Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Huo Junde	NDS 109,787 (2008)	30-Apr-2007

Q(β^-)=2603.1 *4*; S(n)=6246.26 *19*; S(p)=12506 *15*; Q(α)=−7801.7 *9* 2012Wa38
Note: Current evaluation has used the following Q record 2603.1 4 *6246.26 1912506* 15-7801.6 *12* 2003Au03.
Additional information 1.
Other reactions: ^{55}Mn(n,p), ^{58}Fe(n,α), ^{56}Fe(e,p), ^{59}Co(e,α), ^{59}Co(π^-,pt),(π^-,2d), and ^{59}Co(π^-,α), see 1985Zh06.

^{55}Cr Levels

Evaluator notes that correspondence among levels in (d,p), (t,p), and (d,pγ) is not unambiguous.

Cross Reference (XREF) Flags

A	^{55}V β^- decay	E	^{54}Cr(d,p)
B	^{48}Ca(^{11}B,p3nγ)	F	^{54}Cr(d,pγ)
C	^{53}Cr(t,p)	G	^{54}Cr(pol d,p)
D	^{54}Cr(n,γ) E=thermal		

E(level)†	J$^\pi$‡	T$_{1/2}$@	XREF	Comments
0.0&	3/2$^-$	3.497 min *3*	ABCDEFG	%β^-=100 T$_{1/2}$: from 1977Co19. Others: 3.52 min *3* (1952Fl21), 3.67 min *25* (1954Ba57), 3.5 min *1* (1961Ch04), and 3.59 min *4* (1965Ko09). J$^\pi$: L(t,p)=0, *J*$^\pi$(^{53}Cr)=3/2$^-$.
241.91b *4*	1/2$^-$		ABCDEFG	XREF: C(245)F(245).
517.70& *4*	5/2$^-$	<5.2 ps	ABCDEFG	XREF: C(524)F(524). J$^\pi$: L(d,p)=3, d(+Q) γ to 3/3$^-$.
565.91b *3*	3/2$^-$		ABCDEFG	XREF: C(573)F(573).
880.71b *4*	5/2$^-$		ABCDEFG	XREF: C(893)F(893).
1131? *10*			F	
1214.75b *5*	5/2$^-$	3.5 ps *+69−14*	AB EFG	XREF: F(1229).
1438.82b *7*	9/2$^-$	4.2 ps *14*	ABC	XREF: C(1447). J$^\pi$: based on γ intensities and $\gamma(\theta)$ feeding to and deexciting from this level in (^{11}B,p3nγ); L(t,p)=4 from 3/2$^-$ (see 1978Na06).
1474.20 *6*	1/2$^-$		CDEFG	XREF: C(1487)E(1470)F(1487)G(1470).
1479.03& *12*	7/2$^-$		AB	J$^\pi$: based on 961$\gamma(\theta)$ and linear polarization in (^{11}B,p3nγ).
2008 *7*	5/2$^+$		C EFG	XREF: C(2031)F(2031).
2083.85 *13*	3/2$^-$		CD G	XREF: C(2098)G(2080).
2086.10a *12*	9/2$^+$		BC EF	XREF: C(2098)E(2078). J$^\pi$: L(d,p)=4.
2269.24 *18*	1/2$^+$		B DEF	XREF: E(2260)F(2283). J$^\pi$: L(d,p)=0.
2314.2?& *7*	(9/2$^-$)#		B	
2320 *10*	3/2$^-$		C E	XREF: C(2341). J$^\pi$: L(t,p)=0 from 3/2$^-$.
2355 *10*			E	
2390.40b *12*	11/2$^-$		B	J$^\pi$: D+Q γ from 13/2$^+$, 13/2$^-$ and D+Q γ to (9/2)$^-$.
2545 *10*	(5/2$^-$,7/2$^-$)		C EF	XREF: C(2570)F(2570). J$^\pi$: L(d,p)=(3).
2596 *10*	5/2$^-$,7/2$^-$		C EF	XREF: C(2622)F(2622). J$^\pi$: L(d,p)=3.

