Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	30-Apr-2022

Q(β^-)=5985 *2*; S(n)=7298 *29*; S(p)=10670 *30*; Q(α)=−8300 *27* 2021Wa16
S(2n)=13416 *27*, S(2p)=24930 *30* (2021Wa16).

1977Na17: ^{55}V produced and identified in ^{48}Ca(^{9}Be,np),E=20 MeV reaction at the BNL MP6 tandem Van de Graaff generator. Measured half-life of the decay of ^{55}V, Eγ, Iγ, $\gamma\gamma$-coin, $\beta\gamma$-coin using Ge(Li) detectors.

Additional information 1.

Mass measurements: 2018Re11.

Theoretical calculations: two primary references for structure retrieved from the NSR database at www.nndc.bnl.gov/nsr/. These are listed in this dataset under 'document' records.

^{55}V Levels

Cross Reference (XREF) Flags

A ^{55}Ti β^- decay (1.3 s)
B ^{9}Be(^{48}Ca,pnγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	XREF	Comments
0.0[#]	(7/2$^-$)	6.54 s *15*	AB	%β^-=100 J$^\pi$: from shell-model calculations (2011De20). T$_{1/2}$: from 1977Na17 (authors' average of 6.47 s *11* from 518γ-decay curve, and 6.79 s *21* from 881γ-decay curve). Additional information 2.
323.3 *4*	(5/2$^-$)		AB	J$^\pi$: ΔJ=1, dipole γ to (7/2$^-$).
672.1 *2*	(3/2$^-$)		AB	J$^\pi$: ΔJ=(2), (quadrupole) γ to (7/2$^-$).
1330.1 *5*			A	J$^\pi$: (3/2$^-$:11/2$^-$) from γ to (7/2$^-$), but apparent β feeding from (1/2)$^-$ parent state favors 3/2$^-$.
1433.10[#] *10*	(11/2$^-$)		B	J$^\pi$: ΔJ=2, quadrupole γ to (7/2$^-$).
1500.4 *5*			A	J$^\pi$: (1/2:7/2$^-$) from γ to (3/2$^-$), but apparent β feeding from (1/2)$^-$ parent state favors 1/2,3/2.
1569.9 *6*	(3/2$^-$)		B	J$^\pi$: ΔJ=1, dipole γ to (5/2$^-$).
1570.0 *3*	(9/2$^-$)		B	J$^\pi$: ΔJ=1, dipole γ to (7/2$^-$).
1620.8 *4*	(9/2$^-$)		B	J$^\pi$: ΔJ=1, dipole γ to (7/2$^-$).
1942.8 *4*	(11/2$^-$)		B	
2152.5 *5*			A	J$^\pi$: (1/2$^-$:7/2$^-$) from γs to (5/2$^-$) and (3/2$^-$), but apparent β feeding from (1/2$^-$) parent state favors 1/2$^-$,3/2.
2176.40 *25*	(11/2$^-$)		B	J$^\pi$: ΔJ=(2), (quadrupole) γ to (7/2$^-$); ΔJ=1, dipole γ to (9/2$^-$).
2508.11[#] *14*	(15/2$^-$)		B	J$^\pi$: ΔJ=2, quadrupole γ to (11/2$^-$).
2630.2 *3*	(13/2$^-$)		B	J$^\pi$: ΔJ=1, dipole γ to (11/2$^-$).
2642.7 *4*	(11/2$^-$,13/2$^-$)		B	J$^\pi$: ΔJ=0 or 1, dipole γ to (11/2$^-$).
2916.4 *4*	(13/2$^-$)		B	J$^\pi$: ΔJ=0 or 1, dipole γ to (11/2$^-$,13/2$^-$); γs to (11/2$^-$) and (13/2$^-$).
3165.51[#] *17*	(15/2$^-$)		B	J$^\pi$: ΔJ=0, dipole γ to (15/2$^-$).
3479.2 *6*	(15/2$^-$)		B	J$^\pi$: ΔJ=(2), (quadrupole) γ to (11/2$^-$); γ to (13/2$^-$).
3826.9 *6*	(15/2$^-$)		B	J$^\pi$: γ to (15/2$^-$).
4364.6 *5*	(17/2$^+$)		B	J$^\pi$: ΔJ=1, dipole γ to (15/2$^-$).
4421.8 *5*	(17/2$^-$)		B	J$^\pi$: ΔJ=1, dipole γ to (15/2$^-$); ΔJ=(2) γ to (13/2$^-$).
4695.5 *9*	(19/2$^-$)		B	J$^\pi$: ΔJ=2, quadrupole γ to (15/2$^-$).
4750.2[#] *4*	(19/2$^+$)		B	J$^\pi$: ΔJ=(2), (quadrupole) γ to (15/2$^-$).
4855.7 *4*	(19/2$^-$)		B	J$^\pi$: ΔJ=2, quadrupole γ to (15/2$^-$); γ to (17/2$^-$).
5039.1 *10*	(19/2$^-$)		B	J$^\pi$: γs to (15/2$^-$) and (19/2$^-$).
5170.8[#] *4*	(21/2$^+$)		B	J$^\pi$: ΔJ=2, quadrupole γ to (17/2$^-$); ΔJ=1, dipole γ to (19/2$^+$).

