Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows[a]	NDS 109,1879 (2008)	14-Jul-2008

Q(β^-)=−7696 *11*; S(n)=10582 *8*; S(p)=8145 *3*; Q(α)=−8748 *3* 2012Wa38
Note: Current evaluation has used the following Q record −7715 2416332 168106 7 −7696 7 2003Au03.

^{49}Cr Levels

T: from (p,d), except for g.s.

Cross Reference (XREF) Flags

A ^{49}Mn β^+ decay
B ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),
C ^{46}Ti(α,nγ)
D ^{50}Cr(p,d),(^{3}He,α),(^{3}He,$\alpha\gamma$)

T(D) Level	TV Adopted (ps)	Weighted average of: (HI,xnγ) (ps)	(α,nγ) (ps)	
1562	0.391 *34*	0.40 *4*	0.37 *6*	Internal
2432	0.66 *19*	0.55 *17*	0.97 *28*	External
2500	0.110 *18*	0.104 *14*	0.16 *4*	External
3528	0.29 *4*	0.26 *5*	0.33 *6*	Internal

E(level)†	J$^\pi$‡	T$_{1/2}$@	XREF	Comments
0.0&	5/2$^-$	42.3 min *1*	ABCD	%ε+%β^+=100 μ=0.476 *3* (2005St24,1970Jo27); T=1/2 J$^\pi$: J=5/2 from AB (1976Fu06,1970Jo27). π=− from L(p,d),(^{3}He,α)=3. T$_{1/2}$: from 1963Ho17 (V(p,X) E≤84 MeV; 90γ NaI, 1-6 T$_{1/2}$'s; chem). Other measurements (see 1978Ha15 and 1978LeZA) excluded due to a lack of chem or possible problems in detection methods. μ: AB (^{53}Cr standard).
271.72[a] *16*	7/2$^-$	13 ps *3*	ABCD	J$^\pi$: L(p,d),(^{3}He,α)=3. Ne 5/2 from $\alpha\gamma(\theta)$ in (^{3}He,$\alpha\gamma$).
1083.6& *3*	9/2$^-$	0.15 ps *3*	BCD	J$^\pi$: from $\gamma(\theta)$, $\gamma\gamma(\theta)$, and γ(linear pol) to 7/2$^-$ in (α,nγ).
1562.1[a] *3*	11/2$^-$	0.391 ps *34*	BCD	J$^\pi$: from $\gamma(\theta)$, $\gamma\gamma(\theta)$, and γ(linear pol) to 9/2$^-$ and 7/2$^-$ in (α,nγ).
1703.2[b] *4*	1/2$^-$	>3.8 ps	BCD	J$^\pi$: L(p,d),(^{3}He,α)=1. Ne 3/2 from $\gamma(\theta)$ and γ(linear pol) in (α,nγ).
1741.4[b] *3*	3/2$^-$	1.1 ps *3*	CD	J$^\pi$: L(p,d),(^{3}He,α)=1; E2 γ to 7/2$^-$.
1981.8[c] *3*	3/2$^+$	>1.39 ps	BCD	J$^\pi$: L(p,d),(^{3}He,α)=2. Ne 5/2 from $\gamma(\theta)$ to 5/2$^-$ in (α,nγ). T$_{1/2}$: T$_{1/2}$<18 ps if 1710γ is M2.
2168.5[b] *4*	5/2	1.04 ps *35*	C	J$^\pi$: Ne 3/2,7/2 from $\gamma\gamma(\theta)$ and γ(linear pol) to 7/2$^-$ and Ne 9/2 from $\gamma(\theta)$ and γ(linear pol) to 5/2$^-$ in (α,nγ). See (α,nγ) for suggested π. T$_{1/2}$: >3.1 ps in (α,nγ) discrepant.
2431.8[c] *3*	5/2$^+$	0.66 ps *19*	BCD	J$^\pi$: L(p,d)=2. Ne 3/2 from $\gamma(\theta)$ and γ(linear pol) to 5/2$^-$ in (α,nγ).
2500.1& *4*	13/2$^-$	0.110 ps *18*	BC	J$^\pi$: 13/2 from $\gamma(\theta)$ to 11/2$^-$ in (α,nγ). π=− from d,E2 γ to 9/2$^-$.
2502.6 *5*	7/2$^-$	<8 fs	A C	J$^\pi$: 3/2$^-$,5/2$^-$,7/2$^-$ from log *ft*=4.8 *via* 5/2$^-$; Ne 3/2,5/2$^-$,7/2$^+$ from γ(linear pol) to 7/2$^-$ and 5/2$^-$ in (α,nγ).
2578.1 *5*	1/2$^+$		CD	
2613.1[d] *6*	3/2$^-$	45 fs *14*	CD	T=1/2 J$^\pi$: L(p,d),(^{3}He,α)=1; E2 γ to 7/2$^-$. Antianalog state of 6423 state. See (p,d).
2911.7[c] *5*	(7/2$^+$)#	0.52 ps *10*	CD	J$^\pi$: 3/2$^-$,5/2,7/2$^-$ from D,E2 γ's to 3/2$^+$ and 7/2$^-$.

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Adopted Levels, Gammas (continued)

^{49}Cr Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
2978.7[e] 5	(3/2+)	>0.69 ps	CD	Jπ: 1/2,3/2,5/2 from γ to 1/2+. (3/2+) proposed by 2006Br03 in (α,nγ) based on their level scheme, particle-rotor and shell model calculations, and comparison with neighboring nuclides.
3051.7[b] 8	(9/2)−[#f]	<0.028 ps	C	Jπ: (5/2−,7/2,9/2) from γ? to 5/2− and D,E2 γ to 9/2−.
3190.1[a] 4	15/2−	0.083 ps 21	BC	Jπ: D(+Q) γ to 13/2− and J→J or J→J-2 E2 to 11/2−; member of $K^π$=5/2− g.s. band. $T_{1/2}$: from ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... 0.28 ps 7 in (α,nγ) discrepant.
3201.7[g] 8	(9/2−)[#f]	<0.028 ps	C	Jπ: (5/2−,7/2,9/2) from γ? to 5/2− and D,E2 γ to 9/2−.
3250.9[h] 6	(5/2+)[i]	0.139 ps 35	CD	Jπ: discrepant with (5/2−) in (p,d),(^{3}He,α),(^{3}He,αγ).
3407[jk] 5	(5/2)−[#]		CD	Jπ: 5/2−,7/2− from L(p,d) or L(^{3}He,α)=3.
3499.7[b] 11	(11/2−)[i]	<0.021 ps	C	
3511[jk] 5	(7/2)−[#]		CD	Jπ: 5/2−,7/2− from L(p,d) or L(^{3}He,α)=3. (5/2−) from J-dependence of L(p,d)=3 σ(θ) and similarity of σ(θ) to g.s. σ(θ); however, in (p,d) 1985Fu03 note that there is a question of whether the f7/2 orbital is occupied so much (C^2S=0.35) in an N=26 nucleus.
3527.6[l] 4	13/2−	0.29 ps 4	BC	Jπ: 13/2 from J→J-1 γ to 11/2−; π=− from E1 γ to 15/2−.
3628.6[c] 5	(9/2+)	0.125 ps 28	C	Jπ: 7/2−,9/2+ from D,E2 γ's to 5/2+ and 11/2−. 9/2+ proposed by 2006Br03 in (α,nγ) based on their level scheme, particle-rotor and shell model calculations, and comparison with neighboring nuclides.
3687.4[g] 8	(11/2−)[fi]	<0.021 ps	C	
3717[jm] 5	(1/2)−[#]		CD	Jπ: 1/2−,3/2− from L(p,d) or L(^{3}He,α)=1.
3802.4[k] 7	(11/2−)[#]	0.069 ps 21	C	Jπ: 9/2−,11/2 from γ to 7/2− and D,E2 γ to 13/2−.
3843.9[e] 11	(7/2+)[n]	0.21 ps 4	C	
3892.2[o] 4	13/2+	>6.9 ps	BC	Jπ: ΔJ=0 E1 γ to 13/2−.
3899.1[l] 7	(15/2−)[#]	0.28 ps 5	C	Jπ: (11/2−,13/2,15/2) from γ to 11/2− and D,E2 γ to (15/2−).
3913[jm] 5	(3/2)−[#]		CD	Jπ: 1/2−,3/2− from L(p,d) or L(^{3}He,α)=1.
3928.8 11			C	
3938[j] 5	3/2+,5/2+		D	
3975 5			D	
4019[j] 5	(1/2+)		CD	
4051.5[e] 7	(9/2+)[#]	0.180 ps 28	C	Jπ: 7/2−,9/2,11/2+ from D,E2 γ's to 7/2+ and 11/2−.
4052[jm] 5	(5/2)−		CD	Jπ: 5/2−,7/2− from L(p,d) or L(^{3}He,α)=3. (5/2)− proposed by 2006Br03 in (α,nγ) based on their level scheme, particle-rotor and shell model calculations, and comparison with neighboring nuclides.
4105.7[b] 8	(13/2)−[#]	<0.021 ps	C	Jπ: 9/2−,11/2,13/2− from D,E2 γ's to 9/2− and 13/2−.
4151 5	5/2−,7/2−		D	
4186 5	(1/2+)		D	
4201.7[g] 8	(13/2)−[#f]	<0.021 ps	C	Jπ: 9/2−,11/2,13/2− from D,E2 γ's to 9/2− and 13/2−.
4218.1[&] 5	17/2−	0.107[p] ps 50	BC	Jπ: J→J-1 γ to 15/2− and J→J or J→J-2 E2 γ to 13/2−.
4259 5	3/2+,5/2+		D	
4279.5[c] 6	(11/2+)[#]	0.21 ps 4	C	Jπ: 7/2,9/2,11/2+ from D γ to 9/2+ and D,E2 γ to 7/2+.
4296.8 11	(9/2+)[n]	0.035 ps 14	C	
4323[q] 5			D	
4366.0[a] 5	19/2−	1.67[p] ps 14	BC	μ=+7.4 11 (2005St24) Jπ: J→J-1 γ to 17/2− and J→J-2 E2 γ to 15/2−. $T_{1/2}$: $T_{1/2}$>2.1 ps from DSAM in (α,nγ) discrepant. μ: From g-factor in (^{40}Ca,n2pγ).
4379 5			D	
4426[j] 5	5/2−,7/2−		CD	

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Adopted Levels, Gammas (continued)

^{49}Cr Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$@	XREF	Comments
4459.7 *11*	$(11/2^+)^n$	0.159 ps *28*	C	
4467.1[o] *4*	$15/2^+$	1.2[p] ps *3*	BC	Jπ: ΔJ=1 M1+E2 γ to $13/2^+$ and ΔJ=0 or ΔJ=2 E2 γ to $15/2^-$.
4493[q] *5*	$(3/2^+,5/2^+)$		D	
4559 *5*	$3/2^+,5/2^+$		D	
4571.5[l] *7*	$17/2^-$#	0.139 ps *28*	C	Jπ: 13/2,15/2,17/2− from D,E2 γ to $13/2^-$ and γ to $17/2^-$.
4586.5 *11*			C	
4594 *5*	$3/2^+,5/2^+$		D	
4651 *5*	$5/2^-,7/2^-$		D	
4698? *5*			D	
4716.2[c] *8*	$(13/2^+)^n$	0.49 ps *7*	C	
4749.4 *8*		<0.035 ps	C	
4764[jr] *5*	$(7/2)^-$		D	T=3/2 Jπ: L(p,d)=3. IAS identification in (^{3}He,α).
4773			C	
4809.1 *8*		<0.035 ps	C	
4837.2 *11*			C	
4852 *5*	$5/2^-,7/2^-$		D	
4879 *5*			D	
4913 *5*	$1/2^-,3/2^-$		D	
4942 *5*	$(1/2^-,3/2^-)$		D	
4943.6[e] *11*	$(11/2^+)^i$	0.049 ps *14*	C	
4994[q] *5*			D	
5032.3 *11*			C	
5048.4 *6*	$(13/2^+)$#	<0.069 ps	C	Jπ: $9/2^-$,11/2,$13/2^-$ from D,E2 γ′s to $9/2^+$ and $13/2^-$.
5058[jq] *5*			CD	
5179.7 *11*			C	
5189 *5*	$3/2^+,5/2^+$		D	
5273 *5*	$5/2^-,7/2^-$		D	
5302.7 *5*	$17/2^+$	0.76[p] ps *14*	BC	Jπ: ΔJ=1 M1+E2 to $15/2^+$ and ΔJ=2 E2 to $13/2^+$.
5384 *5*	$1/2^-,3/2^-$		D	
5428 *5*	$3/2^+,5/2^+$		D	
5495 *5*	$1/2^-,3/2^-$		D	
5573[jr] *5*	$(3/2)^+$		D	T=3/2 Jπ: L(p,d)=2. IAS identification in (^{3}He,α).
5625 *5*			D	
5637[q] *5*	$(5/2^-,7/2^-)$		D	
5660?[q] *5*	$(5/2^-,7/2^-)$		D	
5696 *5*	$(1/2^-,3/2^-)$		D	
5747 *5*	$1/2^+$		D	
5784 *5*	$(3/2^+,5/2^+)$		D	
5934 *5*			D	
5962.4[a] *6*	$23/2^-$	0.444[p] ps *31*	B	Jπ: $15/2^-$,19/2,$23/2^-$ from J→J or J→J-2 E2 γ to $19/2^-$. $23/2^-$ from membership in $K^\pi=5/2^-$ g.s. band.
5981 *5*	$(3/2^+,5/2^+)$		D	
6006 *6*	$1/2^+$		D	
6036[r] *6*	$3/2^+,5/2^+$		D	
6090 *6*	$3/2^+,5/2^+$		D	
6127 *6*			D	
6134.1[&] *5*	$21/2^-$	0.069[p] ps *21*	B	
6278 *6*			D	
6309 *6*			D	
6341.9[o] *5*	$19/2^+$	0.28[p] ps *7*	B	Jπ: D,E2 γ to $17/2^+$ and ΔJ=2 E2 γ to $15/2^+$.
6342 *6*			D	
6380 *6*	$(1/2^-,3/2^-)$		D	

