Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

Q(β^-)=−19740 *SY*; S(n)=18950 *SY*; S(p)=2.73×10^3 *10*; Q(α)=−7.01×10^3 *11* 2021Wa16
ΔQ(β^-)=510, ΔS(n)=510 (syst,2021Wa16).
S(2n)=35360 *310* (syst), S(2p)=3110 *90*, Q(ε)=11290 *90*, Q(εp)=9270 *90* (2021Wa16).
Mass measurement:
2020Fu05: measured mass excess=−18009 keV *92* at the HIRFL-CSR acceleration complex at Lanzhou, using the isochronous mass spectrometry (IMS) with the experimental cooler storage ring (CSRe).
Other measurements:
2016Or03: ^{48}Fe was produced in fragmentation of 74.5 MeV/nucleon ^{58}Ni beam on a 200 μm thick natural Ni target at LISE3-GANIL facility. Fragments were selected by LISE3 separator and implanted into a double-sided silicon strip detector (DSSSD), surrounded by four EXOGAM Ge clovers for γ ray detection. Implantations were identified by energy loss ΔE and time-of-flight (tof) information. Measured E_p, I_p, ^{48}Fe half-life, delayed proton decay branches.
1996Fa09: ^{9}Be(^{58}Ni,X) E=650 MeV/nucleon. Measured projectile-like fragments at 0°, fragment recoil separator; mag spect, ΔE/E counter telescope (Si), tof).
Others: 2016Bl05, 2002Pf03, 1994Bl10, 1993Bu04, 1987Po04.
Consult Nuclear Science References for theoretical studies.
Level scheme is tentatively proposed by 2021Ya33 based on comparisons with that of the mirror nucleus ^{48}Ti.

^{48}Fe Levels

Cross Reference (XREF) Flags

A ^{49}Ni εp decay
B ^{9}Be(^{49}Fe,Xγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0	0$^+$	45.5 ms *8*	AB	%ε+%β^+=100; %εp=15.3 *8* $T_{1/2}$: weighted average of 51 ms *3* (2016Or03), 45.3 ms *6* (2007Do17), 44 ms *7* (1996Fa09). %εp: weighted average of 14.4 *7* (2016Or03) and 15.9 *6* (2007Do17). Other: >3.6 *11* for E(p)=959 keV *33* (1996Fa09).
969.5 *5*	(2$^+$)		AB	
2253.5? *11*	(4$^+$)		B	
2377? *3*	(2$^+$)		B	
3197.5? *23*	(4$^+$)		B	
3241.5? *21*	(6$^+$)		B	
3475? *5*	(3$^-$)		B	
3497.5? *20*	(6$^+$)		B	
4205? *4*	(5$^-$)		B	

† From a least-squares fit to γ-ray energies.
‡ Proposed in 2021Ya33 in (^{49}Fe,Xγ) based on comparions with mirror nucleus ^{48}Ti and shell-model predictions.

Adopted Levels, Gammas (continued)

$\gamma(^{48}Fe)$

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Comments
969.5	(2⁺)	969.5 *5*	100	0.0	0⁺	E_γ: from 2007Do17. Other: 971 *1* from (^{49}Fe,Xγ) (2021Ya33).
2253.5?	(4⁺)	1284 *1*	100	969.5	(2⁺)	
2377?	(2⁺)	1407 *3*	100	969.5	(2⁺)	
3197.5?	(4⁺)	944‡ *2*	100	2253.5?	(4⁺)	
3241.5?	(6⁺)	988 *3*	100	2253.5?	(4⁺)	
3475?	(3⁻)	2505 *5*	100	969.5	(2⁺)	
3497.5?	(6⁺)	256 *1*	100 *16*	3241.5?	(6⁺)	
		1244 *2*	79 *16*	2253.5?	(4⁺)	
4205?	(5⁻)	1951‡ *4*	100	2253.5?	(4⁺)	

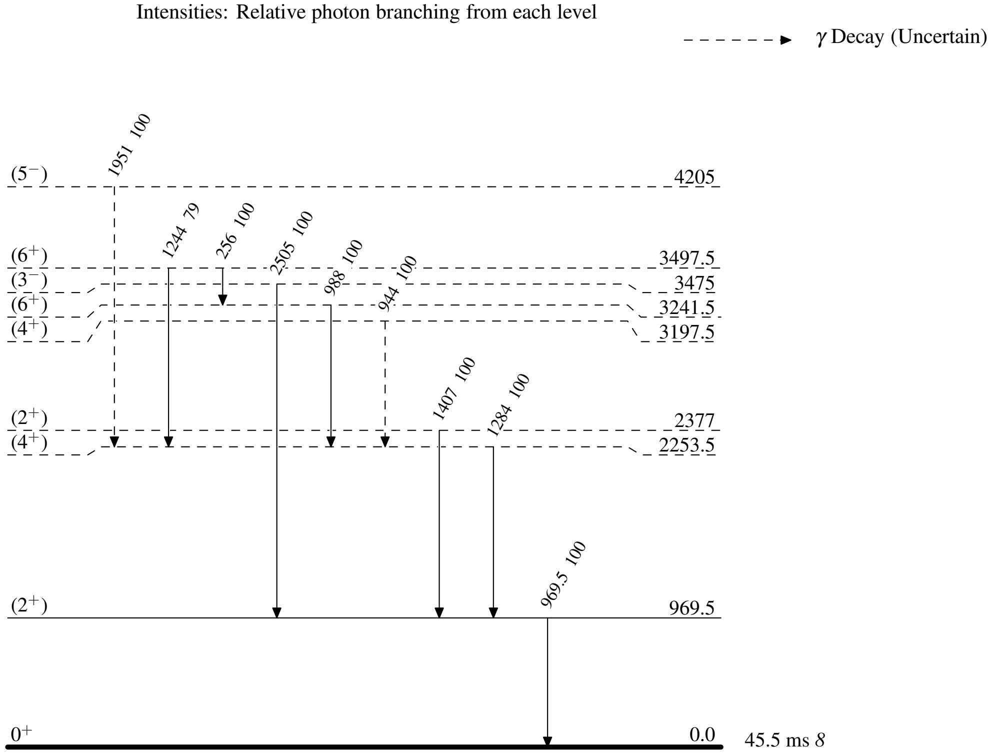
† From ^{49}Fe,Xγ) (2021Ya33), unless otherwise noted.
‡ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level



$^{48}_{26}Fe_{22}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 128, 185 (2015)	10-Jul-2015

$Q(\beta^-)=-14340$ *SY*; S(n)=16201 *11*; S(p)=7378 *7*; $Q(\alpha)=-7936$ *10* 2012Wa38
$\Delta Q(\beta^-)$: syst=200.

^{52}Fe Levels

Ispin and analog state assignments taken from ^{54}Fe(p,t) and ^{50}Cr(^{3}He,n). Analogs identified in both reactions are given.

Cross Reference (XREF) Flags

A	^{53}Co p decay (247 ms)	E	^{54}Fe(p,t)	I	^{9}Be(^{55}Ni,Xγ)
B	^{50}Cr(^{3}He,n)	F	^{52}Co ε decay	J	Coulomb excitation
C	^{50}Cr(^{3}He,nγ)	G	^{53}Ni εp decay		
D	^{50}Cr(α,2nγ)	H	^{28}Si(^{28}Si,2p2nγ)		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	XREF	Comments
0.0[&]	0$^+$	8.275 h *8*	ABCDEF HIJ	%ε+%β^+=100 $T_{1/2}$: from 1974Ro18. Others: 8.23 h *4* (1967Pa22). $T_{1/2}$: stripped atom $T_{1/2}$(^{52}Fe^{26+})=12.5 h *+15−12* (1995Ir01).
849.45[&] *10*	2$^+$	7.8 ps *10*	ABCDEFGHIJ	B(E2)↑=0.082 *10* (2004Yu07) XREF: B(840). $T_{1/2}$: from B(E2) (Coulomb excitation). Other: >0.7 ps DSAM ^{50}Cr(^{3}He,nγ). J$^\pi$: from L(3HE,N)=L(P,T)=2.
2384.55[&] *17*	4$^+$	0.22 ps *5*	BCDEF H	XREF: B(2360). $T_{1/2}$: other: 0.28 ps *+14−21* DSAM ^{50}Cr(^{3}He,nγ). J$^\pi$: from L(3HE,N)=L(P,T)=4.
2758.8 *7*	2$^+$	0.14 ps *+9−5*	BC E	XREF: B(2750)E(2762). J$^\pi$: L(^{3}He,n)=2. $T_{1/2}$: From DSAM in ^{50}Cr(^{3}He,nγ).
3585.0[a] *3*	4$^+$	0.28[@] ps *+21−7*	BC E H	XREF: B(3590)E(3583). J$^\pi$: from L(3HE,N)=L(P,T)=4.
4145.6 *20*	0$^+$		BC E	XREF: B(4160)E(4142). J$^\pi$: from L(3HE,N)=L(P,T)=0.
4325.5[&] *3*	6$^+$	0.17 ps *5*	C EF H	J$^\pi$: from E2 γ from 8$^+$ and 1941 γ to 4$^+$.
4396.3 *3*	3$^-$		C E H	XREF: E(4400). J$^\pi$: from E2 γ from 5$^-$ and 3546G to 2$^+$.
4456 *8*	2$^+$		B E	XREF: B(4430). J$^\pi$: from L(3HE,N)=L(P,T)=2.
4850.6 *11*	(5$^-$,6$^+$)	0.5[@] ps *+23−2*	C E	XREF: E(4869). J$^\pi$: from L(P,T)=(5,6).
4872.2[a] *3*	6$^+$	0.21 ps *8*	H	J$^\pi$: from E2 γ to 4$^+$.
4896 *15*			E	
5136.9 *4*	5$^-$		e H	XREF: e(5134). J$^\pi$: from L(P,T)=5.
5139.6 *13*	5$^-$		C e	XREF: e(5134). J$^\pi$: from L(P,T)=5.
5328 *8*	4$^+$		E	J$^\pi$: From L(P,T)=4.
5363 *5*	0$^+$		B E	XREF: B(5360). J$^\pi$: From L(3HE,N)=L(P,T)=0.

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Adopted Levels, Gammas (continued)

^{52}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
5439 *15*			E	
5483 *20*	4^+		E	
5529 *20*	4^+		E	
5563 *8*	(3^-)		E	
5654.5 *4*	6^+		EF	T=1 IAS (^{52}Mn g.s.).
5718 *8*	0^+		b E	XREF: b(5760). J^{π}: L(^{3}He,n)=0.
5792 *10*			b E	XREF: b(5760).
5829 *5*	2^+		B E	XREF: B(5820). J^{π}: from L(3HE,N)=L(P,T)=2.
5965 *15*	4^+		E	
6034 *5*	2^+		b E	T=1 XREF: b(6070). IAS (^{52}Mn 378 keV)? see ^{54}Fe(p,t).
6044 *5*	2^+		b E	T=1 XREF: b(6070). IAS (^{52}Mn 378 keV)? see ^{54}Fe(p,t).
6174 *15*	(6^+)		E	
6231 *15*			E	
6360.7[&] *4*	8^+	0.15 ps *5*	H	$T_{1/2}$: 1998Ur05 determined the lifetime of this level from the best fit of the experimental spectrum with that obtained after summing the calculated line shape of the 2035 γ-ray and the experimental line shape of the 2045 contaminant line from ^{49}Cr. J^{π}: from E2 γ to 6^+.
6416 *5*	4^+		E	T=1 IAS (^{52}Mn 732 keV)? see ^{54}Fe(p,t).
6454 *15*			E	
6483 *5*	2^+		E	
6493.1[a] *4*	8^+	0.18 ps *4*	H	J^{π}: from E2 γ to 6^+.
6531 *10*	3^-		B E	XREF: B(6520). J^{π}: L(^{3}He,n)=3.
6564 *8*			E	
6634 *10*	(0^+)		E	
6714 *8*	2^+		B E	XREF: B(6700). J^{π}: L(^{3}He,n)=2.
6744 *15*			E	
6772 *8*	(2^+)		E	
6882 *5*	1^-		E	
6927 *15*	0^+		E	
6958.0 *4*	12^+	45.9 s *6*	H	$\%\varepsilon+\%\beta^+$=100; %IT=0.021 *5* (2005Da20) E(level): from 2005Ga20; others: 6957.3 keV *5* (2003Ax01,2004Ur02) and 6820 keV *130* (1998Ur05). $T_{1/2}$: from 1979Ge02. Additional information 1. J^{π}: from E4 γ to 8^+.
7013 *5*	3^-		E	
7124 *10*	(4^+)		B E	XREF: B(7120).
7261 *15*	(6^+)		b E	XREF: b(7280).
7289 *8*			b E	XREF: b(7280).
7338 *10*			b E	XREF: b(7280).
7381.9[&] *4*	(10^+)		H	J^{π}: from (E2) γ to 8^+.
7463 *8*	2^+		B E	XREF: B(7470). J^{π}: from L(3HE,N)=L(P,T)=2.
7510 *15*			E	

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Adopted Levels, Gammas (continued)

^{52}Fe Levels (continued)

E(level)†	Jπ‡	XREF	Comments
7611 *10*	6^+	b E	T=1 XREF: b(7640).
7636 *15*	4^+	b E	T=1 XREF: b(7640).
7787 *10*		b E	XREF: b(7820).
7817 *15*		b E	XREF: b(7820).
7935 *10*	2^+	E	
8037 *12*	0^+	B E	T=1 XREF: B(8050). Jπ: from L(3HE,N)=L(P,T)=0. IAS (^{52}Mn 2474 keV) in ^{50}Cr(^{3}He,n).
8067 *8*		E	
8097 *10*		E	
8122 *15*		E	
8146 *10*	3^-	E	
8184 *10*		E	
8207 *8*	(3^-)	E	
8240 *10*		E	
8327 *10*	(3^-)	E	
8354 *5*	2^+	B E	XREF: B(8360). IAS (^{52}Mn 2796 keV) in ^{50}Cr(^{3}He,n) and ^{54}Fe(p,t). Jπ: from L(3HE,N)=L(P,T)=2. T=(1).
8401 *8*	2^+	E	
8425 *15*		E	
8461 *10*		E	
8511 *8*	4^+	E	
8535 *5*	4^+	E	
8561 *5*	0^+	B E	T= 2 XREF: B(8570). A doublet with energy splitting of 4 keV in (p,t). IAS (^{52}Cr g.s., ^{52}Mn 2926 keV) in ^{54}Fe(p,t) and ^{50}Cr(^{3}He,n). Jπ: from L(3HE,N)=L(P,T)=0.
8618 *8*		E	
8661 *15*	(4^+)	E	
8677 *10*		E	
8727 *15*		E	
8748 *10*	4^+	E	T=(1).
8770 *10*	(3^-)	E	
8832 *10*		E	
8872 *10*		E	
8900 *8*	(2^+)	E	
8936 *10*		E	
8962 *10*	(6^+)	E	
8985 *10*		b E	XREF: b(9010).
9044 *15*		b E	XREF: b(9010).
9059 *15*		E	
9130 *50*		B	
9213 *8*		b E	XREF: b(9250).
9279 *8*	4^+	b E	XREF: b(9250).
9311 *8*		E	
9338 *10*		E	
9357 *15*		E	
9458 *10*		b E	XREF: b(9470).
9497 *8*		b E	XREF: b(9470).
9770 *50*		B	

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Adopted Levels, Gammas (continued)

^{52}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
10006 *5*	(2$^+$)	B E	XREF: B(10060). IAS (^{52}Mn 4390 keV) in ^{54}Fe(p,t) and ^{50}Cr(^{3}He,n). T=(2).
10049 *10*		E	
10332 *5*	0$^+$	B E	XREF: B(10310). J^{π}: from L(3HE,N)=L(P,T)=0.
10810 *50*		B	
10990 *20*	0$^+$	B	T=2 J^{π}: L(^{3}He,n)=0. IAS (^{52}Cr 2647 keV, ^{52}Mn 5491 keV) in ^{50}Cr(^{3}He,n).
11440 *50*		B	
11640 *50*		B	
11780 *30*	2$^+$	B	T=2 J^{π}: L(^{3}He,n)=2. IAS (^{52}Cr 3162 keV) in ^{50}Cr(^{3}He,n).

[†] Levels connected by gammas are from least squares fit, others from ^{54}Fe(p,t), except where seen only in (^{3}He,n).
[‡] From L value in ^{54}Fe(p,t), with S=0 neutron pair transfer assumed, except as noted.
[#] DSAM, from ^{28}Si(^{28}Si,2p2nγ), except as noted.
[@] DSAM, from ^{50}Cr(^{3}He,nγ).
[&] Band(A): g.s. band.
[a] Band(B): 4$^+$ band (2004Ur02).

γ(^{52}Fe)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[†]	E_f	J^{π}_f	Mult.[@]	α[a]	Comments
849.45	2$^+$	849.43[#] *10*	100	0.0	0$^+$	[E2]		B(E2)(W.u.)=14.2 *19*
2384.55	4$^+$	1535.27[#] *15*	100	849.45	2$^+$	E2		B(E2)(W.u.)=26 *6*
2758.8	2$^+$	1910 *2*	32 *11*	849.45	2$^+$	[E2]		B(E2)(W.u.)=3.3 *+17−25*
		2760 *1*	100 *11*	0.0	0$^+$	[E2]		B(E2)(W.u.)=1.7 *+7−11*
3585.0	4$^+$	2735.0[‡] *3*	100[‡] *11*	849.45	2$^+$	[E2]		B(E2)(W.u.)=1.1 *+3−9*
4145.6	0$^+$	3296 *2*	100	849.45	2$^+$			
4325.5	6$^+$	1941.0[‡] *3*	100[‡]	2384.55	4$^+$	(E2)[&]		B(E2)(W.u.)=10 *3*
4396.3	3$^-$	3546.3[‡] *3*	100[‡]	849.45	2$^+$	(E1)[&]		
4850.6	(5$^-$,6$^+$)	2466 *1*	100	2384.55	4$^+$			
4872.2	6$^+$	1286.7[‡] *3*	23[‡] *5*	3585.0	4$^+$	[E2]		B(E2)(W.u.)=12 *6*
		2488.0[‡] *3*	100[‡] *7*	2384.55	4$^+$	E2		B(E2)(W.u.)=2.0 *8*
5136.9	5$^-$	740.6[‡] *3*	55[‡] *6*	4396.3	3$^-$	(E2)[&]	0.00043	α=0.00043; α(K)=0.00038 *1*
		1553[‡] *1*	10[‡] *5*	3585.0	4$^+$	[E1]		E_{γ}: Uncertainty assigned to transition by evaluators.
		2753.0[‡] *3*	100[‡] *20*	2384.55	4$^+$	[E1]		I_{γ}: Intensity of transition has been corrected for the angular distribution by 1998Ur05, as specified in literature.
5139.6	5$^-$	2380 *1*	40 *20*	2758.8	2$^+$	[E3]		
		4286 *4*	10×10^1 *4*	849.45	2$^+$	[E3]		
5654.5	6$^+$	1328.95[#] *25*	100	4325.5	6$^+$			
6360.7	8$^+$	2035.3[‡] *3*	100[‡]	4325.5	6$^+$	E2		B(E2)(W.u.)=9 *4*
6493.1	8$^+$	1620.8[‡] *3*	68[‡] *14*	4872.2	6$^+$	[E2]		B(E2)(W.u.)=10 *4*

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Adopted Levels, Gammas (continued)

$\gamma(^{52}Fe)$ (continued)

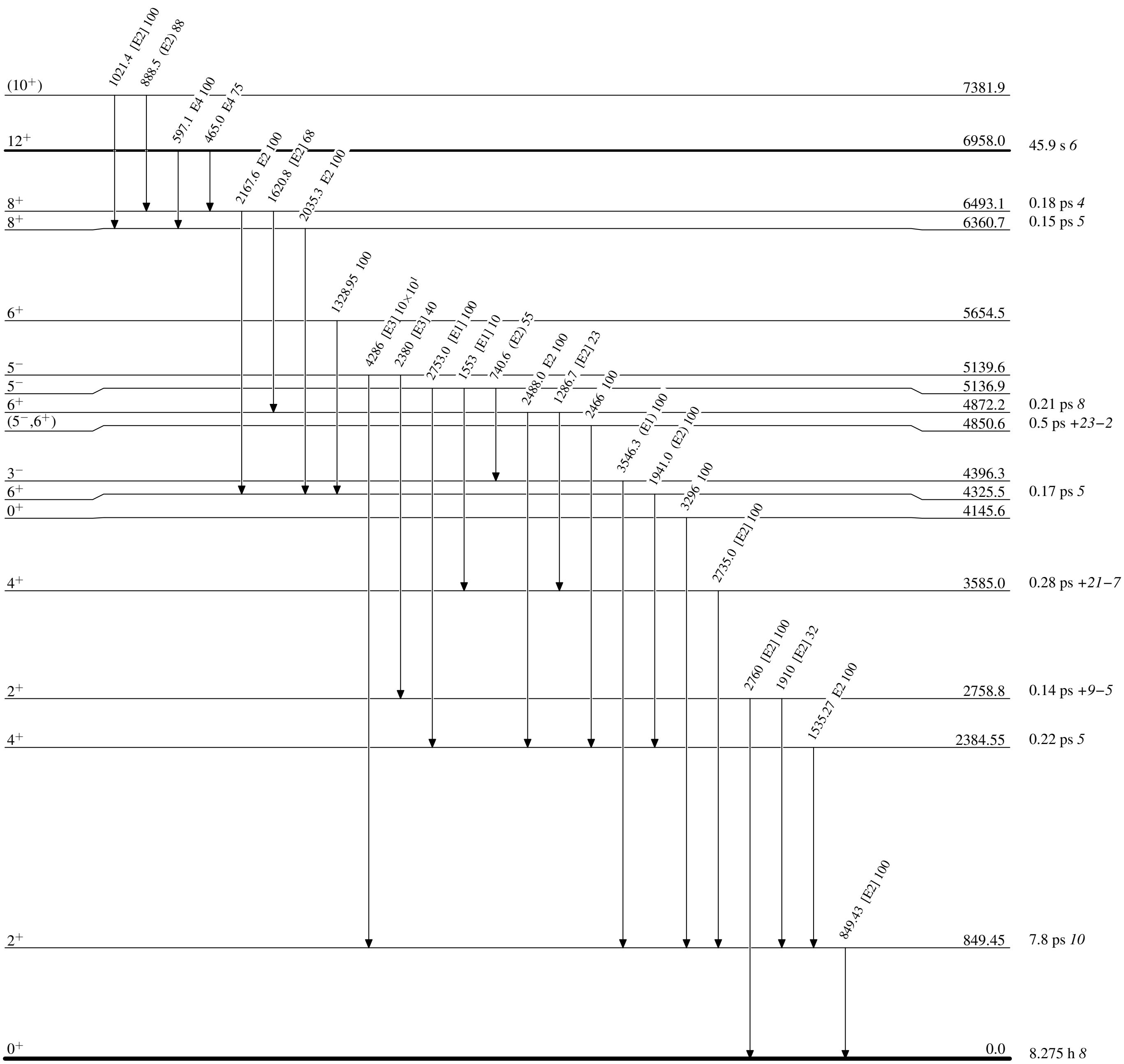
E_i(level)	J^{π}_i	E_{γ}†	I_{γ}†	E_f	J^{π}_f	Mult.@	α[a]	Comments
6493.1	8^+	2167.6‡ *3*	100‡ *10*	4325.5	6^+	E2		B(E2)(W.u.)=3.4 *9*
6958.0	12^+	465.0‡ *3*	75‡ *25*	6493.1	8^+	E4	0.0167	α(K)=0.0146 *5*; α(L)=0.00157 *5* B(E4)(W.u.)=0.0033 *16* Additional information 2. Mult.: From experimental E4 systematics for f7/2-shell nuclei see $^{28}Si(^{28}Si,2p2n\gamma)$ (2005Ga20).
		597.1‡ *3*	100‡ *33*	6360.7	8^+	E4	0.00566	α=0.00566; α(K)=0.00497 *15*; α(L)=0.00052 *2* B(E4)(W.u.)=0.00046 *22* Additional information 3. Mult.: From experimental E4 systematics for f7/2-shell nuclei see $^{28}Si(^{28}Si,2p2n\gamma)$ (2005Ga20).
7381.9	(10^+)	888.5‡ *3*	88‡ *6*	6493.1	8^+	(E2)		
		1021.4‡ *3*	100‡ *19*	6360.7	8^+	[E2]		

† From $^{50}Cr(^{3}He,n\gamma)$, except as noted.
‡ From $^{28}Si(^{28}Si,2p2n\gamma)$.
# From ^{52}Co ε decay.
@ From values of R(ado) in $^{28}Si(^{28}Si,2p2n\gamma)$ and using RULER to rule out mults, except as noted.
& From values of R(ado) in $^{28}Si(^{28}Si,2p2n\gamma)$ and D~π from Adopted Levels.
[a] 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.