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Adopted Levels, Gammas (continued)

^{55}Cr Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
2686.99 *14*	1/2⁻,3/2⁻		CDEF	XREF: C(2695)E(2679)F(2695). Jπ: L(d,p)=1.
2710 *10*	3/2⁻		C E	E(level): the level is tentative in (d,p). Jπ: L(t,p)=0 from 3/2⁻.
2755.49[b] *15*	13/2⁻	<3.5 ps	B	Jπ: based on direct feeding intensities, consistency of 1317γ(θ) with that expected for J+2 to J transition, and 365γ is at least partially dipole in (^{11}B,p3nγ).
2874 *10*	3/2⁺,5/2⁺		C E	XREF: C(2880). Jπ: L(d,p)=2.
2880.36[a] *13*	13/2⁺		B D	Jπ: based on 794γ(θ) J+2 to J transition in (^{11}B,p3nγ).
2894.54 *13*	1/2⁻		CDE G	XREF: C(2905)E(2886).
2988.7 *7*	13/2⁻[#]		B	
3009 *10*			E	
3017 *10*	1/2⁻,3/2⁻		C E	XREF: C(3043). Jπ: L(d,p)=1.
3114 *10*	(⁺)		C E	Jπ: L(t,p)=3 from 3/2⁻ (not a strong group).
3145 *10*	5/2⁻		E G	
3182.6 *8*	13/2⁻		B	Jπ: from (^{11}B,p3nγ).
3200 *10*	1/2⁻,3/2⁻		E	Jπ: L(d,p)=1.
3294 *10*			E	
3306.22[b] *20*	(15/2)	2.1 ps *14*	BC	Jπ: based on 551γ(θ) in (^{11}B,p3nγ).
3351 *10*	1/2⁻,3/2⁻		C E	XREF: C(3330). Jπ: L(d,p)=1.
3519 *10*	(1/2⁻,3/2⁻)		C E	XREF: C(3530). Jπ: L(d,p)=(1).
3574 *10*	3/2⁻		C E	XREF: C(3570). Jπ: L(t,p)=0 from 3/2⁻.
3631 *10*			E	
3696 *10*	(1/2⁻,3/2⁻)		E	Jπ: L(d,p)=(1).
3800 *10*			E	
3810 *10*			E	
3828 *10*			E	
3852 *10*	(3/2⁺,5/2⁺)		E	Jπ: L(d,p)=(2).
3902 *10*			E	
3938 *10*	3/2⁺,5/2⁺		E	Jπ: L(d,p)=2.
4001 *10*			E	
4005.4[a] *2*	17/2⁺		B	Jπ: from 1125γ(θ) in (^{11}B,p3nγ) gives J≥15/2. $T_{1/2}$: 0.35 ps<$T_{1/2}$<2.1 ps.
4044.25 *21*	1/2⁺		DE	XREF: E(4038). Jπ: L(d,p)=0.
4059 *10*	(1/2⁻,3/2⁻)		E	Jπ: L(d,p)=(1).
4142 *10*	(3/2⁺,5/2⁺)		C E	Jπ: L(d,p)=(2).
4151.6[b] *5*	17/2⁻[#]		B	
4181 *10*	1/2⁻,3/2⁻		C E	XREF: C(4160). Jπ: L(d,p)=1.
4276 *10*			E	
4308 *10*			E	
4382 *10*	1/2⁺		E	Jπ: L(d,p)=0.
4418 *10*	3/2⁺,5/2⁺		E	Jπ: L(d,p)=2.
4466 *10*	1/2⁻,3/2⁻		E	Jπ: L(d,p)=1.
4517 *10*			E	
4545 *10*			E	
4571 *10*			E	
4607 *10*			E	

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Adopted Levels, Gammas (continued)