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Adopted Levels, Gammas (continued)

^{49}Cr Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
6.41×10^3?			D	
6423[r] *6*	(1/2$^-$,3/2$^-$)		D	Jπ: see discussion in (p,d).
6470[jr] *6*	1/2$^+$		D	T=3/2
6548 *6*	(3/2$^+$,5/2$^+$)		D	
6639? *6*			D	
6705 *6*	3/2$^+$,5/2$^+$		D	
6734 *6*	3/2$^+$,5/2$^+$		D	
6765[j] *6*	1/2$^+$		D	
6823 *6*	5/2$^-$,7/2$^-$		D	
6884[r] *6*	3/2$^+$,5/2$^+$		D	
6948 *6*	(3/2$^+$,5/2$^+$)		D	
6995[r] *6*	1/2$^-$,3/2$^-$		D	
7005 *7*			D	
7084 *7*	(5/2$^-$,7/2$^-$)		D	
7115 *7*			D	
7161 *7*			D	
7186 *7*	(5/2$^-$,7/2$^-$)		D	
7225 *7*	5/2$^-$,7/2$^-$		D	
7264 *7*	5/2$^-$,7/2$^-$		D	
7269.2[o] *6*	21/2$^+$	0.18[p] ps *4*	B	Jπ: D,E2 γ to 19/2$^+$ and ΔJ=2 E2 γ to 17/2$^+$.
7308 *7*	(5/2$^-$,7/2$^-$)		D	
7350 *7*			D	
7391 *7*			D	
7432 *7*	(3/2$^+$,5/2$^+$)		D	
7480 *7*	1/2$^+$		D	
7503? *7*			D	
7537 *7*			D	
7584 *7*	1/2$^+$		D	
7601 *7*			D	
7627 *7*	1/2$^+$		D	
7889 *7*	5/2$^-$,7/2$^-$		D	
8007.4[a] *12*	27/2$^-$	0.190[p] ps *15*	B	Jπ: 19/2$^-$,23/2,27/2$^-$ from J→J or J→J-2 E2 γ to 23/2$^-$. 27/2$^-$ from membership in K^π=5/2$^-$ g.s. band.
8020 *8*	1/2$^+$		D	
8050 *8*	1/2$^+$		D	
8092 *8*			D	
8128 *8*			D	
8157 *8*			D	
8231 *8*	1/2$^+$		D	
8265 *8*	1/2$^+$		D	
8331[r] *8*	1/2$^+$		D	
8333.3[&] *13*	25/2$^-$	0.29 ps *6*	B	Jπ: 25/2$^-$,29/2 from ΔJ=1 M1 γ to 27/2$^-$. 25/2$^-$ from membership in K^π=5/2$^-$ g.s. band.
8368 *8*	3/2$^+$,5/2$^+$		D	
8405 *8*			D	
8441 *8*			D	
8476 *8*	3/2$^+$,5/2$^+$		D	
8527[r] *8*	3/2$^+$,5/2$^+$		D	T=(3/2)
8548 *8*			D	
8557 *8*			D	
8655 *8*			D	
8683 *8*			D	
8716 *8*	3/2$^+$,5/2$^+$		D	
8770[q] *8*			D	

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Adopted Levels, Gammas (continued)

^{49}Cr Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
8830[q] *8*	(1/2+)		D	
8896[q] *8*	(1/2+)		D	
9031 *9*			D	
9064[qr] *9*	3/2+,5/2+		D	T=(3/2)
9123 *9*			D	
9131 *9*			D	
9145 *9*	3/2+,5/2+		D	
9198[q] *9*	(1/2+)		D	
9265 *9*			D	
9292 *9*			D	
9321 *9*			D	
9365[q] *9*			D	
9399 *9*			D	
9447 *9*	(3/2+,5/2+)		D	
9521 *9*			D	
9662 *9*	(1/2+)		D	
9711 *9*			D	
9745[r] *9*	(3/2+,5/2+)		D	
9788[r] *9*	1/2+		D	
9857 *9*			D	
9945 *9*			D	
9968 *9*			D	
10039 *10*			D	
10105[r] *10*	(3/2+,5/2+)		D	
10125[r] *10*	(3/2+,5/2+)		D	
10170 *10*			D	
10218 *10*			D	
10222.4[&] *15*	29/2−[s]	0.0324[p] ps *8*	B	
10266[r] *10*	1/2+		D	
10302 *10*	1/2+		D	
10374[r] *10*	(3/2+,5/2+)		D	
10428 *10*			D	
10526 *10*			D	
10700.3[a] *15*	31/2−[s]	0.069[p] ps *14*	B	

[†] From least-squares fit to Eγ's, excepted as noted in the footnotes or the XREF's. ΔE(γ)=1 keV assumed when not given.

[‡] From angular momentum transfer in (p,d) or (^{3}He,α), except as noted.

[#] Proposed by 2006Br03 in (α,nγ) based on their level scheme, particle-rotor and shell model calculations, and comparison with neighboring nuclides.

[@] From DSAM or RDM in (α,nγ), except as noted.

[&] Band(A): $K^\pi=5/2^-$, $\alpha=1/2^+$ g.s. rotational band. Suggested by 1973BlZW to Be a relatively pure band based on the small δ for transitions connecting the members and the agreement in excitation energies with predictions of the strong coupling model (1972Zu01). Band extended with some changes by 1991Ca23 and 1990Ca06. Further extensions and modifications were made by 1998Ca26 (see comment on the 5964-, 8008-, 10221-, and 10701-keV states in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),). 1997Ol03 supported these extensions and modifications except for the 25/2− member which was proposed to Be at 8880-keV. 2001Br32 confirmed the extensions and modifications of 1998Ca26 including the 25/2− member.

[a] Band(B): $K^\pi=5/2^-$, $\alpha=1/2^-$ g.s. rotational band. See footnote on $K^\pi=5/2^-$, $\alpha=1/2^+$ g.s. rotational band for details.

[b] Band(C): $K^\pi=1/2^-$ band. Configuration=$2p_{3/2}$, 1/2[321] (2006Br03). Suggested by 1977Ka19 based on deformed configuration mixing calculation; confirmed and extended by 2006Br03.

[c] Band(D): $K^\pi=3/2^+$ band. Configuration=$1d^{-1}_{3/2}$, 3/2[202] (2006Br03). Proposed by 1977Ka19 based on ΔE agreement with similar band in ^{49}V. Confirmed and extended by 2006Br03 in (α,nγ).

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Adopted Levels, Gammas (continued)

^{49}Cr Levels (continued)

[d] Band(E): K$^{\pi}$=3/2$^-$, ν=3. Appears to Be main component of this state; $\sigma(\theta)$ for other states are similar. See (p,d). Note that the main component of the ^{49}V 152, 3/2$^-$, state also appears to Be K=3/2, ν=3.

[e] Band(F): K$^{\pi}$=1/2$^+$ band? Configuration=1d$^{-1}_{3/2}$, 1/2[200] (2006Br03).

[f] 9/2$^-$, 11/2$^-$ and 13/2$^-$ members in K^{π}=1/2$^-$ and K^{π}=7/2$^-$ bands.

[g] Band(G): K$^{\pi}$=7/2$^-$ band? Configuration=1f$_{7/2}$, 7/2[303] (2006Br03).

[h] Band(H): K$^{\pi}$=1/2$^+$ band? Configuration=1d$^{-1}_{3/2}$, 1/2[200] (2006Br03).

[i] Proposed by 2006Br03 in (α,nγ) based on their level scheme, particle-rotor and shell model calculations, and comparison with neighboring nuclides; parentheses added by evaluator.

[j] Level energy held fixed in least-squares adjustment.

[k] Band(I): K$^{\pi}$=3/2$^-$ band? Configuration=1f$_{7/2}$, 3/2[321] (2006Br03).

[l] Band(J): K$^{\pi}$=13/2$^-$, 3qp band. Configuration=1f$^3_{7/2}$ (2006Br03). 2006Br03 confirmed and extended this band.

[m] Band(K): K$^{\pi}$=1/2$^-$ band? Configuration=1f$_{7/2}$, 1/2[330] (2006Br03).

[n] Proposed by 2006Br03 in (α,nγ) based on their level scheme, particle-rotor and shell model calculations, and comparison with neighboring nuclides.

[o] Band(L): Band based on 13/2$^+$ (1999Br40, 2001Br32). Originally proposed as a band based on the 3529, 11/2 state by 1998Ca26. Proposed as a K^{π}=13/2$^+$ band formed by the coupling of the 1d$_{3/2}$ proton hole with the K^{π}=5$^+$, T=2 band in ^{50}Mn by 1999Br40.

[p] From DSAM or Narrow Gate on Transitions Below in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...

[q] Possible doublet. See (p,d).

[r] Strongest member of various possible IAS′s of ^{49}V. See (p,d) for details.

[s] J→J or J→J-2 E2 γ for 10702→8009 and J→J-1 M1 and J→J-1 for 10702→10224→8009 establish J^{π}(10224)=29/2$^-$ and J^{π}(10702)=31/2$^-$.

Adopted Levels, Gammas (continued)

γ(^{49}Cr)

E(E) Adopted (keV)	TV β- Decay (keV)	Weighted average (internal) of: (HI,xnγ) (keV)	(α,nγ) (keV)	Adopted (keV)	(keV)	β- Decay (keV)	(HI,xnγ) (keV)	(α,nγ)
271.78 *19*	272.3 *4*	271.9 *6*	271.4 *3*	278.1 *7*		278 *1*	278.2 *10*	
	272 *1*			450.2 *7*			450.0 *4*	450.5 *10*
	272 *1*			1981.3 *5*			1981 *1*	1981.4 *5*
	271.8 *4*			2232.1 *7*		2231.5 *10*		2232.6 *10*

E(H) Adopted (keV)	TV β- Decay (keV)	Weighted average (external) of: (HI,xnγ) (keV)	(α,nγ) (keV)
690.2 4		690.3 3	689 1
812.0 4		812.3 6	810.7 5
		812 1	
		812 1	
		812.6 4	
937.4 7		938.1 4	936.8 3
2503.4 7	2504.8 10		2503.1 5

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
271.72	7/2⁻	271.78 *19*	100	0.0	5/2⁻	M1+E2[@]	−0.115[&] *11*	0.00219 *4*	B(M1)(W.u.)=0.083 *20*; B(E2)(W.u.)=36 *11* α(K)=0.00197 *4*; α(L)=0.000185 *3*; α(M)=2.44×10^{-5} *4* α(N+..)=9.06×10^{-7} *15* α(N)=9.06×10^{-7} *15* Mult.: D+Q from γ(θ) in (α,nγ) and (^{3}He,αγ). Ne E1+M2 from δ and comparison to RUL.
1083.6	9/2⁻	812.0 *4*	100.0[a] *11*	271.72	7/2⁻	M1+E2[@]	−0.21 *3*	0.000187 *3*	B(M1)(W.u.)=0.25 *5*; B(E2)(W.u.)=40 *14* α(K)=0.000169 *3*; α(L)=1.567×10^{-5} *24*; α(M)=2.06×10^{-6} *3* α(N+..)=7.76×10^{-8} *12* α(N)=7.76×10^{-8} *12* Mult.: from γ(θ), γγ(θ), and γ(linear pol) in (α,nγ).
		1083.9[b] *10*	6.3[a] *11*	0.0	5/2⁻	(E2)[c]		0.0001280 *18*	B(E2)(W.u.)=14 *4* α(K)=0.0001161 *17*; α(L)=1.074×10^{-5} *16*; α(M)=1.413×10^{-6} *20* α(N+..)=5.30×10^{-8} *8* α(N)=5.30×10^{-8} *8* Mult.: D,Q from recoil-γ(θ) in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...; Ne M2 from comparison to RUL. ΔJ^π=2,no from level scheme.