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Adopted Levels, Gammas (continued)

^{55}V Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
5350.2 *6*	(19/2,21/2$^+$)	B	J$^{\pi}$: ΔJ=(1,2) γ to (17/2$^+$); 19/2 is preferred from $\gamma(\theta)$ data which suggests ΔJ=1, dipole.
5695.8[#] *4*	(23/2$^+$)	B	J$^{\pi}$: ΔJ=1, dipole γ to (21/2$^+$).
6620.7 *5*	(23/2$^+$)	B	J$^{\pi}$: ΔJ=1, dipole γ to (21/2$^+$).
7012.7[#] *5*	(25/2$^+$)	B	J$^{\pi}$: ΔJ=1, dipole γ to (23/2$^+$).
7466.8 *10*	(27/2$^+$)	B	J$^{\pi}$: ΔJ=(2), (quadrupole) γ to (23/2$^+$).

[†] From least-squares fit to Eγ data.
[‡] From multipolarities determined from $\gamma(\theta)$ data, and shell-model predictions in ^{9}Be(^{48}Ca,pnγ), unless otherwise stated.
[#] Seq.(A): Yrast sequence.

$\gamma(^{55}V)$

E$_i$(level)	J$_i^{\pi}$	E$_{\gamma}$[†]	I$_{\gamma}$[†]	E$_f$	J$_f^{\pi}$	Mult.[†]	Comments
323.3	(5/2$^-$)	323.3 *4*	100	0.0	(7/2$^-$)	D	E$_{\gamma}$: weighted average of 323.4 *4* in ^{55}Ti β^- decay and 323.1 *5* in ^{9}Be(^{48}Ca,pnγ).
672.1	(3/2$^-$)	348.2 *6*	6.8 *23*	323.3	(5/2$^-$)		E$_{\gamma}$: weighted average of 349.3 *6* in ^{55}Ti β^- decay and 347.9 *3* in ^{9}Be(^{48}Ca,pnγ). I$_{\gamma}$: from ^{55}Ti β^- decay. Other: 12 *9* in ^{9}Be(^{48}Ca,pnγ).
		672.1 *2*	100 *9*	0.0	(7/2$^-$)	(Q)	E$_{\gamma}$: weighted average of 672.5 *4* in ^{55}Ti β^- decay and 672.0 *2* in ^{9}Be(^{48}Ca,pnγ).
1330.1		1330.1[‡] *5*	100[‡]	0.0	(7/2$^-$)		
1433.10	(11/2$^-$)	1433.1 *1*	100	0.0	(7/2$^-$)	Q	
1500.4		828.1[‡] *5*	100[‡]	672.1	(3/2$^-$)		
1569.9	(3/2$^-$)	1246.6 *5*	100	323.3	(5/2$^-$)	D	
1570.0	(9/2$^-$)	1569.7 *4*	100	0.0	(7/2$^-$)	D	
1620.8	(9/2$^-$)	1620.8 *8*	100	0.0	(7/2$^-$)	D	
1942.8	(11/2$^-$)	322.0 *3*	78 *26*	1620.8	(9/2$^-$)		
		1943.2 *7*	100 *19*	0.0	(7/2$^-$)	Q	
2152.5		651.6[‡] *7*	83[‡] *17*	1500.4			
		1480.0[‡] *8*	100[‡] *17*	672.1	(3/2$^-$)		
		1830.0[‡] *8*	83[‡] *17*	323.3	(5/2$^-$)		
2176.40	(11/2$^-$)	233.8 *5*	4.7 *19*	1942.8	(11/2$^-$)		
		606.3 *2*	64 *8*	1570.0	(9/2$^-$)	D	
		742.9 *4*	100 *12*	1433.10	(11/2$^-$)		Mult.: ΔJ=0 transition.
		2175.5 *10*	76 *22*	0.0	(7/2$^-$)	(Q)	
2508.11	(15/2$^-$)	1075.0 *1*	100	1433.10	(11/2$^-$)	Q	
2630.2	(13/2$^-$)	453.8 *1*	100	2176.40	(11/2$^-$)	D	
2642.7	(11/2$^-$,13/2$^-$)	699.9 *3*	100	1942.8	(11/2$^-$)	D	Mult.: ΔJ=1 or 0.
2916.4	(13/2$^-$)	273.7 *1*	100 *12*	2642.7	(11/2$^-$,13/2$^-$)	D	Mult.: ΔJ=1 or 0.
		285.1 *5*	20 *12*	2630.2	(13/2$^-$)		
		739.9 *7*	100 *48*	2176.40	(11/2$^-$)		
		1486.4 *9*	48 *28*	1433.10	(11/2$^-$)		E$_{\gamma}$: poor fit. Level-energy difference=1483.3.
3165.51	(15/2$^-$)	248.2 *12*	2.5 *13*	2916.4	(13/2$^-$)		
		534 *4*	2.1 *13*	2630.2	(13/2$^-$)		
		657.4 *1*	100 *4*	2508.11	(15/2$^-$)	D	Mult.: ΔJ=0 transition.
3479.2	(15/2$^-$)	848.1 *11*	14 *9*	2630.2	(13/2$^-$)		
		2046.2 *13*	100 *15*	1433.10	(11/2$^-$)	(Q)	
3826.9	(15/2$^-$)	1318.3 *13*	100	2508.11	(15/2$^-$)		

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Adopted Levels, Gammas (continued)

$\gamma(^{55}V)$ (continued)

