^{52}Cr(α,nγ) 1972Sa38,1973St11,1973Ke03

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

1972Sa38: E=10.2-14.2 MeV; enriched target; Ge(Li) (resolution: 2.6 and 6 keV at 1.33 MeV); measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$ (0°−90°), and γ-ray linear polarization.

1973Ke03: E=7 MeV; natural target; Ge(Li); measured γ's intensities and $\gamma(\theta)$. Magnetized target of alloy (20% Cr, 80% Fe), observed the rotation of $\sigma(\theta)$; obtained g factors.

1973St11: E=11 MeV; natural target of ^{52}Cr (83.76%); measured mean lives of 3 excited states with RDM.

1975Ro28: E=6.75 MeV; thick target; γ ray were detected at 0°, 90°, and 125°; measured lifetimes of 1316 and 1408 levels using solid stopped Doppler shift technique; Ge(Li).

Adopted level and decay scheme are mainly from 1972Sa38, except for some results from 1973Ke03.

^{55}Fe Levels

E(level)	J$^\pi$[†]	T$_{1/2}$[‡]	Comments
0.0	3/2$^-$		
411.2 *5*	1/2$^-$		
930.98 *15*	5/2$^-$	9.3 ps *28*	g=+1.2 *5* (1973Ke03)
1316.17 *16*	7/2$^-$	1.4 ps *+14−4*	g=0.5 *5* (1973Ke03) T$_{1/2}$: from 1975Ro28. Other: 18.0 ps *24* (1973St11).
1408.16 *18*	7/2$^-$	48 ps *5*	g=−0.77 *16* (1973Ke03) T$_{1/2}$: other:>2.8 ps (1975Ro28).
2047.2 *21*			
2211.2 *3*	9/2$^-$		
2300.2 *4*	9/2$^-$		
2538.1 *4*	11/2$^-$		
2814.0 *5*	13/2$^{(-)}$		
2982.1 *4*	11/2$^{(-)}$		
3070.5 *5*	11/2$^-$		
3418.7 *5*	15/2$^-$		
3455.5 *6*	13/2$^-$		
3899.5 *6*	(13/2)$^-$		J$^\pi$: value from Adopted Levels. Authors' value J=(15/2).

[†] Spin assignments are those given by 1972Sa38, based on analysis of $\sigma(\theta)$ and linear polarization.
[‡] From 1973St11, except as noted.

γ(^{55}Fe)

E$_\gamma$[†]	I$_\gamma$[†‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	δ[†#]	Comments
92.0 *3*	1.5 *3*	1408.16	7/2$^-$	1316.17	7/2$^-$			I$_\gamma$: from 1975Ro28 based on branching ratio of 92, 477, and 1408. E$_\gamma$: the uncertainty is estimated by evaluator.
237.9 *2*	3	2538.1	11/2$^-$	2300.2	9/2$^-$	M1(+E2)	0.00 *2*	Additional information 8.
256.7 *4*	1.2	3070.5	11/2$^-$	2814.0	13/2$^{(-)}$	M1(+E2)	−0.03 *6*	Additional information 12.
275.9 *2*	31	2814.0	13/2$^{(-)}$	2538.1	11/2$^-$	M1(+E2)	−0.02 *2*	Additional information 10.
385.3 *2*	9.5	1316.17	7/2$^-$	930.98	5/2$^-$	M1(+E2)	−0.07 *3*	Additional information 2.
411.2 *5*		411.2	1/2$^-$	0.0	3/2$^-$			E$_\gamma$: from 1973Ke03. The uncertainty is estimated by evaluator.
477.1 *2*	31	1408.16	7/2$^-$	930.98	5/2$^-$	M1+E2	−0.07 *4*	Additional information 4.
532.3 *2*	5.9	3070.5	11/2$^-$	2538.1	11/2$^-$	M1		Additional information 13.
604.7 *2*	10	3418.7	15/2$^-$	2814.0	13/2$^{(-)}$	M1+E2	+0.07 *1*	Additional information 14.

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^{52}Cr(α,nγ) 1972Sa38,1973St11,1973Ke03 (continued)

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

E_γ[†]	I_γ[†‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†#]	Comments
770.9 *3*	9.2	2982.1	$11/2^{(-)}$	2211.2	$9/2^-$	M1+E2	−0.16 *+3−2*	Additional information 11.
803.0 *2*	30	2211.2	$9/2^-$	1408.16	$7/2^-$	M1+E2	−0.21 *2*	Additional information 6.
917.4[@] *4*	10	3455.5	$13/2^-$	2538.1	$11/2^-$	M1(+E2)	0.00 *4*	I_γ: value is 10 for sum of two 917.4 transitions. Additional information 15.
917.4[@] *4*		3899.5	$(13/2)^-$	2982.1	$11/2^{(-)}$	(M1+E2)	+2.1 *+5−10*	
931.0 *2*	87	930.98	$5/2^-$	0.0	$3/2^-$	M1+E2	+0.32 *2*	Additional information 1.
1222.4 *2*	62	2538.1	$11/2^-$	1316.17	$7/2^-$	E2		Mult.: predicted linear polarization=+0.40 to +0.75 exp=+0.53 *15*(1972Sa38). Additional information 9.
1316.1 *2*	100	1316.17	$7/2^-$	0.0	$3/2^-$	E2		Mult.: predicted linear polarization=+0.45 to +0.75 exp=+0.54 *12*(1972Sa38). Additional information 3.
1369.2 *3*	19	2300.2	$9/2^-$	930.98	$5/2^-$	E2		Mult.: predicted linear polarization=+0.52 to +0.69 exp=+0.8 *4* (1972Sa38). Additional information 7.
1408.2 *3*	26	1408.16	$7/2^-$	0.0	$3/2^-$	E2		Mult.: predicted linear polarization=+0.46 to +0.64 exp=+1.1 *5*(1972Sa38). Additional information 5.
1636 *2*		2047.2		411.2	$1/2^-$			