$^{49}_{24}Cr_{25}$-7

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
1562.1	11/2$^-$	478.63 *26*	100[ad] *4*	1083.6	9/2$^-$	M1+E2[@]	−0.058[&] *23*	5.70×10^{-4} *9*	α(K)=0.000515 *8*; α(L)=4.80×10^{-5} *7*; α(M)=6.31×10^{-6} *10* α(N+..)=2.37×10^{-7} *4* α(N)=2.37×10^{-7} *4* B(M1)(W.u.)=0.26 *3*; B(E2)(W.u.)=9 *8* Mult.: from γ(θ), γγ(θ), and γ(linear pol) in (α,nγ).
		1290.2 *5*	95[ad] *4*	271.72	7/2$^-$	E2[c]		0.0001130 *16*	α(K)=7.84×10^{-5} *11*; α(L)=7.24×10^{-6} *11*; α(M)=9.52×10^{-7} *14* α(N+..)=2.65×10^{-5} *4* α(N)=3.58×10^{-8} *5*; α(IPF)=2.65×10^{-5} *4* B(E2)(W.u.)=18.5 *19* Mult.: from γ(θ), γγ(θ), and γ(linear pol) in (α,nγ).
1703.2	1/2$^-$	1703.2[a] *5*	100[a]	0.0	5/2$^-$	E2[ce]		0.000223 *4*	α(K)=4.43×10^{-5} *7*; α(L)=4.09×10^{-6} *6*; α(M)=5.38×10^{-7} *8* α(N+..)=0.0001736 *25* α(N)=2.03×10^{-8} *3*; α(IPF)=0.0001736 *25* B(E2)(W.u.)<0.98
1741.4	3/2$^-$	39[ap]	<0.14[a]	1703.2	1/2$^-$				
		1469.3[a] *5*	40[a] *3*	271.72	7/2$^-$	E2		0.0001420 *20*	B(E2)(W.u.)=2.0 *6* α(K)=5.95×10^{-5} *9*; α(L)=5.50×10^{-6} *8*; α(M)=7.23×10^{-7} *11* α(N+..)=7.65×10^{-5} *11* α(N)=2.72×10^{-8} *4*; α(IPF)=7.65×10^{-5} *11* Mult.: Q from γ(θ) and γγ(θ) in (α,nγ). Ne M2 from comparison to RUL.
		1741.3[a] *5*	100[a] *3*	0.0	5/2$^-$	(M1+E2)[#]	+0.106 *+18−36*	0.000191 *3*	B(M1)(W.u.)=0.0027 *8*; B(E2)(W.u.)=0.024 *11* α(K)=3.90×10^{-5} *6*; α(L)=3.59×10^{-6} *5*; α(M)=4.72×10^{-7} *7* α(N+..)=0.0001484 *21* α(N)=1.783×10^{-8} *25*; α(IPF)=0.0001483 *21* Mult.: from γ(θ) and γγ(θ). Δπ=no from level scheme. δ: >+0.070 from γ(θ) and γγ(θ) in (α,nγ); <0.106 *18* from comparison to RUL.
1981.8	3/2$^+$	240[a]	2.4[f] *6*	1741.4	3/2$^-$	(E1)[g]		0.00243 *4*	α(K)=0.00220 *3*; α(L)=0.000204 *3*; α(M)=2.67×10^{-5} *4* α(N+..)=9.88×10^{-7} *14*

$^{49}_{24}Cr_{25}$-8

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
									α(N)=9.88×10^{-7} *14* B(E1)(W.u.)<0.00044
1981.8	3/2$^+$	278.1 *7*	26[f] *3*	1703.2	1/2$^-$	(E1(+M2))		0.005 *4*	α(K)=0.005 *4*; α(L)=0.0005 *4*; α(M)=6.E−5 *5* α(N+..)=2.3×10^{-6} *17* α(N)=2.3×10^{-6} *17* −2.74≤δ≤0.176. Mult.,δ: D(+Q) from γ(θ) and γγ(θ) in (α,nγ). Δπ=yes from level scheme.
		1709.5[a] *5*	16[f] *3*	271.72	7/2$^-$	(M2+E3)	−0.23 *21*	1.43×10^{-4} *4*	α(K)=7.23×10^{-5} *11*; α(L)=6.68×10^{-6} *10*; α(M)=8.80×10^{-7} *13* α(N+..)=6.28×10^{-5} *25* α(N)=3.32×10^{-8} *5*; α(IPF)=6.27×10^{-5} *25* B(M2)(W.u.)<13; B(E3)(W.u.)<2.2×10^3 Mult.,δ: Q+O from γγ(θ) in (α,nγ). Δπ=yes from level scheme.
		1981.3 *5*	100[f] *3*	0.0	5/2$^-$	(E1+M2)		0.00042 *23*	α(K)=3.6×10^{-5} *17*; α(L)=3.3×10^{-6} *16*; α(M)=4.4×10^{-7} *21* α(N+..)=0.00038 *25* α(N)=1.7×10^{-8} *8*; α(IPF)=0.00038 *25* 0.488≤δ≤2.90. Mult.,δ: D+Q from γ(θ) and γγ(θ) in (α,nγ). Δπ=yes from level scheme.
2168.5	5/2	427[a]	3.8[a] *11*	1741.4	3/2$^-$	D,E2			
		465[ap]	<0.18[a]	1703.2	1/2$^-$				
		1897.0[a] *5*	82[a] *4*	271.72	7/2$^-$	D+Q			δ: +0.18 *17* or +4 *10*−2. Mult.,δ: from γγ(θ) in (α,nγ).
		2168.2[a] *5*	100[a] *4*	0.0	5/2$^-$	D+Q	<−2.14		Mult.,δ: from γγ(θ) in (α,nγ).
2431.8	5/2$^+$	450.2 *7*	92[a] *12*	1981.8	3/2$^+$	M1+E2[e]	+0.21[&] *9*	0.00069 *4*	α(K)=0.00062 *4*; α(L)=5.8×10^{-5} *4*; α(M)=7.6×10^{-6} *5* α(N+..)=2.85×10^{-7} *16* α(N)=2.85×10^{-7} *16* B(M1)(W.u.)=0.16 *6*; B(E2)(W.u.)=8.E+1 *8*
		690[a]	6.2[a] *12*	1741.4	3/2$^-$	(E1)[h]		1.47×10^{-4} *21*	B(E1)(W.u.)=7.E−5 *3* α(K)=0.0001328 *19*; α(L)=1.227×10^{-5} *18*; α(M)=1.613×10^{-6} *23* α(N+..)=6.05×10^{-8} *9* α(N)=6.05×10^{-8} *9*
		2161[a]	2.4[a] *8*	271.72	7/2$^-$	(E1)[g]		0.000769 *11*	α(K)=1.708×10^{-5} *24*; α(L)=1.568×10^{-6} *22*; α(M)=2.06×10^{-7} *3*

$^{49}_{24}Cr_{25}$-9

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
									α(N+..)=0.000750 *11* α(N)=7.79×10^{-9} *11*; α(IPF)=0.000750 *11* B(E1)(W.u.)=9.E−7 *4*
2431.8	5/2$^+$	2431.4 *5*	100[a] *12*	0.0	5/2$^-$	(E1(+M2))	+0.5 *5*	0.00081 *19*	α(K)=1.9×10^{-5} *7*; α(L)=1.7×10^{-6} *6*; α(M)=2.3×10^{-7} *8*; α(N+..)=0.00079 *20* α(N)=9.E−9 *3*; α(IPF)=0.00079 *20* B(E1)(W.u.)=2.1×10^{-5} *11*; B(M2)(W.u.)=4 *+7−4* E_γ: weighted av (int.) of 2431.5 *6* from (α,nγ) and 2431 *1* from ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Mult.,δ: from γ(θ) in (α,nγ). δ<0.30 *6* from comparison to RUL. Δπ=yes from level scheme.
2500.1	13/2$^-$	937.4 *7*	100[a] *4*	1562.1	11/2$^-$	(M1(+E2))[@]	−0.03[&] *4*	0.0001380 *20*	α(K)=0.0001245 *18*; α(L)=1.150×10^{-5} *17*; α(M)=1.514×10^{-6} *22* α(N+..)=5.70×10^{-8} *8* α(N)=5.70×10^{-8} *8* B(M1)(W.u.)=(0.22 *4*); B(E2)(W.u.)=(0.5 *+15−5*) Mult.: D(+Q) from γ(θ) in (α,nγ). Δπ=no from level scheme.
		1416.4 *4*	11[a] *4*	1083.6	9/2$^-$	(E2)[c]		0.0001300 *19*	α(K)=6.42×10^{-5} *9*; α(L)=5.93×10^{-6} *9*; α(M)=7.80×10^{-7} *11* α(N+..)=5.92×10^{-5} *9* α(N)=2.93×10^{-8} *5*; α(IPF)=5.92×10^{-5} *9* B(E2)(W.u.)=8 *4* Mult.: D,Q from recoil-γ(θ) in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...; Ne M2 from comparison to RUL. ΔJ^π=2,no from level scheme.
2502.6	7/2$^-$	335[ap]	<7.4[a]	2168.5	5/2				
		1420[ap]	<7.4[a]	1083.6	9/2$^-$				
		2232.1 *7*	49[a] *8*	271.72	7/2$^-$	D(+Q)[#]	−0.23 *23*		E_γ: weighted av (int.) of 2231.5 *10* from β^+ decay and 2232.6 *10* from (α,nγ).
		2503.4 *7*	100[a] *8*	0.0	5/2$^-$	M1(+E2)[e]	−0.11[e] *10*	4.92×10^{-4} *8*	α(K)=2.11×10^{-5} *3*; α(L)=1.94×10^{-6} *3*; α(M)=2.55×10^{-7} *4* α(N+..)=0.000469 *8* α(N)=9.63×10^{-9} *14*; α(IPF)=0.000469 *8* B(M1)(W.u.)>0.11 E_γ: weighted av (ext.) of 2504.8 *10* from β^+ decay and 2503.1 *5* from (α,nγ).
2578.1	1/2$^+$	596[a]	20[a] *6*	1981.8	3/2$^+$				

$^{49}_{24}Cr_{25}$-10

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	α^m	Comments
2578.1	1/2$^+$	836.5[a] *6*	100[a] *8*	1741.4	3/2$^-$	(E1)[g]	9.67×10^{-5} *14*	α(K)=8.75×10^{-5} *13*; α(L)=8.07×10^{-6} *12*; α(M)=1.062×10^{-6} *15*; α(N+..)=3.99×10^{-8} *6* α(N)=3.99×10^{-8} *6*
		875.3[a] *6*	60[a] *8*	1703.2	1/2$^-$	(E1)[g]	8.81×10^{-5} *13*	α(K)=7.97×10^{-5} *12*; α(L)=7.35×10^{-6} *11*; α(M)=9.67×10^{-7} *14*; α(N+..)=3.63×10^{-8} *6* α(N)=3.63×10^{-8} *6*
2613.1	3/2$^-$	2341.7[a] *6*	100.0[a] *10*	271.72	7/2$^-$	E2	0.000507 *8*	B(E2)(W.u.)=10 *3* α(K)=2.48×10^{-5} *4*; α(L)=2.28×10^{-6} *4*; α(M)=3.00×10^{-7} *5* α(N+..)=0.000480 *7* α(N)=1.131×10^{-8} *16*; α(IPF)=0.000480 *7* Mult.,δ: Q+O, −0.13 *11*, from $\gamma\gamma(\theta)$ and γ(linear pol) in (α,nγ). Ne M2, δ(E2+M3)<0.00088 *14* from comparison to RUL.
		2611.8[a] *10*	69[a] *4*	0.0	5/2$^-$	M1[e]	0.000537 *8*	B(M1)(W.u.)=0.011 *4* α(K)=1.97×10^{-5} *3*; α(L)=1.81×10^{-6} *3*; α(M)=2.38×10^{-7} *4* α(N+..)=0.000515 *8* α(N)=8.98×10^{-9} *13*; α(IPF)=0.000515 *8*
2911.7	(7/2$^+$)	480[a]	100[a] *15*	2431.8	5/2$^+$	D		Mult.: from comparison to RUL. Assigned as E1 by 2006Br03 in (α,nγ).
		930[a]	39[a] *9*	1981.8	3/2$^+$	E2[i]	0.000186 *3*	α(K)=0.0001682 *24*; α(L)=1.559×10^{-5} *22*; α(M)=2.05×10^{-6} *3* α(N+..)=7.67×10^{-8} *11* α(N)=7.67×10^{-8} *11* B(E2)(W.u.)=19 *6* Mult.: assigned as E1 by 2006Br03 in (α,nγ).
		2640[a]	94[a] *15*	271.72	7/2$^-$	E1[h]	0.001060 *15*	α(K)=1.292×10^{-5} *18*; α(L)=1.186×10^{-6} *17*; α(M)=1.560×10^{-7} *22* α(N+..)=0.001044 *15* α(N)=5.89×10^{-9} *9*; α(IPF)=0.001044 *15* B(E1)(W.u.)=1.6×10^{-5} *5*
		2912[a]	70[a] *12*	0.0	5/2$^-$			
2978.7	(3/2$^+$)	401[a]	59[a] *11*	2578.1	1/2$^+$			
		547[a]	100[a] *11*	2431.8	5/2$^+$			
		810[a]	40[a] *7*	2168.5	5/2	(E1)[j]	0.0001030 *15*	α(K)=9.36×10^{-5} *14*; α(L)=8.64×10^{-6} *12*; α(M)=1.136×10^{-6} *16* α(N+..)=4.26×10^{-8} *6* α(N)=4.26×10^{-8} *6* B(E1)(W.u.)<0.00022
		997[a]	27[a] *5*	1981.8	3/2$^+$	(M1)[j]	6.80×10^{-5} *10*	α(K)=0.0001102 *16*; α(L)=1.017×10^{-5} *15*; α(M)=1.339×10^{-6} *19* α(N+..)=5.05×10^{-8} *7* α(N)=5.05×10^{-8} *7* B(M1)(W.u.)<0.0035
		1237[a]	25[a] *5*	1741.4	3/2$^-$	(E1)[j]	1.22×10^{-4} *2*	α(K)=4.13×10^{-5} *6*; α(L)=3.81×10^{-6} *6*; α(M)=5.01×10^{-7} *7*

$^{49}_{24}Cr_{25}$-11

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
									α(N+..)=7.77×10^{-5} *11* α(N)=1.88×10^{-8} *3*; α(IPF)=7.77×10^{-5} *11* B(E1)(W.u.)<3.9×10^{-5}
2978.7	(3/2$^+$)	2979[ap]		0.0	5/2$^-$	(E1)[j]		0.001240 *18*	α(K)=1.100×10^{-5} *16*; α(L)=1.009×10^{-6} *15*; α(M)=1.328×10^{-7} *19* α(N+..)=0.001227 *18* α(N)=5.02×10^{-9} *7*; α(IPF)=0.001227 *18*
3051.7	(9/2)$^-$	1968[a]	100[a] *9*	1083.6	9/2$^-$	D,E2			
		2780[a]	79[a] *9*	271.72	7/2$^-$	D,E2			
		3052[ap]		0.0	5/2$^-$				
3190.1	15/2$^-$	690.2 *4*	92[a] *10*	2500.1	13/2$^-$	(M1(+E2))[@]	<0.2	2.60×10^{-4} *5*	α(K)=0.000236 *5*; α(L)=2.18×10^{-5} *4*; α(M)=2.87×10^{-6} *6* α(N+..)=1.079×10^{-7} *20* α(N)=1.079×10^{-7} *20* B(M1)(W.u.)>0.27; B(E2)(W.u.)<97 Mult.,δ: from γ(θ) in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Δπ=no from level scheme.
		1627.8 *4*	100[a] *10*	1562.1	11/2$^-$	(E2)		0.000194 *3*	α(K)=4.85×10^{-5} *7*; α(L)=4.47×10^{-6} *7*; α(M)=5.88×10^{-7} *9* α(N+..)=0.0001404 *20* α(N)=2.21×10^{-8} *4*; α(IPF)=0.0001404 *20* B(E2)(W.u.)=29 *9* Mult.: ΔJ=0 d or ΔJ=2 Q γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Ne M2 from comparison to RUL. ΔJ^π=2,no from level scheme.
3201.7	(9/2$^-$)	2118[a]	45[a] *9*	1083.6	9/2$^-$	D,E2			
		2930[a]	100[a] *9*	271.72	7/2$^-$	D,E2			
		3202[ap]		0.0	5/2$^-$				
3250.9	(5/2$^+$)	819[a]	100[a] *14*	2431.8	5/2$^+$	(M1)		1.81×10^{-4} *3*	α(K)=0.0001634 *23*; α(L)=1.511×10^{-5} *22*; α(M)=1.99×10^{-6} *3* α(N+..)=7.49×10^{-8} *11* α(N)=7.49×10^{-8} *11* B(M1)(W.u.)=0.12 *4* Mult.: D from comparison to RUL. Δπ=no from level scheme.
		1269[a]	100[a] *14*	1981.8	3/2$^+$	D,E2[j]			
		2979[a]	<11.4[a]	271.72	7/2$^-$				
		3251[a]	27[a] *7*	0.0	5/2$^-$	(E1)		0.001370 *20*	α(K)=9.82×10^{-6} *14*; α(L)=9.01×10^{-7} *13*; α(M)=1.185×10^{-7} *17* α(N+..)=0.001362 *19*