Adopted Levels, Gammas

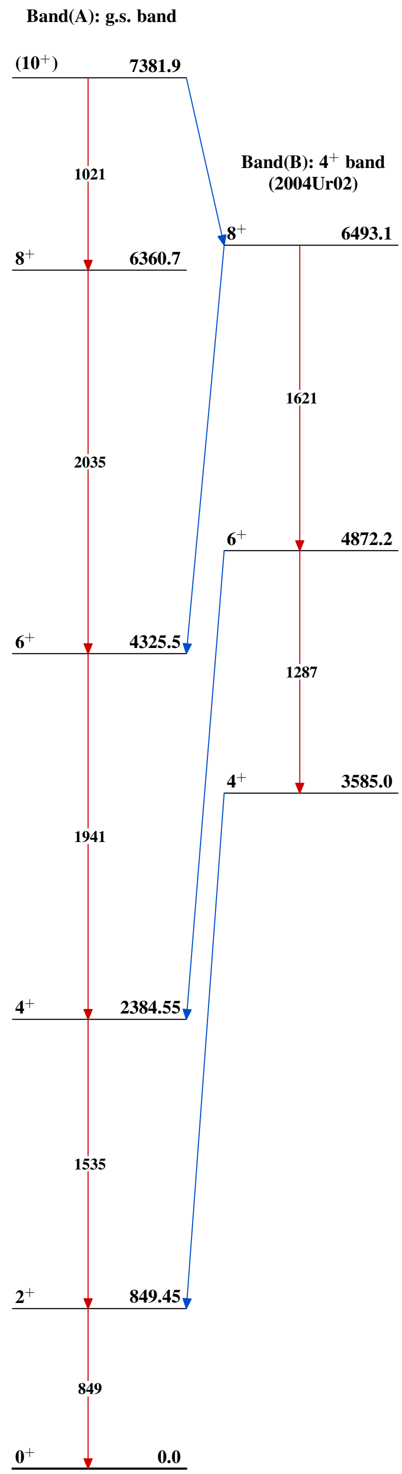
Level Scheme

Intensities: Relative photon branching from each level



$^{52}_{26}Fe_{26}$

Adopted Levels, Gammas



$^{52}_{26}Fe_{26}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 121, 1 (2014)	20-Jun-2014

Q(β^-)=−8244.55 *9*; S(n)=13378.5 *16*; S(p)=8853.8 *5*; Q(α)=−8417.1 *8* 2012Wa38

Additional information 1.

Multipole giant resonance, see (e,e′) (2006Kh14).

^{54}Fe Levels

Cross Reference (XREF) Flags

A	^{54}Fe(e,e′)	N	^{54}Fe(pol d,d′),(d,d′)	Others:	
B	^{54}Fe(p,p′)	O	^{52}Cr(α,2nγ)	AA	Coulomb excitation
C	^{52}Cr(^{3}He,n)	P	^{58}Ni(d,^{6}Li)	AB	^{54}Fe(^{6}Li,^{6}Li′),(pol ^{7}Li,^{7}Li′)
D	^{54}Fe(n,n′γ)	Q	^{40}Ca(^{16}O,2pγ)	AC	^{54}Fe(^{16}O,^{16}O′)
E	^{54}Fe(^{3}He,2pnγ)	R	^{45}Sc(^{12}C,2npγ) E=40 MeV	AD	^{60}Ni(p,Xγ)
F	^{52}Cr(^{16}O,^{14}C)	S	^{54}Co ε decay (1.48 min)	AE	Ni(π^+,xγ), (π^-,Xγ)
G	^{54}Fe(π,π′)	T	^{50}Cr(^{6}Li,pnγ),(^{7}Li,2npγ)	AF	Ni(K$^-$,x rayγ)
H	^{50}Cr(^{6}Li,d)	U	^{51}V(^{6}Li,3nγ),(^{7}Li,4nγ)	AG	^{54}Co ε decay (193.28 ms)
I	^{54}Fe(p,p′γ)	V	^{58}Ni(^{3}He,^{7}Be)	AH	^{28}Si(^{36}Ar,2α2pγ)
J	^{56}Fe(p,t)	W	^{28}Si(^{28}Si,2pγ)	AI	^{54}Mn β^- decay
K	^{54}Fe(α,α′)	X	^{50}Cr(α,γ)	AJ	^{9}Be(^{55}Co,Xγ)
L	^{54}Fe(n,n′)	Y	^{54}Fe(γ,γ′)	AK	^{58}Ni α decay
M	^{54}Fe(pol p,p′),(pol P,P′γ)	Z	^{54}Fe(α,α′γ)		

E(level)†	J$^\pi$&	T$_{1/2}$@	XREF	Comments
0.0	0$^+$	stable	ABCDEFGHIJKLMNOPQRSTUVWXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK the double β decay of ^{54}Fe was investigated, upper limit on the half-time>4.4×10^{20} y, see 1998Bi13.
1408.19 *19*	2$^+$	0.76 ps *2*	ABCDEFGHIJKLMNOPQRSTUVWXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG, AH, AJ, AK μ=+2.40 *49*; Q=−0.05 *14* (1981Le02) B(E2)↑=0.062 *5* (2001Ra27) μ,Q: Compiled by 2011StZZ. J$^\pi$: from L=2 in (^{3}He,n), (^{6}Li,d). T$_{1/2}$: from Coulomb excitation (2000Sp08). Others: 0.76 ps *+35−22* in (p,p′γ); 2.3 ps *+25−16* from DSAM in (α,α′γ). μ: Weighted average values from 1977Br23 and 1977Fa07. B(E2)↑: Others: 0.0676 *38* for ^{54}Fe+^{16}O and ^{54}Fe+^{40}Ca (1981Le02), 0.064 *7* for ^{54}Fe+^{16}O (1979Po08), 0.060 *5* for ^{54}Fe+^{18}O (1979Po08), 0.064 *4* for ^{54}Fe+^{12}C and ^{54}Fe+^{13}C (1979Po16), 0.061 *12* for ^{54}Fe+^{12}C (1967Af03); 0.045 (1976Le12), 0.0595 (1971DaZM), 0.051 *2* (1965Si02). g: g=1.05 *6* (2000Sp08), g=1.05 *17* (1992Sp02), g=1.08 *19* (1977Fa07), g=1.68 *38* (1977Br23), g=+0.95 *11* (2009Ea02).
2538.1 *3*	4$^+$	4.0 ps *8*	ABCDEFG I KLMNOPQRSTUVWX Z	XREF: Others: AA, AB, AH, AJ, AK XREF: C(2490). J$^\pi$: from L=4 in (e,e′), (α,α′). T$_{1/2}$: from ^{40}Ca(^{16}O,2pγ), RDM. other:≥2.1 ps, DSAM in (p,p′γ).
2561.3 *4*	0$^+$	≥1.4 ps	B DEF HIJ N P	XREF: Others: AG

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)[†]	J^{π}[&]	$T_{1/2}$[@]	XREF	Comments
				XREF: H(2550)N(2566). $T_{1/2}$: From (p,p′γ). J^{π}: from L=0 in (^{6}Li,d), (p,t).
2900	2^{+}		A	J^{π}: from L=2 in (e,e′).
2949.2 *5*	6^{+}	1.22 ns *2*	A DEF I OPQRSTU WX	XREF: Others: AB, AH, AK μ=8.22 *18* (1989Ra17) XREF: AB(2950). J^{π}: from $\gamma(\theta)$, linear polarization and DCO triple angular correlation ratios in (α,2nγ) (1979St13). $T_{1/2}$: weighted average from 1.22 ns *2* (P,pγ),(1971He21), 1.19 ns *3* in ε decay (1.48 min) (1970Co32) and 1.24 ns *4* in ε decay (1.48 min) (1971Sa07); other:≥0.55 ps from DSAM (1972Mo21).
2959.0 *5*	2^{+}	0.052 ps *7*	ABCDE GHIJKLMN P V Z	XREF: Others: AA, AB, AC XREF: C(2940)H(2940)J(2950)K(2950)AB(2950). J^{π}: from L=2 in (^{6}Li,d), (p,t). $T_{1/2}$: weighted average of 0.052 ps *8* (p,p′γ) and 0.052 ps *7* (n,n′γ). Other: 1.6 ps *+21−7*, DSAM in (α,α′γ).
3166.0 *5*	2^{+}	0.15 ps *+4−3*	ABCDE GHIJKLMN P Y	XREF: Others: AA, AB XREF: C(3120)J(3150)AB(3160). $T_{1/2}$: weighted average of 0.16 ps *+4−3* (p,p′γ) and 0.14 ps *+4−3* (n,n′γ). J^{π}: from L=2 in (p,t), (α,α′).
3294.8 *4*	4^{+}	≥2.1 ps	AB DE GHIJKL	XREF: Others: AH $T_{1/2}$: From (p,p′γ). J^{π}: from L=4 in (p,t), (α,α′).
3344.8 *3*	3^{+}		AB DE I N Z	XREF: Others: AH XREF: A(3340). J^{π}: from p$\gamma(\theta)$ and $\gamma\gamma(\theta)$ in (p,p′γ). $T_{1/2}$: ≥2.1 ps (p,p′γ); 0.3 ps *+7−2*, DSAM in (α,α′γ).
3437.4 *82*	4^{+} to 6^{+}		E	J^{π}: From γ′s to 4^{+}, 6^{+}.
3793.8 *12*			E	
3833.2 *4*	4^{+}	0.062 ps *12*	BCDEFGHIJKL P	XREF: C(3800)H(3820)J(3830)K(3810)L(3830). $T_{1/2}$: weighted average of 0.063 ps *14* from (p,p′γ) and 0.061 ps *+15−11* from (n,n′γ). J^{π}: from L=4 in (p,t), (α,α′).
3841.0 *11*			E M	
4030.9 *5*	5^{+}	≥0.7 ps	B DE HIJ	XREF: Others: AH J^{π}: from L(^{6}Li,d)=(5,6), 736γ M1+E2 to 4^{+}. $T_{1/2}$: From (p,p′γ).
4047.8 *4*	4^{+}	0.30 ps *+23−10*	B DE G I KL	XREF: Others: AH J^{π}: from L=4 in (α,α′).
4071.6 *8*	3^{+}	0.058 ps *17*	B D F I	XREF: F(4060). J^{π}: From (p,p′γ), but L=(5) in (p,p′).
4099.7 *11*	4^{+}		A E	J^{π}: from L=4 in (e,e′).
4103.4 *12*			E	
4267.8 *4*	4^{+}	0.082 ps *+23−17*	B DEFGHIJKLM	XREF: F(4280)M(4279). J^{π}: from L=4 in (α,α′), (p,t); but L(^{6}Li,d)=(4+0).
4290.8 *7*	0^{+}	0.055 ps *+17−14*	BCD HI Y	XREF: C(4250)I(4286.4). J^{π}: from L(^{3}He,n)=0 and strong pair-line spectrum with no corresponding γ in (p,p′γ) (1980PaZM).
4578.5 *9*	2^{+}	≤0.007 ps	ABCD FG I K M	XREF: F(4590)M(4553). J^{π}: from L=2 in (α,α′), (^{3}He,n).

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)†	J^{π}&	$T_{1/2}$@	XREF	Comments
4655.3 *8*			B DE I	XREF: Others: AH J^{π}: J≤6, from γ's to 4$^+$.
4696? *3*			D I	J^{π}: J≤4, from γ to 2$^+$.
4700.1 *9*			B D I	
4781.9 *6*	3$^-$	0.033 ps *11*	AB D G IJKLMN P V	XREF: K(4760). J^{π}: from L=3 in (α,α′), (e,e′).
4850	3$^-$		A N	E(level): from (pol d,d′) and (e,e′). J^{π}: from L=3 in (pol d,d′) and (e,e′).
4948.7 *8*	4$^{(+)}$	0.029 ps *10*	B D GHI K	XREF: H(4920). J^{π}: from L(^{6}Li,d)=4; but L is odd in (α,α′).
5044.8 *9*	5$^-$,6$^+$[c]		B E	XREF: Others: AH
5080 *4*	(1,2$^+$)		AB D F	J^{π}: from 3672γ to 2$^+$, 5080γ to 0$^+$.
5145 *6*	2$^+$		B D GH	XREF: H(5120). J^{π}: from L(^{6}Li,d)=2.
5233 *10*	0$^+$		BC J	XREF: J(5200). J^{π}: from L(^{3}He,n)=0.
5248 *6*			B D H	J^{π}: J≤4, from γ to 2$^+$.
5278.8 *11*			B DE	XREF: Others: AH J^{π}: J≤4, from γ to 2$^+$.
5313 *10*			B	
5325 *10*			B F	
5392 *6*	2$^+$		BCD G	XREF: C(5380). J^{π}: from L(^{3}He,n)=2.
5404 *10*			B	
5431.1 *13*			E	
5453 *7*	(1,2$^+$)		B D	J^{π}: from γ to 0$^+$.
5461.2 *11*			E	
5482.0	3$^+$,4$^+$		B D	XREF: Others: AH J^{π}: from 4074γ to 2$^+$ and 1435γ to 4$^+$, so 2$^+$, 3$^+$, 3$^-$, and 4$^+$ are likely, 2944γ (M1+E2) to 4$^+$, J^{π}=3$^+$, 4$^+$.
5506 *6*	(2$^+$)		B D H	J^{π}: from L(^{6}Li,d)=(2).
5523 *10*			B	
5539 *6*	3$^-$		B D F	J^{π}: L(α,α′)=3.
5592 *10*			B	
5621 *6*	(3$^-$)		B D G J	XREF: J(5640). J^{π}: from L(p,t)=(3).
5657 *5*	4$^+$		B	J^{π}: from L(p,p′)=4.
5666 *10*			B	
5703 *5*	4$^+$		B V	XREF: V(5720). J^{π}: from L(p,p′)=4.
5787 *10*			B	
5809 *7*	2$^+$[c]		B D	
5828 *7*			B D	XREF: B(5837). J^{π}: J≤4, from γ to 2$^+$.
5875 *10*			B	
5907 *5*	3$^-$[c]		B	
5919.3 *12*			B E	
5927.4 *5*	7$^+$		B F H	XREF: Others: AH XREF: B(5934)F(5940). J^{π}: From 1895γ to 5$^+$, 2979γ (M1+E2) to 6$^+$.
5955 *8*	2$^+$		B D	J^{π}: from L(p,p′)=2.
6023 *10*			B	
6038 *8*	(1,2$^+$)		B D	J^{π}: from γ to 0$^+$.
6057 *5*			B H	XREF: H(6050). J^{π}: from L(^{6}Li,d)=2. L(p,p′)=5.6.
6100 *10*			B F	

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)[†]	J^{π}[&]	$T_{1/2}$[@]	XREF	Comments
6128.7 *6*	1		B D H Y	Γ=0.027 eV *4*; $\Gamma_{\gamma 0}$=0.025 eV *4* (1976La02) J^{π}: from 6129γ(θ) in (γ,γ′).
6156 *10*			B	
6192 *5*	2^+		B	J^{π}: from L(p,p′)=2.
6212 *10*			B	
6238 *10*			B	
6259 *5*			B	
6296.8 *16*	7^+		B	XREF: Others: AH XREF: B(6285). J^{π}: From γ to 6^+.
6341 *5*	3^-		B G JK M	XREF: M(6355). J^{π}: from L(α,α′)=L(p,p′)=3.
6380.9 *11*	8^+	114 fs *+28−21*	E O QR TU	XREF: Others: AH J^{π}: 3432γ with E2 to 6^+. 146γ with E2 from 10^+. $T_{1/2}$: from DSAM in (^{6}Li,pnγ) (1979Gu07);<1.4 ns from RDM in (^{16}O,2pγ) (1978Da09).
6400 *10*	0^+		C G	J^{π}: from L(^{3}He,n)=0.
6401 *10*	3^-		AB F J L N	XREF: J(6410). J^{π}: from L(e,e′)=L(d,d′)=3.
6429 *5*	2^{+c}		B	
6442 *10*			B	
6484 *5*	4^{+c}		B	
6510 *15*			J	
6527.1 *11*	10^+	364 ns *7*	B E O QR TU	XREF: Others: AH Q=+0.285 *25*; μ=+7.281 *10* (1989Ra17) Q: From weighted average values from 1984Ha07 and 1983Ra03. J^{π}: from 146γ (E2) to 8^+ and 3577γ (E4) to 6^+. $T_{1/2}$: from ^{40}Ca(^{16}O,2pγ). Other: 358 ns *31* from ^{52}Cr(α,2nγ).
6551.0 *11*				XREF: Others: AH
6563 *5*	$(1^-)^c$		B	
6594 *10*			B	
6607 *5*	4^{+c}		B	
6648 *10*			B	
6663 *10*			B	
6670 *5*	4^{+c}		B	
6710 *10*	3^-		B J	J^{π}: from L(p,t)=3.
6724.1 *24*	9^+	≈41 ps	E O QR	XREF: Others: AH J^{π}: From M1(+E2) 197γ to 10^+. $T_{1/2}$: from ^{40}Ca(^{16}O,2pγ).
6749 *5*	3^{-c}		B	
6774 *5*	1^{-c}		B	
6804 *10*			B	
6821 *5*	$5^-,6^{+c}$		B	
6836 *10*			B	
6864.3 *6*	8^+			XREF: Others: AH J^{π}: From 3915γ (E2) to 6^+.
6881 *5*	4^{+c}		B	
6910 *20*			C	
6951 *5*			AB F J	XREF: F(6990)J(6970). J^{π}: L(p,p′)=3, L(e,e′)=2.
7011 *10*	3^{-c}		B F	XREF: F(6990).
7040[‡] *10*			AB	XREF: A(7030)B(7050). J^{π}: L(p,p′)=5,6, L(e,e′)=2.