[†] From 1972Sa38, except as noted.
[‡] Relative to Iγ(1316γ)=100.
[#] Phase convention of 1970Kr03.
[@] Multiply placed.

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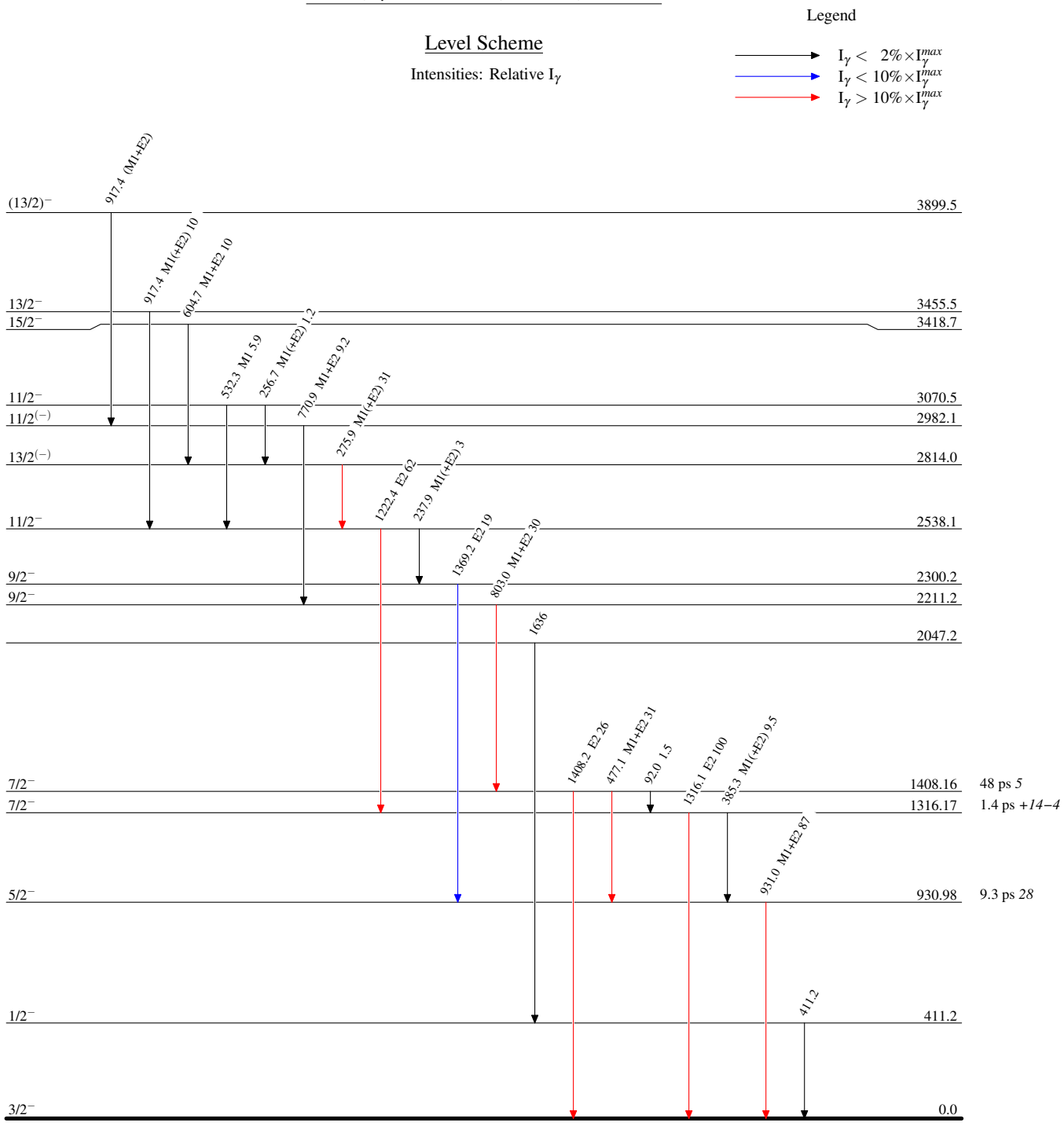
Level Scheme

Intensities: Relative I_γ



$^{55}_{26}Fe_{29}$