$^{49}_{24}Cr_{25}$-12

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
									α(N)=4.48×10^{-9} *7*; α(IPF)=0.001362 *19* B(E1)(W.u.)=1.2×10^{-5} *5* Mult.: D,Q from comparison to RUL. Δπ=yes from level scheme.
3407	(5/2)$^-$	794[ap]		2613.1	3/2$^-$				
3499.7	(11/2$^-$)	2416[a]	100[a]	1083.6	9/2$^-$	D,E2			
3511	(7/2)$^-$	2.44×10^3[k]	92[k] *20*	1083.6	9/2$^-$				
		3.24×10^3[kp]		271.72	7/2$^-$				
		3.51×10^3[k]	100[k] *22*	0.0	5/2$^-$	D(+Q)	−0.08 *8*		Mult.,δ: from αγ(θ) in (^{3}He,αγ).
3527.6	13/2$^-$	337.2 *4*	100.0 *31*	3190.1	15/2$^-$	M1		0.001260 *18*	α(K)=0.001138 *17*; α(L)=0.0001064 *16*; α(M)=1.400×10^{-5} *20* α(N+..)=5.23×10^{-7} *8* α(N)=5.23×10^{-7} *8* B(M1)(W.u.)=1.55 *23* I_γ: weighted av (int.) from ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C, n2pγ),... and (α,nγ).
		1027.6 *4*	20.9 *21*	2500.1	13/2$^-$	D,E2			I_γ: weighted av (int.) from ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C, n2pγ),... and (α,nγ). Mult.: ΔJ=0 d or ΔJ=2 Q γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Ne M2 from comparison to RUL.
		1965.4 *4*	5.1 *6*	1562.1	11/2$^-$	(M1)		0.000272 *4*	α(K)=3.15×10^{-5} *5*; α(L)=2.90×10^{-6} *4*; α(M)=3.82×10^{-7} *6* α(N+..)=0.000238 *4* α(N)=1.443×10^{-8} *21*; α(IPF)=0.000238 *4* B(M1)(W.u.)=0.00040 *8* Mult.: J→J-1 γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C, n2pγ),... Δπ=no from level scheme.
		2444.0 *4*	2.1 *6*	1083.6	9/2$^-$	(E2)		0.000555 *8*	α(K)=2.30×10^{-5} *4*; α(L)=2.12×10^{-6} *3*; α(M)=2.78×10^{-7} *4* α(N+..)=0.000529 *8* α(N)=1.051×10^{-8} *15*; α(IPF)=0.000529 *8* B(E2)(W.u.)=0.034 *11* Mult.: D,Q from comparison to RUL. ΔJ^π=2,no from level scheme.
3628.6	(9/2$^+$)	717[a]	97[a] *17*	2911.7	(7/2$^+$)	D,E2			
		1197[a]	37[a] *7*	2431.8	5/2$^+$	(E2)[i]		0.0001110 *16*	α(K)=9.24×10^{-5} *13*; α(L)=8.55×10^{-6} *12*; α(M)=1.125×10^{-6} *16* α(N+..)=8.69×10^{-6} *13* α(N)=4.22×10^{-8} *6*; α(IPF)=8.65×10^{-6} *13* B(E2)(W.u.)=19 *6*

$^{49}_{24}Cr_{25}$-13

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[m]	Comments
3628.6	(9/2$^+$)	2066[a]	13.3[a] *20*	1562.1	11/2$^-$	(E1)[g]	0.000705 *10*	α(K)=1.82×10^{-5} *3*; α(L)=1.673×10^{-6} *24*; α(M)=2.20×10^{-7} *3* α(N+..)=0.000685 *10* α(N)=8.31×10^{-9} *12*; α(IPF)=0.000685 *10* B(E1)(W.u.)=1.8×10^{-5} *6*
		2545[a]	83[a] *14*	1083.6	9/2$^-$	(E1)[g]	0.001000 *14*	α(K)=1.358×10^{-5} *19*; α(L)=1.246×10^{-6} *18*; α(M)=1.640×10^{-7} *23* α(N+..)=0.000988 *14* α(N)=6.19×10^{-9} *9*; α(IPF)=0.000988 *14* B(E1)(W.u.)=6.2×10^{-5} *18*
		3357[a]	100[a] *17*	271.72	7/2$^-$	(E1)[g]	0.001420 *20*	α(K)=9.43×10^{-6} *14*; α(L)=8.64×10^{-7} *13*; α(M)=1.138×10^{-7} *16* α(N+..)=0.001412 *20* α(N)=4.30×10^{-9} *6*; α(IPF)=0.001412 *20* B(E1)(W.u.)=3.2×10^{-5} *10*
3687.4	(11/2$^-$)	2125[a]	45[a] *6*	1562.1	11/2$^-$	D,E2		
		2604[a]	100[a] *6*	1083.6	9/2$^-$	D,E2		
3802.4	(11/2$^-$)	1301[a]	27[a] *6*	2500.1	13/2$^-$	D,E2		
		2718[a]	55[a] *8*	1083.6	9/2$^-$	D,Q		
		3530[a]	100[a] *9*	271.72	7/2$^-$	(E2)	0.001010 *15*	α(K)=1.270×10^{-5} *18*; α(L)=1.166×10^{-6} *17*; α(M)=1.534×10^{-7} *22* α(N+..)=0.000999 *14* α(N)=5.80×10^{-9} *9*; α(IPF)=0.000999 *14* B(E2)(W.u.)=0.8 *3* Mult.: D,Q from comparison to RUL. ΔJ^π=2,no from level scheme.
3843.9	(7/2$^+$)	1412[a]	100[a]	2431.8	5/2$^+$	D,E2		
		3572[p]		271.72	7/2$^-$	(E1)[j]	0.001510 *22*	α(K)=8.72×10^{-6} *13*; α(L)=7.99×10^{-7} *12*; α(M)=1.051×10^{-7} *15* α(N+..)=0.001504 *21* α(N)=3.97×10^{-9} *6*; α(IPF)=0.001504 *21*
		3844[p]		0.0	5/2$^-$	(E1)[j]	0.001630 *23*	α(K)=7.95×10^{-6} *12*; α(L)=7.29×10^{-7} *11*; α(M)=9.59×10^{-8} *14* α(N+..)=0.001620 *23* α(N)=3.63×10^{-9} *5*; α(IPF)=0.001620 *23*
3892.2	13/2$^+$	364.4 *4*	15.6	3527.6	13/2$^-$	E1	0.000734 *11*	α(K)=0.000664 *10*; α(L)=6.14×10^{-5} *9*; α(M)=8.07×10^{-6} *12* α(N+..)=3.00×10^{-7} *5* α(N)=3.00×10^{-7} *5* B(E1)(W.u.)<0.00017 Mult.: ΔJ=0 D or ΔJ=2 Q γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... E1 consistent with AD ratios for 364 and 702 γ's in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... (1999Br40).
		702.2 *5*	9.6	3190.1	15/2$^-$	(E1)	0.0001410 *20*	α(K)=0.0001277 *18*; α(L)=1.179×10^{-5} *17*; α(M)=1.551×10^{-6} *22* α(N+..)=5.81×10^{-8} *9* α(N)=5.81×10^{-8} *9* B(E1)(W.u.)<1.4×10^{-5}

$^{49}_{24}Cr_{25}$-14

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[m]	Comments
								Mult.: ΔJ=1 D γ in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ), ... Δπ=yes from level scheme.
3892.2	13/2$^+$	1395 *1*	15.6	2500.1	13/2$^-$	(E1)[j]	0.000221 *4*	α(K)=3.36×10^{-5} *5*; α(L)=3.09×10^{-6} *5*; α(M)=4.07×10^{-7} *6* α(N+..)=0.000184 *3* α(N)=1.533×10^{-8} *22*; α(IPF)=0.000184 *3* B(E1)(W.u.)<3.0×10^{-6}
		2332 *1*	100	1562.1	11/2$^-$	(E1)	0.000878 *13*	α(K)=1.533×10^{-5} *22*; α(L)=1.407×10^{-6} *20*; α(M)=1.85×10^{-7} *3* α(N+..)=0.000861 *12* α(N)=6.99×10^{-9} *10*; α(IPF)=0.000861 *12* B(E1)(W.u.)<4.1×10^{-6} Mult.: J→J-1 γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C, n2pγ),... Δπ=yes from level scheme.
3899.1	(15/2$^-$)	709[a]	100[a] *15*	3190.1	15/2$^-$	D,E2		
		1399[a]	100[a] *15*	2500.1	13/2$^-$	D,E2		
		2337[a]	86[a] *15*	1562.1	11/2$^-$	(E2)	0.000505 *8*	α(K)=2.48×10^{-5} *4*; α(L)=2.29×10^{-6} *4*; α(M)=3.01×10^{-7} *5* α(N+..)=0.000478 *7* α(N)=1.135×10^{-8} *16*; α(IPF)=0.000478 *7* B(E2)(W.u.)=0.82 *22* Mult.: D,Q from comparison to RUL. ΔJ^π=2,no from level scheme.
3913	(3/2)$^-$	≈1.33×10^3[nkp]		2613.1	3/2$^-$			
		≈1.33×10^3[nkp]		2578.1	1/2$^+$			
		1.95×10^3[k]		1981.8	3/2$^+$			
		≈2.20×10^3[nkp]		1741.4	3/2$^-$			
		≈2.20×10^3[nkp]		1703.2	1/2$^-$			
3928.8		1947[a]		1981.8	3/2$^+$			
4051.5	(9/2$^+$)	1140[a]	15.9[a] *32*	2911.7	(7/2$^+$)	D,E2		
		2489[a]	43[a] *7*	1562.1	11/2$^-$	(E1)[j]	0.000971 *14*	α(K)=1.400×10^{-5} *20*; α(L)=1.285×10^{-6} *18*; α(M)=1.691×10^{-7} *24* α(N+..)=0.000955 *14* α(N)=6.38×10^{-9} *9*; α(IPF)=0.000955 *14* B(E1)(W.u.)=4.9×10^{-5} *12*
		2968[a]	100[a] *10*	1083.6	9/2$^-$	(E1)[j]	0.001230 *18*	α(K)=1.106×10^{-5} *16*; α(L)=1.014×10^{-6} *15*; α(M)=1.334×10^{-7} *19* α(N+..)=0.001221 *17* α(N)=5.04×10^{-9} *7*; α(IPF)=0.001221 *17* B(E1)(W.u.)=6.8×10^{-5} *14*
4105.7	(13/2)$^-$	1604	100 *9*	2500.1	13/2$^-$	D,E2		
		3021	89 *9*	1083.6	9/2$^-$	(E2)[i]	0.000810 *12*	α(K)=1.621×10^{-5} *23*; α(L)=1.489×10^{-6} *21*; α(M)=1.96×10^{-7} *3* α(N+..)=0.000792 *11* α(N)=7.40×10^{-9} *11*; α(IPF)=0.000792 *11* B(E2)(W.u.)>4.7