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)[†]	J^{π}[&]	XREF	Comments
7074.8 *17*			XREF: Others: AH
7110 *20*	$(2^+,3^-)$[b]	A	
7128 *10*	6^+	B H	J^{π}: from L(^{6}Li,d)=6.
7155 *10*		B	
7180 *10*	(1)[b]	A	
7200[#] *30*	4^+	A C F	J^{π}: from L(e,e′)=4.
7260[#] *20*	3^-	AB K	XREF: B(7270)K(7250). J^{π}: from L(p,p′)=3.
7310 *20*	$(2^+,3^-)$[b]	A	
7351.5 *6*	(9^+)		XREF: Others: AH J^{π}: From 971.6γ to 8^+.
7377 *10*	2^+[c]	AB	XREF: A(7360).
7442 *10*		aB	XREF: a(7470).
7486 *10*	3^-[c]	aB	XREF: a(7470).
7505 *4*	10^+	O	XREF: Others: AH J^{π}: From 780γ to 9^+.
7550 *20*	(2^+)[b]	A	
7560 *20*	0^+	C	J^{π}: from L(^{3}He,n)=0.
7565.8 *18*			XREF: Others: AH
7580 *25*	2^+	JK	E(level): from (p,t). J^{π}: from L=2 in (α,α′) and (p,t).
7603 *10*	3^-[c]	AB	
7644 *10*	3^-[c]	AB F	
7674 *10*	+	AB	J^{π}: L(p,p′)=4, L(e,e′)=2.
7760 *20*	(2^+)[b]	A	
7791 *10*		AB	J^{π}: L(p,p′)=3, L(e,e′)=2.
7859[‡] *10*		AB	XREF: A(7850)B(7868). J^{π}: L(p,p′)=3, L(e,e′)=2.
7905 *10*		B	
7938 *10*	+	AB	XREF: A(7930). J^{π}: L(p,p′)=0, L(e,e′)=2.
7940 *20*	3^-	C	J^{π}: from L(^{3}He,n)=3.
8005 *10*	3^-	AB H K	XREF: H(7970). J^{π}: from L(α,α′)=L(p,p′)=3, but L=4, (3) in (^{6}Li,d).
8021 *4*	$(11)^+$	F O	XREF: Others: AH XREF: F(8050). J^{π}: J=9 to 11 from γ with M1(+E2) to 10^+.
8114[‡] *10*	1^+[a]	AB	XREF: A(8110)B(8117).
8179 *10*	1^-	AB F	J^{π}: L(e,e′)=1.
8225 *10*		AB	XREF: A(8210).
8298 *10*	(2^+)[b]	AB	XREF: A(8270).
8318.8 *17*	8^-	A	XREF: Others: AH XREF: A(7314). J^{π}: from fit of squared inelastic form factor for 8^- to experimental data. Purely transverse and most probably magnetic transition, T=1.
8334 *10*	1^+[a]	AB	XREF: B(8330).
8374.3 *11*	(10^+)		XREF: Others: AH J^{π}: From 1994γ to 8^+.
8410 *10*		A C	E(level): from (^{3}He,n). Probably a doublet. J^{π}: L(^{3}He,n)=0; excitation multipolarity E2 from (e,e′).
8440 *10*		AB H	J^{π}: L(p,p′)=3, L(e,e′)=2.
8450 *20*	1^+[a]	B	
8465 *10*	3^-	AB	XREF: A(8480).

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)[†]	J^{π}[&]	XREF	Comments
			J^{π}: L(p,p′)=3.
8521 *10*	$5^-,6^+$[c]	B	
8560 *10*	$(1,2^-)$[b]	A	
8577.8 *7*	(10^+)		XREF: Others: AH J^{π}: From 559γ to 11^+, 1226γ to 9^+.
8610[#] *10*	(2^-)[b]	A F	
8633 *10*	1^-[c]	Bc	XREF: c(8640). J from L(p,p′)=1.
8666 *10*		ABc	XREF: A(8650)c(8640).
8680 *10*	(2)[b]	A	
8740 *10*		A	
8808.0 *6*	(11^+)		XREF: Others: AH J^{π}: From 2282γ to 10^+.
8850 *10*	1^+[a]	ABC	XREF: C(8860).
8886[‡] *10*	3^-[c]	AB	XREF: A(8900)B(8882).
8930 *10*	2^-[b]	A	
8949[‡] *10*	8^-	A	J^{π}: from fit of squared inelastic form factor for 8^- to experimental data.
8952 *10*	3^-	B	J^{π}: L(p,p′)=3.
8981[‡] *10*	1^+[a]	AB	XREF: A(8980)B(8982).
9062[‡] *10*	1^+[a]	ABC	XREF: A(9060)B(9064)C(9640).
9110 *10*		AB	
9123.6 *12*			XREF: Others: AH
9140[#] *10*	1^+[a]	AB	
9150 *10*	3^-[c]	B	
9243[‡] *10*		AB	XREF: A(9240)B(9246). J^{π}: L(p,p′)=0, M2,E3 in (e,e′).
9290 *20*	1^+[a]	B	
9300 *20*		AB	XREF: B(9302).
9353 *10*	3^-[c]	AB	
9402 *10*	3^-[c]	B	
9410 *20*	1^+[a]	AB F	XREF: A(9400).
9450 *10*	1[a]	A	
9506[‡] *10*	3^-[c]	AB	XREF: A(9500)B(9513).
9530[#] *10*	1^+[a]	AB	
9568[‡] *10*		AB	XREF: A(9570)B(9565).
9610 *30*		C	
9640 *10*		A	
9671[‡] *10*	3^-[c]	AB	XREF: A(9680)B(9662).
9716 *10*		AB	XREF: A(9730).
9747 *10*	3^-[c]	B	
9789		B	
9810 *10*		A	
9845.3 *7*	(12^+)		XREF: Others: AH J^{π}: From 3319γ to 10^+, 1826γ to 11^+.
9860 *10*		A	
9910[#] *10*		AB F	XREF: F(9920).
9940 *20*	1^+[a]	B F	XREF: F(9920).
9974 *10*	8^-	A	J^{π}: from fit of squared inelastic form factor for 8^- to experimental data. Purely transverse and most probably magnetic transition, T=1.
9984 *10*		ABC	J^{π}: L(^{3}He,n)=2. L(p,p′)=3.
9995.4? *11*			XREF: Others: AH
10027[‡] *10*	(3^-)[c]	AB	XREF: A(10020)B(10033).

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)[†]	J^{π}[&]	XREF	Comments
10045		B	
10050[#] *10*	1^{+}[a]	AB	XREF: B(10060).
10083[‡] *10*	(3^{-})[c]	AB	XREF: A(10090)B(11076).
10131.0 *9*	(12^{+})		XREF: Others: AH J^{π}: From γ's to 11^{+}.
10137 *10*	2^{+}[c]	AB	XREF: A(10130)B(10144).
10180[‡] *10*	1^{+}[a]	AB	XREF: B(10160). J^{π}: from a very forward-peaked angular distribution characteristic of a $\Delta L=0$ (1983Dj05).
10213[‡] *10*		AB	XREF: A(10220)B(10205).
10250 *20*	0^{+}	BC	XREF: B(10256). J^{π}: from $L(^{3}He,n)=0$. E(level): isobaric analog of 1460 level of ^{54}Mn.
10290 *10*		AB	XREF: B(10300).
10342 *10*	4^{+}[c]	B	
10380 *20*		A	
10450 *20*		AB	XREF: B(10455).
10535[‡] *10*	1^{+}[a]	AB	XREF: A(10530)B(10541). J^{π}: transverse excitation into state of low multipolarity, T=2.
10542.0 *7*	(11)		XREF: Others: AH J^{π}: From γ's to 10^{+}, (10^{+}), 11^{+}.
10586 *10*		AB	XREF: A(10590).
10630 *20*		AB	XREF: B(10608).
10660 *10*	(2^{-})[b]	A	
10677 *10*	8^{-}	A	J^{π}: from fit of squared inelastic form factor for 8^{-} to experimental data. Purely transverse and most probably magnetic transition, T=1.
10700 *10*	0^{+}	C	E(level): isobaric analog of 2110 level of ^{54}Mn. J^{π}: from $L(^{3}He,n)=0$.
10740 *20*		A	
10780 *20*		A	
10820[#] *10*		A C	XREF: C(10830).
10870 *20*		A	
10910[#] *20*		A C	XREF: C(10950).
11010[#] *10*	1^{+}[a]	ABC	XREF: B(11020)C(10950).
11050 *10*		A	
11093.4 *7*	(13^{+})	A	XREF: Others: AH XREF: A(11090). J^{π}: From 1248γ to 12^{+}, 3074γ to 11^{+}.
11113.6 *8*	(12)		XREF: Others: AH J^{π}: From 571.5γ to (11), 2306γ to 11^{+}.
11120[#] *10*	1^{+}[a]	ABC	XREF: B(11110).
11230 *10*		A	
11280 *10*		AB	XREF: B(11262).
11320[#] *20*	1^{+}[a]	AB	XREF: B(11310).
11360 *10*		A	
11440[#] *20*	2^{+}	A C	XREF: C(11460). J^{π}: from $L(^{3}He,n)=2$.
11447		B	
11520[#] *10*	1^{+}[a]	AB	XREF: B(11540).
11620 *30*		BC	XREF: B(11604).
11710[#] *20*		A C	XREF: C(11740).
11750[#] *10*	1^{+}[a]	AB	XREF: B(11760).

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)[†]	J^{π}[&]	XREF	Comments
11790 *10*		A	
11850 *30*	2^+	C	J^{π}: from L(^{3}He,n)=2.
11920 *20*	1^+[a]	B	
11950 *20*	1^+[a]	B	
12040 *20*	0^+	C	J^{π}: from L(^{3}He,n)=0.
12043.0 *9*	(13)		XREF: Others: AH J^{π}: From 929γ to (12).
12100 *50*	2^+	C	J^{π}: from L(^{3}He,n)=2.
12314.1 *8*	(14^+)		XREF: Others: AH J^{π}: From 1220.7γ to 13^+, 2183γ to (12).
12953.3 *12*	(14^+)		XREF: Others: AH J^{π}: From 1860γ to 13^+.
13000 *20*	1^+[a]	B	
13263 *10*	8^-	A	J^{π}: from fit of squared inelastic form factor for 8^- to experimental data. Purely transverse and most probably magnetic transition, T=2.
13358.0 *14*			XREF: Others: AH
13520 *20*	0^+	C	J^{π}: from L(^{3}He,n)=0.
13730 *30*	4^+	C	J^{π}: from L(^{3}He,n)=4.
13900 *20*	1^+[a]	B	
14050 *50*		C	
14388.3 *14*			XREF: Others: AH
14540 *30*		C	
14590 *30*		C	
14700 *30*		C	
14730 *30*		C	
14850 *30*	2^+	C	J^{π}: from L(^{3}He,n)=2.
14870 *20*	0^+	C	J^{π}: from L(^{3}He,n)=0. E(level): isobaric analog of 6150 level of ^{54}Mn.
15062.0? *24*			XREF: Others: AH

[†] Energies for states connected by γ-rays from using least-squares fits, others from (p,p′), except as noted.
[‡] From unweighted average values of (p,p′) and (e,e′).
[#] From (e,e′).
[@] From DSAM (p,p′γ), except as noted.
[&] Mainly based on p$\gamma(\theta)$ and $\gamma\gamma(\theta)$ in (p,p′γ) and measured L values.
[a] ΔL=0 spin-flip transitions, characteristic very forward peaked angular distribution, DWIA, see (p,p′) 1983Dj05.
[b] Multipolarity of excitation from (e,e′) (some L tentative), B(M1) and B(M2) from high resolution electron scattering (e,e′). See 1985So05.
[c] From L(p,p′).

Adopted Levels, Gammas (continued)

$\gamma(^{54}\mathrm{Fe})$

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.	δ[f]	α[g]	$I_{(\gamma+ce)}$	Comments
1408.19	2^+	1408.1 *2*	100	0.0	0^+	E2[e]				B(E2)(W.u.)=11.1 *3*
2538.1	4^+	1129.9 *3*	100	1408.19	2^+	E2[e]				B(E2)(W.u.)=6.3 *13*
2561.3	0^+	1153.1 *3*	100	1408.19	2^+	E2[b]				B(E2)(W.u.)<16
		2561.3		0.0	0^+	E0[b]			0.17 *3*	E_γ: from (p,p′γ). B(E0)(2561γ):B(E2)(1153γ)=0.49 *8* in (p,p′γ). $I_{(\gamma+ce)}$: from electron-pair measurement (1972Wa28).
2949.2	6^+	411.4 *5*	100	2538.1	4^+	E2[e]		0.00263		α(K)=0.00233; α(L)=0.00023 B(E2)(W.u.)=3.24 *6* Additional information 2.
2959.0	2^+	1550.7 *5*	82 *5*	1408.19	2^+	M1+E2[b]	0.10 *4*			B(M1)(W.u.)=0.051 *8*; B(E2)(W.u.)=0.4 *4* δ: from (p,p′γ). Other: 0.10 *2* (n,n′γ).
		2959.4 *8*	100 *5*	0.0	0^+	E2[b]				B(E2)(W.u.)=2.2 *4* δ: −0.087 from 1970Kr02.
3166.0	2^+	1757.6 *5*	23 *4*	1408.19	2^+	M1+E2[b]	0.63 *+57−25*			B(M1)(W.u.)=0.0036 *+21−22*; B(E2)(W.u.)=1.0 *+13−10* δ: others: δ≥2.4; or δ≤−10 from (p,p′γ) also.
		3166.0 *10*	100 *4*	0.0	0^+	E2[b]				B(E2)(W.u.)=0.80 *+17−22*
3294.8	4^+	756.6 *3*	100 *5*	2538.1	4^+	M1+E2[c]	0.15[c] *5*			B(M1)(W.u.)<0.020; B(E2)(W.u.)<2.7 δ: other: +7.1 (^{3}He,2pnγ).
		1887[d] *1*	19 *5*	1408.19	2^+	(E2)[d]				B(E2)(W.u.)<0.15
3344.8	3^+	806.5 *3*	75 *5*	2538.1	4^+	M1+E2[c]	0.02[c] *1*			B(M1)(W.u.)<0.0086; B(E2)(W.u.)<0.022
		1936.5 *4*	100 *5*	1408.19	2^+	M1+E2[c]	0.51[c] *4*			B(M1)(W.u.)<0.00068; B(E2)(W.u.)<0.11 δ: others: +1.3 *+14−∞* (^{3}He,2pnγ), −0.7 *+2−23* (p,p′γ).
3437.4	4^+ to 6^+	487.9[a]	100[a]	2949.2	6^+					
		899.5[a]	20[a]	2538.1	4^+					
3793.8		844.6[a]	100[a]	2949.2	6^+					
3833.2	4^+	538.6[b]	≤2.2	3294.8	4^+					
		1294.9 *4*	10 *3*	2538.1	4^+	E2[b]				B(E2)(W.u.)=19 *7*
		2425.2 *7*	100 *3*	1408.19	2^+	E2[b]				B(E2)(W.u.)=8.1 *17*
3841.0		2432.7[a]	100[a]	1408.19	2^+					
4030.9	5^+	736.4 *4*	100[d] *7*	3294.8	4^+	(M1+E2)[d]	+0.14[d] *+10−7*			B(M1)(W.u.)<0.036; B(E2)(W.u.)<6.5 E_γ: from unweighted average of 736.0 *4* (n,n′γ) and 736.8 *4* (^{36}Ar,2α2pγ). Additional information 3.
		1494[d] *1*	20[d] *4*	2538.1	4^+	M1+E2	−1.2 *+12−3*	5		B(M1)(W.u.)<0.00078; B(E2)(W.u.)<0.89 Mult.,δ: From (^{3}He,2pnγ).
4047.8	4^+	703.0 *3*	100[a]	3344.8	3^+	M1(+E2)	0.23 *9*			B(M1)(W.u.)=(0.15 *+5−12*); B(E2)(W.u.)=(3.E+1 *3*) Mult.: from D+Q in (p,p′γ) and γ to 3^+.

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$\gamma(^{54}Fe)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f	Mult.	δ[f]	Comments
4047.8	4^+	1089.2[a]	4[a]	2959.0	2^+			
		1509.4 *8*	11[a]	2538.1	4^+	M1,E2		Mult.: from recommended upper limits for γ-ray strengths, γ to 4^+.
		2639.4 *4*	23[a]	1408.19	2^+	[E2]		B(E2)(W.u.)=0.20 *+7−16*
4071.6	3^+	1534[b]	9 *3*	2538.1	4^+	E2		B(E2)(W.u.)=8 *4* Mult.: from mult.=Q in (p,p′γ) and RUL, mult=M2 is ruled out.
		2662.7 *5*	100 *3*	1408.19	2^+	M1+E2[b]	1.88 *+50−44*	B(M1)(W.u.)=0.0041 *21*; B(E2)(W.u.)=4.3 *14*
4099.7	4^+	804.9[a]	100[a]	3294.8	4^+			
4103.4		1154.2[a]	100[a]	2949.2	6^+			
4267.8	4^+	1729.6 *4*	100[b] *18*	2538.1	4^+	M1+E2[b]	−0.53 *24*	B(M1)(W.u.)=0.032 *+12−14*; B(E2)(W.u.)=6 *5*
		2859.6 *6*	27[b] *8*	1408.19	2^+	E2		B(E2)(W.u.)=0.63 *+25−28* Mult.: from mult.=Q in (p,p′γ) and RUL, mult=M2 is ruled out.
4290.8	0^+	2881.9 *10*	100	1408.19	2^+	E2[d]		B(E2)(W.u.)=4.3 *+11−14* Mult.: from mult.=Q and RUL, mult=M2 is ruled out.
		(4290.8)		0.0	0^+	E0		
4578.5	2^+	3170[b]	100 *14*	1408.19	2^+	M1+E2[b]	−0.10 *9*	B(M1)(W.u.)>0.067
		4579 *2*	43 *14*	0.0	0^+	E2[b]		B(E2)(W.u.)>0.99
4655.3		608[d] *1*	12[d] *4*	4047.8	4^+			
		1361[d] *1*	100[d] *20*	3294.8	4^+			
4696?		3288 *3*	100[c]	1408.19	2^+			
4700.1		1355 *1*	100[c]	3344.8	3^+			
		2162 *2*	88[c]	2538.1	4^+			
		3294 *3*	33[c]	1408.19	2^+			
4781.9	3^-	1436[b]	21 *6*	3344.8	3^+	E1[b]		B(E1)(W.u.)=0.00055 *25*
		1487.2 *9*	33 *8*	3294.8	4^+	E1[b]		B(E1)(W.u.)=0.0008 *4*
		2244.1 *7*	32 *8*	2538.1	4^+	E1[b]		B(E1)(W.u.)=0.00022 *10*
		3373.9 *12*	100 *13*	1408.19	2^+	E1(+M2)[b]	−0.018 *26*	B(E1)(W.u.)=(0.00020 *8*); B(M2)(W.u.)=(0.03 *+8−3*)
4948.7	$4^{(+)}$	2001[b]	18 *6*	2949.2	6^+			
		2409	100 *9*	2538.1	4^+	M1+E2[b]	−0.36 *+20−30*	B(M1)(W.u.)=0.026 *11*; B(E2)(W.u.)=1.3 *+14−13*
		3537 *5*	64 *15*	1408.19	2^+			
5044.8	$5^-,6^+$	1015.0[d] *5*	20[d] *5*	4030.9	5^+	(M1+E2)[d]	+2.7[d]	α(K)=0.00017
		2097[d] *1*	100[d] *14*	2949.2	6^+	(D+Q)[d]	≈−1.0[d]	
5080	$(1,2^+)$	3672 *5*	100[c]	1408.19	2^+			
		5080 *7*	43[c]	0.0	0^+			
5145	2^+	3737 *6*	100[c]	1408.19	2^+			
5248		3840 *6*	100[c]	1408.19	2^+			
5278.8		1248.0[a]		4030.9	5^+			
		3867 *6*	[c]	1408.19	2^+			
5392	2^+	3984 *6*	100[c]	1408.19	2^+			

$^{54}_{26}Fe_{28}$-10

$\gamma(^{54}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.	δ[f]	α[g]	Comments
5431.1		386.3[a]	100[a]	5044.8	$5^-,6^+$				
5453	$(1,2^+)$	5453 *7*	100[c]	0.0	0^+				
5461.2		2166.4[a]	100[a]	3294.8	4^+				
5482.0	$3^+,4^+$	1435[d] *1*	12[d] *4*	4047.8	4^+				
		2944[d] *1*	100[d] *15*	2538.1	4^+	(M1+E2)[d]	≈−0.3[d]		Additional information 4.
		4074[h] *5*	100[c]	1408.19	2^+				Additional information 5.
5506	(2^+)	4098 *6*	100[c]	1408.19	2^+				
5539	3^-	4131 *6*	100	1408.19	2^+				
5621	(3^-)	4213 *6*	100[c]	1408.19	2^+				
5809	2^+	4401 *7*	100[c]	1408.19	2^+				
5828		4420 *7*	100[c]	1408.19	2^+				
5919.3		2970[a]	100[a]	2949.2	6^+				
5927.4	7^+	881.9[d] *3*	20[d] *3*	5044.8	$5^-,6^+$	M1(+E2)[d]	+0.07[d] *+11−8*		Additional information 6.
		1895[d] *1*	4.5[d] *20*	4030.9	5^+				
		2979[d] *1*	100[d] *9*	2949.2	6^+	M1+E2[d]	≈−1.0[d]		Additional information 7.
5955	2^+	5955 *8*	100[c]	0.0	0^+				
6038	$(1,2^+)$	6038 *8*	100[c]	0.0	0^+				
6128.7	1	1837.4[#]	2.7[#] *5*	4290.8	0^+	[D]			
		2961.8[#]	2.7[#] *4*	3166.0	2^+	[D]			
		4720.7[#]	2.5[#] *7*	1408.19	2^+	[D]			
		6129.0[#]	100[#] *1*	0.0	0^+	[D]			
6296.8	7^+	3348[d] *2*	100[d]	2949.2	6^+				Additional information 8.
6380.9	8^+	3432.0[&] *18*	100[&]	2949.2	6^+	E2[e]			B(E2)(W.u.)=0.86 *+16−22*
6527.1	10^+	146.2[@] *2*	100.0[@] *3*	6380.9	8^+	E2[e]		0.1173	α(K)=0.1032; α(L)=0.01063 B(E2)(W.u.)=1.69 *4*
		3577.6[@]	2.0[@] *2*	2949.2	6^+	E4			B(E4)(W.u.)=0.79 *8* Mult.: from $^{40}Ca(^{16}O,2p\gamma)$, based on a pulsed-beam search revealed a weak 10^+ to 6^+ E4 cross-over transition, see 1978NoZY.
6551.0		1069[d] *1*	40[d] *20*	5482.0	$3^+,4^+$				
		3602[d] *2*	100[d] *40*	2949.2	6^+				
6724.1	9^+	197[d] *2*	100[d]	6527.1	10^+	M1(+E2)[d]	−0.07[d] *6*		B(M1)(W.u.)≈(0.070); B(E2)(W.u.)≈(19)
6864.3	8^+	936.9[d] *5*	100[d] *11*	5927.4	7^+	M1(+E2)[d]	−0.09[d] *12*		Additional information 9.
		1819[d] *1*	22[d] *6*	5044.8	$5^-,6^+$				
		3915[d] *2*	83[d] *8*	2949.2	6^+	(E2)[d]			Additional information 10.
7074.8		778[d] *1*	44[d] *22*	6296.8	7^+				
		1148[dh] *1*	33[d] *11*	5927.4	7^+				

