^{50}Cr(n,γ),(pol n,γ) E=thermal 1974KoYY,1972Ko15,1972Lo26

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Wang Jimin and Huang Xiaolong	NDS 144, 1 (2017)	1-Mar-2016

1974KoYY: measured Eγ, Iγ; deduced S(n)=9261.7 keV *7* is consistent with recommended value 9260.64 keV *20* (2017Wa10).
See also 1974KoYP.
1972Ko15: polarized beam, measured Eγ, Iγ, γ-CP.
1972Lo26: measured absolute intensities.
Others: 1984Si04 (critical evaluation and experimental determination of the nuclear activation and decay parameters for ^{50}Cr(n,γ)).
2004Be01: measured relative intensities with HPGe detector. Iγ of 7 strong γ-rays were given.

^{51}Cr Levels

E(level)[†]	Jπ[@]	E(level)[†]	Jπ[@]	E(level)[†]	Jπ[@]
0.0	7/2⁻	3125.75 *20*	3/2⁻[&]	4833.6 *4*	
749.01 *12*	3/2⁻[&]	3348.6 *6*		5204.5 *5*	1/2⁻
776.68 *25*	1/2⁻[&]	3766.8 *3*	1/2,3/2[&]	5239.6[‡] *11*	1/2,3/2[&]
1352.7 *4*	5/2⁻	3770.2 *3*	3/2⁻[&]	5668.1 *4*	1/2⁻,3/2⁻
1899.2 *3*	3/2⁻[&]	3971.0 *6*		5950[#] *15*	1/2⁻,3/2⁻
2001.7 *5*	5/2⁻	4039.7 *3*	1/2⁻[&]	7208.5 *5*	1/2⁻,3/2⁻
2828.2 *4*	(3/2)⁻	4289.2 *4*	1/2⁺	7247.9 *5*	(1/2,3/2,5/2⁺)
2890.2 *4*	3/2⁻[&]	4560.8 *6*		(9261.63 *22*)	1/2⁺[a]
2908.0 *5*		4636.7 *4*	3/2[&]		
3055.3 *5*	1/2⁻	4769.8 *3*	1/2⁻,3/2⁻		

[†] From Eγ's and level scheme, using least-squares fit to data.
[‡] From 1972Ko15.
[#] From Adopted Levels.
[@] From Adopted Levels, except as noted.
[&] Based on measured γ-CP and assumption of J^π=− (and thus probable pure dipole) from L(n)(d,p) value (1972Ko15).
[a] L=0 capture.

γ(^{51}Cr)

Eγ[†]	Iγ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Comments
≈28	35 *3*	776.68	1/2⁻	749.01	3/2⁻	Iγ: estimate from intensity balance at 777 keV level.
603.3 *4*	0.76 *15*	1352.7	5/2⁻	749.01	3/2⁻	
749.00 *12*	80 *8*	749.01	3/2⁻	0.0	7/2⁻	
826.9 *8*	0.28 *7*	2828.2	(3/2)⁻	2001.7	5/2⁻	
834.1 *8*	0.31 *7*	5668.1	1/2⁻,3/2⁻	4833.6		
845.2 *8*	0.36 *8*	3971.0		3125.75	3/2⁻	
[x]857.1 *9*	0.05 *2*					
862.3 *6*	0.07 *4*	3770.2	3/2⁻	2908.0		
888.2 *8*	2.17 *22*	2890.2	3/2⁻	2001.7	5/2⁻	
913.2 *9*	0.17 *5*	4039.7	1/2⁻	3125.75	3/2⁻	
928.2 *9*	0.14 *4*	2828.2	(3/2)⁻	1899.2	3/2⁻	
990.4 *9*	0.78 *16*	2890.2	3/2⁻	1899.2	3/2⁻	
1002.1 *9*	0.15 *4*	4769.8	1/2⁻,3/2⁻	3766.8	1/2,3/2	
1106.5 *9*	0.14 *4*	5668.1	1/2⁻,3/2⁻	4560.8		
1124.0 *9*	1.28 *14*	1899.2	3/2⁻	776.68	1/2⁻	
1149.4 *9*	2.94[#] *2*	1899.2	3/2⁻	749.01	3/2⁻	Iγ: Other: 4.5 *5* (1974KoYY).
1353.5 *9*	0.16 *4*	1352.7	5/2⁻	0.0	7/2⁻	