$^{49}_{24}Cr_{25}$-15

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[m]	Comments
4201.7	(13/2)$^-$	1700[a]	100[a] *6*	2500.1	13/2$^-$	D,E2		
		3117[a]	79[a] *6*	1083.6	9/2$^-$	(E2)[i]	0.000850 *12*	α(K)=1.542×10^{-5} *22*; α(L)=1.416×10^{-6} *20*; α(M)=1.86×10^{-7} *3* α(N+..)=0.000833 *12* α(N)=7.04×10^{-9} *10*; α(IPF)=0.000832 *12* B(E2)(W.u.)>3.8
4218.1	17/2$^-$	1027.8 *4*	100	3190.1	15/2$^-$	D		Mult.: J→J-1 γ from AD and DCO in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...
		1717.4 *4*	38	2500.1	13/2$^-$	(E2)[l]	0.000228 *4*	α(K)=4.36×10^{-5} *7*; α(L)=4.02×10^{-6} *6*; α(M)=5.29×10^{-7} *8* α(N+..)=0.000180 *3* α(N)=1.99×10^{-8} *3*; α(IPF)=0.000180 *3* B(E2)(W.u.)=9 *5*
4279.5	(11/2$^+$)	651[a]	67[a] *10*	3628.6	(9/2$^+$)	D		
		1368[a]	100[a] *12*	2911.7	(7/2$^+$)	(E2)[i]	0.0001220 *18*	α(K)=6.91×10^{-5} *10*; α(L)=6.38×10^{-6} *9*; α(M)=8.40×10^{-7} *12* α(N+..)=4.56×10^{-5} *7* α(N)=3.16×10^{-8} *5*; α(IPF)=4.55×10^{-5} *7* B(E2)(W.u.)=22 *6*
		2717[a]	44[a] *7*	1562.1	11/2$^-$	(E1)[g]	0.001100 *16*	α(K)=1.243×10^{-5} *18*; α(L)=1.141×10^{-6} *16*; α(M)=1.501×10^{-7} *21* α(N+..)=0.001090 *16* α(N)=5.67×10^{-9} *8*; α(IPF)=0.001090 *16* B(E1)(W.u.)=2.2×10^{-5} *6*
		3196[a]	31[a] *5*	1083.6	9/2$^-$	(E1)[g]	0.001350 *19*	α(K)=1.004×10^{-5} *14*; α(L)=9.21×10^{-7} *13*; α(M)=1.212×10^{-7} *17* α(N+..)=0.001335 *19* α(N)=4.58×10^{-9} *7*; α(IPF)=0.001335 *19* B(E1)(W.u.)=9.4×10^{-6} *25*
4296.8	(9/2$^+$)	1385[a]	100[a]	2911.7	(7/2$^+$)	D,E2		
		4025[ap]		271.72	7/2$^-$	(E1)[j]	0.001700 *24*	α(K)=7.51×10^{-6} *11*; α(L)=6.89×10^{-7} *10*; α(M)=9.06×10^{-8} *13* α(N+..)=0.001690 *24* α(N)=3.43×10^{-9} *5*; α(IPF)=0.001690 *24*
4366.0	19/2$^-$	148.1 *4*	5.8	4218.1	17/2$^-$	D		Mult.: J→J-1 γ from AD and DCO in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...
		1176.6 *4*	100	3190.1	15/2$^-$	E2	0.0001120 *16*	α(K)=9.61×10^{-5} *14*; α(L)=8.89×10^{-6} *13*; α(M)=1.169×10^{-6} *17* α(N+..)=6.04×10^{-6} *10* α(N)=4.39×10^{-8} *7*; α(IPF)=6.00×10^{-6} *10* B(E2)(W.u.)=13.3 *12* Mult.: J→J D or J→J-2 Q γ from AD and DCO in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),..; large Q component from γ(θ) in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),.. Ne M2 from comparison to RUL.
4426	5/2$^-$,7/2$^-$	2440[a]		1981.8	3/2$^+$			
4459.7	(11/2$^+$)	3376[a]	100[a]	1083.6	9/2$^-$	(E1)[j]	0.001430 *21*	α(K)=9.36×10^{-6} *14*; α(L)=8.58×10^{-7} *12*; α(M)=1.129×10^{-7} *16*

$^{49}_{24}Cr_{25}$-16

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
									α(N+..)=0.001420 *20* α(N)=4.27×10^{-9} *6*; α(IPF)=0.001420 *20* B(E1)(W.u.)=8.3×10^{-5} *15*
4467.1	15/2$^+$	575.2 *4*	100.0 *51*	3892.2	13/2$^+$	M1+E2	−0.20 *5*	3.92×10^{-4} *9*	α(K)=0.000355 *8*; α(L)=3.29×10^{-5} *8*; α(M)=4.33×10^{-6} *10* α(N+..)=1.63×10^{-7} *4* α(N)=1.63×10^{-7} *4* B(M1)(W.u.)=0.073 *20*; B(E2)(W.u.)=21 *12* Mult.,δ: from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...
		939.3 *4*	7.6 *25*	3527.6	13/2$^-$	(E1)[h]		7.64×10^{-5} *11*	α(K)=6.92×10^{-5} *10*; α(L)=6.38×10^{-6} *9*; α(M)=8.39×10^{-7} *12*; α(N+..)=3.15×10^{-8} *5* α(N)=3.15×10^{-8} *5* B(E1)(W.u.)=3.0×10^{-5} *13*
		1276.7 *4*	13.9 *25*	3190.1	15/2$^-$	(E1)		0.0001480 *21*	α(K)=3.91×10^{-5} *6*; α(L)=3.60×10^{-6} *5*; α(M)=4.74×10^{-7} *7* α(N+..)=0.0001049 *15* α(N)=1.783×10^{-8} *25*; α(IPF)=0.0001049 *15* B(E1)(W.u.)=2.2×10^{-5} *7* Mult.: ΔJ=0 d or ΔJ=2 Q γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Ne M2 from comparison to RUL. Δπ=yes from level scheme.
		1966.8 *4*	5.1 *25*	2500.1	13/2$^-$	D,Q			
4571.5	17/2$^-$	352[a]	<10[a]	4218.1	17/2$^-$				
		1382[a]	100[a] *14*	3190.1	15/2$^-$	D,E2			
		2072[a]	100[a] *14*	2500.1	13/2$^-$	(E2)[i]		0.000382 *6*	α(K)=3.07×10^{-5} *5*; α(L)=2.83×10^{-6} *4*; α(M)=3.72×10^{-7} *6* α(N+..)=0.000348 *5* α(N)=1.404×10^{-8} *20*; α(IPF)=0.000348 *5* B(E2)(W.u.)=4.9 *13*
4586.5		2605[a]		1981.8	3/2$^+$				
4716.2	(13/2$^+$)	2216[a]	100[a] *15*	2500.1	13/2$^-$	(E1)[h]		0.000805 *12*	α(K)=1.647×10^{-5} *23*; α(L)=1.512×10^{-6} *22*; α(M)=1.99×10^{-7} *3* α(N+..)=0.000786 *11* α(N)=7.51×10^{-9} *11*; α(IPF)=0.000786 *11* B(E1)(W.u.)=5.3×10^{-5} *13*
		3154[a]	79[a] *15*	1562.1	11/2$^-$	(E1)[j]		0.001330 *19*	α(K)=1.022×10^{-5} *15*; α(L)=9.37×10^{-7} *14*; α(M)=1.233×10^{-7} *18* α(N+..)=0.001314 *19*

$^{49}_{24}Cr_{25}$-17

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[m]	Comments
									α(N)=4.66×10^{-9} *7*; α(IPF)=0.001314 *19* B(E1)(W.u.)=1.5×10^{-5} *4*
4749.4		2248[a]	69[a] *14*	2500.1	13/2$^-$	D,E2			
		3186[a]	100[a] *14*	1562.1	11/2$^-$	D,E2			
4764	(7/2)$^-$	≈3.69×10^3[k]	47[k] *10*	1083.6	9/2$^-$				
		≈4.49×10^3[k]	100[k] *21*	271.72	7/2$^-$	D(+Q)	−0.052 *90*		
		≈4.76×10^3[k]	9.4[k] *16*	0.0	5/2$^-$				
4809.1		1619[a]	79[a] *15*	3190.1	15/2$^-$	D,E2			
		2309[a]	100[a] *15*	2500.1	13/2$^-$	D,E2			
4837.2		3275[a]		1562.1	11/2$^-$				
4943.6	(11/2$^+$)	1315[a]	100[a]	3628.6	(9/2$^+$)	D,E2			
		3860[ap]	[a]	1083.6	9/2$^-$	(E1)[g]		0.001630 *23*	α(K)=7.91×10^{-6} *11*; α(L)=7.25×10^{-7} *11*; α(M)=9.54×10^{-8} *14* α(N+..)=0.001626 *23* α(N)=3.61×10^{-9} *5*; α(IPF)=0.001626 *23*
5032.3		3470[a]		1562.1	11/2$^-$				
5048.4	(13/2$^+$)	769[a]	<25[a]	4279.5	(11/2$^+$)				
		1420[a]	51[a] *8*	3628.6	(9/2$^+$)	D,E2			
		2548[a]	93[a] *10*	2500.1	13/2$^-$	D,E2			Mult.: from comparison to RUL. Assigned as (E1) by 2006Br03 in (α,nγ).
		3486[a]	100[a] *13*	1562.1	11/2$^-$	(E1)[j]		0.001480 *21*	α(K)=8.99×10^{-6} *13*; α(L)=8.24×10^{-7} *12*; α(M)=1.084×10^{-7} *16* α(N+..)=0.001468 *21* α(N)=4.10×10^{-9} *6*; α(IPF)=0.001468 *21* B(E1)(W.u.)>6.7×10^{-5}
5058		3500		1562.1	11/2$^-$				
5179.7		2677[a]		2502.6	7/2$^-$				
5302.7	17/2$^+$	835.5 *4*	100 *4*	4467.1	15/2$^+$	M1+E2	−0.34 *10*	1.81×10^{-4} *5*	α(K)=0.000164 *5*; α(L)=1.51×10^{-5} *5*; α(M)=1.99×10^{-6} *6* α(N+..)=7.49×10^{-8} *20* α(N)=7.49×10^{-8} *20* B(M1)(W.u.)=0.032 *7*; B(E2)(W.u.)=13 *8* Mult.,δ: D+Q from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Ne E1+M2 from δ and comparison to RUL.
		1410.8 *4*	39 *4*	3892.2	13/2$^+$	E2		0.0001290 *19*	α(K)=6.48×10^{-5} *9*; α(L)=5.98×10^{-6} *9*; α(M)=7.87×10^{-7} *11* α(N+..)=5.75×10^{-5} *9*

$^{49}_{24}Cr_{25}$-18

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	α^m	Comments
								α(N)=2.96×10^{-8} *5*; α(IPF)=5.75×10^{-5} *9* B(E2)(W.u.)=3.5 *8* Mult.: ΔJ=2 Q from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...; Ne M2 from comparison to RUL.
5573	(3/2)$^+$	3.14×10^3 *k*	50 *k* *10*	2431.8	5/2$^+$			
		3.59×10^3 *k*	100 *k* *20*	1981.8	3/2$^+$	D+Q		δ: −0.01 *7* or +4.1 *9*. Mult.,δ: from $\alpha\gamma(\theta)$ in (^{3}He,$\alpha\gamma$).
		5.57×10^3 *k*	50 *k* *10*	0.0	5/2$^-$			
5962.4	23/2$^-$	1596.3 *4*	100	4366.0	19/2$^-$	(E2) *l*	0.000182 *3*	α(K)=5.04×10^{-5} *7*; α(L)=4.64×10^{-6} *7*; α(M)=6.11×10^{-7} *9* α(N+..)=0.0001268 *18* α(N)=2.30×10^{-8} *4*; α(IPF)=0.0001268 *18* B(E2)(W.u.)=11.5 *8*
6134.1	21/2$^-$	171 *p* *1*	<3.3	5962.4	23/2$^-$			
		1768.9 *4*	86.7	4366.0	19/2$^-$	D		Mult.: ΔJ=1 d from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...
		1915.0 *4*	100	4218.1	17/2$^-$	(E2)	0.000311 *5*	α(K)=3.55×10^{-5} *5*; α(L)=3.27×10^{-6} *5*; α(M)=4.30×10^{-7} *6* α(N+..)=0.000272 *4* α(N)=1.622×10^{-8} *23*; α(IPF)=0.000272 *4* B(E2)(W.u.)=16 *5* Mult.: ΔJ=0 d or ΔJ=2 Q γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Ne M2 from comparison to RUL. ΔJ^π=2,no from level scheme.
6341.9	19/2$^+$	1039.4 *4*	54 *8*	5302.7	17/2$^+$	D,E2		
		1874.4 *4*	100 *8*	4467.1	15/2$^+$	E2	0.000293 *5*	α(K)=3.70×10^{-5} *6*; α(L)=3.40×10^{-6} *5*; α(M)=4.48×10^{-7} *7* α(N+..)=0.000252 *4* α(N)=1.688×10^{-8} *24*; α(IPF)=0.000252 *4* B(E2)(W.u.)=5.3 *15* Mult.: ΔJ=2 Q transition from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Ne M2 from comparison to RUL.
6423	(1/2$^-$,3/2$^-$)	≈2.50×10^3 *kp*	81 *k* *17*	3913	(3/2)$^-$			
		≈3.83×10^3 *okp*	100 *ok* *22*	2613.1	3/2$^-$			
		≈3.83×10^3 *okp*	100 *ok* *22*	2578.1	1/2$^+$			
		≈4.70×10^3 *okp*	31.9 *ok* *22*	1741.4	3/2$^-$			
		≈4.70×10^3 *okp*	31.9 *ok* *22*	1703.2	1/2$^-$			
6470	1/2$^+$	≈2.54×10^3 *k*	40.5 *k* *24*	3938	3/2$^+$,5/2$^+$			

$^{49}_{24}Cr_{25}$-19

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[m]	Comments
6470	1/2$^+$	≈3.87×10^3 *ok p*	100 *ok 22*	2613.1	3/2$^-$			
		≈3.87×10^3 *ok p*	100 *ok 22*	2578.1	1/2$^+$			
		≈4.74×10^3 *ok p*	98 *ok 22*	1741.4	3/2$^-$			
		≈4.74×10^3 *ok p*	98 *ok 22*	1703.2	1/2$^-$			
6765	1/2$^+$	2.83×10^3 *k*		3938	3/2$^+$,5/2$^+$			
		≈4.16×10^3 *nkp*		2613.1	3/2$^-$			
		≈4.16×10^3 *nkp*		2578.1	1/2$^+$			
		≈5.03×10^3 *nkp*		1741.4	3/2$^-$			
		≈5.03×10^3 *nkp*		1703.2	1/2$^-$			
7269.2	21/2$^+$	927.2 *4*	25 *8*	6341.9	19/2$^+$	D,E2		
		1966.6 *4*	100 *8*	5302.7	17/2$^+$	E2	0.000334 *5*	α(K)=3.38×10^{-5} *5*; α(L)=3.11×10^{-6} *5*; α(M)=4.10×10^{-7} *6* α(N+..)=0.000297 *5* α(N)=1.544×10^{-8} *22*; α(IPF)=0.000297 *5* B(E2)(W.u.)=8.0 *21* Mult.: D,E2 from comparison to RUL. Recoil-$\gamma(\theta)$ in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Consistent with pure Q.
8007.4	27/2$^-$	2045 *1*	100	5962.4	23/2$^-$	(E2)[l]	0.000370 *6*	α(K)=3.15×10^{-5} *5*; α(L)=2.90×10^{-6} *4*; α(M)=3.81×10^{-7} *6* α(N+..)=0.000335 *5* α(N)=1.438×10^{-8} *21*; α(IPF)=0.000335 *5* B(E2)(W.u.)=7.8 *7*
8333.3	25/2$^-$	325.9 *4*	100	8007.4	27/2$^-$	M1	0.001360 *20*	α(K)=0.001232 *18*; α(L)=0.0001152 *17*; α(M)=1.517×10^{-5} *22* α(N+..)=5.66×10^{-7} *8* α(N)=5.66×10^{-7} *8* B(M1)(W.u.)=1.8 *5* Mult.: ΔJ=1 from AD and DCO in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... M1 from comparison to RUL.
		2199[p] *1*	<25	6134.1	21/2$^-$			
		2370[p] *1*	<25	5962.4	23/2$^-$			
10222.4	29/2$^-$	1889[p] *1*	<12	8333.3	25/2$^-$			
		2215.1 *9*	100	8007.4	27/2$^-$	D		Mult.: J→J-1 γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...
10700.3	31/2$^-$	478.4 *14*	100	10222.4	29/2$^-$	M1	5.68×10^{-4} *9*	α(K)=0.000514 *8*; α(L)=4.78×10^{-5} *8*; α(M)=6.29×10^{-6} *10*