Adopted Levels, Gammas (continued)

$\gamma(^{54}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.	δ[f]	Comments
7074.8		4126[d] *3*	100[d] *22*	2949.2	6^+			
7351.5	(9^+)	487.2[d] *2*	100[d] *12*	6864.3	8^+	M1(+E2)[d]	−0.01[d] *7*	Additional information 11.
		971.6[d] *6*	24[d] *7*	6380.9	8^+			
		1423.8[d] *6*	67[d] *10*	5927.4	7^+	(E2)[d]		Additional information 12.
7505	10^+	780.0[d] *2*	100[d] *6*	6724.1	9^+	M1(+E2)[d]	+0.06[d] *6*	
		978[d] *1*	15[d] *2*	6527.1	10^+			
7565.8		4617[d] *3*	100[d]	2949.2	6^+			
8021	$(11)^+$	1492.4[d] *4*	100[d]	6527.1	10^+	M1(+E2)[d]	−0.02[d] *+14−12*	Additional information 13.
8318.8	8^-	753[d] *1*	100[d] *40*	7565.8				
		1769[dh] *2*	40[d] *20*	6551.0				
		2022[d] *1*	40[d] *20*	6296.8	7^+			
8374.3	(10^+)	1994[d] *1*	100[d]	6380.9	8^+	(E2)[d]		Additional information 14.
8577.8	(10^+)	559[d] *1*	19[d] *5*	8021	$(11)^+$			
		1226.2[d] *5*	100[d] *14*	7351.5	(9^+)			Additional information 15.
8808.0	(11^+)	788.8[d] *6*	8.6[d] *14*	8021	$(11)^+$			
		1304.5[d] *4*	100[d] *13*	7505	10^+	M1(+E2)[d]	+0.03[d] *+11−7*	Additional information 16.
		2282[d] *2*	71[d] *14*	6527.1	10^+			
9123.6		1772[d] *1*	100[d]	7351.5	(9^+)			
9845.3	(12^+)	1037.2[d] *4*	23[d] *3*	8808.0	(11^+)			Additional information 17.
		1826.4[d] *7*	100[d] *6*	8021	$(11)^+$	M1[d]		Additional information 18.
		2342[d] *2*	2.2[d] *6*	7505	10^+			
		3319[d] *2*	56[d] *6*	6527.1	10^+			
9995.4?		2492[dh] *2*	100[d] *33*	7505	10^+			
		3270[dh] *3*	100[d] *33*	6724.1	9^+			
10131.0	(12^+)	1323[d] *1*	100[d] *14*	8808.0	(11^+)			
		2112[d] *1*	45[d] *9*	8021	$(11)^+$			
10542.0	(11)	1734[d] *1*	67[d] *17*	8808.0	(11^+)			
		1964[d] *1*	25[d] *8*	8577.8	(10^+)			
		2523[d] *2*	33[d] *8*	8021	$(11)^+$			
		3037[d] *2*	33[d] *8*	7505	10^+			
		4016[d] *1*	100[d] *17*	6527.1	10^+			
11093.4	(13^+)	1248.1[d] *3*	100[d] *3*	9845.3	(12^+)	M1[d]		Additional information 19.
		3074[d] *2*	8.8[d] *9*	8021	$(11)^+$			
11113.6	(12)	571.5[d] *4*	100[d] *7*	10542.0	(11)	D+Q[d]		
		1118[dh] *1*	11[d] *4*	9995.4?				

$^{54}_{26}Fe_{28}$-12

γ(^{54}Fe) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.	Comments
11113.6	(12)	2306[d] 2	54[d] 11	8808.0	(11$^+$)	D[d]	Additional information 20.
		3095[d] 3	32[d] 7	8021	(11)$^+$		
12043.0	(13)	929.4[d] 4	100[d]	11113.6	(12)	D+Q[d]	
12314.1	(14$^+$)	1220.7[d] 4	100[d] 8	11093.4	(13$^+$)	M1[d]	Additional information 21.
		2183[dh] 2	2[d] 1	10131.0	(12$^+$)		
12953.3	(14$^+$)	1860[d] 1	100[d]	11093.4	(13$^+$)	D+Q[d]	
13358.0		1315[d] 1	100[d]	12043.0	(13)		
14388.3		1435[d] 1	8[d] 4	12953.3	(14$^+$)		
		2074[d] 2	100[d] 20	12314.1	(14$^+$)		
15062.0?		1704[dh] 2	100[d]	13358.0			

† From (n,n′γ), except as noted.
‡ Photon branching ratio, from (p,p′γ), except as noted.
# From (γ,γ′).
@ From (^{16}O,2pγ).
& From (α,2nγ).
a From (^{3}He,2pnγ).
b From (p,p′γ).
c From (n,n′γ).
d From (^{36}Ar,2α2pγ).
e From γ-ray linear polarization and angular correlations. in (α,2nγ).
f Based on p$\gamma(\theta)$ and $\gamma\gamma(\theta)$ in (p,p′γ), except as noted.
g 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.
h Placement of transition in the level scheme is uncertain.

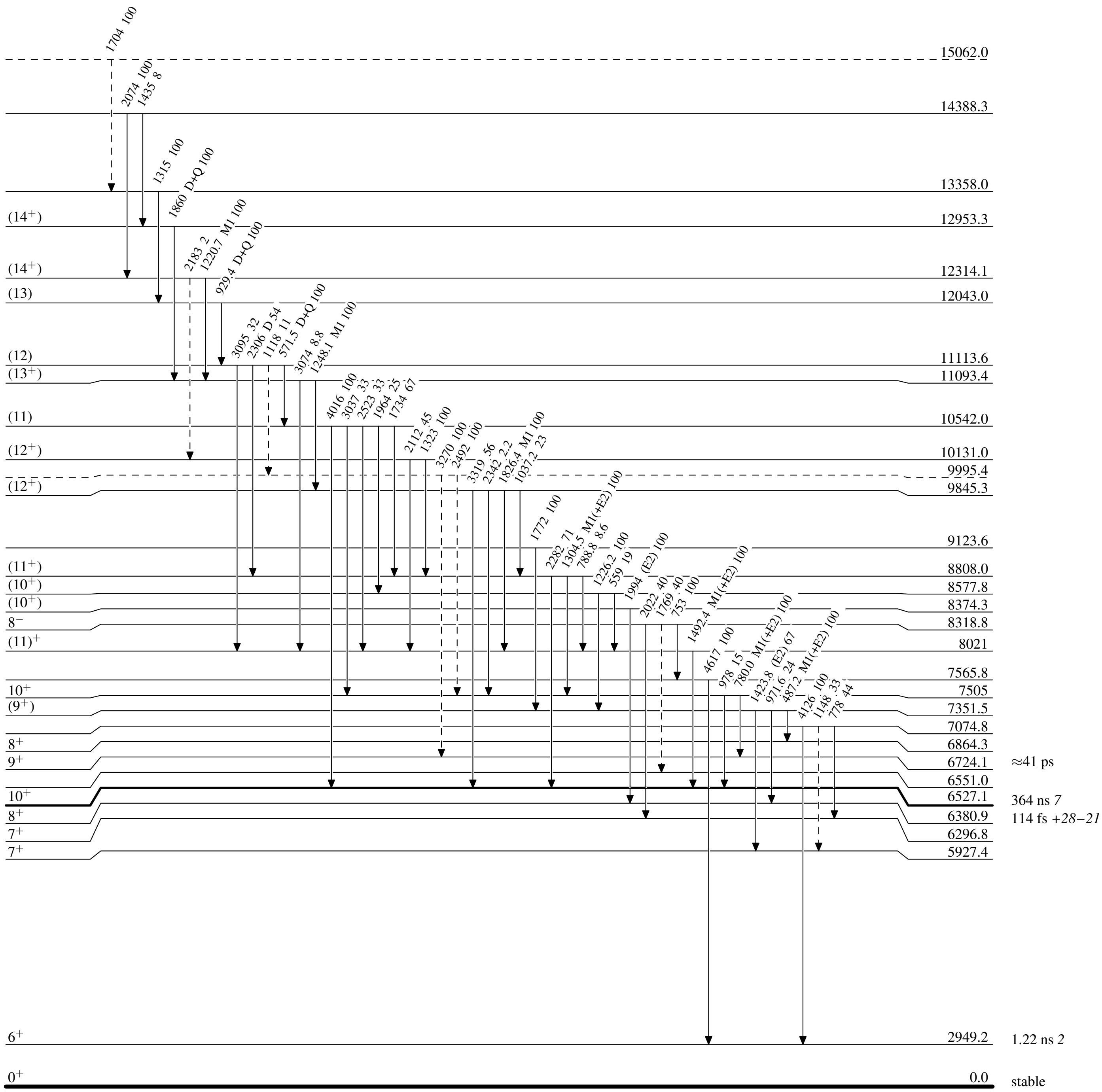
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)



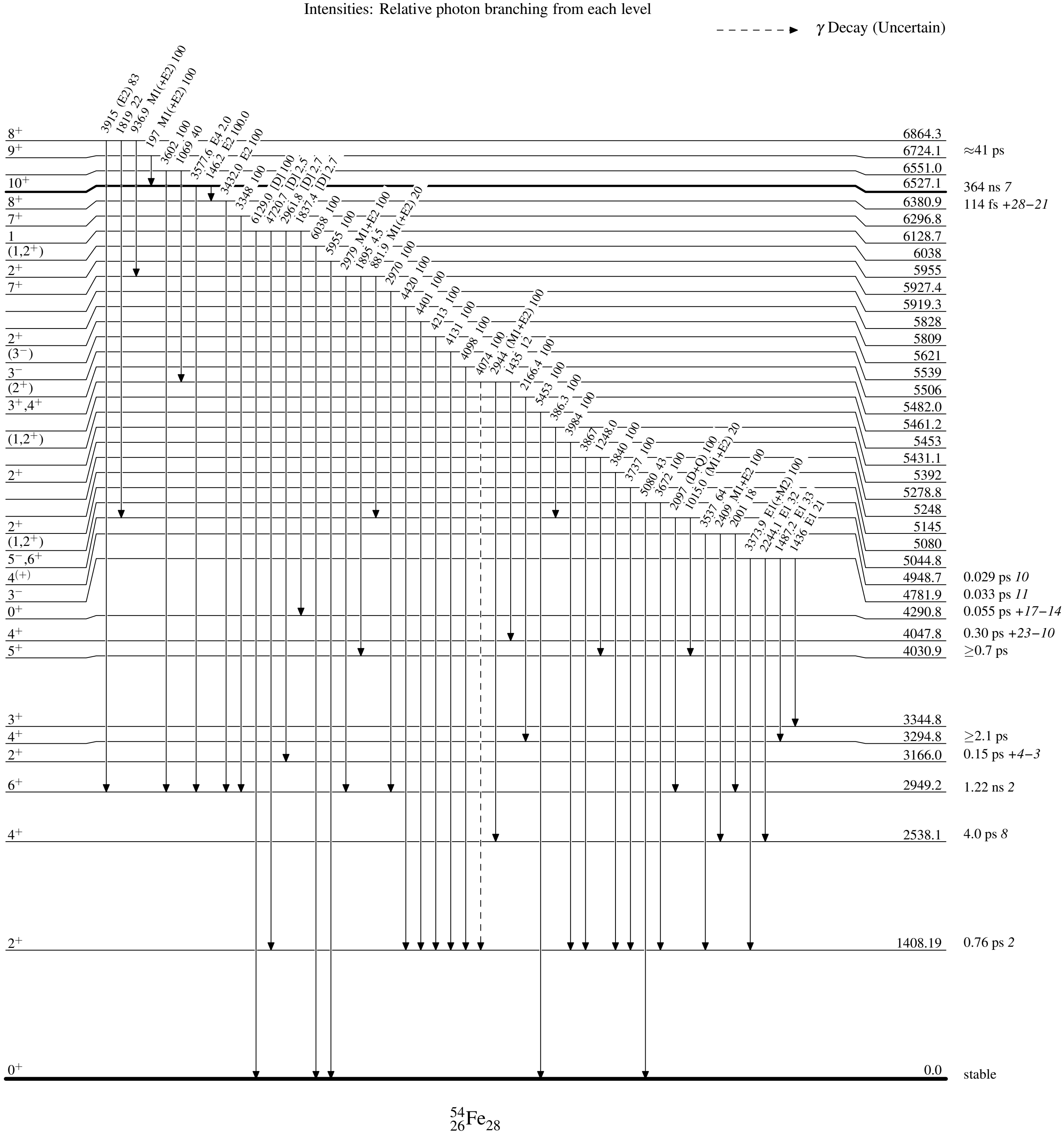
$^{54}_{26}Fe_{28}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



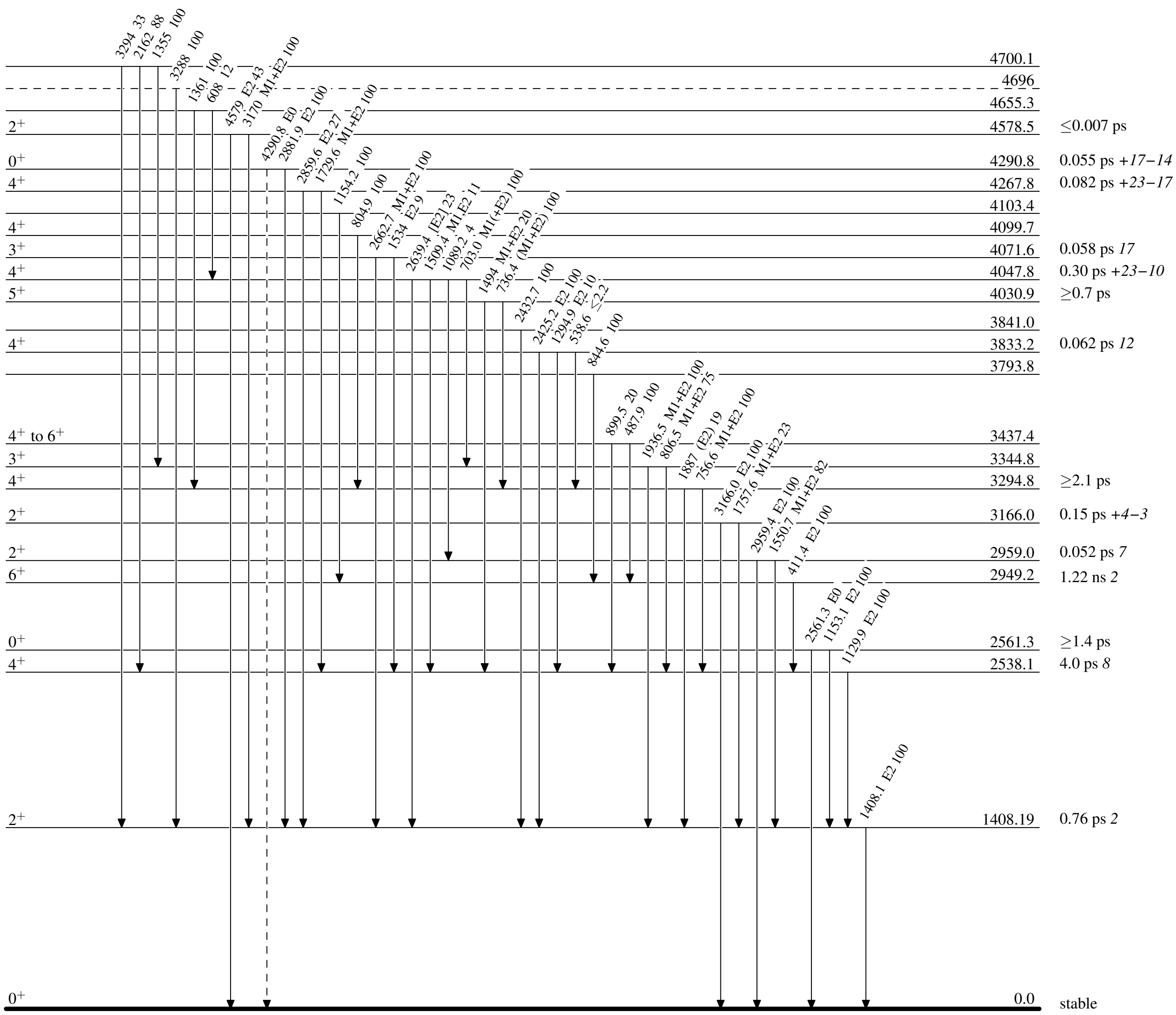
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{54}_{26}Fe_{28}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huo Su, Yang Dong	NDS 112,1513 (2011)	29-Oct-2009

Q(β^-)=−4566.6 *5*; S(n)=11197.10 *23*; S(p)=10183.67 *16*; Q(α)=−7613.3 *4* 2012Wa38
Note: Current evaluation has used the following Q record −4566.0 2011197.302510183.7417-7613.3 *4* 2003Au03.

^{56}Fe Levels

Cross Reference (XREF) Flags

A	^{56}Mn β^- decay	M	^{56}Fe(e,e′)	Y	^{58}Ni(^{14}C,^{16}O)
B	^{56}Co ε decay	N	^{56}Fe(n,n′γ)	Z	^{55}Mn(α,t),(^{3}He,d)
C	(HI,xnγ)	O	^{52}Cr(^{6}Li,d)	Others:	
D	^{56}Fe(p,p′),(pol p,p′)	P	^{54}Cr(^{3}He,n)	AA	^{60}Ni(^{3}He,^{7}Be)
E	^{56}Fe(p,p′γ)	Q	^{56}Fe(d,d′)	AB	^{59}Ni(n,α) E=thermal
F	^{54}Fe(t,p)	R	^{56}Fe(^{3}He,^{3}He′)	AC	Ni(π^+,xγ), (π^-,Xγ), (K$^-$,x rayγ)
G	^{54}Fe(α,2pγ)	S	^{56}Fe(α,α′γ)	AD	^{60}Ni(p,Xγ), (e,e′$\alpha\gamma$), (γ,α)
H	^{57}Fe(d,t), (pol d,t), (^{3}He,α)	T	Coulomb excitation	AE	^{56}Fe(π,π′)
I	^{55}Mn(p,p), (p,γ) E=res: IAR	U	^{54}Fe(α,2p)	AF	^{58}Ni(μ^-,νpnγ)
J	^{56}Fe(n,n′)	V	^{56}Fe(α,α′)	AG	Gd(^{56}Fe,^{56}Fe′γ)
K	^{59}Co(p,α)	W	^{54}Fe(α,^{2}He)		
L	^{56}Fe(γ,γ′), (pol γ,γ′)	X	^{58}Fe(p,t)		

E(level)[†]	J$^\pi$	T$_{1/2}$[k]	XREF	Comments
0.0	0$^+$	stable	ABCDEFGHIJKLMNOPQRSTUVWXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG
846.7778[‡] *19*	2$^+$	6.07 ps *23*	ABCDEFGHIJKLMNO QRST V XYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG Q=−0.19 *8* (2005St24) μ=1.22 *16* (2005St24) g=+0.504 *63* (2009Ea01) XREF: F(850)J(850)K(840)M(850)R(850)X(850)Y(840). J$^\pi$: E2 γ to 0$^+$ g.s. T$_{1/2}$: from Coul. ex. Others: 5.5 ps *9* from RDM (HI,xnγ), 6.8 ps *14* (γ,γ′) and 6.9 ps *4* (e,e′). Q: Other: −0.23 *3* (1989Ra17). μ: IMPAC measurement in Coulomb excitation. Others: +1.3 *4* in ^{56}Fe(γ,γ′), +1.1 *5* in ^{56}Co ε decay.
2085.1045[‡] *25*	4$^+$	0.64 ps *12*	ABCDEFGHIJK NO Q S V X Z	XREF: Others: AA, AB, AC, AE, AF, AG XREF: F(2090)J(2090)K(2078)X(2100)Z(2090). T$_{1/2}$: from midpoint of overlap region of 0.7 ps *+4−2* in (p,p′γ), 0.59 ps *+17−14* (n,n′γ), 0.66 ps *+24−14* (HI,xnγ); ΔT$_{1/2}$ from difference between the midpoint and maximum value of overlap region. J$^\pi$: J=4 from $\gamma(\theta)$ of 1238γ to 2$^+$ 846 in ^{54}Fe(α,2pγ) and π=+ from L(t,p)=4.
2657.5894[‡] *25*	2^{+}[e]	21 fs *1*	AB DEF HIJK MNO QR V Z	XREF: Others: AB, AE, AF XREF: M(2650)R(2650). T$_{1/2}$: others: 28 fs *7* (p,p′γ), 0.58 ps *+21−13* (e,e′).
2941.50 *3*	0$^+$	0.45 ps *+21−12*	DEF HI K N	XREF: Others: AB, AE XREF: F(2950). T$_{1/2}$: other: 0.15 ps *+8−6* (p,p′γ).