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^{50}Cr(n,γ),(pol n,γ) E=thermal 1974KoYY,1972Ko15,1972Lo26 (continued)

γ(^{51}Cr) (continued)

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1537.2 *8*	1.9 *2*	2890.2	3/2$^-$	1352.7	5/2$^-$	
1808.8 *7*	0.17 *4*	4636.7	3/2	2828.2	(3/2)$^-$	
1899.3 *5*	11.95[#] *6*	1899.2	3/2$^-$	0.0	7/2$^-$	I_γ: Other: 12.3 *14* (1974KoYY).
2001.1 *9*	2.1 *2*	2001.7	5/2$^-$	0.0	7/2$^-$	
2013.3 *6*	0.8 *2*	(9261.63)	1/2$^+$	7247.9	(1/2,3/2,5/2$^+$)	
2052.9 *5*	0.09 *3*	(9261.63)	1/2$^+$	7208.5	1/2$^-$,3/2$^-$	
2080.1 *7*	0.30 *6*	2828.2	(3/2)$^-$	749.01	3/2$^-$	
2113.4 *7*	1.1 *3*	2890.2	3/2$^-$	776.68	1/2$^-$	
2141.3[&a] *7*	0.35[&] *9*	2890.2	3/2$^-$	749.01	3/2$^-$	
2141.3[&] *7*	0.35[&] *9*	4039.7	1/2$^-$	1899.2	3/2$^-$	
2159.0 *7*	0.07 *4*	2908.0		749.01	3/2$^-$	
2279.2 *7*	0.28 *7*	3055.3	1/2$^-$	776.68	1/2$^-$	
2348.9 *5*	2.3 *4*	3125.75	3/2$^-$	776.68	1/2$^-$	
2376.7 *5*	5.00[#] *2*	3125.75	3/2$^-$	749.01	3/2$^-$	I_γ: Other: 5.4 *7*(1974KoYY), 4.9 *5* (1972Lo26).
[x]2579.0 *8*	0.07 *4*					
2598.9 *7*	0.09 *4*	3348.6		749.01	3/2$^-$	
[x]2890.8 *7*	0.19 *4*					
2990.0 *5*	1.0 *2*	3766.8	1/2,3/2	776.68	1/2$^-$	
3017.3 *4*	1.1 *2*	3766.8	1/2,3/2	749.01	3/2$^-$	
3021.3 *4*	1.5 *2*	3770.2	3/2$^-$	749.01	3/2$^-$	
3207.5 *7*	0.14 *6*	4560.8		1352.7	5/2$^-$	
3262.8 *4*	1.6 *2*	4039.7	1/2$^-$	776.68	1/2$^-$	
3276.8 *7*	0.16 *4*	7247.9	(1/2,3/2,5/2$^+$)	3971.0		
3284.2 *8*	0.14 *4*	4636.7	3/2	1352.7	5/2$^-$	
3290.8 *5*	0.56 *17*	4039.7	1/2$^-$	749.01	3/2$^-$	
3305.8[&] *7*	0.07[&] *4*	5204.5	1/2$^-$	1899.2	3/2$^-$	
3305.8[&a] *7*	0.07[&] *4*	(9261.63)	1/2$^+$	5950	1/2$^-$,3/2$^-$	