$^{49}_{24}Cr_{25}$-20

Adopted Levels, Gammas (continued)

γ(^{49}Cr) (continued)

E_i(level)	E_γ [†]	I_γ [†]	E_f	J^π_f	Mult. [‡]	α [m]	Comments
							α(N+..)=2.36×10^{-7} *4* α(N)=2.36×10^{-7} *4* B(M1)(W.u.)=1.5 *3* Mult.: J→J-1 γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... M1 from comparison to RUL.
10700.3	2692.6 *10*	100	8007.4	27/2$^-$	(E2) [l]	0.000667 *10*	α(K)=1.96×10^{-5} *3*; α(L)=1.80×10^{-6} *3*; α(M)=2.36×10^{-7} *4* α(N+..)=0.000646 *9* α(N)=8.93×10^{-9} *13*; α(IPF)=0.000646 *9* B(E2)(W.u.)=2.7 *6*

† From ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),..., except as noted.
‡ From comparison to RUL, except as noted.
# From $\gamma(\theta)$ and $\gamma\gamma(\theta)$ in (α,nγ), except as noted.
@ ΔJ=1 dipole transition from recoil-$\gamma(\theta)$ in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),...
& As recommended by 1978Kr19.
[a] From (α,nγ).
[b] Unweighted ave of 1084.9 *4* from ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... And 1083.0 *10* from (α,nγ).
[c] ΔJ=2 quadrupole or ΔJ=0 dipole transition from recoil-Γ(Θ) in ^{12}C(^{40}calc,N2PΓ),^{40}calc(^{12}C,N2PΓ),...
[d] Branching ratios from (^{3}He,$\alpha\gamma$) are discrepant.
[e] From $\gamma(\theta)$ and γ(linear pol) in (α,nγ).
[f] Unweighted average of Iγ(240γ)/Iγ(279γ)/Iγ(1710γ)/Iγ(1982γ)=2.4 *6*/10 *2*/6 *2*/81 *7* (2006Br03) and Iγ(278.2γ)/Iγ(1709.5γ)/Iγ(1981.4γ)=18.5 *20*/11.4 *20*/70.1 *20* (1977Ka19) in (α,nγ).
[g] Assigned as E1 by 2006Br03 in (α,nγ). Parentheses added by evaluator.
[h] D,E2 from comparison to RUL. Δπ=yes from level scheme.
[i] D,E2 from comparison to RUL. ΔJ^π=2,no from level scheme.
[j] Assigned as (E1) by 2006Br03 in (α,nγ).
[k] From (^{3}He,$\alpha\gamma$).
[l] J→J D or J→J-2 Q γ from AD in ^{12}C(^{40}Ca,n2pγ),^{40}Ca(^{12}C,n2pγ),... Ne M2 from comparison to RUL. ΔJ^π=2,no from level scheme.
[m] 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.
[n] Multiply placed.
[o] Multiply placed with undivided intensity.
[p] Placement of transition in the level scheme is uncertain.

$^{49}_{24}Cr_{25}$-21

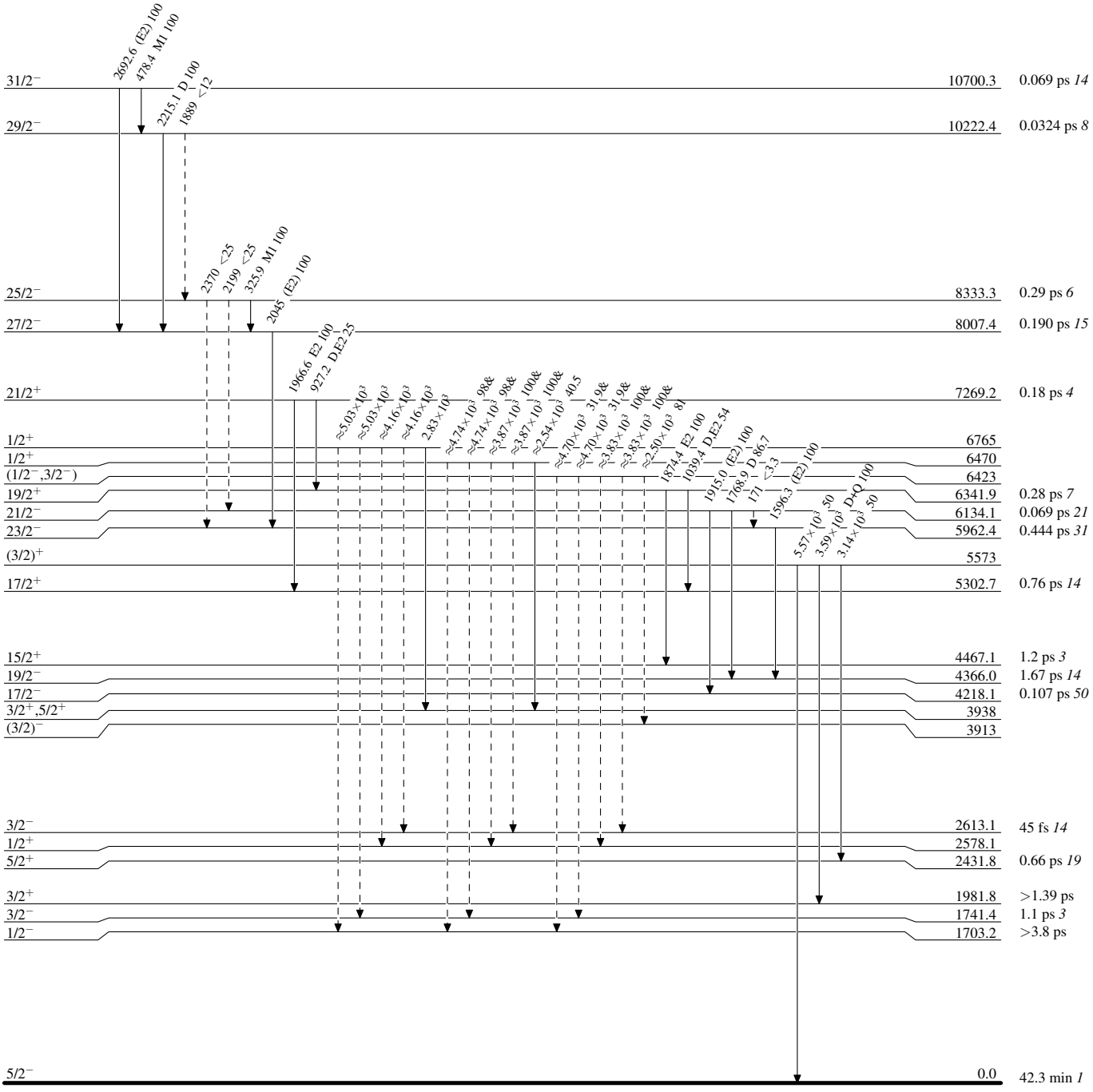
Adopted Levels, Gammas

Legend

Level Scheme

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

– – – – – – ► γ Decay (Uncertain)



$^{49}_{24}Cr_{25}$

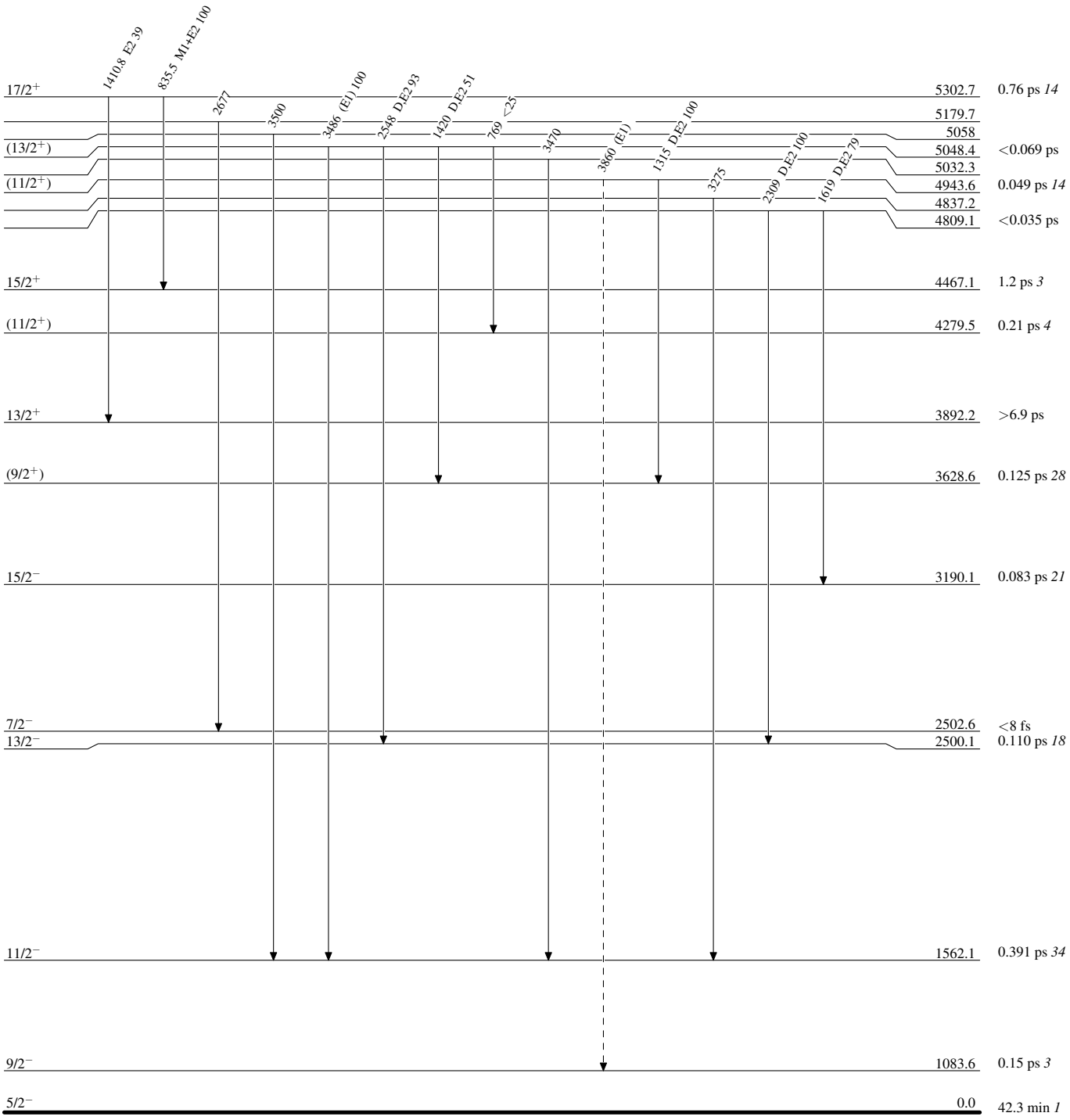
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)