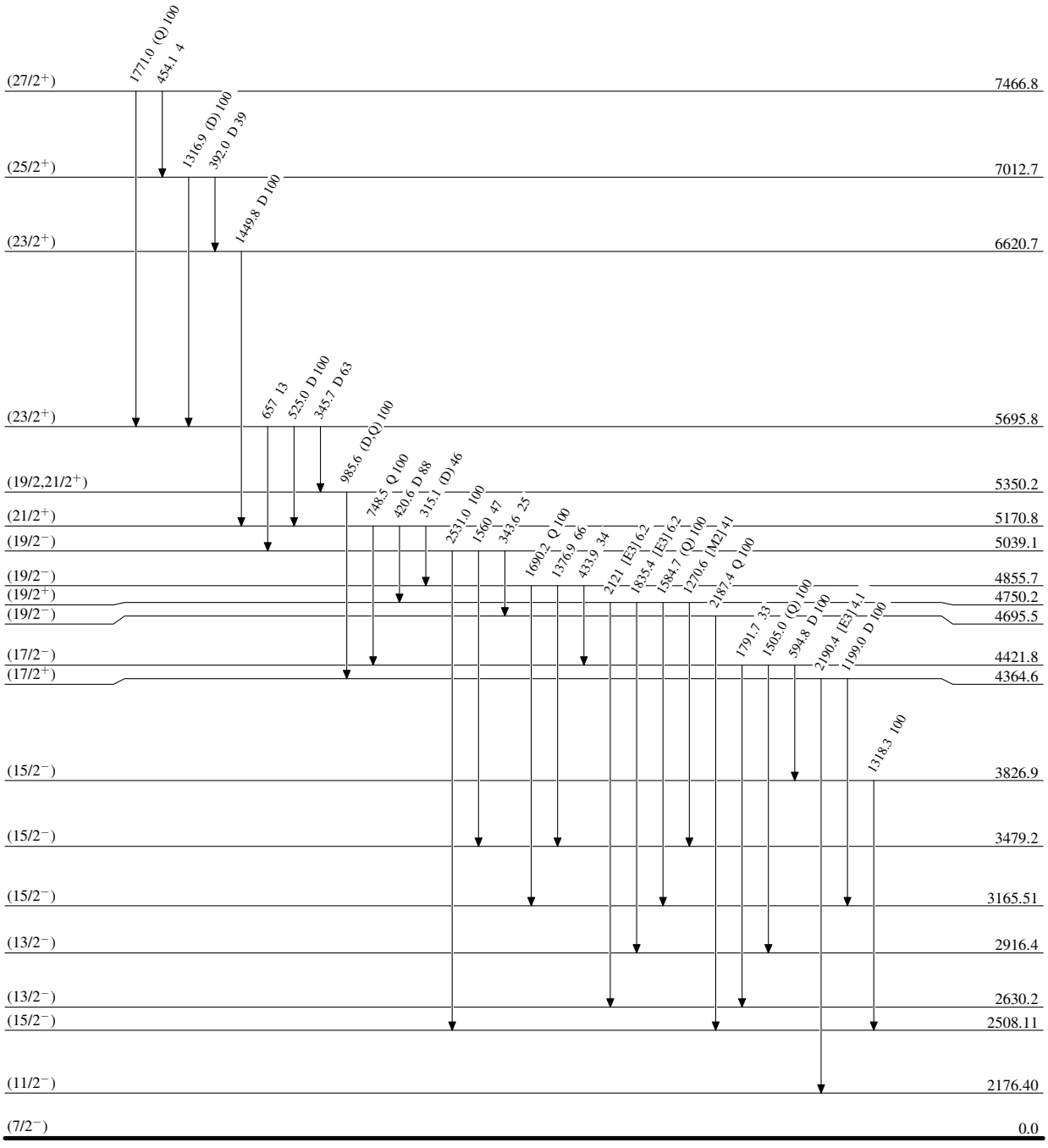
E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	Comments
4364.6	$(17/2^+)$	1199.0 *5*	100 *7*	3165.51	$(15/2^-)$	D	
		2190.4 *22*	4.1 *25*	2176.40	$(11/2^-)$	[E3]	
4421.8	$(17/2^-)$	594.8 *5*	100 *24*	3826.9	$(15/2^-)$	D	
		1505.0 *7*	100 *24*	2916.4	$(13/2^-)$	(Q)	
		1791.7 *11*	33 *24*	2630.2	$(13/2^-)$		
4695.5	$(19/2^-)$	2187.4 *10*	100	2508.11	$(15/2^-)$	Q	
4750.2	$(19/2^+)$	1270.6 *7*	41 *15*	3479.2	$(15/2^-)$	[M2]	
		1584.7 *5*	100 *10*	3165.51	$(15/2^-)$	(Q)	Mult.: (M2) from ΔJ^π.
		1835.4 *12*	6.2 *37*	2916.4	$(13/2^-)$	[E3]	
		2121 *3*	6.2 *37*	2630.2	$(13/2^-)$	[E3]	
4855.7	$(19/2^-)$	433.9 *5*	34 *13*	4421.8	$(17/2^-)$		
		1376.9 *12*	66 *23*	3479.2	$(15/2^-)$		
		1690.2 *9*	100 *9*	3165.51	$(15/2^-)$	Q	
5039.1	$(19/2^-)$	343.6 *4*	25 *12*	4695.5	$(19/2^-)$		