^{55}Cr Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
4631 *10*		E	
4646 *10*		E	
4663 *10*	3/2+,5/2+	E	Jπ: L(d,p)=2.
4734 *10*		E	
4739 *10*	1/2+	E	Jπ: L(d,p)=0.
4767 *10*		E	
4854 *10*	3/2+,5/2+	E	Jπ: L(d,p)=2.
4869 *10*		E	
4900 *10*		E	
4950 *10*		E	
4962 *10*	(3/2+,5/2+)	E	Jπ: L(d,p)=(2).
5016 *10*		E	
5049 *10*		E	
5070 *10*	(5/2−,7/2−)	E	Jπ: L(d,p)=(3).
5093 *10*		E	
5118 *10*		E	
5154 *10*		E	
5157 *10*		E	
5199 *10*		E	
5245 *10*		E	
5264 *10*		E	
5295 *10*		E	
5327 *10*		E	
5352 *10*		E	
5433 *10*		E	
5455 *10*		E	
5489 *10*		E	
5515 *10*		E	
5575 *10*		E	
5615 *10*		E	
5648.6[a] *6*	21/2+[#]	B	
5668 *10*		E	
5719 *10*		E	
5750 *10*		E	
5806 *10*		E	
5820 *10*		E	
5858 *10*		E	
5885 *10*		E	
5956 *10*		E	
5980 *10*		E	
6000 *10*		E	
6068 *10*		E	
6136 *10*		E	
6164 *10*		E	
6306 *10*		E	
6556 *10*		E	
6583 *10*		E	
6644 *10*		E	
7433.3[a] *9*	25/2+[#]	B	

[†] E(level) for the states connected by γ transitions are from least-squares fits, other E(level) are from (d,p), except as noted.
[‡] From analyzing power and L(n) in (pol d,p), except as noted.
[#] Based on $\gamma(\theta)$, from (^{11}B,p3nγ).
[@] Based on RDM, From (^{11}B,p3nγ), except as noted.

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Adopted Levels, Gammas (continued)

^{55}Cr Levels (continued)

[&] Band(A): $K^{\pi}=3/2^{-}$, possibly $\nu 3/2[312]$, see (^{11}B,p3nγ) (2003Ap01).
[a] Band(B): $\nu g_{9/2}$ (intruder) band, see (^{11}B,p3nγ) (2003Ap01).
[b] Band(C): $K^{\pi}=1/2^{-}$, possibly $\nu 1/[310]$, see (^{11}B,p3nγ) (2003Ap01).

$\gamma(^{55}Cr)$

Evaluator notes that correspondence between γ rays from (d,pγ) and from other studies is not unambiguous. Evaluator regards γ rays from (d,pγ) as tentative.
Unplaced γ's are from ^{54}Cr(n,γ) E=th, except as noted.