3512.2 *4*	0.6 *2*	4289.2	1/2$^+$	776.68	1/2$^-$	
3593.4 *4*	0.9 *2*	(9261.63)	1/2$^+$	5668.1	1/2$^-$,3/2$^-$	
[x]3764.2 *11*	0.24 *6*					
3859.8 *4*	0.73 *15*	4636.7	3/2	776.68	1/2$^-$	
3898.9 *5*	0.26 *6*	7247.9	(1/2,3/2,5/2$^+$)	3348.6		
4020.5 *4*	0.54 *16*	4769.8	1/2$^-$,3/2$^-$	749.01	3/2$^-$	
4022.4 *6*	0.8 *1*	(9261.63)	1/2$^+$	5239.6	1/2,3/2	E_γ,I_γ: From 1972Ko15.
4057.4 *5*	0.14 *4*	(9261.63)	1/2$^+$	5204.5	1/2$^-$	
[x]4132.9 *8*	0.10 *4*					
[x]4399.9 *8*	0.24 *5*					
4491.5 *4*	0.64 *13*	(9261.63)	1/2$^+$	4769.8	1/2$^-$,3/2$^-$	
4625.0 *4*	1.1 *2*	(9261.63)	1/2$^+$	4636.7	3/2	I_γ: Other: 1.2 *1* (1972Ko15).
4833.2 *4*	0.25 *5*	4833.6		0.0	7/2$^-$	
4891.4 *5*	0.25 *5*	5668.1	1/2$^-$,3/2$^-$	776.68	1/2$^-$	
4971.6 *7*	0.42 *9*	(9261.63)	1/2$^+$	4289.2	1/2$^+$	
[x]5126.1 *4*	0.24 *9*					
[x]5151.3 *8*	0.17 *5*					
5206.1 *6*	0.20 *5*	7208.5	1/2$^-$,3/2$^-$	2001.7	5/2$^-$	
5222.0 *4*	2.3 *3*	(9261.63)	1/2$^+$	4039.7	1/2$^-$	I_γ: Other: 2.3 *2* (1972Ko15), 2.4 *2* (1972Lo26).
5490.3 *5*	1.76 *19*	(9261.63)	1/2$^+$	3770.2	3/2$^-$	I_γ: Other: 1.7 *2* (1972Ko15), 2.3 *2* (1972Lo26).
5494.5 *3*	2.0 *2*	(9261.63)	1/2$^+$	3766.8	1/2,3/2	I_γ: Other: 1.9 *2* (1972Ko15), 1.7 *2* (1972Lo26).
[x]5989.7 *4*	0.20 *5*					
6135.9 *4*	9.01[#] *19*	(9261.63)	1/2$^+$	3125.75	3/2$^-$	I_γ: Others: 7.6 *8* (1974KoYY), 6.8 *7* (1972Ko15), 6.7 *6* (1972Lo26).
6206.3 *5*	0.21 *5*	(9261.63)	1/2$^+$	3055.3	1/2$^-$	
6371.6 *5*	4.0 *4*	(9261.63)	1/2$^+$	2890.2	3/2$^-$	I_γ: Other: 3.6 *4* (1972Ko15), 3.6 *3* (1972Lo26).
6433.7 *8*	0.10 *5*	(9261.63)	1/2$^+$	2828.2	(3/2)$^-$	

