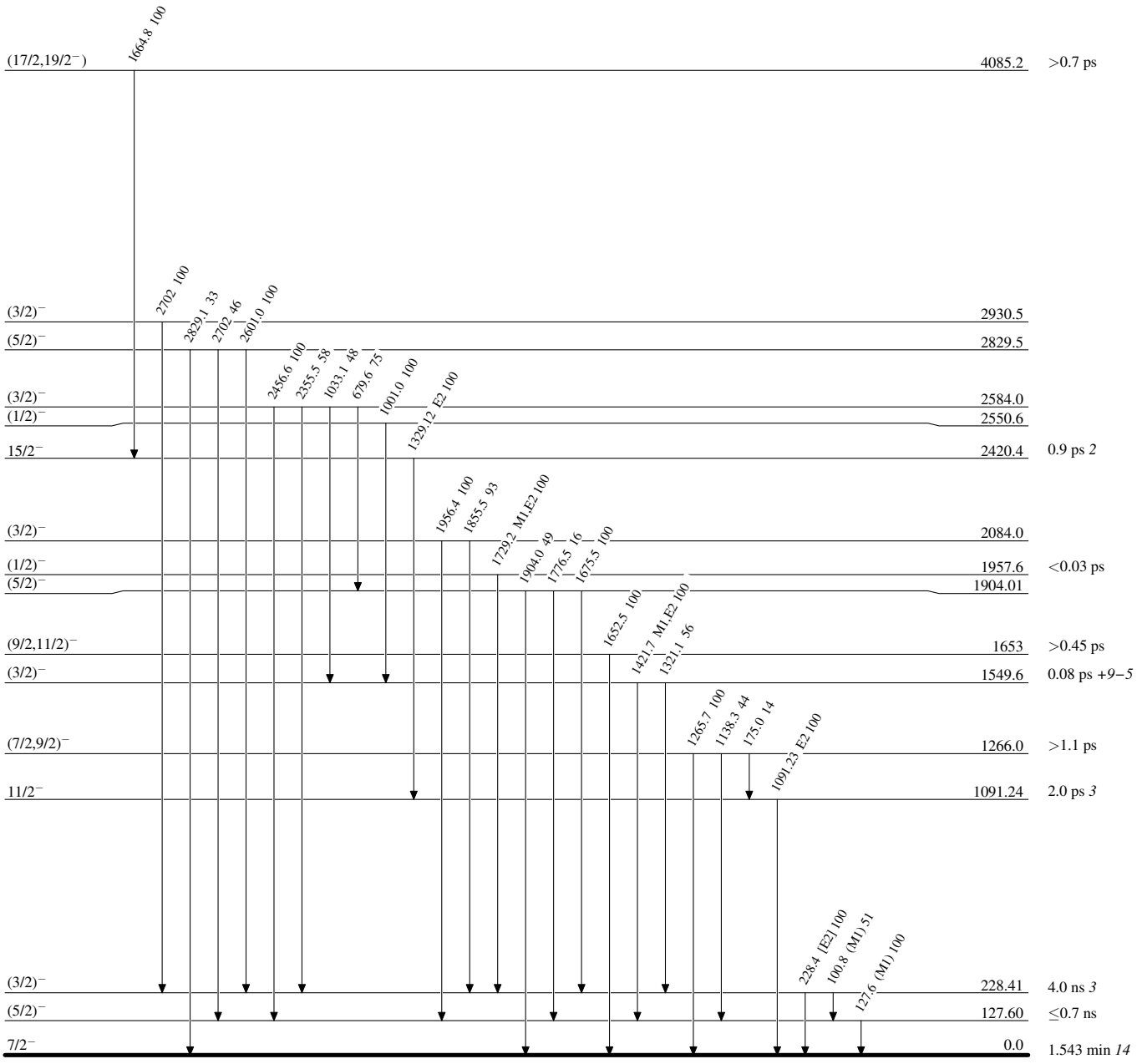
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.‡	Comments
1904.01	$(5/2)^-$	1776.5 *7*	16 *2*	127.60	$(5/2)^-$		
		1904.0 *3*	49 *3*	0.0	$7/2^-$		
1957.6	$(1/2)^-$	1729.2 *6*	100	228.41	$(3/2)^-$	M1,E2	
2084.0	$(3/2)^-$	1855.5 *7*	93 *16*	228.41	$(3/2)^-$		
		1956.4 *5*	100 *13*	127.60	$(5/2)^-$		
2420.4	$15/2^-$	1329.12 *23*	100	1091.24	$11/2^-$	E2	B(E2)(W.u.)=13 *3*
2550.6	$(1/2)^-$	1001.0 *11*	100	1549.6	$(3/2)^-$		
2584.0	$(3/2)^-$	679.6 *13*	75 *15*	1904.01	$(5/2)^-$		
		1033.1 *18*	48 *17*	1549.6	$(3/2)^-$		
		2355.5 *6*	58 *10*	228.41	$(3/2)^-$		
		2456.6 *5*	100 *10*	127.60	$(5/2)^-$		
2829.5	$(5/2)^-$	2601.0 *4*	100 *13*	228.41	$(3/2)^-$		
		2702 *2*	46 *9*	127.60	$(5/2)^-$		
		2829.1 *22*	33 *6*	0.0	$7/2^-$		
2930.5	$(3/2)^-$	2702 *2*	100	228.41	$(3/2)^-$		
4085.2	$(17/2,19/2^-)$	1664.8† *5*	100†	2420.4	$15/2^-$		

† From $^{48}Ca(^{11}B,2p4n\gamma)$.
‡ From $^{51}V(t,p),(t,p\gamma)$.
# 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.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{53}_{23}V_{30}$