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Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[k]	XREF	Comments
				J^π: J=0 from $\gamma\gamma(\theta)$ of 2094γ (to 2^+) and 846γ (to 0^+) in ^{56}Fe(p,p′γ) and π=+ from L(t,p)=0.
2959.972[‡] *4*	2^{+}[e]	28 fs *3*	AB DEF HIJK MNO Q Z	XREF: Others: AB, AE, AG XREF: O(2950)Z(2970). $T_{1/2}$: others: 27 fs *9* (p,p′γ), 12 fs *6* (e,e′).
3076.2 *4*	(3^-)[e]		HI M VW	XREF: Others: AA, AC XREF: M(3100)W(3100).
3120.11 *5*	(1^+)[e]	19 fs *1*	DE IJ N	XREF: Others: AE $T_{1/2}$: other: 24 fs +*11*−*10* (p,p′γ).
3122.970[‡] *3*	4^{+}[e]	47 fs *12*	ABCDEFGHI K NO Q S V Z	XREF: Others: AA, AC, AE XREF: Z(3150). J^π: other: L=(5,6) in ^{54}Fe(t,p). $T_{1/2}$: others: 0.13 ps *6* (HI,xnγ), 0.05 ps +*5*−*3* (p,p′γ).
3369.95[‡] *7*	2^{+}[e]	17 fs *3*	AB DEF HIJK MN Q	XREF: Others: AC, AE, AG XREF: K(3375). $T_{1/2}$: others: 18 fs *7* (p,p′γ) and 23 fs *6* (e,e′).
3388.55 *5*	6^+	2.9 ps *2*	CD GHI K N S V Z	XREF: Others: AC, AD XREF: Z(3400). $T_{1/2}$: from RDM in (HI,xnγ). Others: >1.4 ps (α,2pγ), >0.55 ps (n,n′γ). J^π: $\gamma(\theta)$ of E2 1303γ to 4^+ 2085 in (HI,xnγ).
3445.348[‡] *3*	3^+	29 fs *5*	AB DEF HI N	$T_{1/2}$: other: <28 fs (p,p′γ). J^π: J=3 from $\gamma(\theta)$ of 2598γ to 2^+ 847 in ^{56}Fe(n,n′γ) and π=+ from L(d,t)=1(+3). L(t,p)=2 is not consistent with $J^\pi=3^+$.
3448.41 *6*	1^+	8 fs *3*	DE HI KL N	$T_{1/2}$: other: <13 fs (p,p′γ). 1.5 fs *4* from $\Gamma^2_{\gamma0}/\Gamma$=0.077 eV *12* ($\gamma$,$\gamma$′) with adopted branching. 3.7 fs *6* with $\Gamma(0)/\Gamma$=0.79 *2* from (γ,γ′). J^π: γ to 0^+ and 2^+. $\gamma(0)$ in (γ,γ′).
3600.21 *7*	$(1,2^+)$[g]	<59 fs	DEF HIJ	XREF: Others: AA, AE $T_{1/2}$: from DSA (p,p′γ).
3605.69 *6*	2^{+}[e]	0.15 ps *4*	DE I KLMN Q	XREF: Others: AE E(level): 3605 level from ^{56}Fe(p,p′γ) and 3601 level from ^{56}Fe(n,n′γ) are the same levels because of the same γ transitions and J^π. $T_{1/2}$: others: 0.12 ps +*7*−*5* (p,p′γ), 17 fs *6* from $\Gamma^2_{\gamma0}/\Gamma$=0.011 eV *2* ($\gamma$,$\gamma$′) and 0.18 ps *8* from B(E2) in ^{56}Fe(e,e′).
3610.21 *19*	$0^{(+)}$[g]	52 fs *21*	I N	
3744.13 *24*	2^{+}[e]		D HI	
3755.57 *4*	6^+	0.13 ps *2*	C G I K N S V	J^π: $\gamma(\theta)$ of E2 1670γ to 4^+ 2085 in (HI,xnγ). $T_{1/2}$: from DSA in ^{54}Fe(α,2pγ). Others: 0.14 ps *3* (HI,xnγ) and 0.13 ps *5* (n,n′γ).
3759.6? *10*			D I Z	XREF: Others: AC, AG XREF: Z(3780).
3829.77 *9*	2^{+}[e]	39 fs *5*	DEF HIJK MN Q	$T_{1/2}$: others: 43 fs *14* (p,p′γ) and 37 fs *19* from B(E2) (e,e′).
3856.495[‡] *3*	3^+	25 fs *3*	B DE HI N	$T_{1/2}$: other: 23 fs *13* (p,p′γ). J^π: 3009γ to 2^+ 847 and 1771γ to 4^+ 2085 are M1+E2.
4048.888[‡] *6*	3^+	7 fs *3*	B DEF HI K N Z	XREF: Others: AD

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Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J^{π}	$T_{1/2}$[k]	XREF	Comments
				XREF: Z(4080). J^{π}: 1963γ to 4^{+} 2085 and 3201γ to 2^{+} 847 are M1+E2.
4085.93 *17*	$(1,2^{+})$[g]		I	
4100.363[‡] *3*	4^{+}[e]	43 fs *5*	B D F HI K N Q	$T_{1/2}$: other: 55 fs *25* in ^{56}Co ε decay.
4119.936[‡] *3*	3^{+}	0.14 ps *4*	B D HIJK N	XREF: Others: AE J^{π}: 3273γ to 2^{+} 847 and 2034γ to 4^{+} 2085 are M1+E2.
4298.096[‡] *3*	4^{+}	110 fs *50*	B D F HI K N	$T_{1/2}$: from DSA in ^{56}Co ε decay. J^{π}: γγ(θ) of 1175γ-(2276γ)−847γ in ^{56}Co ε decay.
4302.0[#] *10*	0^{+}[i]		F N	
4320	2^{+}		I	
4368.13? *25*	3^{-}[e]		I V	
4394.93[‡] *5*	3^{+}	35 fs *17*	B D HI K N	J^{π}: 3547γ to 2^{+} 847 is M1+E2 and log *ft*=7.284 *20* from 4^{+}.
4401.27 *5*	2^{+}[i]	56[m] fs *+48−22*	D F IJ N Z	XREF: Others: AB, AD, AE XREF: Z(4420).
4447.7[‡] *4*			B	
4458.532[‡] *11*	4^{+}[e]	26 fs *+12−8*	B D F HI K N	
4509.56 *8*	3^{-}[e]	83 fs *28*	D F HIJK MNO QR V	XREF: Others: AC, AD, AE XREF: O(4530). $T_{1/2}$: Other: 37 fs *+10−7* (^{55}Mn(p,p), (p,γ) E=res: IAR).
4539.5 *6*	$1^{+},2^{+}$	25 fs *+20−14*	D HI K NO	XREF: Others: AC, AD, AE XREF: O(4530). J^{π}: L=1 in ^{57}Fe(d,t) gives J=0,1,2 and π=+; observed 4539γ (to 0^{+} g.s.) rules out J=0.
4554.77 *9*	4^{+}[g]	94[m] fs *+43−24*	HI N	
4608.56 *11*	2^{+}[g]	47[m] fs *+33−18*	I	
4610.82 *18*	4^{+}[e]	27[m] fs *+45−15*	D F HI K N	
4620[&] *4*			D	
4658.26 *7*	$2^{+},3^{+},4^{+}$[f]	49[m] fs *+8−7*	D HI K N	
4673.41 *19*			D I	
4683.04 *5*	$(2^{+}),3^{+}$[g]	66[m] fs *+63−25*	D HI K N	XREF: Others: AE
4692.32 *4*	4^{+}[g]	33[m] fs *+10−7*	I	
4700.63 *13*	7^{+}	0.083 ps *+82−14*	C G I S	$T_{1/2}$: from DSA in ^{54}Fe(α,2pγ). Other: 0.09 ps *3* (HI,xnγ). J^{π}: γ(θ) of M1+E2 1312γ to 6^{+} 3388 in (HI,xnγ).
4728.14 *18*	2^{+}[e]	63 fs *+57−20*	D I M	XREF: Others: AE J^{π}: from L=2 in ^{56}Fe(e,e′). $T_{1/2}$: from (e,e′). E(level): the 4729.9 *10* level in ^{56}Fe(n,n′γ) probably corresponds to one of 4728 and 4730 levels.
4730.0[#] *10*	0^{+}[i]		F N P	
4737.33 *4*	2^{+}[g]	32[m] fs *+7−6*	D HI K N Z	
4784.12 *25*	$(1,2^{+})$[g]		I	
4802[&] *5*			D	

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Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[k]	XREF	Comments
4812.68 10	4+,5+[g]		I	
4820[b]			F H K	
4847.9 3	(2+)[g]	64[n] fs 27	I L	XREF: Others: AA $T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.0071 eV 30 in ^{56}Fe(γ,γ′).
4866.52 3	(1,2+)[g]	9.7[m] fs 20	D I	
4878.0 6	2+[i]		D F HI K N	XREF: Others: AE
4881.7 6			I	
4887.1[#] 12			K N	
5023.49 3	(1,2)+[g]	6[m] fs 3	D I N	
5026.7 8			D I K	
5033.02 7	(4,5)+[g]	10[m] fs +3−2	I	
5038.49 12	4+[e]	78[m] fs +36−22	D F HI M V	XREF: Others: AE XREF: F(5050).
5055.87 8	4+,(3+)[g]	66[m] fs +63−25	HI	XREF: Others: AB, AE, AF XREF: H(5062).
5122.11[#] 10	5−[e]		D N W	XREF: Others: AE XREF: W(5080).
5131.66 10	3+,4+,(2+)[g]	73[m] fs +28−17	D I K	
5149.54[#] 11	2+[g]		F K N	XREF: Others: AA, AE, AF XREF: K(5156).
5184.3[@] 6	8(+)[j]		CD	
5186.82 10	2+		D F I NO R Z	XREF: Others: AB, AE XREF: O(5200)Z(5200). Jπ: from L=2 in ^{52}Cr(^{6}Li,d).
5194.80 18	(1,2+)[g]		I	
5219?[&] 10			D	
5227.3[a] 20	1[h]	12.3 fs 20	D L	$T_{1/2}$: $\Gamma^2_{\gamma0}/\Gamma$=0.037 eV 6 in ^{56}Fe(γ,γ′).
5232.57 6	2+,(3+)[g]	8[m] fs +6−5	I K MN	$T_{1/2}$: Other: 20 fs +20−10 from (e,e′).
5235.89 8	4+[g]	104[m] fs +55−28	I	
5249[&] 5	4+[e]		D	
5255.7[@] 4	8+	0.35 ps 4	C G S	Jπ: γ(θ) of E2 1868γ to 6+ in ^{54}Fe(α,2pγ) and (HI,xnγ). $T_{1/2}$: from DSA in ^{54}Fe(α,2pγ). Other: 0.31 ps +12−6 in (HI,xnγ).
5256.9 3	2+[h]	20[n] fs 4	F I KL	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.023 eV 4 in ^{56}Fe(γ,γ′).
5283.90 20			D I	
5296[&] 5	0+[i]		D F K	
5302.94 6	4+[g]	28[m] fs +15−9	I	
5307.81 22			I K N	
5386[@] 7	0+[i]		D	
5402.3[#] 10	≥1	17[n] fs 4	F L N P	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.027 eV 6 in ^{56}Fe(γ,γ′). Jπ: J>0 on the basis of an observed transition to 0+.
5451.60 8	4+[g]	98[m] fs +40−28	D I K	XREF: Others: AD, AE XREF: K(5455).
5479.15 11	(4+)[g]	25[m] fs +24−9	D F I	
5488.24 10	2,3,4[g]	3[m] fs 2	D I K	

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Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[k]	XREF	Comments
5502.94 *6*	(2,3,4)+[g]	5[m] fs *2*	D I	
5511.6 *10*	2+[ei]		D F I K N	
5528[&] *5*			D	
5538.07 *18*	(1,2+)[g]		I	
5562.38 *10*			D I K	
5573.51 *11*	2+[i]		D F I K	XREF: Others: AA, AE XREF: K(5591).
5590.06 *21*	1+,2,3+[g]		I	
5618.36 *10*	4+[g]	76[m] fs *+51−24*	D F I	XREF: Others: AE
5623.86 *10*	(4,5)+[g]	19[m] fs *+14−10*	I	
5626.84 *16*	8+	0.069 ps *+21−14*	CD G I K S	XREF: Others: AA, AB, AE, AF XREF: D(5621). J^π: $\gamma(\theta)$ of E2 1871γ to 6+ 3756 in ^{54}Fe(α,2pγ), $\gamma(\theta)$ of M1+E2 926γ to 7+ 4701 in ^{54}Fe(α,2pγ). $T_{1/2}$: from (α,2pγ).
5661.18 *17*		<14[m] fs	D I	
5670.33 *8*	(2,3,4)+[g]	16[m] fs *+8−6*	D I K	
5684[&] *5*			D	
5697.98 *13*	(2+)[g]	85[m] fs *+42−33*	D F K	
5705.43 *7*	2+[g]	3[m] fs *2*	I	
5725[&] *5*			D	
5737[&] *10*			D K	
5774.00 *13*	(4+)[e]	12[m] fs *+9−6*	D I	XREF: Others: AE, AF, AG XREF: D(5768).
5795.2[#] *10*			D K N	XREF: Others: AD, AE, AG XREF: D(5784).
5801.34 *18*			I	
5806.3 *4*			I	
5817.22 *17*			D F I	
5824.3? *8*			I K	
5853?[a] *2*		19[n] fs *5*	L	$T_{1/2}$: from $\Gamma^2_{\gamma 0}/\Gamma$=0.024 eV *6* in ^{56}Fe(γ,γ').
5861.5 *4*	4+[e]	[m]	D F I	
5871.26 *11*	(2,3,4)[g]	12[m] fs *+27−10*	I K N	XREF: Others: AA
5874.1 *5*			I	
5882.7 *8*			I	
5913.51 *12*	2+[g]		D I	
5914.53 *14*	(2,3,4)+[g]	22[m] fs *+14−8*	I	
5921.4 *8*			I K	
5936.17 *10*	2+[i]		D F I	
5941.48 *19*			D I K	
5965.81 *20*			D F I	XREF: Others: AE, AG XREF: F(5970). J^π: L=2,3 in ^{54}Fe(t,p).
5986.86 *15*	(1+ to 3+)		D I K N	
6002[&] *7*			D	
6013[&] *10*			D K	
6021.11 *10*			D I	
6031.68 *20*			I	
6041[&] *8*	(7−)		D K U W	J^π: based on $\sigma(\theta)$ DWBA calculation and

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Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J$^{\pi}$	T$_{1/2}$[k]	XREF	Comments
				excited two neutron configuration=((ν f$_{5/2}$)(ν g$_{9/2}$)) in ^{54}Fe(α,2p).
6047.53 *13*			I	
6055[&] *8*	2+[i]		D F	
6061.79 *6*	4+[g]		I	
6071.6 *6*	6+[e]		D I K	
6078?[a] *3*		16[n] fs *3*	L	T$_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.028 eV *5* in ^{56}Fe(γ,γ').
6092.2 *6*	(3−)[i]		D F K N	XREF: Others: AF XREF: F(6080).
6102.21 *15*	(0 to 3+)[g]		I	
6110.6 *4*			F I	
6115.7[@] *7*			CD	
6131.24 *10*	2+[g]	5[m] fs *+4−3*	D F I K	
6146.35 *13*			I	
6174[&] *7*			D	
6201[&] *10*			D K	
6219?[a] *3*		13[n] fs *3*	D KL	T$_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.034 eV *8* in ^{56}Fe(γ,γ').
6250.78 *24*	1[g]	8.1[n] fs *15*	D F I L	T$_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.056 eV *13* in ^{56}Fe(γ,γ').
6265[&] *8*	4+[e]		D F K	XREF: Others: AB, AC, AF, AG XREF: K(6273).
6289[&] *10*			D	
6312.75 *20*			D I	
6316[&] *8*			D K	
6327.6 *6*			F I	
6351[&] *8*			D	
6363[&] *7*			D F K	
6386.99 *18*			D I	
6397[&] *8*			D K	J$^{\pi}$: L=(3,4) in ^{56}Fe(p,p′).
6434.8 *4*			D F I K	
6437.08 *16*			I	
6439.50 *25*			I	
6442.91 *20*			I	
6446.92 *20*	2+,3+[g]	11[m] fs *+7−4*	D I	
6454.4 *3*			D I K	
6472.5 *5*			I	
6489[&] *10*	(2+)[e]		D	
6512.4 *4*	0+		D I K P	J$^{\pi}$: L(^{3}He,n)=0.
6527[&] *10*			D	
6543[&] *10*			D	
6555[&] *10*			D K	
6566.81 *25*	0+[i]		D F I	
6593[&] *12*			D	
6613[&] *10*			D F K	
6621.94 *23*			I	
6625.10 *18*	(0 to 3+)[eg]		D I	
6652[&] *10*			D	
6666.62 *15*	3−[i]		D F I	
6670[&] *12*			D K	

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Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[k]	XREF	Comments
6698[a] *1*	1[h]	0.65[n] fs *10*	D L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.70 eV *11* in ^{56}Fe(γ,γ').
6700[&] *12*	0+[i]		D F	
6715.90 *21*			D I K	
6725[&] *15*			D	
6742[&] *15*			D K	
6767.41 *21*			D I	
6781 *15*	3−[i]		D F K	
6800[&] *15*	0+[i]		D F	
6807.8 *5*			D I K	XREF: Others: AB, AC, AF XREF: K(6823).
6843[&] *15*			D	
6850.9[@] *6*	9(+)[f]		CD K	XREF: Others: AE, AF XREF: D(6856)K(6855).
6854.67 *20*			I	
6869.73 *17*	(3−)[e]		D F I K P	XREF: Others: AF, AG XREF: F(6870).
6883.13 *16*			I	
6889.98 *22*			I	
6916[&] *15*			D	
6926[a] *2*	1−[h]	1.10[l] eV *29*	D L	
6940[&] *15*			D F K	J^π: L=(1,2) in ^{54}Fe(t,p).
6978.0 *4*			D I K	
6981.68 *20*	(0 to 3+)[g]		D F I	
6994[&] *15*			D	
7008.00 *25*			I	
7010.8 *4*	(>3−)[g]		D I K	
7029.8 *4*	(>3−)[g]		D I	
7055[&] *15*			D K	
7061.6 *4*	1+[h]	0.41[n] fs *8*	F I L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.11 eV *2* in ^{56}Fe($\gamma,\gamma'$).
7071.37 *22*			D I K	J^π: L=(3,4) in ^{56}Fe(p,p′).
7084.6[@] *12*			C	
7090?[&] *15*			D	
7102[&] *15*			D K	
7124[&] *15*	0+[i]		D F W	
7135[a] *3*	1[h]	8.1[n] fs *15*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.056 eV *10* in ^{56}Fe(γ,γ').
7154[&] *15*			D	
7167.27 *24*	1[h]	5.1[n] fs *9*	D f I KL	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.089 eV *15* in ^{56}Fe(γ,γ').
7177.2[@] *16*	(10+)[j]		C	
7178.1 *5*			I	
7198.5 *4*			D I K	J^π: L=(3,4) in ^{56}Fe(p,p′).
7204[&] *15*			D	
7211.5 *20*	1[h]	0.77[l] eV *22*	D I L	
7220	0+[i]		F I K	
7248[a] *2*	1[h]	2.3[n] fs *3*	D L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.20 eV *3* in ^{56}Fe($\gamma,\gamma'$).
7254.19 *20*	0+[i]		F I	XREF: Others: AB, AG