E_i(level)	J_i^{π}	E_{γ}[†]	I_{γ}[&]	E_f	J_f^{π}	Mult.[@]	Comments
241.91	$1/2^{-}$	241.94[#] *5*	100	0.0	$3/2^{-}$		
517.70	$5/2^{-}$	517.71[#] *4*	100	0.0	$3/2^{-}$	D(+Q)	
565.91	$3/2^{-}$	324.03 *5*	13 *1*	241.91	$1/2^{-}$		
		565.88[#] *4*	100 *10*	0.0	$3/2^{-}$		
880.71	$5/2^{-}$	314.81[@] *7*	5.6[‡] *4*	565.91	$3/2^{-}$		
		363.05[@] *7*	8.0[‡] *4*	517.70	$5/2^{-}$		
		880.70[#] *7*	100.0[‡] *16*	0.0	$3/2^{-}$		
1131?		613 *10*	100	517.70	$5/2^{-}$		E_{γ}: from (d,pγ).
1214.75	$5/2^{-}$	334.06[@] *6*	42[@] *8*	880.71	$5/2^{-}$		
		696.92[@] *24*	12[@] *6*	517.70	$5/2^{-}$		
		1214.69[@] *7*	100[@] *9*	0.0	$3/2^{-}$		B(E2)(W.u.): B(E2)(W.u.)=3.7+19−26 if E2.
1438.82	$9/2^{-}$	224.08[@] *6*	22.5[@] *24*	1214.75	$5/2^{-}$		
		921.10[@] *12*	100[@] *4*	517.70	$5/2^{-}$	E2	B(E2)(W.u.): B(E2)(W.u.)=13 *5* if E2.
1474.20	$1/2^{-}$	908.27 *8*	100 *10*	565.91	$3/2^{-}$		
		1232.21 *11*	11.1 *11*	241.91	$1/2^{-}$		
		1474.28 *12*	88 *9*	0.0	$3/2^{-}$		
1479.03	$7/2^{-}$	961.39[@] *14*	100[‡]	517.70	$5/2^{-}$	D+Q	
2083.85	$3/2^{-}$	1842.05 *21*	58 *6*	241.91	$1/2^{-}$		
		2083.70 *17*	100 *11*	0.0	$3/2^{-}$		
2086.10	$9/2^{+}$	607.12[@] *12*	100[@] *9*	1479.03	$7/2^{-}$	D+Q	
		871.25[@] *16*	72[@] *9*	1214.75	$5/2^{-}$		
2269.24	$1/2^{+}$	1703.19 *23*	100 *11*	565.91	$3/2^{-}$		
		2269.4 *3*	100 *11*	0.0	$3/2^{-}$		
2314.2?	$(9/2^{-})$	834.3[@a] *6*	100[@] *10*	1479.03	$7/2^{-}$		
2390.40	$11/2^{-}$	951.61[@] *15*	100[@]	1438.82	$9/2^{-}$	D+Q	
2686.99	$1/2^{-},3/2^{-}$	2120.97 *19*	34.4 *34*	565.91	$3/2^{-}$		
		2444.9 *3*	34.4 *34*	241.91	$1/2^{-}$		
		2687.0 *3*	100 *10*	0.0	$3/2^{-}$		
2755.49	$13/2^{-}$	365.10[@] *12*	49[@] *7*	2390.40	$11/2^{-}$	D+Q	
		441.7[@a] *6*	6.6[@] *9*	2314.2?	$(9/2^{-})$		
		1316.60[@] *20*	100[@] *7*	1438.82	$9/2^{-}$		B(E2)(W.u.): B(E2)(W.u.)>2.6 if E2.
2880.36	$13/2^{+}$	489.96[@] *12*	54[@] *5*	2390.40	$11/2^{-}$	D+Q	
		794.25[@] *12*	100[@] *5*	2086.10	$9/2^{+}$	E2	
2894.54	$1/2^{-}$	2328.66 *16*	35 *4*	565.91	$3/2^{-}$		
		2652.4 *3*	57 *6*	241.91	$1/2^{-}$		
		2894.3 *3*	100 *10*	0.0	$3/2^{-}$		
2988.7	$13/2^{-}$	598.3[@] *6*	100[@] *6*	2390.40	$11/2^{-}$		Additional information 2.

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Adopted Levels, Gammas (continued)

γ(^{55}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[&]	E_f	J_f^π	Mult.[@]	Comments
3182.6	13/2$^-$	1743.7[@] *8*	100[@] *5*	1438.82	9/2$^-$		Additional information 3.
3306.22	(15/2)	550.73[@] *14*	100[@]	2755.49	13/2$^-$	D+Q	
		915.3[@] *7*	25[@] *3*	2390.40	11/2$^-$		
4005.4	17/2$^+$	1125.03[@] *15*	100[@]	2880.36	13/2$^+$		
4044.25	1/2$^+$	3478.1 *7*	29 *3*	565.91	3/2$^-$		
		4044.1 *5*	100 *10*	0.0	3/2$^-$		
4151.6	17/2$^-$	845.6[@] *5*	88[@] *2*	3306.22	(15/2)		Additional information 4.
		1395.7[@] *6*	100[@] *2*	2755.49	13/2$^-$		Additional information 5.
5648.6	21/2$^+$	1643.2[@] *5*	100[@] *1*	4005.4	17/2$^+$	E2	Additional information 6.
7433.3	25/2$^+$	1784.6[@] *6*	100[@] *3*	5648.6	21/2$^+$	(E2)	Additional information 7.