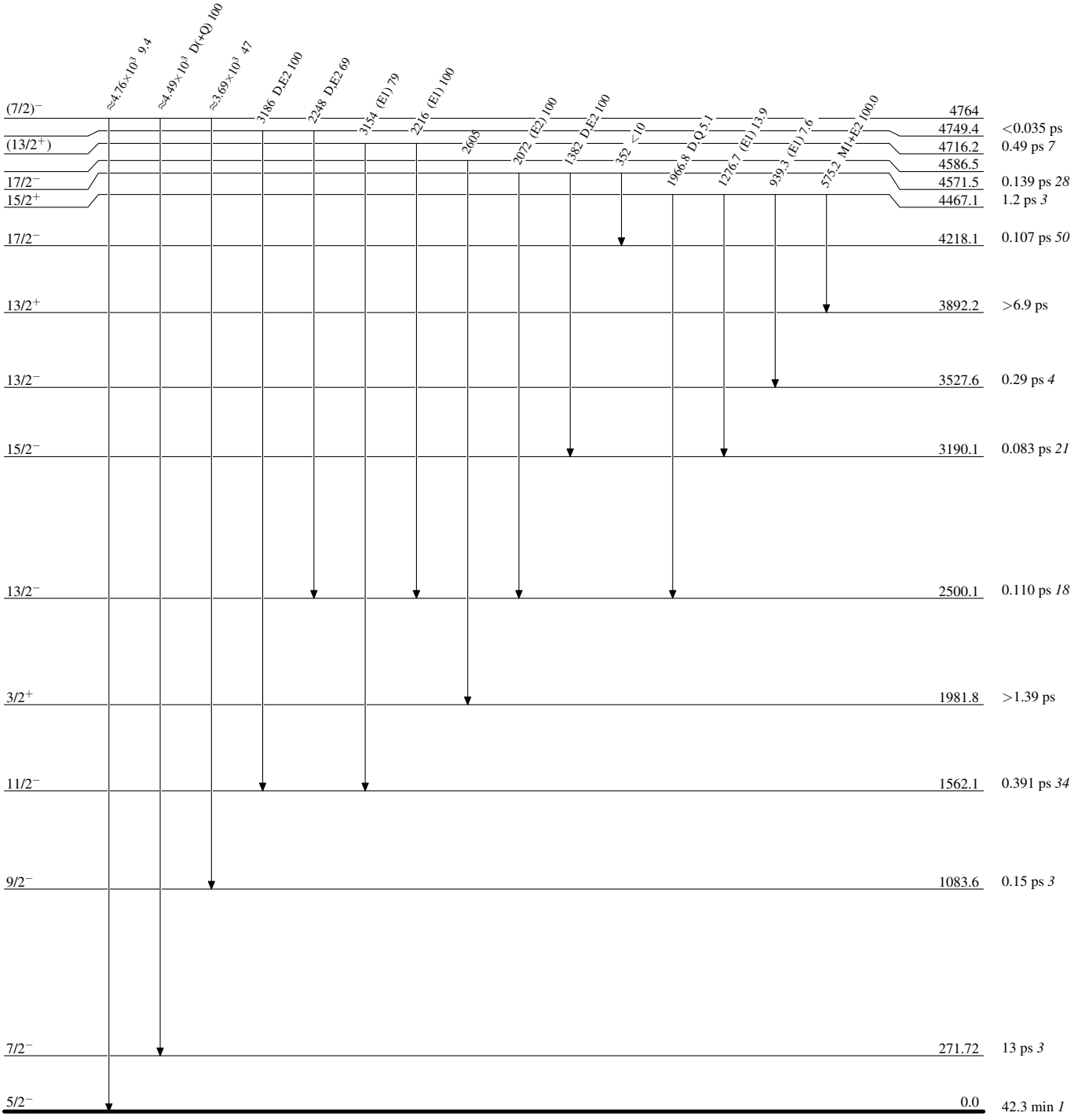


$^{49}_{24}Cr_{25}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{49}_{24}Cr_{25}$

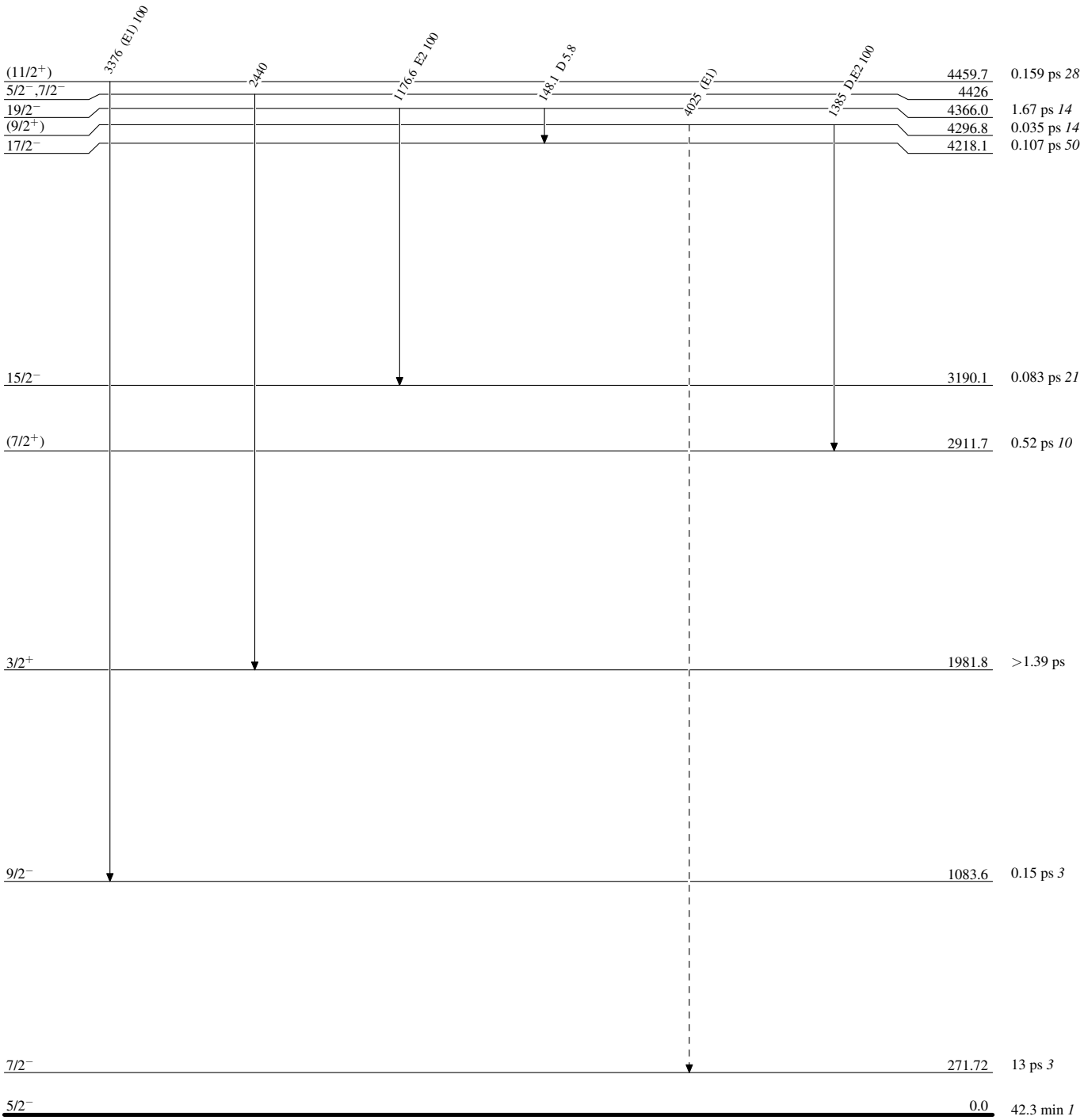
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{49}_{24}Cr_{25}$

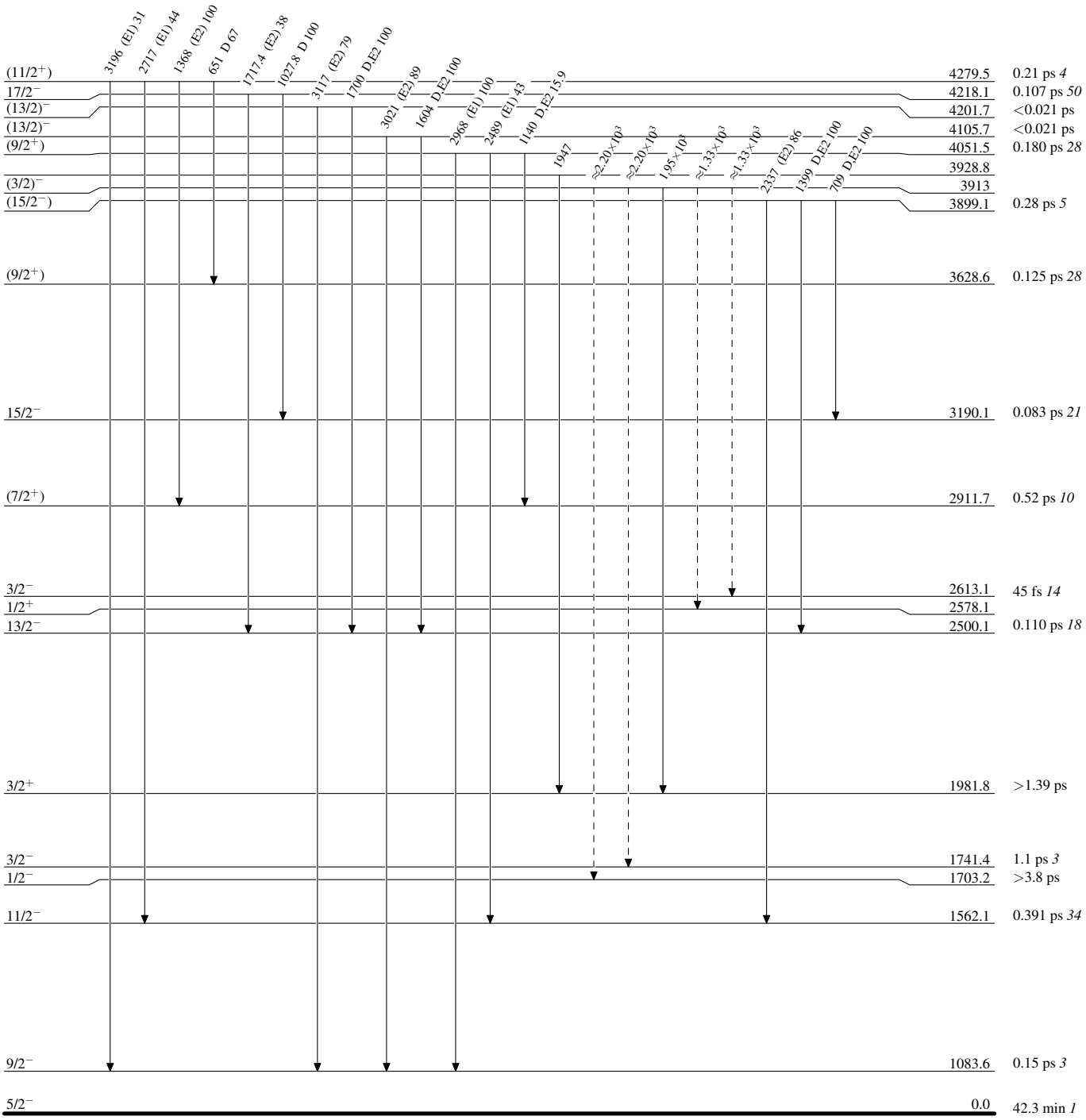
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

– – – – – – ► γ Decay (Uncertain)



$^{49}_{24}Cr_{25}$

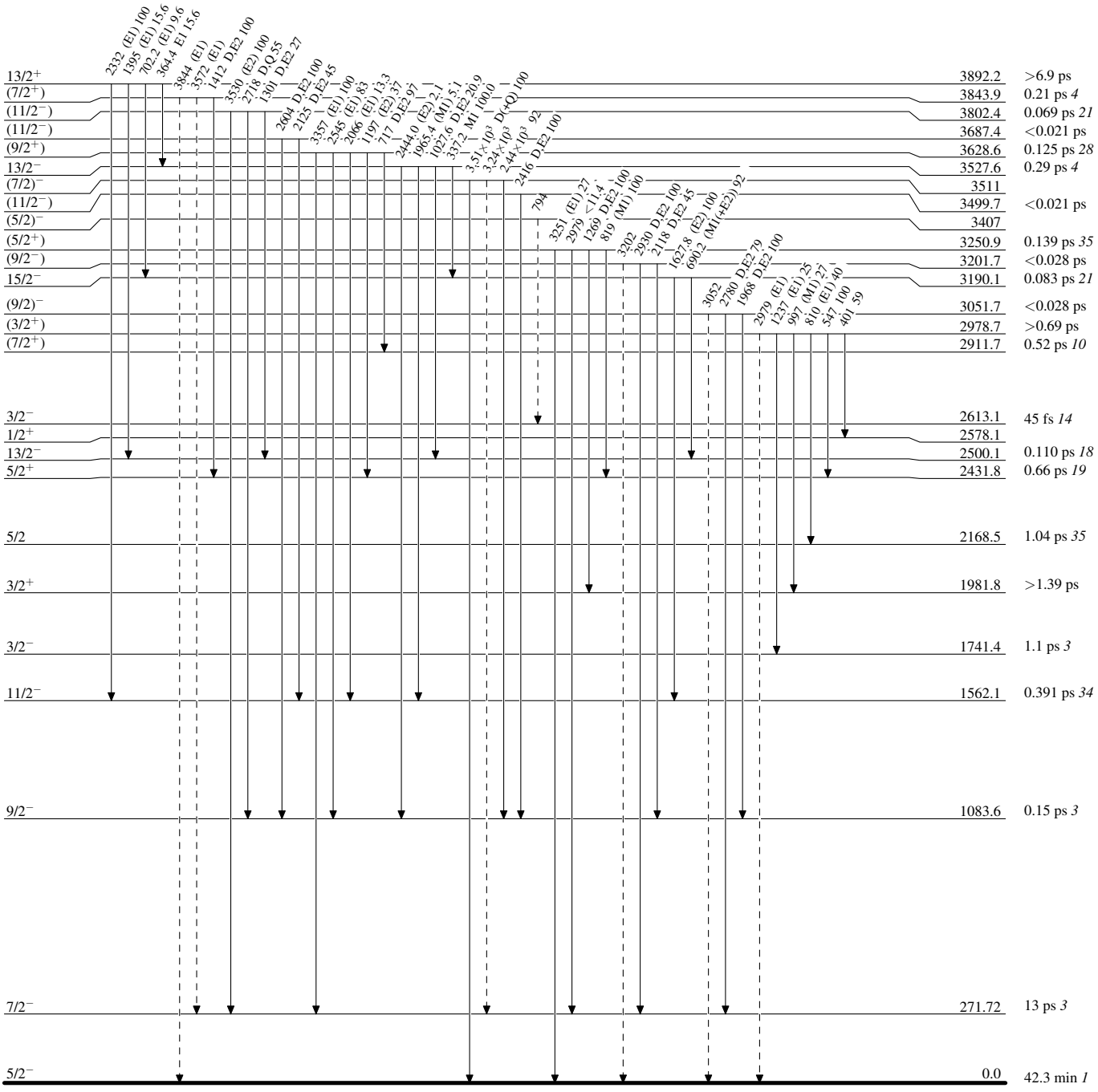
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

– – – – – – ► γ Decay (Uncertain)