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[k]	XREF	Comments
7285.8? *4*		1.6[n] fs *7*	D I L	XREF: F(7290). $T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.29 eV *12* in ^{56}Fe(γ,γ').
7312[&] *15*			D	J^π: L=(3,4) in ^{56}Fe(p,p′).
7398.5 *4*			F I	J^π: L=(2,3) in ^{54}Fe(t,p).
7422.67 *22*	(1,2$^+$)[g]		F I	
7446.5[a] *20*	1[h]	2.7[n] fs *8*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.17 eV *5* in ^{56}Fe($\gamma$,$\gamma'$).
7468.5 *20*	1[h]	2.5[n] fs *4*	I L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.18 eV *3* in ^{56}Fe($\gamma$,$\gamma'$).
7475[&] *15*	(3$^-$)[e]		D F	
7503.6[@] *6*	9$^{(+)}$[j]		C	
7541.29 *23*			I	
7580[b]			F	J^π: L=2,3 in ^{54}Fe(t,p).
7630[b]	3$^-$[i]		F	
7670[b]			F	
7720[b]			F	
7768.61 *19*			F I	J^π: L=2,3 in ^{54}Fe(t,p).
7820.6[@] *6*	10$^{(+)}$[f]		C F	XREF: Others: AD, AG XREF: F(7840).
7875.8 *3*	2$^+$[i]		F I	
7886.54 *23*	(1,2$^+$)[g]	1.6[n] fs *3*	I L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.28 eV *5* in ^{56}Fe($\gamma$,$\gamma'$).
8050[b]			F	
8110[d] *30*	0$^+$[i]		P	
8120[b]	2$^+$[i]		F	
8128[a] *2*	1[h]	3.55[l] eV *74*	J L	
8138.22 *26*			I	
8219[a] *4*		1.8[n] fs *3*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.26 eV *5* in ^{56}Fe($\gamma$,$\gamma'$).
8239.7 *20*	1[h]	5.75[l] eV *92*	F IJ L	
8247.76 *29*	(0 to 3$^+$)[g]		I	
8309.59 *24*	(1,2$^+$)[g]	1.9[n] fs *6*	I L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.24 eV *8* in ^{56}Fe($\gamma$,$\gamma'$).
8329.65 *18*			I	
8414.8[@] *7*	(10$^+$)[j]		C	
8447.87 *23*	(0 to 3$^+$)[g]		I	
8535.95 *22*	1[h]	4.92[l] eV *95*	IJ L	
8679.9[@] *7*	11$^{(+)}$[j]		C	
8758.47 *19*	(0 to 3$^+$)[g]		I	
8767[a] *3*		1.1[n] fs *2*	J L	XREF: J(8800). $T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.41 eV *8* in ^{56}Fe($\gamma$,$\gamma'$).
8879[a] *4*		1.5[n] fs *4*	J L	XREF: J(8800). $T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.30 eV *8* in ^{56}Fe($\gamma$,$\gamma'$).
8909.9 *3*	(1,2$^+$)[g]	0.97[n] fs *21*	I L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.47 eV *10* in ^{56}Fe(γ,γ').
8962[a] *4*		1.2[n] fs *2*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.38 eV *7* in ^{56}Fe($\gamma$,$\gamma'$).
8989[a] *4*		1.5[n] fs *3*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.31 eV *7* in ^{56}Fe($\gamma$,$\gamma'$).
9107[a] *4*		0.53[n] fs *11*	L	J^π: from $\Gamma^2_{\gamma0}/\Gamma$=0.86 eV *18* in ^{56}Fe(γ,γ').
9140.3[a] *6*	1$^-$[h]	1.28[l] eV *17*	L	
9154[a] *4*		0.47[n] fs *15*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.98 eV *31* in ^{56}Fe(γ,γ').
9200[d] *30*	0$^+$[i]		P	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[k]	XREF	Comments
9280 *50*	(8$^+$)		U W	E(level): From ^{54}Fe(α,2p). J^π: based on $\sigma(\theta)$ DWBA calculation and excited two neutron configuration=((ν $g_{9/2}$)(ν $g_{9/2}$)) in ^{54}Fe(α,2p).
9287[a] *3*		0.61[n] fs *14*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.75 eV *17* in ^{56}Fe(γ,γ').
9311[a] *4*		0.71[n] fs *14*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.64 eV *13* in ^{56}Fe(γ,γ').
9322[a] *4*		0.70[n] fs *15*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.65 eV *14* in ^{56}Fe(γ,γ').
9344.7[@] *7*	(11$^+$)[j]		C	
9378.2[@] *7*	(11$^+$)[j]		C	
9402[a] *3*		0.70[n] fs *16*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.65 eV *15* in ^{56}Fe(γ,γ').
9557.62 *21*	(1,2$^+$)[g]	1.2[n] fs *4*	I L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.39 eV *14* in ^{56}Fe(γ,γ').
9666?[a] *5*			L	
9737[a] *5*		0.48[n] fs *13*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.95 eV *25* in ^{56}Fe(γ,γ').
9768?[a] *4*		1.0[n] fs *3*	J L	XREF: J(9800). $T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.48 eV *13* in ^{56}Fe(γ,γ').
9895?[a] *5*		1.1[n] fs *3*	J L	XREF: J(9800). $T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.41 eV *12* in ^{56}Fe(γ,γ').
9900 *50*	(6$^+$)		U W	E(level): From ^{54}Fe(α,2p). J^π: based on $\sigma(\theta)$ DWBA calculation and excited two neutron configuration=((ν $g_{9/2}$)(ν $2d_{5/2}$))6$^+$ in ^{54}Fe(α,2p).
9948[a] *5*		0.61[n] fs *14*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.75 eV *20* in ^{56}Fe(γ,γ').
9969?[a] *5*		1.5[n] fs *5*	L	$T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.31 eV *10* in ^{56}Fe(γ,γ').
10060[a] *5*		0.81[n] fs *23*	J L	XREF: Others: AA, AB XREF: J(10200). $T_{1/2}$: from $\Gamma^2_{\gamma0}/\Gamma$=0.56 eV *16* in ^{56}Fe(γ,γ').
10094.4[@] *7*	(12$^+$)[j]		C	
10497[a] *3*	1[h]	3.44[l] eV *64*	J L	XREF: Others: AA, AB XREF: J(10200).
10563.1[@] *8*	(12$^+$)[j]		C	
10898.9[@] *10*	(13$^+$)[j]		C	
11133[a] *3*	1[h]	2.08[l] eV *52*	L	
11503.7 *3*	3$^+$		I	E(level): IAR of 3$^+$ g.s. in ^{56}Mn.
11593.53 *23*	1$^+$		I	E(level): IAR of 1$^+$ 110 in ^{56}Mn.
11598.65 *18*	1$^+$		I	IAR of 1$^+$ 110 in ^{56}Mn.
11603.64 *19*	1$^+$		I	IAR of 1$^+$ 110 in ^{56}Mn.
11609.56 *20*			I	
11612.93 *18*	1$^+$		I	IAR of 1$^+$ 110 in ^{56}Mn.
11617.71 *20*			I	
11638.0 *3*	3$^{(-)}$[g]		I	
11640.7 *3*	3$^{(-)}$[g]		I	
11644.0 *3*	3$^{(-)}$[g]		I	
11664.0 *3*	3$^{(-)}$[g]		I	
11678.0 *4*	4$^+$[g]		I	E(level): IAR of 4$^+$ 212 in ^{56}Mn.
11680.6 *3*	4$^+$[g]			E(level): IAR of 4$^+$ 212 in ^{56}Mn.
11688.2 *3*	4$^+$[g]		I	E(level): IAR of 4$^+$ 212 in ^{56}Mn.
11692.1 *3*	2$^+$[g]	≈9[m] keV	I	Γ_p=2.0 keV *2* E(level): IAR of 2$^+$ 215 in ^{56}Mn.
11832.8 *3*	3$^+$[g]	≈17[m] keV	I	Γ_p=1.0 keV *2* E(level): IAR of 3$^+$ 341 in ^{56}Mn.

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Adopted Levels, Gammas (continued)

^{56}Fe Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[k]	XREF	Comments
11840.8 *3*	3^+[g]		I	E(level): IAR of 3^+ 341 in ^{56}Mn.
11850.0 *5*	3^+[g]		I	E(level): IAR of 3^+ 341 in ^{56}Mn.
11879.6 *3*	(5^+)[g]		I	
11886.8 *4*	(5^+)[g]		I	
11913.3 *6*	(4^+)[g]		I	
11925.2 *3*	3^+[g]	≈11[m] keV	I	Γ_p=1.0 keV *1* E(level): IAR of 3^+ 454 in ^{56}Mn.
11947.7 *3*	(4^-)[g]		I	
11952.6 *3*	4^+[g]		I	
11958.1 *3*	3^+[g]	≈11[m] keV	I	Γ_p=1.0 keV *1* E(level): IAR of 3^+ 486 in ^{56}Mn.
11964?[@] *3*	(13^+)[j]		C	
12440[c] *30*			J	
12520[c] *30*			J	

[†] From ^{55}Mn(p,p), (p,γ) E=res: IAR, except as noted. For resonance states E(level) are calculated by using E(level)=S(p)+0.9824×E(p), where E(p) is incident proton energy in lab system and S(p)=10183.74 *17* (2003Au03); States of E(level)>13000 are unplaced in Adopted Levels, see ^{56}Fe(e,e′), (^{3}He,^{3}He′), (α,α'), and ^{60}Ni(p,Xγ),(e,e′$\alpha\gamma$),(γ,α).

[‡] From ^{56}Co ε decay.

[#] From ^{56}Fe(n,n′γ).

[@] From (HI,xnγ).

[&] From ^{56}Fe(p,p′), (pol p,p′).

[a] From ^{56}Fe(γ,γ'), (pol γ,γ').

[b] From ^{54}Fe(t,p).

[c] From ^{56}Fe(n,n′).

[d] From ^{54}Cr(^{3}He,n).

[e] From angular momentum transfer in ^{56}Fe(d,d′), or ^{56}Fe(p,p′), or ^{56}Fe(α,α'), or ^{56}Fe(e,e′).

[f] From angular momentum transfer in ^{57}Fe(d,t).

[g] From ^{55}Mn(p,p′), (p,γ) E=res: IAR based on reasonable assumption of the multipolarity of observed γ-transitions and application of corresponding selection rules, or analyses of IAR state in ^{56}Mn.

[h] Based on γ resonance ex. measurements in ^{56}Fe(γ,γ'), (pol γ,γ').

[i] From angular momentum transfer in ^{54}Fe(t,p), or ^{54}Fe(^{3}He,n).

[j] From $\gamma\gamma$-coin and $\gamma(\theta)$ in (HI,xnγ).

[k] From DSA measurement in ^{56}Fe(n,n′γ), except as noted.

[l] From ^{56}Fe(γ,γ'), (pol γ,γ') assuming 100% transition to g.s.

[m] From ^{55}Mn(p,p), (p,γ) E=res: IAR.

[n] Upper limit based upon the assumption that $\Gamma_{\gamma0}/\Gamma$=1.

Adopted Levels, Gammas (continued)

$\gamma(^{56}Fe)$

E_i(level)	J_i^π	E_γ[†]	I_γ[d]	E_f	J_f^π	Mult.	δ	Comments
846.7778	2^+	846.7638[#] *19*	100[#]	0.0	0^+	E2[‡]		B(E2)(W.u.)=16.8 *7*
2085.1045	4^+	1238.2736[#] *22*	100[#] *2*	846.7778	2^+	E2[‡]		B(E2)(W.u.)=24 *5*
2657.5894	2^+	1810.757[‡] *4*	100.0[#] *3*	846.7778	2^+	M1+E2	−0.18[#] *1*	B(M1)(W.u.)=0.166 *8*; B(E2)(W.u.)=3.3 *4* δ: others: −0.19 *2* (p,p′γ), −0.17 *3* in ^{56}Co ε decay.
		2657.527[‡] *4*	3.1[#] *3*	0.0	0^+			I_γ: %Branching=5.4 *21* from B(E2)=0.0037 *10* (e,e′) and adopted $T_{1/2}$; %Branching=5 *3* in ^{56}Fe(p,p′γ).
2941.50	0^+	2094.9 *3*	100	846.7778	2^+	[E2]		B(E2)(W.u.)=2.4 *+7−12*
		(2941)		0.0	0^+			E_γ: 2939 reported in (p,p′γ).
2959.972	2^+	2113.135[‡] *5*	100[#] *2*	846.7778	2^+	M1+E2	+0.27 *3*	B(M1)(W.u.)=0.076 *9*; B(E2)(W.u.)=2.5 *6* δ: from ^{56}Co ε decay and ^{56}Mn β^- decay. Other: −0.20 *4* (p,p′γ).
		2959.92[#] *1*	2.16[#] *8*	0.0	0^+			
3076.2	(3^-)	991.51[c] *3*	47[c] *13*	2085.1045	4^+			
		2229[c]	100[c] *13*	846.7778	2^+			
3120.11	(1^+)	462[c]	<1.05[c]	2657.5894	2^+			
		2273.2[c]	100.0[c] *7*	846.7778	2^+			
		3120[c]	4.82[c] *7*	0.0	0^+			
3122.970	4^+	1037.8333[#] *24*	100.0[‡] *4*	2085.1045	4^+	M1(+E2)[‡]	0.00[‡] *5*	B(M1)(W.u.)=(0.42 *11*)
		2276.131[‡] *4*	0.85[‡] *5*	846.7778	2^+	E2[‡]		B(E2)(W.u.)=0.13 *4*
3369.95	2^+	2523.06[#] *5*	100.0[#] *9*	846.7778	2^+	M1+E2	+0.25[#] *15*	B(M1)(W.u.)=0.065 *13*; B(E2)(W.u.)=1.3 *+15−13*
		3369.84[#] *4*	17[#] *1*	0.0	0^+			
3388.55	6^+	265.5[a] *2*	1.3[a] *3*	3122.970	4^+			
		1303.4[a] *1*	100[a] *4*	2085.1045	4^+	E2[a]		B(E2)(W.u.)=4.0 *4*
3445.348	3^+	787.743[‡] *5*	1.83[‡] *2*	2657.5894	2^+	M1+E2[‡]	+0.85[‡] *35*	B(M1)(W.u.)=0.013 *5*; B(E2)(W.u.)=30 *16*
		1360.212[‡] *4*	25.63[‡] *8*	2085.1045	4^+	M1+E2[‡]	−0.11[‡] *1*	B(M1)(W.u.)=0.060 *11*; B(E2)(W.u.)=0.79 *20*
		2598.500[‡] *4*	100.0[‡] *4*	846.7778	2^+	M1+E2[‡]	−0.28[‡] *2*	B(M1)(W.u.)=0.031 *6*; B(E2)(W.u.)=0.74 *16* δ: other: −0.27 *+9−12* in ^{56}Mn β^- decay.
3448.41	1^+	790[c]	<0.7[c]	2657.5894	2^+			
		2601[c]	33[c] *3*	846.7778	2^+			
		3448[c]	100[c] *3*	0.0	0^+			
3600.21	$(1,2^+)$	942[c]	<2.4[c]	2657.5894	2^+			
		1515[c]	<2.4[c]	2085.1045	4^+			
		2753[c]	20[c] *4*	846.7778	2^+			
		3600[c]	100[c] *4*	0.0	0^+			
3605.69	2^+	948[c]	14.2[c] *20*	2657.5894	2^+			
		1521[c]	<1.4[c]	2085.1045	4^+			
		2759[c]	100[c] *5*	846.7778	2^+			

γ(^{56}Fe) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f	Mult.	δ	α[f]	Comments
3605.69	2+	3606[c]	56[c] 5	0.0	0+				
3610.21	0(+)	952[c]	<1.5[c]	2657.5894	2+				
		1525[c]	<0.7[c]	2085.1045	4+				
		2763[c]	100.0[c]	846.7778	2+				
		3610[c]	<7.0[c]	0.0	0+				
3744.13	2+	2897[c]	100[c]	846.7778	2+				
3755.57	6+	367.0[a] 1	22[a] 1	3388.55	6+	M1+E2[a]	+0.07[a] 12	0.00141 8	α(K)=0.00125 7; α(L)=0.00012 B(M1)(W.u.)=0.61 10; B(E2)(W.u.)=4.E+1 +16−4
		632.6[ah]	≤2[a]	3122.970	4+				
		1670.8[a] 4	100[a] 4	2085.1045	4+	E2			B(E2)(W.u.)=21 4
3829.77	2+	1172[c]	58[c] 10	2657.5894	2+				
		2983[c]	100[c] 10	846.7778	2+				
		3830[c]	35[c] 4	0.0	0+				
3856.495	3+	411.145[‡] 4	0.17[‡] 1	3445.348	3+				
		486.55[‡] 11	0.38[‡] 2	3369.95	2+				
		733.514[‡] 4	1.24[‡] 3	3122.970	4+	M1[‡]			B(M1)(W.u.)=0.025 4
		896.510[‡] 6	0.46[‡] 1	2959.972	2+				
		1198.888[‡] 5	0.28[‡] 2	2657.5894	2+				
		1771.357[‡] 4	100.0[‡] 3	2085.1045	4+	M1(+E2)[‡]	−0.004[‡] +5−2		B(M1)(W.u.)=(0.145 18); B(E2)(W.u.)=(0.0015 +38−15)
		3009.645[‡] 4	6.42[‡] 14	846.7778	2+	M1+E2[‡]	+0.065[‡] 5		B(M1)(W.u.)=0.00190 24; B(E2)(W.u.)=0.0018 4
4048.888	3+	1088.894[‡] 9	1.7[‡] 1	2959.972	2+	M1+E2[‡]	+0.43[‡] 12		B(M1)(W.u.)=0.028 13; B(E2)(W.u.)=9 6
		1963.741[‡] 8	22.0[‡] 1	2085.1045	4+	M1+E2[‡]	+0.22[‡] 3		B(M1)(W.u.)=0.07 3; B(E2)(W.u.)=1.8 9
		3202.029[‡] 8	100.0[‡] 4	846.7778	2+	M1+E2[‡]	+0.50[‡] 1		B(M1)(W.u.)=0.06 3; B(E2)(W.u.)=3.1 14
4085.93	(1,2+)	3239[c]	100[c] 8	846.7778	2+				
		4086[c]	33[c] 8	0.0	0+				
4100.363	4+	655.003[‡] 5	0.45[‡] 10	3445.348	3+				
		977.372[‡] 5	18.05[‡] 9	3122.970	4+	M1(+E2)[‡]	+0.07[‡] +3−2		B(M1)(W.u.)=(0.061 8); B(E2)(W.u.)=(0.6 6)
		1140.368[‡] 6	1.68[‡] 5	2959.972	2+				
		1442.746[‡] 6	2.29[‡] 5	2657.5894	2+				
		2015.215[‡] 5	38.3[‡] 5	2085.1045	4+	M1+E2[‡]	+0.68[‡] 5		B(M1)(W.u.)=0.0102 13; B(E2)(W.u.)=2.3 4
		3253.503[‡] 4	100.0[‡] 4	846.7778	2+	E2[‡]			B(E2)(W.u.)=1.76 21
4119.936	3+	263.434[‡] 5	0.30[‡] 3	3856.495	3+				
		674.579[‡] 5	0.45[‡] 6	3445.348	3+				
		996.948[‡] 5	1.50[‡] 8	3122.970	4+	M1+E2[‡]			B(E2)(W.u.)=3.8 11

$\gamma(^{56}Fe)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[d]	E_f	J^{π}_f	Mult.	δ	Comments
4119.936	3^+	1159.944[‡] 6	1.14[‡] 4	2959.972	2^+	M1+E2[‡]	+0.064[‡] +16−36	B(M1)(W.u.)=0.0010 3; B(E2)(W.u.)=0.006 4
		1462.322[‡] 6	1.00[‡] 1	2657.5894	2^+			
		2034.791[‡] 5	100.0[‡] 4	2085.1045	4^+	M1+E2[‡]	−0.073[‡] 5	B(M1)(W.u.)=0.015 5; B(E2)(W.u.)=0.038 12
		3273.079[‡] 4	23.97[‡] 12	846.7778	2^+	M1+E2[‡]	+0.420[‡] 4	B(M1)(W.u.)=0.00068 20; B(E2)(W.u.)=0.023 7
4298.096	4^+	852.732[‡] 4	2.18[‡] 13	3445.348	3^+			
		1175.101[‡] 4	100.0[‡] 4	3122.970	4^+	M1+E2[‡]	+0.14[‡] 4	B(M1)(W.u.)=0.07 4; B(E2)(W.u.)=2.1 16
		1640.475[‡] 5	2.76[‡] 9	2657.5894	2^+			
		2212.948[‡] 4	17.1[‡] 2	2085.1045	4^+	M1+E2[‡]	−3.0[‡] 10	B(M1)(W.u.)=0.00019 15; B(E2)(W.u.)=0.7 4
		3451.232[‡] 4	41.9[‡] 3	846.7778	2^+	E2[‡]		B(E2)(W.u.)=0.21 10
4302.0	0^+	3455.0	100	846.7778	2^+			
4394.93	3^+	1271.92[‡] 6	10.3[‡] 4	3122.970	4^+			
		3548.05[‡] 6	100.0[‡] 8	846.7778	2^+	M1+E2[‡]	−0.30[‡] 2	B(M1)(W.u.)=0.012 6; B(E2)(W.u.)=0.17 9
4401.27	2^+	955.8	46[c] 3	3445.348	3^+			
		1031[c]	<2.0[c]	3369.95	2^+			
		1441[c]	11.7[c] 23	2959.972	2^+			
		1459.3	7.7	2941.50	0^+			
		2316[c]	<6.3[c]	2085.1045	4^+			
		3554.2	100[c] 3	846.7778	2^+			
4447.7		3600.8[‡] 4	100[‡]	846.7778	2^+			
4458.532	4^+	1335.40[‡] 3	100.0[‡] 13	3122.970	4^+			
		2373.24[‡] 3	64[‡] 5	2085.1045	4^+			
		3611.53[‡] 3	6.8[‡] 3	846.7778	2^+			
4509.56	3^-	754.35[c] 18	<21[c]	3755.57	6^+			
		1064.6	6 4	3445.348	3^+			
		1139.66[c] 10	39[c] 17	3369.95	2^+			
		1386.3[c] 3	28[c] 15	3122.970	4^+			
		1852.09[c] 4	100[c]	2657.5894	2^+			
		2424.93[c] 15	20[c] 8	2085.1045	4^+			
		3662.67[c] 10	98[c] 18	846.7778	2^+			
4539.5	$1^+,2^+$	1579.5	100 14	2959.972	2^+			
		1881.9	52.6 88	2657.5894	2^+			
		4539.5	22.8 53	0.0	0^+			
4554.77	4^+	799.02[c] 5	14[c] 5	3755.57	6^+			
		810.60[c] 8	10[c] 6	3744.13	2^+			
		1108.6	10 6	3445.348	3^+			
		1165.74[c] 11	16[c] 4	3388.55	6^+			
		1431.58[c] 5	34[c] 8	3122.970	4^+			