[†] From (n,γ) E=th, except as noted.
[‡] From ^{55}V β^- decay.
[#] Weighted average of values from (^{11}B,p3nγ), and (n,γ) E=th.
[@] From (^{11}B,p3nγ).
[&] Relative photon branching ratio from each level. From (n,γ) E=th, except as noted.
[a] Placement of transition in the level scheme is uncertain.

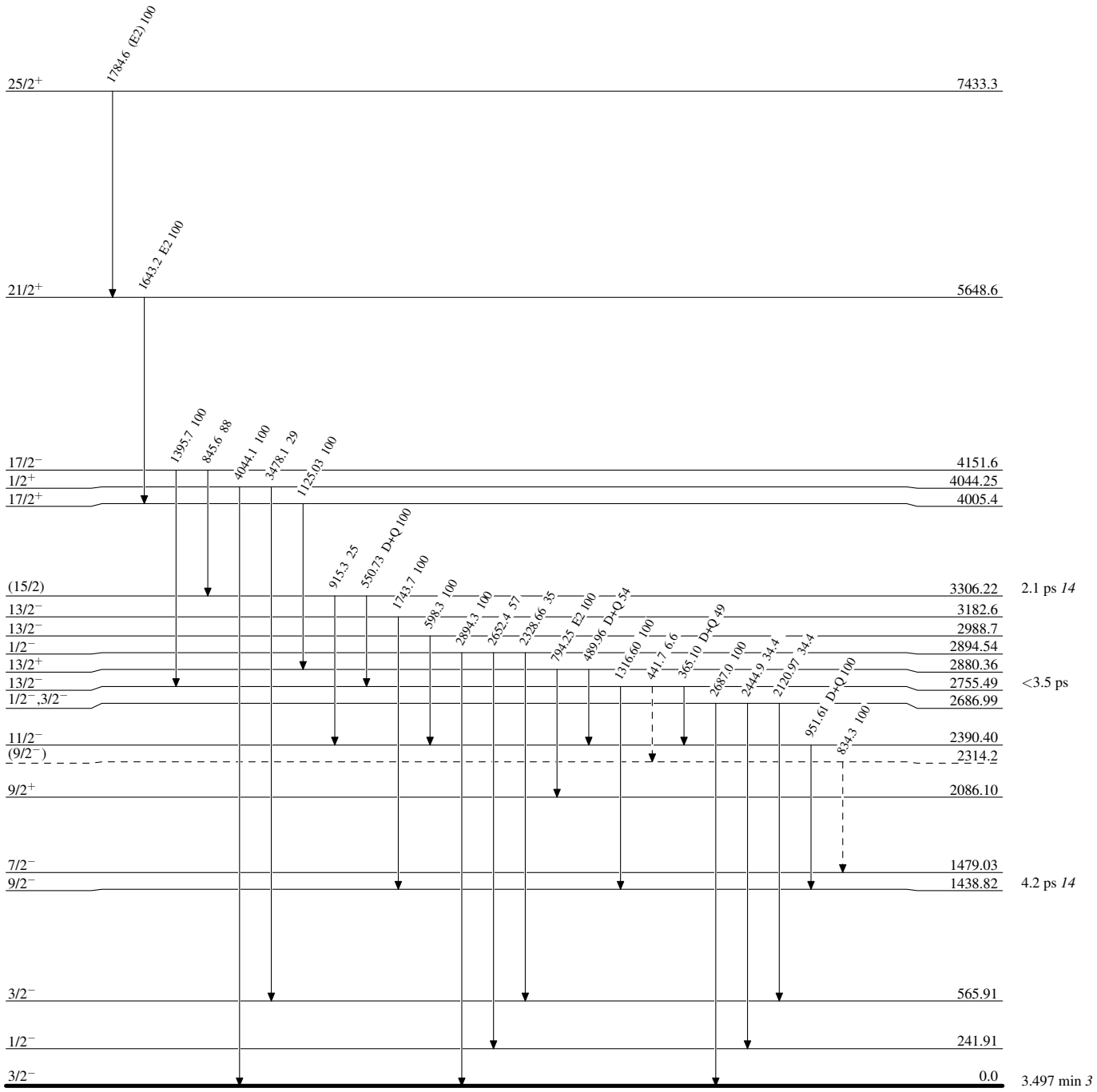
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