		1560 *3*	47 *20*	3479.2	$(15/2^-)$		
		2531.0 *24*	100 *33*	2508.11	$(15/2^-)$		
5170.8	$(21/2^+)$	315.1 *1*	46 *6*	4855.7	$(19/2^-)$	(D)	
		420.6 *1*	88 *9*	4750.2	$(19/2^+)$	D	
		748.5 *10*	100 *15*	4421.8	$(17/2^-)$	Q	Mult.: (M2) from ΔJ^π.
5350.2	$(19/2,21/2^+)$	985.6 *3*	100	4364.6	$(17/2^+)$	(D,Q)	Mult.: $\gamma(\theta)$ suggests ΔJ=1, dipole, ΔJ=2, quadrupole also possible from ΔJ^π assigned by 2011De20.
5695.8	$(23/2^+)$	345.7 *10*	63 *12*	5350.2	$(19/2,21/2^+)$	D	
		525.0 *1*	100 *10*	5170.8	$(21/2^+)$	D	
		657 *4*	13 *6*	5039.1	$(19/2^-)$		
6620.7	$(23/2^+)$	1449.8 *3*	100	5170.8	$(21/2^+)$	D	
7012.7	$(25/2^+)$	392.0 *1*	39 *4*	6620.7	$(23/2^+)$	D	
		1316.9 *4*	100 *12*	5695.8	$(23/2^+)$	(D)	
7466.8	$(27/2^+)$	454.1 *10*	4 *4*	7012.7	$(25/2^+)$		
		1771.0 *15*	100 *48*	5695.8	$(23/2^+)$	(Q)	