$^{56}_{26}Fe_{30}$-13

$\gamma(^{56}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f	Mult.	δ	Comments
4554.77	4^+	1897.8[c] 3	11[c] 4	2657.5894	2^+			
		2469.71[c] 3	100[c]	2085.1045	4^+			
		3708.6[c] 5	7[c] 3	846.7778	2^+			
4608.56	2^+	1485.60[c] 5	19[c] 8	3122.970	4^+			
		1667.07[c] 15	10[c] 5	2941.50	0^+			
		1949.9[c] 5	9[c] 4	2657.5894	2^+			
		2523.09[c] 12	100[c]	2085.1045	4^+			
		3761.5[c] 4	47[c] 7	846.7778	2^+			
4610.82	4^+	756.2[c] 4	<7[c]	3856.495	3^+			
		781.20[c] 11	35[c] 8	3829.77	2^+			
		1651.0[c] 4	15[c] 8	2959.972	2^+			
		1954.11[c] 16	33[c] 8	2657.5894	2^+			
		2525.75[c] 23	77[c] 28	2085.1045	4^+			
		3763.4[c] 4	100[c]	846.7778	2^+			
4658.26	$2^+,3^+,4^+$	1213[c]	<3.3[c]	3445.348	3^+			
		1288[c]	<3.3[c]	3369.95	2^+			
		1698[c]	<5[c]	2959.972	2^+			
		2000[c]	<3.3[c]	2657.5894	2^+			
		2573[c]	100[c] 5	2085.1045	4^+			
		3811[c]	67[c] 5	846.7778	2^+			
		4658[c]	<3.3[c]	0.0	0^+			
4683.04	$(2^+),3^+$	1312.58[c] 4	<48[c]	3369.95	2^+			
		1559.53[c] 11	24[c] 10	3122.970	4^+			
		1724.7		2959.972	2^+			
		2525.75[c] 23	77[c] 28					
		3836.21[c] 11	100[c]	846.7778	2^+			
4692.32	4^+	936.58[c] 4	25[c] 4	3755.57	6^+			
		948.6[c] 4	3[c] 1	3744.13	2^+			
		1569.42[c] 8	16[c] 5	3122.970	4^+			
		2034.76[c] 2	51[c] 13	2657.5894	2^+			
		2607.22[c] 3	100[c]	2085.1045	4^+			
		3844.0[c] 4	17[c] 3	846.7778	2^+			
4700.63	7^+	944.7[&] 2	19[&] 2	3755.57	6^+			
		1312.2[&] 1	100[&] 5	3388.55	6^+	M1+E2[@]	−0.08 8	B(M1)(W.u.)=0.0981 13; B(E2)(W.u.)=0.7 +15−7 δ: From (HI,xnγ).
4728.14	2^+	3881[c]	100[c] 3	846.7778	2^+			
		4728[c]	11[c] 3	0.0	0^+			
4730.0	0^+	3883.1	100	846.7778	2^+			

From ENSDF

$^{56}_{26}Fe_{30}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{56}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f
4737.33	2^+	617.36[c] *8*	18[c] *7*	4119.936	3^+
		1616.6	25	3120.11	(1^+)
		2079.80[c] *3*	100[c]	2657.5894	2^+
		3889.6[c] *3*	27[c] *6*	846.7778	2^+
		4736.3[c] *6*	40[c] *15*	0.0	0^+
4784.12	$(1,2^+)$	1664[c]	22[c] *6*	3120.11	(1^+)
		3937[c]	100[c] *9*	846.7778	2^+
		4784[c]	96[c] *9*	0.0	0^+
4812.68	$4^+,5^+$	692.65[c] *14*		4119.936	3^+
		1057.8[c] *3*		3755.57	6^+
		1368.3[c] *3*		3445.348	3^+
4847.9	(2^+)	2190.0[c] *4*		2657.5894	2^+
		2763.24[c] *19*		2085.1045	4^+
		4847[b] *3*		0.0	0^+
4866.52	$(1,2^+)$	1267[c]	1.0[c] *4*	3600.21	$(1,2^+)$
		1419[c]	16.0[c] *6*	3448.41	1^+
		1422[c]	1.8[c] *6*	3445.348	3^+
		1497[c]	7.8[c] *4*	3369.95	2^+
		1747[c]	2.2[c] *6*	3120.11	(1^+)
		1907[c]	54.9[c] *16*	2959.972	2^+
		2209[c]	6[c] *1*	2657.5894	2^+
		2782[c]	<0.78[c]	2085.1045	4^+
		4020[c]	100.0[c] *23*	846.7778	2^+
		4867[c]	5[c] *1*	0.0	0^+
4878.0	2^+	1918.0	58	2959.972	2^+
		2793[c]	81[c] *12*	2085.1045	4^+
		4031[c]	100[c] *16*	846.7778	2^+
		4878[c]	57[c] *16*	0.0	0^+
4887.1		1055.0	100	3829.77	2^+
5023.49	$(1,2)^+$	903[c]	7.9[c] *24*	4119.936	3^+
		1191.7		3829.77	2^+
		1575[c]	63.5[c] *24*	3448.41	1^+
		1653[c]	66[c] *3*	3369.95	2^+
		1903[c]	<2.65[c]	3120.11	(1^+)
		2063[c]	100[c] *4*	2959.972	2^+
		2365[c]	<2.12[c]	2657.5894	2^+
		4176[c]	7.1[c] *13*	846.7778	2^+
		5023[c]	19.6[c] *21*	0.0	0^+

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f
5033.02	$(4,5)^+$	1277.00[c] *10*	32[c] *8*	3755.57	6^+
		1643.9[c] *5*	<17[c]	3388.55	6^+
		2947.86[c] *11*	100[c]	2085.1045	4^+
		4188.2[c] *5*	42[c] *28*	846.7778	2^+
5038.49	4^+	1915.10[c] *18*		3122.970	4^+
5055.87	$4^+,(3^+)$	757.75[c] *6*	100[c]	4298.096	4^+
		2971.04[c] *16*	68[c] *22*	2085.1045	4^+
5122.11	5^-	3036.9	100	2085.1045	4^+
5131.66	$3^+,4^+,(2^+)$	673.02[c] *8*	30[c] *8*	4458.532	4^+
		1082.83[c] *12*	23[c] *6*	4048.888	3^+
		1686.41[c] *5*	100[c]	3445.348	3^+
		2008.80[c] *11*	60[c] *7*	3122.970	4^+
		4284.6[c] *3*	39[c] *7*	846.7778	2^+
5149.54	2^+	2026.6[c] *3*	27[c] *15*	3122.970	4^+
		3064.04[c] *8*	100[c]	2085.1045	4^+
5184.3	$8^{(+)}$	1427.8[@] *3*	100[@] *5*	3755.57	6^+
5186.82	2^+	1137.5		4048.888	3^+
		3101.2[c] *13*		2085.1045	4^+
5194.80	$(1,2^+)$	1585[c]	23[c] *5*	3610.21	$0^{(+)}$
		2075[c]	23[c] *5*	3120.11	(1^+)
		2253[c]	46[c] *5*	2941.50	0^+
		2537[c]	64[c] *5*	2657.5894	2^+
		4348[c]	100[c] *8*	846.7778	2^+
5227.3	1	5227[b] *2*		0.0	0^+
5232.57	$2^+,(3^+)$	1132.13[c] *16*	9[c] *2*	4100.363	4^+
		1183.39[c] *6*	29[c] *10*	4048.888	3^+
		1783.4[c] *3*	6[c] *2*	3448.41	1^+
		1787.18[c] *11*	28[c] *3*	3445.348	3^+
		3147.7[c] *3*	16[c] *2*	2085.1045	4^+
		4385.87[c] *9*	100[c]	846.7778	2^+
5235.89	4^+	543.39[c] *6*	17[c] *6*	4692.32	4^+
		777.14[c] *5*	23[c] *3*	4458.532	4^+
		936.58[c] *4*	16[c] *3*	4320	2^+
		1135.68[c] *10*	34[c] *4*	4100.363	4^+
		1186.29[c] *25*	6[c] *2*	4048.888	3^+
		1480.4[c] *3*	5[c] *2*	3755.57	6^+
		1790.44[c] *13*	17[c] *3*	3445.348	3^+
		1847.49[c] *6*	33[c] *5*	3388.55	6^+

$^{56}_{26}Fe_{30}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{56}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f	Mult.	Comments
5235.89	4^+	2276.3[c] *3*	<12[c]	2959.972	2^+		
		2578.56[c] *9*	<25[c]	2657.5894	2^+		
		3150.70[c] *9*	100[c]	2085.1045	4^+		
5255.7	8^+	1499.5[@] *3*	39[@] *2*	3755.57	6^+	E2[@]	B(E2)(W.u.)=4.7 *7*
		1866.8[@] *3*	100[@] *5*	3388.55	6^+	E2[@]	B(E2)(W.u.)=4.0 *6*
5256.9	2^+	4410[c]	100[c] *20*	846.7778	2^+		
		5257[b] *3*	100[c] *20*	0.0	0^+		
5302.94	4^+	757.75[c] *4*	<28[c]				
		1005.1[c] *3*	18[c] *9*	4298.096	4^+		
		1915.10[c] *18*	40[c] *10*	3388.55	6^+		
		2180.12[c] *6*	27[c] *7*	3122.970	4^+		
		3217.61[c] *10*	100[c]	2085.1045	4^+		
		4456.9[c] *8*	<40[c]	846.7778	2^+		
5307.81		1010		4298.096	4^+		
		1919.69[c] *6*		3388.55	6^+		
		3220		2085.1045	4^+		
5402.3	≥1	2460.3	100	2941.50	0^+		
		5404[gb] *3*	[g]	0.0	0^+		
5451.60	4^+	1151.84[c] *16*	57[c] *16*	4320	2^+		
		1153.78[c] *25*	57[c] *16*	4298.096	4^+		
		1402.79[c] *17*	41[c] *20*	4048.888	3^+		
		1696.17[c] *16*	100[c]	3755.57	6^+		
		2063.25[c] *8*	96[c] *30*	3388.55	6^+		
		4604.9[c] *4*	10[c] *6*	846.7778	2^+		
5479.15	(4^+)	3394.10[c] *19*		2085.1045	4^+		
5488.24	2,3,4	1120.27[c] *4*	46[c] *11*	4368.13?	3^-		
		1368.41[c] *9*	<50[c]	4119.936	3^+		
		2042.65[c] *6*	69[c] *18*	3445.348	3^+		
		3401.2[c] *4*	100[c]	2085.1045	4^+		
5502.94	$(2,3,4)^+$	1101.80[c] *6*	<20[c]	4401.27	2^+		
		1402.79[c] *17*	25[c] *15*	4100.363	4^+		
		2058.2[c] *4*	<30[c]	3445.348	3^+		
		2133.13[c] *13*	54[c] *16*	3369.95	2^+		
		2845.96[c] *16*	67[c] *9*	2657.5894	2^+		
		3418.69[c] *11*	100[c]	2085.1045	4^+		
5511.6	2^+	2141.8	100	3369.95	2^+		
5538.07	$(1,2^+)$	2168[c]	34[c] *5*	3369.95	2^+		
		2880[c]	71[c] *5*	2657.5894	2^+		

γ(^{56}Fe) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f	Mult.	δ	Comments
5538.07	(1,2$^+$)	4691[c]	58[c] 5	846.7778	2$^+$			
		5538[c]	100[c] 8	0.0	0$^+$			
5573.51	2$^+$	4726.1 4		846.7778	2$^+$			
5590.06	1$^+$,2,3$^+$	2142[c]	50[c] 10	3448.41	1$^+$			
		2145[c]	33[c] 10	3445.348	3$^+$			
		2220[c]	28[c] 8	3369.95	2$^+$			
		2932[c]	100[c] 10	2657.5894	2$^+$			
		4743[c]	40[c] 10	846.7778	2$^+$			
5618.36	4$^+$	1223.46[c] 5	<12[c]	4394.93	3$^+$			
		2173.89[c] 7	<100[c]	3445.348	3$^+$			
		2230.0[c] 3	15[c] 10	3388.55	6$^+$			
		2658.19[c] 11	27[c] 15	2959.972	2$^+$			
		3535.0[c] 5	88[c] 30	2085.1045	4$^+$			
		4772.5[c] 4	100[c]	846.7778	2$^+$			
5623.86	(4,5)$^+$	1523.26[c] 22	54[c] 28	4100.363	4$^+$			
		1575.21[c] 6	<15[c]	4048.888	3$^+$			
		1867.89[c] 25	83[c] 27	3755.57	6$^+$			
		2500.52[c] 25	36[c] 11	3122.970	4$^+$			
		3539.14[c] 21	100[c]	2085.1045	4$^+$			
5626.84	8$^+$	926.2[a] 1	100[a] 2	4700.63	7$^+$	M1+E2[a]	+0.25[a] 10	B(M1)(W.u.)=0.332 16; B(E2)(W.u.)=5.E+1 4
		1871.3[a]	5[a] 5	3755.57	6$^+$	E2[a]		B(E2)(W.u.)=1.2 12
		2238[a] 2	9[a] 2	3388.55	6$^+$	E2[a]		B(E2)(W.u.)=0.9 +3−4
5661.18		5661.2[c] 6		0.0	0$^+$			
5670.33	(2,3,4)$^+$	2711.0[c] 4	40[c] 12	2959.972	2$^+$			
		3585.25[c] 14	100[c]	2085.1045	4$^+$			
		4822.9[c] 4	48[c] 7	846.7778	2$^+$			
5697.98	(2$^+$)	1293.73[c] 12						
5705.43	2$^+$	977.29[c] 5	<27[c]	4728.14	2$^+$			
		2259.92[c] 11	74[c] 20	3445.348	3$^+$			
		2584.73[c] 25	35[c] 15	3120.11	(1$^+$)			
		2744.88[c] 17	60[c] 20	2959.972	2$^+$			
		3619.6[c] 5	100[c]	2085.1045	4$^+$			
		4857.4[c] 6	88[c] 26	846.7778	2$^+$			
5774.00	(4$^+$)	1326.2[c] 3	34[c] 11	4447.7				
		3116.2[c] 3	100[c]	2657.5894	2$^+$			
5795.2		4948.2	100	846.7778	2$^+$			
5801.34		1972.8[c] 4		3829.77	2$^+$			
		2859.4[c] 4		2941.50	0$^+$			

$^{56}_{26}Fe_{30}$-17

Adopted Levels, Gammas (continued)

$\gamma(^{56}Fe)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[d]	E_f	J^{π}_f
5806.3		4958.2[c] *4*		846.7778	2^+
5817.22		2447.5[c] *5*		3369.95	2^+
5853?		5853[bh] *2*		0.0	0^+
5861.5	4^+	2902.6[c] *5*		2959.972	2^+
5871.26	(2,3,4)	1551.2[c] *3*		4320	2^+
		2127.34[c] *24*		3744.13	2^+
		2750		3120.11	(1^+)
		3786.4[c] *6*		2085.1045	4^+
5914.53	$(2,3,4)^+$	1222.38[c] *25*	15[c] *6*	4692.32	4^+
		1312.42[c] *8*	<30[c]	4620	
		1455.5[c] *3*	<17[c]	4458.532	4^+
		1519.6[c] *4*	12[c] *9*	4394.93	3^+
		1615.91[c] *16*	24[c] *12*	4298.096	4^+
		2058.2[c] *4*	<29[c]	3856.495	3^+
		2792.65[c] *16*	<39[c]	3122.970	4^+
		2794.13[c] *16*	<39[c]	3120.11	(1^+)
		3829.64[c] *14*	100[c]	2085.1045	4^+
		5068.0[c] *8*	67[c] *21*	846.7778	2^+
5936.17	2^+	2080[c]	49[c] *3*	3856.495	3^+
		5089[c]	100[c] *3*	846.7778	2^+
5965.81		2359.8 *4*		3605.69	2^+
5986.86	(1^+ to 3^+)	1447[c]	42[c] *6*	4539.5	$1^+,2^+$
		2542[c]	100[c] *6*	3445.348	3^+
		5140[c]	67[c] *8*	846.7778	2^+
6021.11		5174.6[c] *5*		846.7778	2^+
6047.53		1508.31[c] *12*		4539.5	$1^+,2^+$
		5200.8[c] *8*		846.7778	2^+
6061.79	4^+	1612.96[c] *18*	46[c] *25*	4447.7	
		1667.07[c] *15*	<20[c]	4394.93	3^+
		1842.53[c] *13*	56[c] *24*		
		2305.6[c] *5*	25[c] *14*	3755.57	6^+
		2460.2[c] *3*	42[c] *16*	3600.21	$(1,2^+)$
		3101.22[c] *13*	<30[c]	2959.972	2^+
		3975.4[c] *3*	100[c]	2085.1045	4^+
		5214.6[c] *8*	52[c] *25*	846.7778	2^+
6078?		6078[bh] *3*		0.0	0^+
6092.2	(3^-)	2643.0		3448.41	1^+
		2722.1		3369.95	2^+

$\gamma(^{56}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f	Comments
6092.2	(3⁻)	4007.2		2085.1045	4⁺	
6102.21	(0 to 3⁺)	2496[c]	54[c] 6	3605.69	2⁺	
		2654[c]	100[c] 6	3448.41	1⁺	
		5255[c]	38[c] 8	846.7778	2⁺	
6110.6		4026.3[c] 5		2085.1045	4⁺	
6115.7		860.0 5	100	5255.7	8⁺	
6131.24	2⁺	2010.77[c] 25	67[c] 25	4119.936	3⁺	
		3171.0[c] 4	43[c] 20	2959.972	2⁺	
		5284.61[c] 25	100[c]	846.7778	2⁺	
6219?		6219[bh] 3		0.0	0⁺	
6250.78	1	5404[b] 3	64[c] 27	846.7778	2⁺	
		6251[b] 3	100[c] 27	0.0	0⁺	
6312.75		1863.83[c] 11		4447.7		
6386.99		2286.5[c] 4		4100.363	4⁺	
6446.92	2⁺,3⁺	2618[c]	22[c] 10	3829.77	2⁺	
		2842[c]	30[c] 10	3605.69	2⁺	
		2848[c]	59[c] 10	3600.21	(1,2⁺)	
		3328[c]	100[c] 19	3120.11	(1⁺)	
6454.4		5607.8[c] 5		846.7778	2⁺	
6472.5		2352.2[c] 3		4119.936	3⁺	
6625.10	(0 to 3⁺)	3025[c]	100[c] 11	3600.21	(1,2⁺)	
		3180[c]	47[c] 7	3445.348	3⁺	
		3665[c]	76[c] 11	2959.972	2⁺	
6698	1	5853[bh] 2		846.7778	2⁺	
		6698[b] 3		0.0	0⁺	
6850.9	$9^{(+)}$	1221.7[@] 3	100[@] 5	5626.84	8⁺	Additional information 1.
6854.67		1798.62[c] 13		5055.87	4⁺,(3⁺)	
6889.98		3949.0[c] 6		2941.50	0⁺	
6926	1⁻	6926[b] 2	(100)	0.0	0⁺	
6981.68	(0 to 3⁺)	4324[c]	86[c] 19	2657.5894	2⁺	
		6135[c]	100[c] 19	846.7778	2⁺	
7008.00		4923.8[c] 7		2085.1045	4⁺	
7010.8	(>3⁻)	3935.3[c] 4		3076.2	(3⁻)	
7071.37		4986.8 4		2085.1045	4⁺	
7084.6		968.9[@]	100[@]	6115.7		
7135	1	7135[b] 3		0.0	0⁺	
7167.27	1	6320[c]	54[c] 12	846.7778	2⁺	

$^{56}_{26}Fe_{30}$-19

γ(^{56}Fe) (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[d]	E_f	J^{π}_f	Comments
7167.27	1	7167[b] 3	100[c] 12	0.0	0^+	
7177.2	(10^+)	1920.9[@] 15	100[@] 23	5255.7	8^+	
7211.5	1	6364[c]	100[c]	846.7778	2^+	
		7211[e]		0.0	0^+	
7220	0^+	3619[c]	84[c] 23	3600.21	$(1,2^+)$	
		6372[c]	100[c] 23	846.7778	2^+	
7248	1	7248[b] 2		0.0	0^+	
7254.19	0^+	3643.8[c] 4		3610.21	$0^{(+)}$	
7422.67	$(1,2^+)$	6576[c]	100[c] 17	846.7778	2^+	
		7423[c]	17[c] 8	0.0	0^+	
7446.5	1	7446[b] 2		0.0	0^+	
7468.5	1	7468[b] 2		0.0	0^+	
7503.6	$9^{(+)}$	2247.1[@] 7	16.3[@] 23	5255.7	8^+	
		2319.3[@] 3	100[@] 5	5184.3	$8^{(+)}$	
7768.61		3086.2 4		4683.04	$(2^+),3^+$	
		5683.2 5		2085.1045	4^+	
7820.6	$10^{(+)}$	969.6[@] 3	62[@] 4	6850.9	$9^{(+)}$	Additional information 2.
		2564.4[@] 4	14[@] 2	5255.7	8^+	
7886.54	$(1,2^+)$	1951[c]	43[c] 14	5936.17	2^+	
		7887[c]	100[c] 14	0.0	0^+	
8128	1	8128[b] 2	(100)	0.0	0^+	
8219		8219[b] 4		0.0	0^+	
8239.7	1	8239[b] 2	(100)	0.0	0^+	
8247.76	(0 to 3^+)	7401[c]	100[c]	846.7778	2^+	
8309.59	$(1,2^+)$	7463[c]	100[c] 11	846.7778	2^+	
		8310[c]	35[c] 11	0.0	0^+	
8414.8	(10^+)	2785.7[@] 4	86[@] 6	5626.84	8^+	
		3158.2[@] 14	14[@] 2	5255.7	8^+	
8447.87	(0 to 3^+)	7601[c]	100[c]	846.7778	2^+	
8679.9	$11^{(+)}$	265.1[@] 3	14[@] 1	8414.8	(10^+)	
		859.2[@] 3	86[@] 4	7820.6	$10^{(+)}$	Additional information 3.
8758.47	(0 to 3^+)	3974[c]	91[c] 46	4784.12	$(1,2^+)$	
		5158[c]	100[c] 46	3600.21	$(1,2^+)$	
		5388[c]	91[c] 46	3369.95	2^+	
8767		8767[b] 3		0.0	0^+	

Adopted Levels, Gammas (continued)

$\gamma(^{56}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[d]	E_f	J^π_f	Mult.	Comments
8879		8879[b] *4*		0.0	0^+		
8909.9	$(1,2^+)$	8910[ch]	100[c]	0.0	0^+		
8962		8962[b] *4*		0.0	0^+		
8989		8989[b] *4*		0.0	0^+		
9107		9107[b] *4*		0.0	0^+		
9140.3	1^-	9139.5[b] *6*		0.0	0^+	E1[b]	B(E1)(W.u.)=0.0016983 *4*
9154		8307[b] *4*		846.7778	2^+		
		9154[b] *5*		0.0	0^+		
9287		9287[b] *3*		0.0	0^+		
9311		9311[b] *4*		0.0	0^+		
9322		9322[b] *4*		0.0	0^+		
9344.7	(11^+)	1841.1 *3*	100 *7*	7503.6	$9^{(+)}$		
9378.2	(11^+)	963.4[@] *3*	100[@] *6*	8414.8	(10^+)		
9402		9402[b] *3*		0.0	0^+		
9557.62	$(1,2^+)$	9558[bh] *4*		0.0	0^+		
9666?		9666[bh] *5*		0.0	0^+		
9737		9737[b] *5*		0.0	0^+		
9768?		9768[bh] *4*		0.0	0^+		
9895?		9895[bh] *5*		0.0	0^+		
9948		9948[b] *5*		0.0	0^+		
9969?		9969[b] *5*		0.0	0^+		
10060		10060[b] *5*		0.0	0^+		
10094.4	(12^+)	1414.5[@] *3*	100[@] *5*	8679.9	$11^{(+)}$		
10497	1	10497[b] *3*		0.0	0^+		
10563.1	(12^+)	1184.9[@] *3*	100[@] *6*	9378.2	(11^+)		
10898.9	(13^+)	1554.2[@] *7*	100[@] *15*	9344.7	(11^+)		
11133	1	11133[b] *3*	(100)	0.0	0^+		
11964?	(13^+)	1401[@h] *3*	100[@] *7*	10563.1	(12^+)		

† From $^{56}Fe(n,n'\gamma)$, except as noted. For resonance states primary γ's are unplaced in Adopted Levels, see $^{55}Mn(p,p)$, (p,γ) E=res: IAR.
‡ From ^{56}Co ε decay.
# From ^{56}Mn β^- decay.