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^{50}Cr(n,γ),(pol n,γ) E=thermal 1974KoYY,1972Ko15,1972Lo26 (continued)

γ(^{51}Cr) (continued)

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Comments
[x]6643.2 *6*	0.24 *14*					
[x]6710.0 *9*	0.06 *4*					
7362.6 *6*	12.42[#] *12*	(9261.63)	1/2$^+$	1899.2	3/2$^-$	I_γ: Others: 13.7 *14* (1974KoYY), 12.2 *11* (1972Ko15), 11.4 *11* (1972Lo26).
8484.2 *7*	26 *3*	(9261.63)	1/2$^+$	776.68	1/2$^-$	I_γ: Other: 23.0 *19* (1972Ko15), 21 *3* (1972Lo26).
8512.2 *7*	30.0[#] *4*	(9261.63)	1/2$^+$	749.01	3/2$^-$	I_γ: Other2: 37 *4* (1974KoYY), 32 *2* (1972Ko15), 29 *4* (1972Lo26).

[†] From 1974KoYY.
[‡] From 1974KoYY, normalized to ΣIγEγ/100=Q.
[#] From 2004Be01. Relative intensities were normalized so I(749γ)=80 *8* as recommended by 1974KoYY.
[@] For intensity per 100 neutron captures, multiply by 1.06.
[&] Multiply placed with undivided intensity.
[a] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

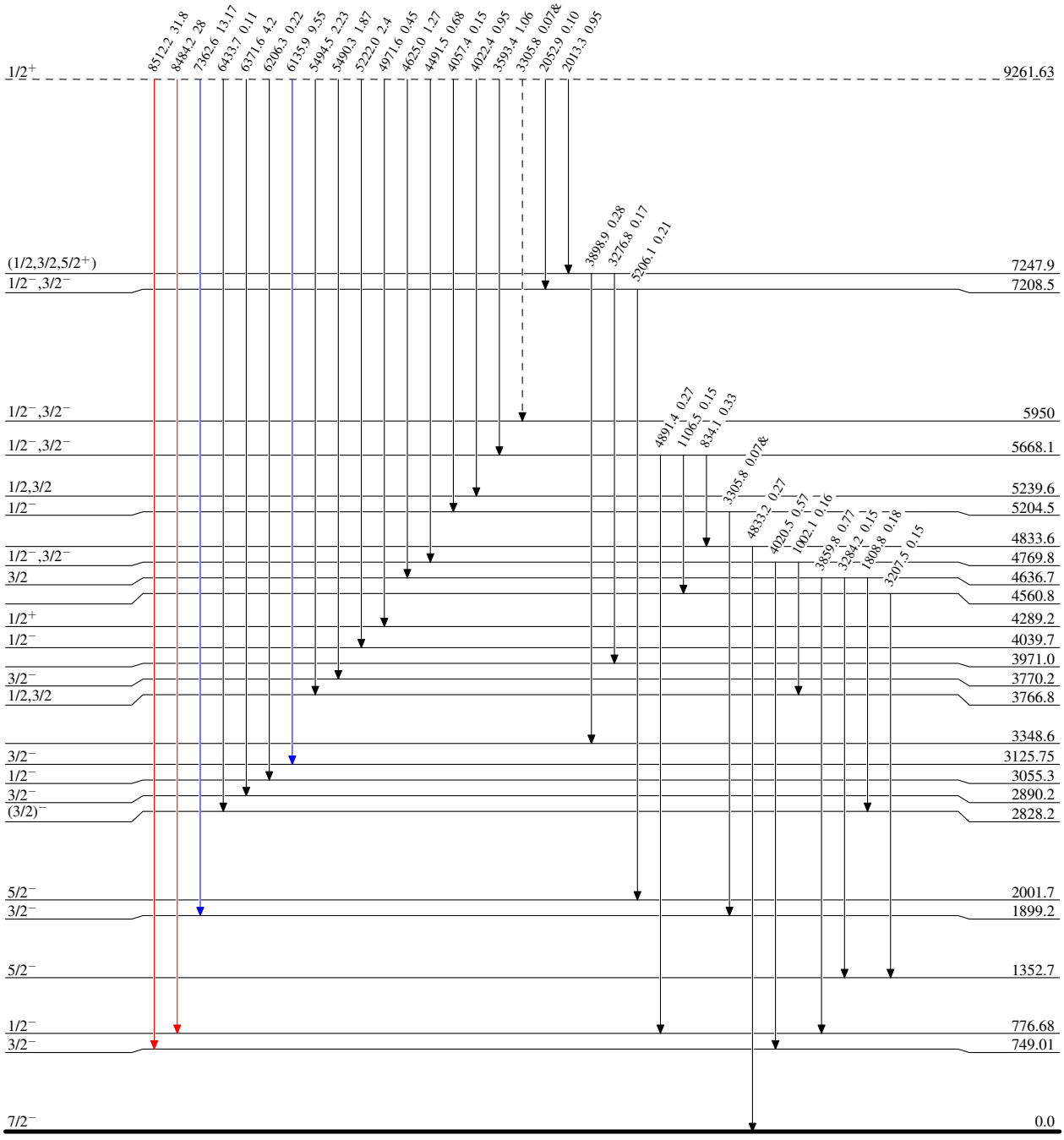
^{50}Cr(n,γ),(pol n,γ) E=thermal 1974KoYY,1972Ko15,1972Lo26

Legend

Level Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 neutron captures
& Multiply placed: undivided intensity given