[†] From ^{9}Be(^{48}Ca,pnγ), unless otherwise stated. High multipolarities (M2 and E3), based on ΔJ^π are given in square brackets or in comments.
[‡] From ^{55}Ti β^- decay.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

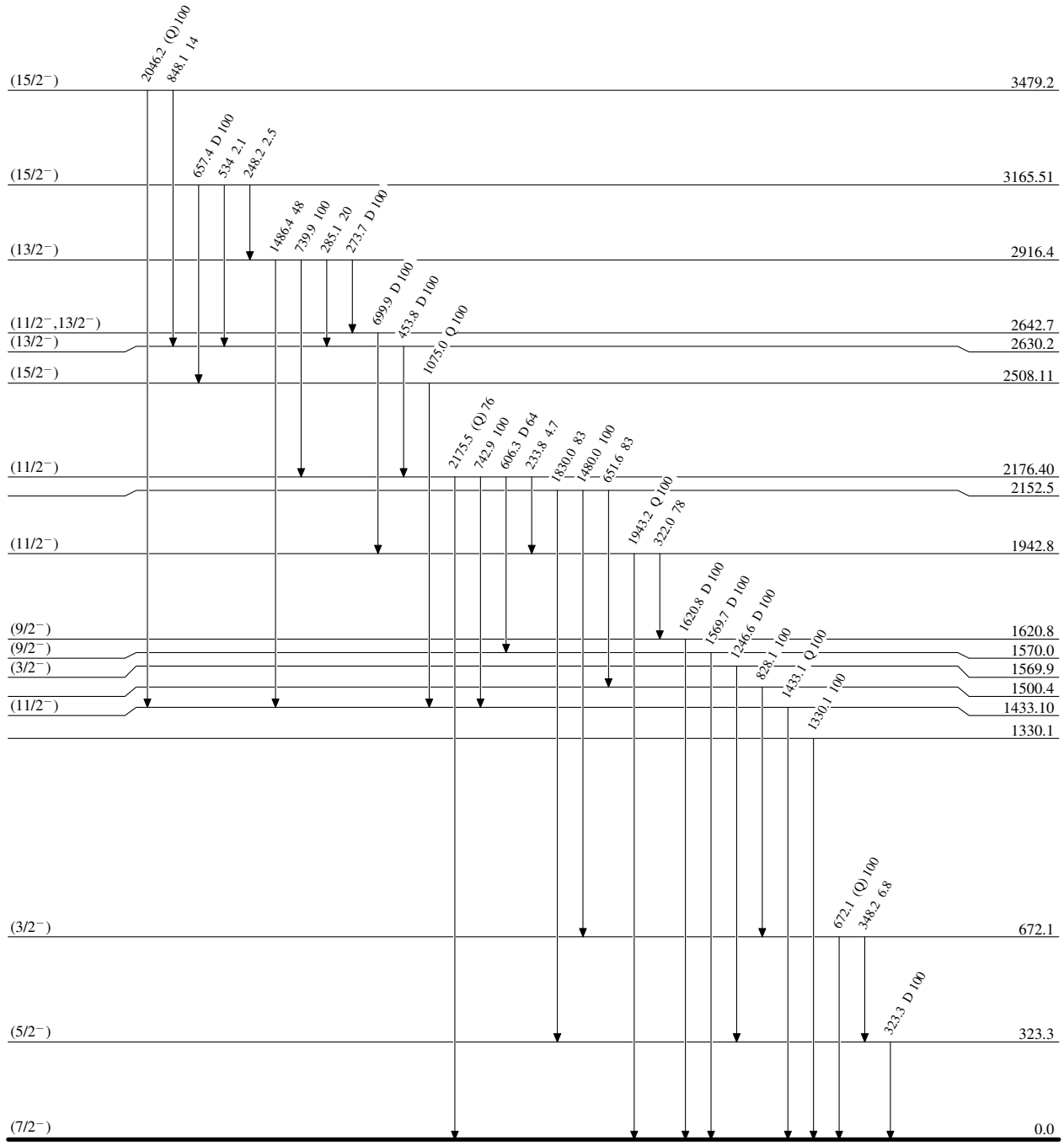


$^{55}_{23}V_{32}$

Adopted Levels, Gammas

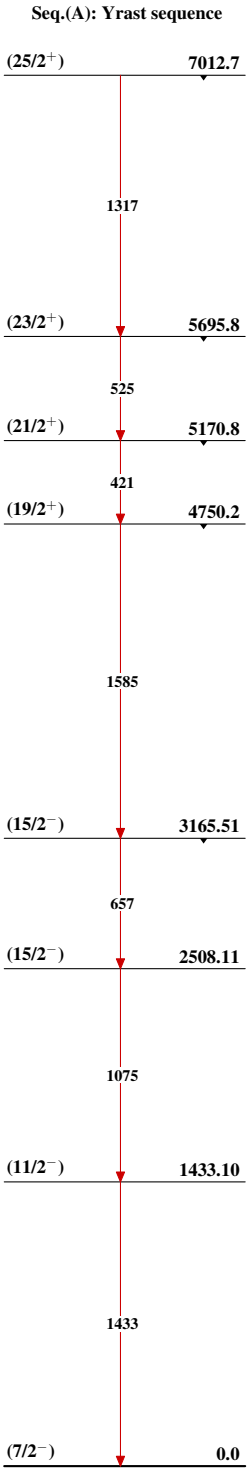
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{55}_{23}V_{32}$

Adopted Levels, Gammas



$^{55}_{23}V_{32}$