$^{49}_{24}Cr_{25}$

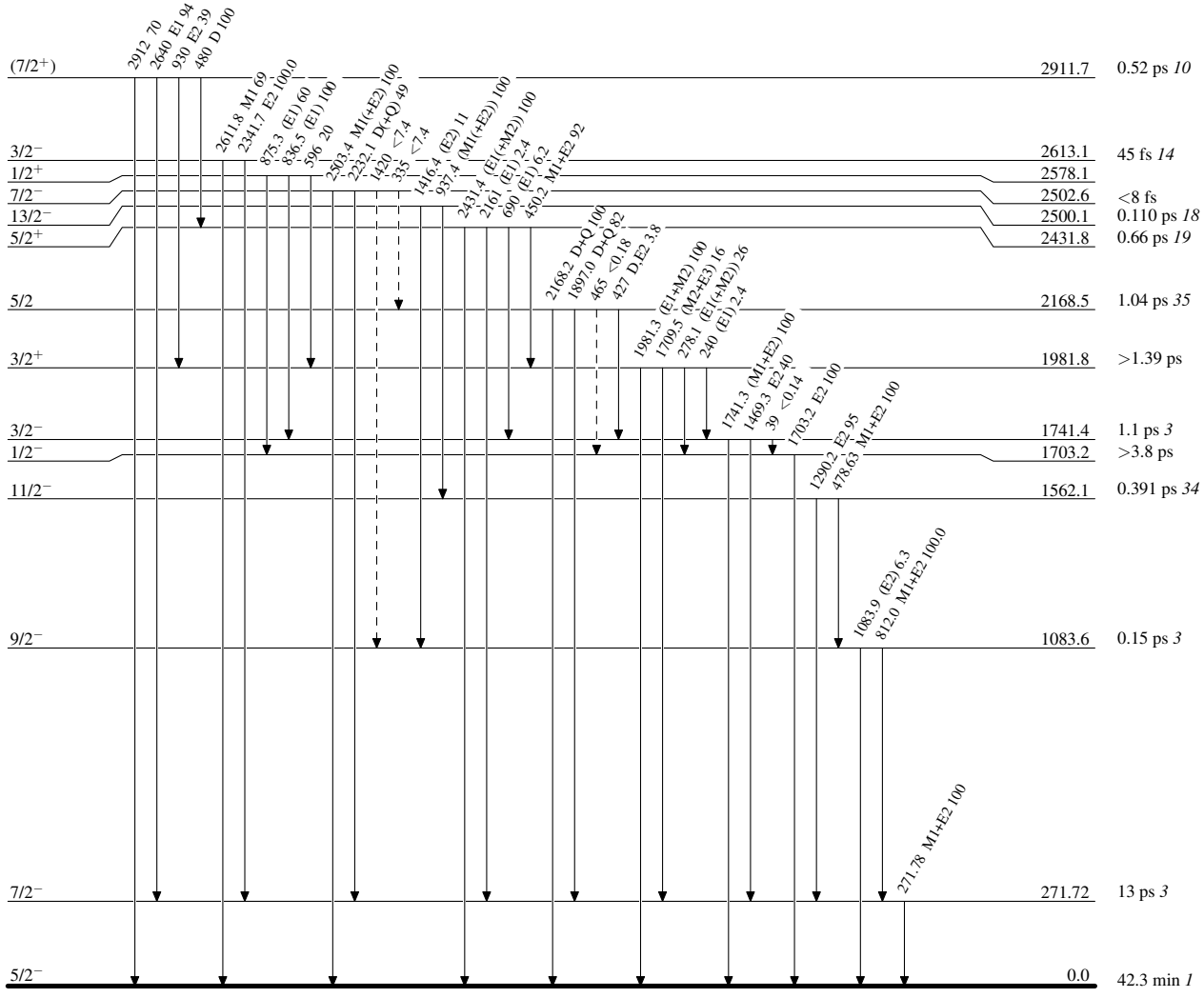
Adopted Levels, Gammas

Legend

Level Scheme (continued)

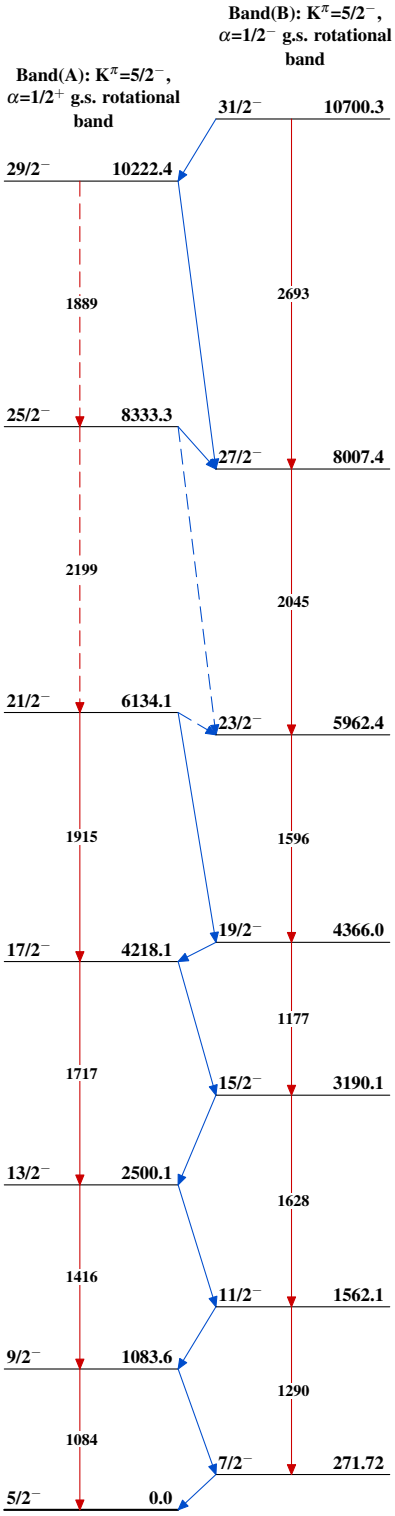
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

- - - - - - ► γ Decay (Uncertain)



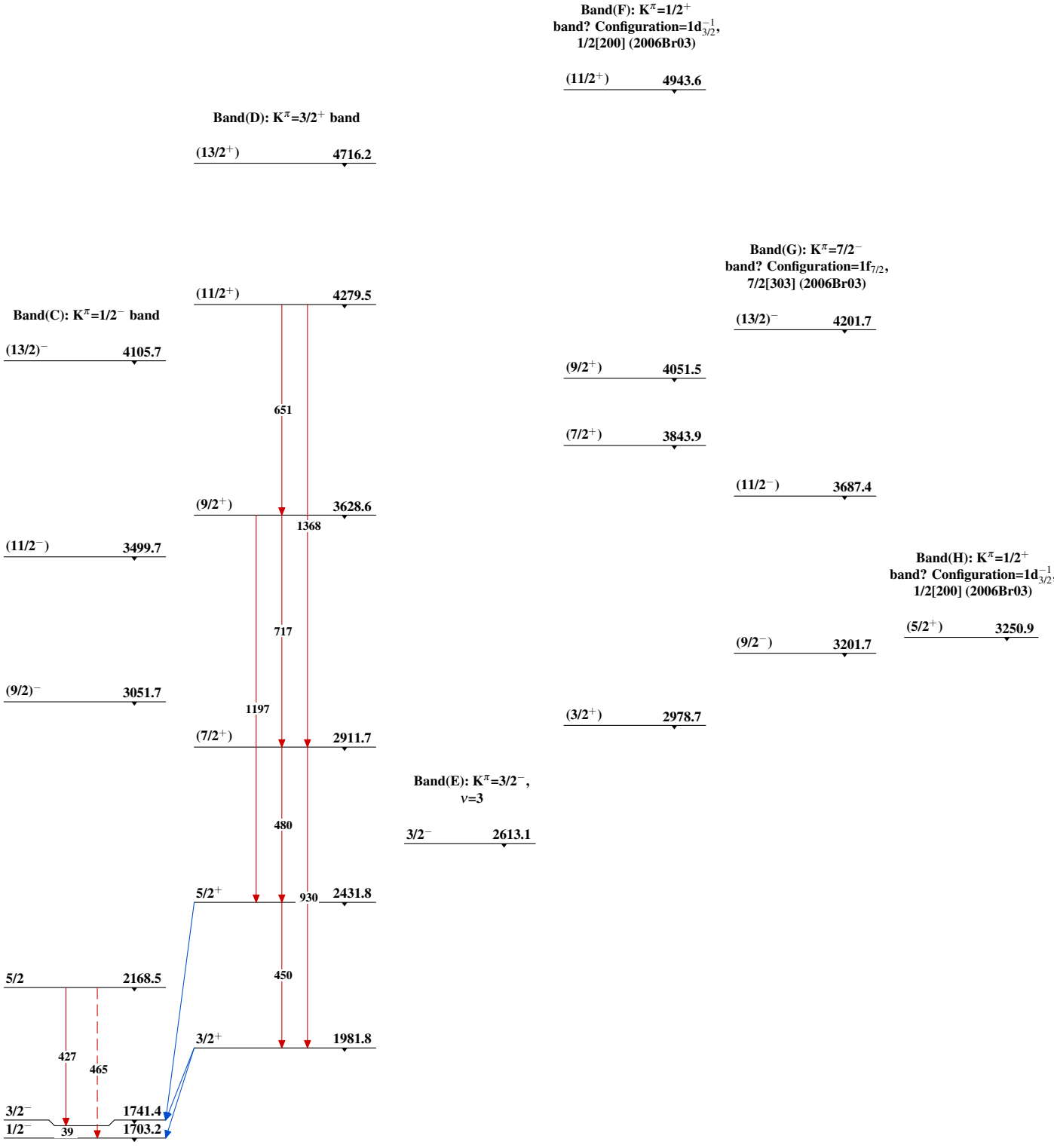
$^{49}_{24}Cr_{25}$

Adopted Levels, Gammas



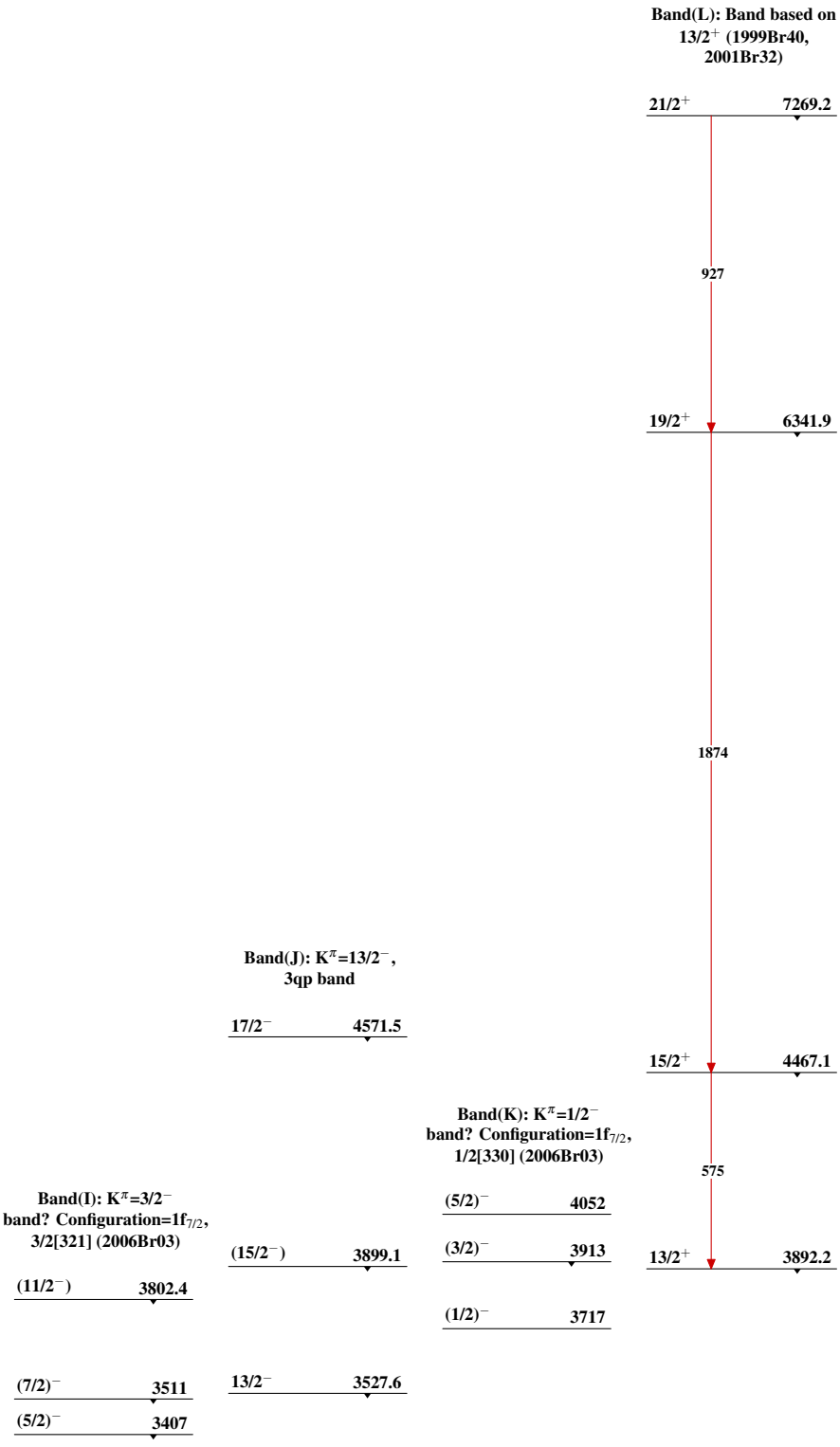
$^{49}_{24}Cr_{25}$

Adopted Levels, Gammas (continued)



$^{49}_{24}Cr_{25}$

Adopted Levels, Gammas (continued)



$^{49}_{24}Cr_{25}$