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



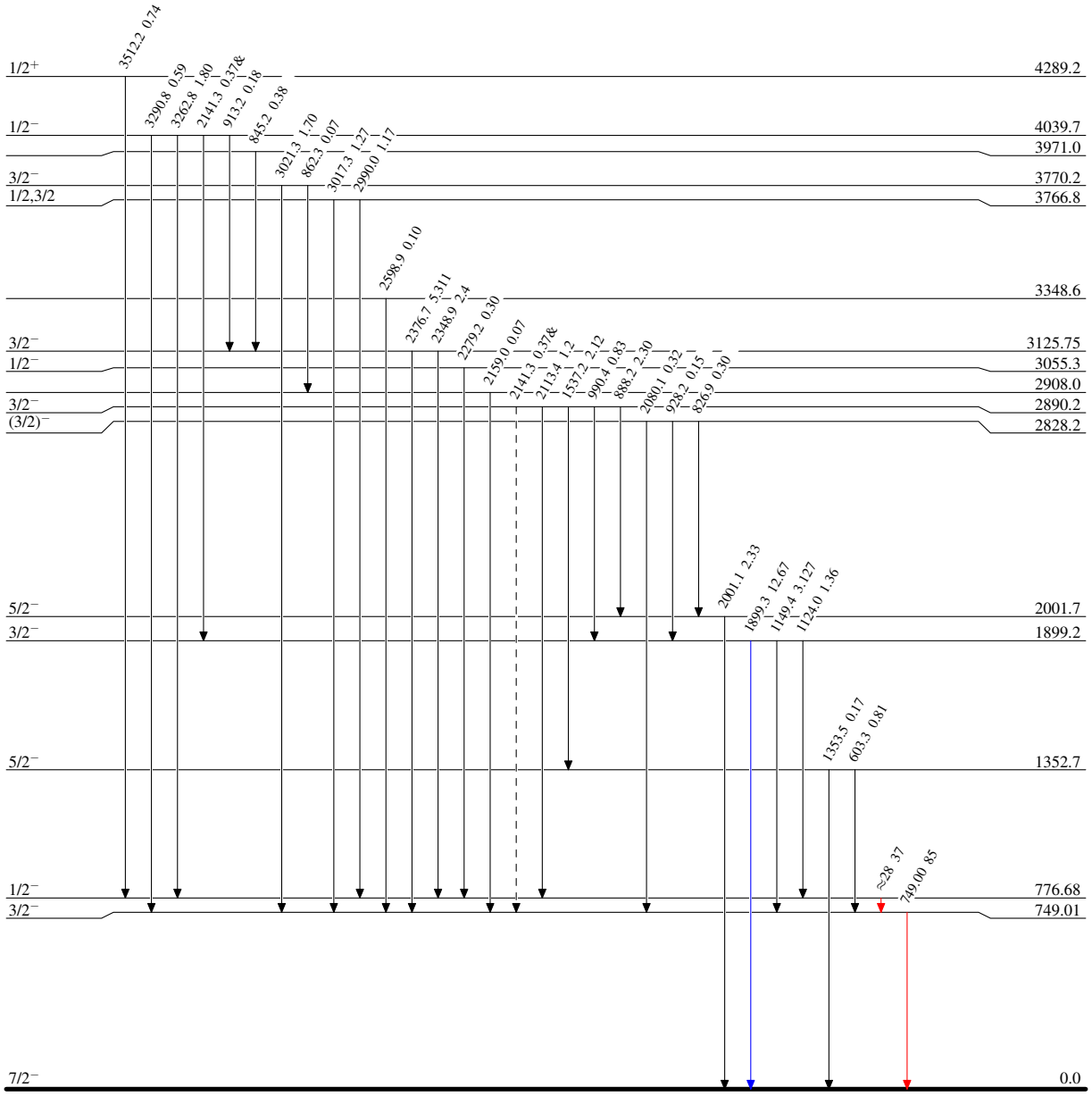
$^{51}_{24}Cr_{27}$

^{50}Cr(n,γ),(pol n,γ) E=thermal 1974KoYY,1972Ko15,1972Lo26

Level Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 neutron captures
& Multiply placed: undivided intensity given

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{51}_{24}Cr_{27}$