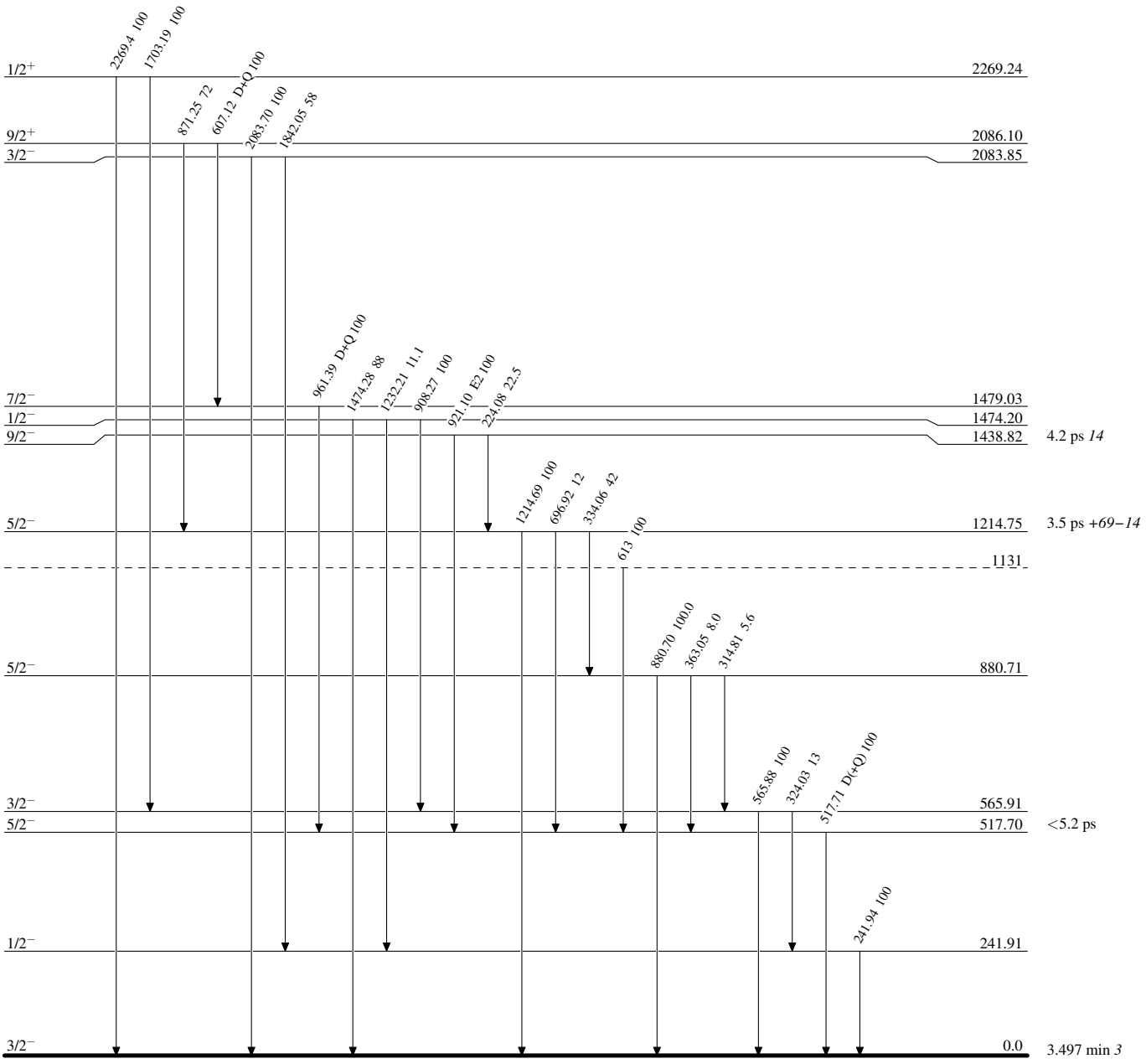


$^{55}_{24}Cr_{31}$

Adopted Levels, Gammas

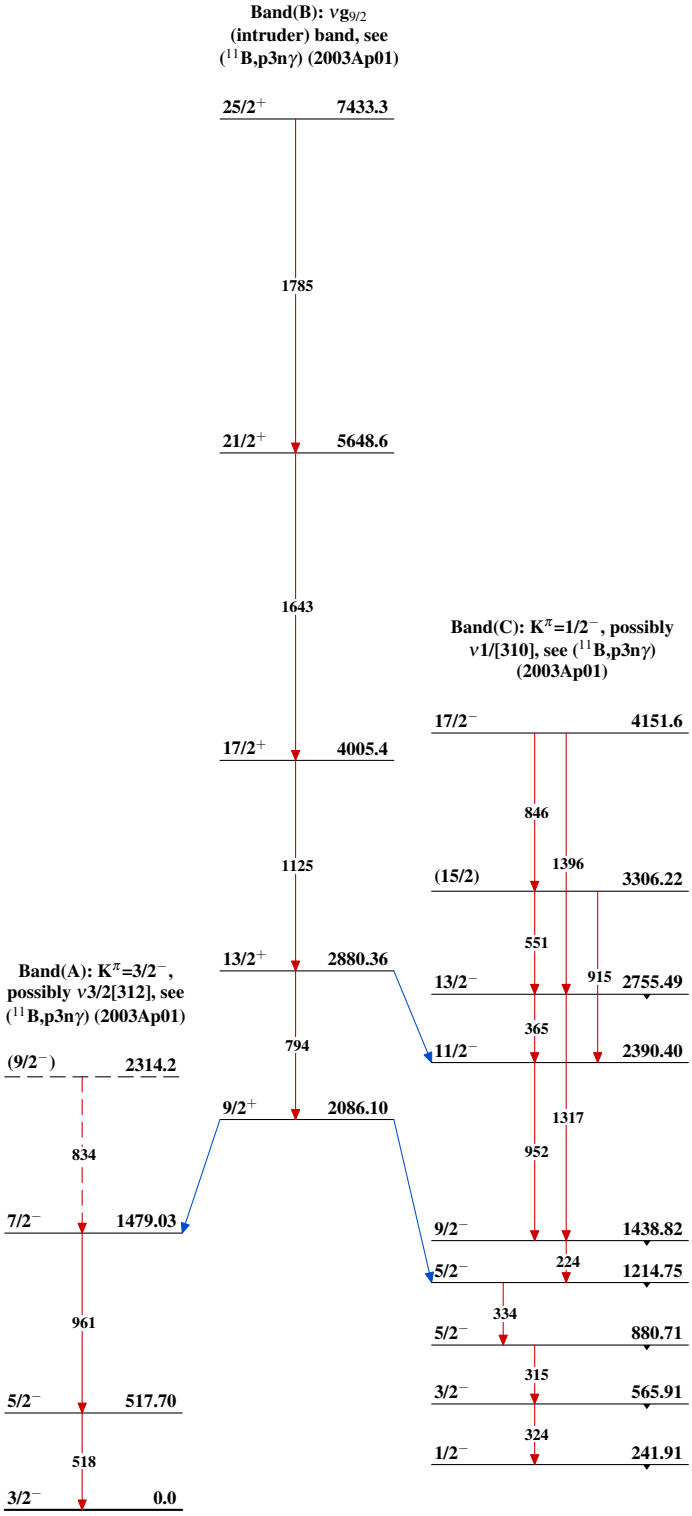
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{55}_{24}Cr_{31}$

Adopted Levels, Gammas



$^{55}_{24}Cr_{31}$