From ENSDF

$^{56}_{26}Fe_{30}$-21

$\gamma(^{56}Fe)$ (continued)

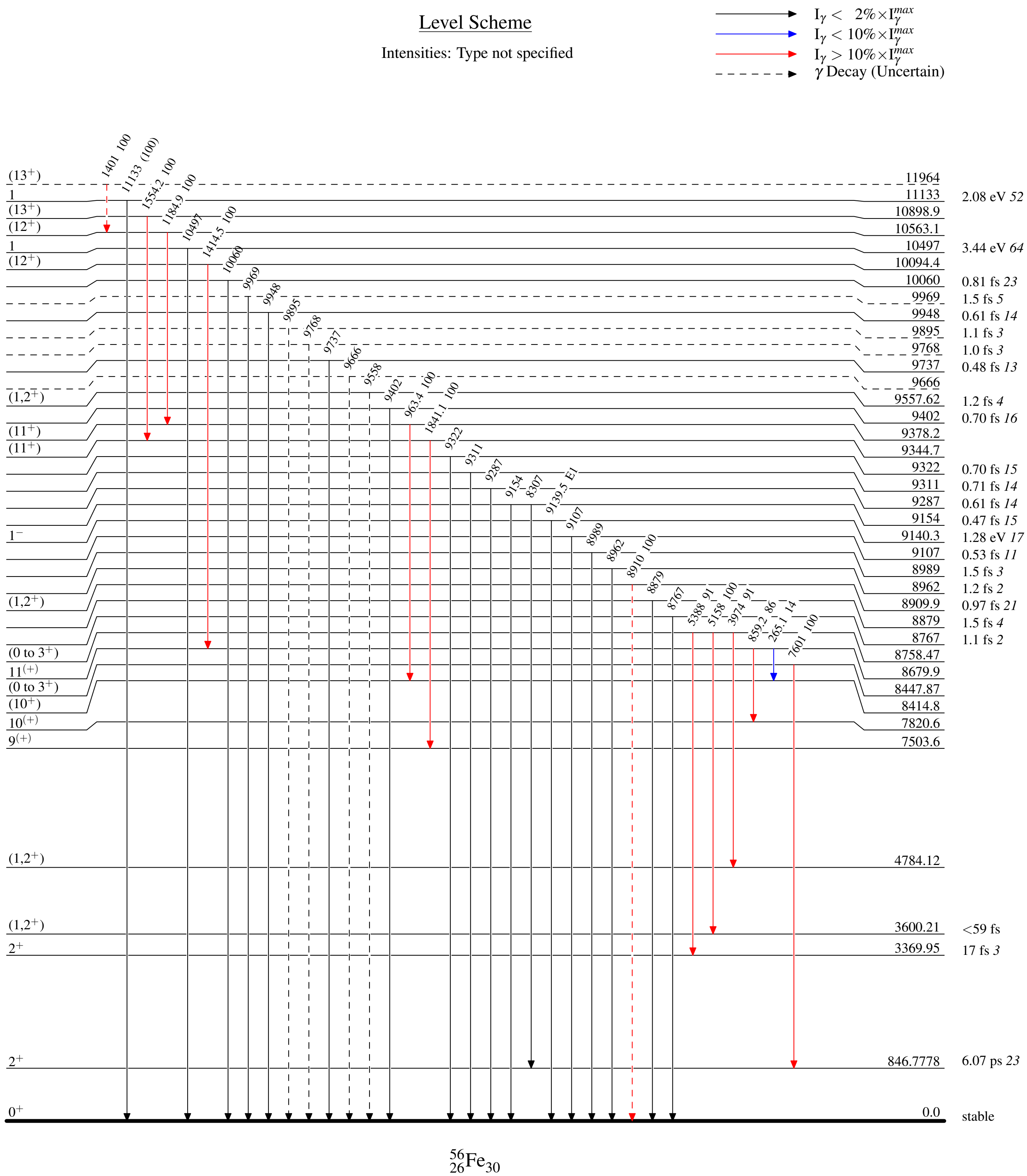
[@] From (HI,xnγ).
[&] From ^{56}Fe(p,p$'\gamma$).
[a] From ^{54}Fe(α,2pγ).
[b] From ^{56}Fe(γ,γ'), (pol γ,γ').
[c] From ^{55}Mn(p,p), (p,γ) E=res: IAR.
[d] Relative photon branching from each level renormalized to 100 for the strongest branching; values from ^{56}Fe(n,n$'\gamma$), except as noted.
[e] Iγ unknown.
[f] 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.
[g] Multiply placed with undivided intensity.
[h] Placement of transition in the level scheme is uncertain.

$^{56}_{26}Fe_{30}$-22

Adopted Levels, Gammas

Level Scheme

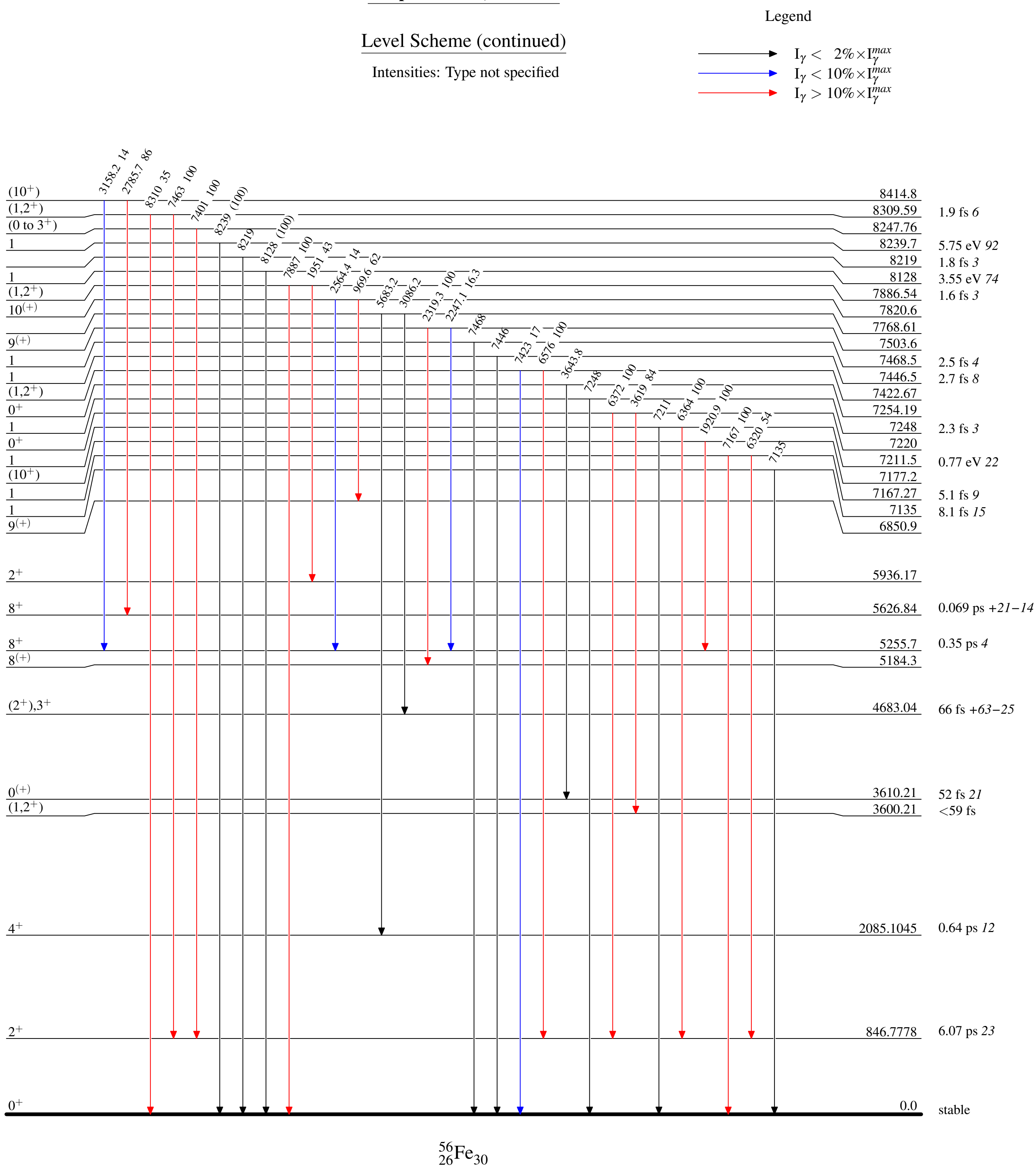
Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



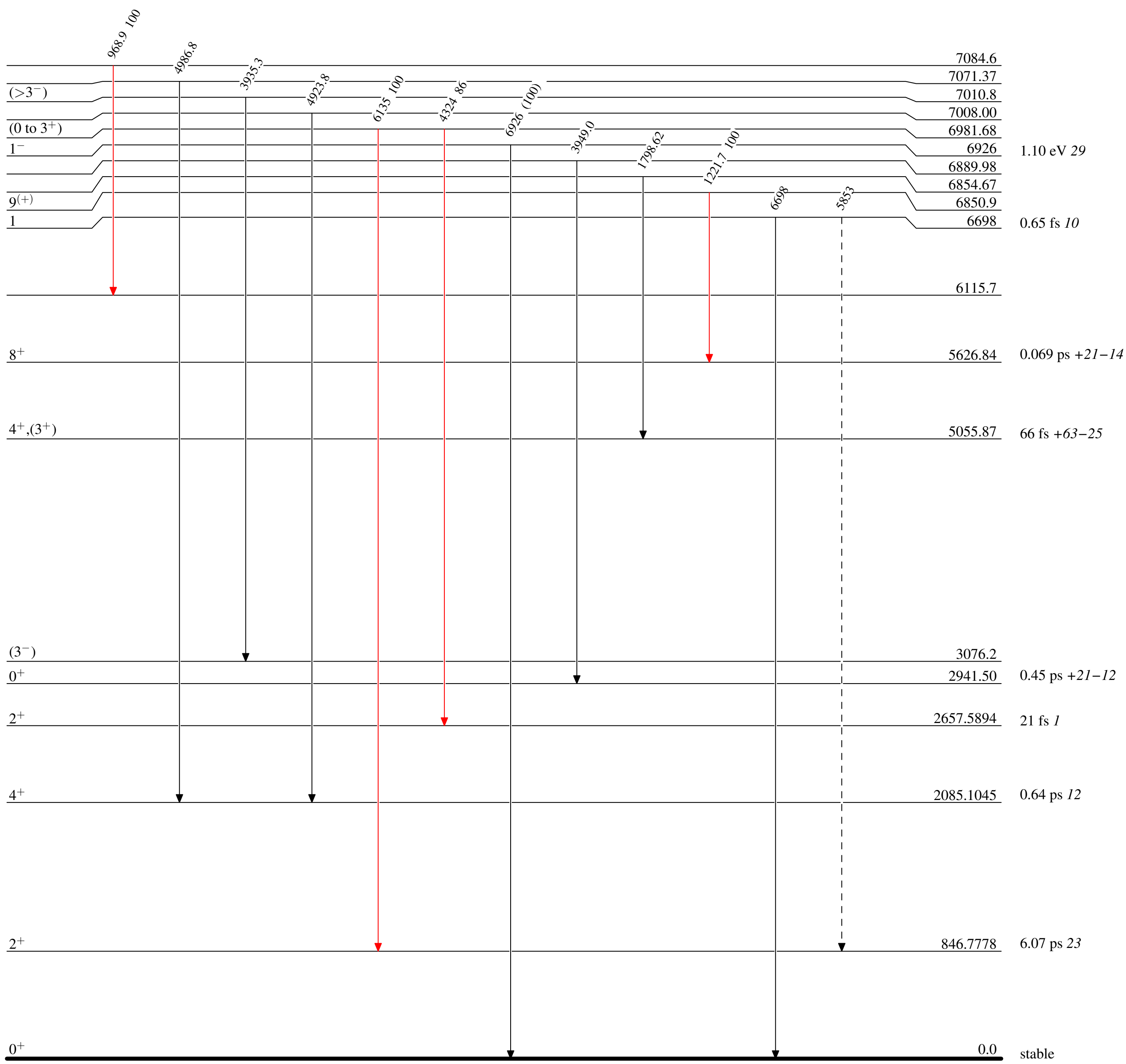
Adopted Levels, Gammas

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)

Level Scheme (continued)

Intensities: Type not specified

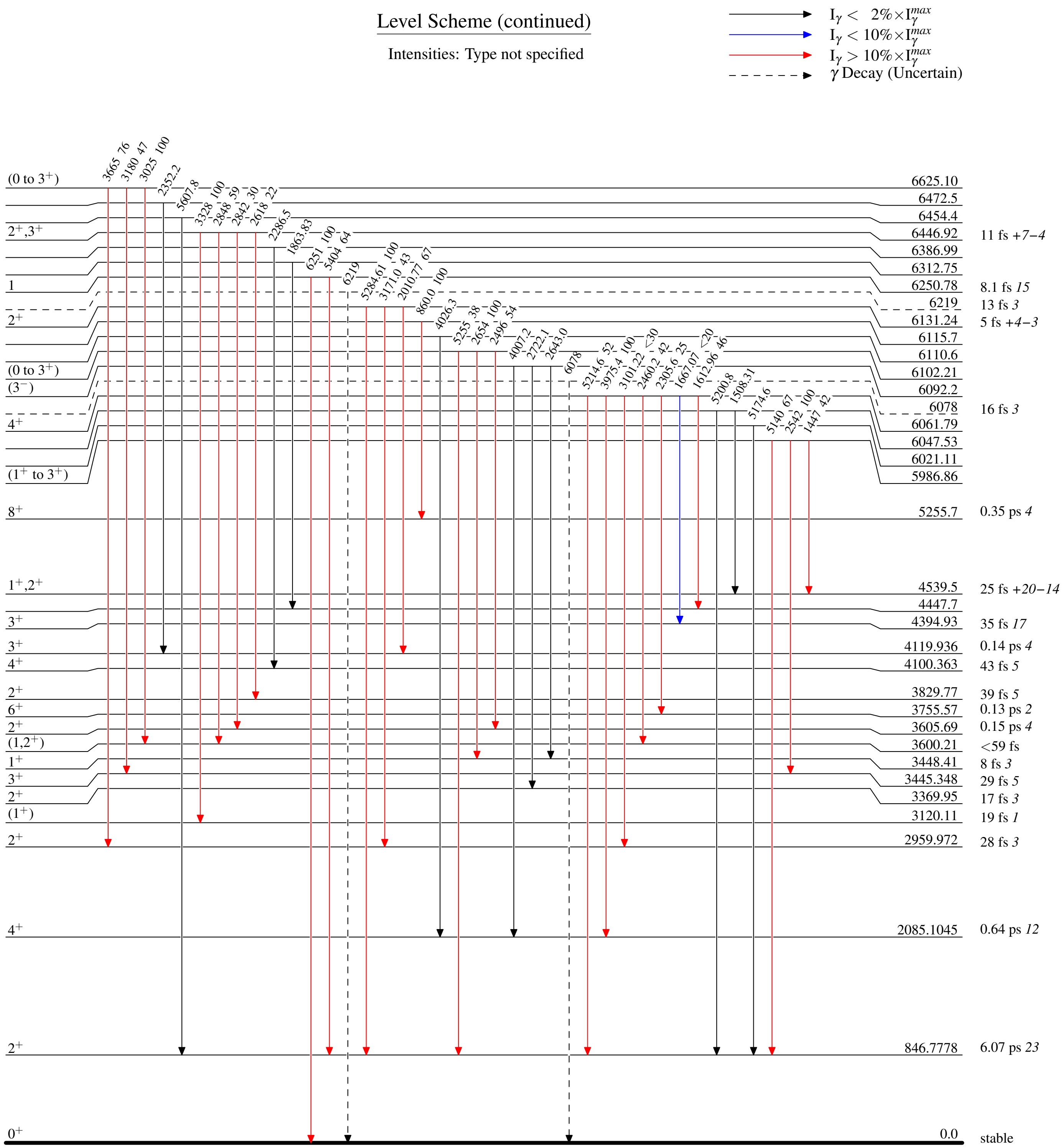


$^{56}_{26}Fe_{30}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

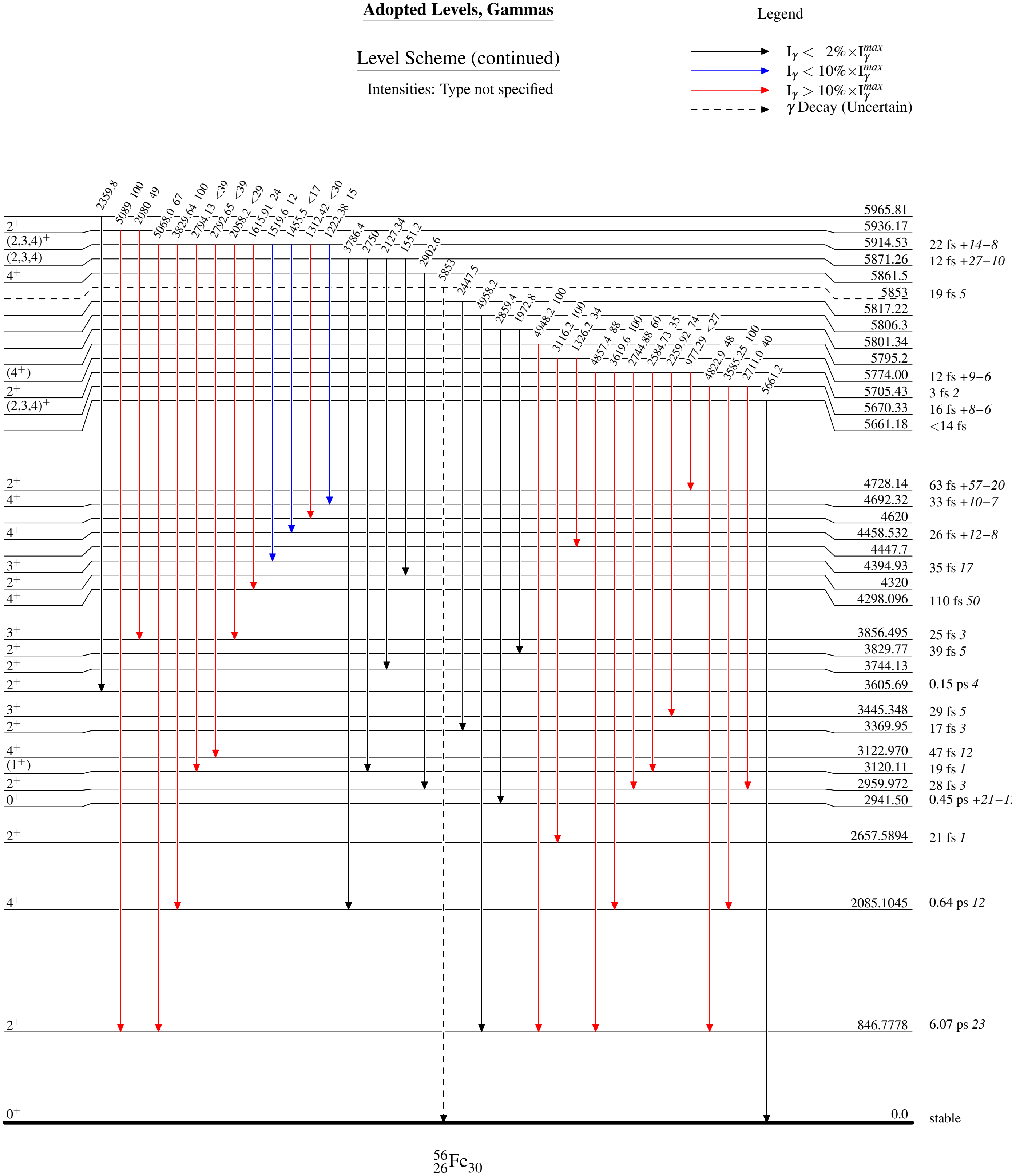


$^{56}_{26}Fe_{30}$

Adopted Levels, Gammas

Level Scheme (continued)

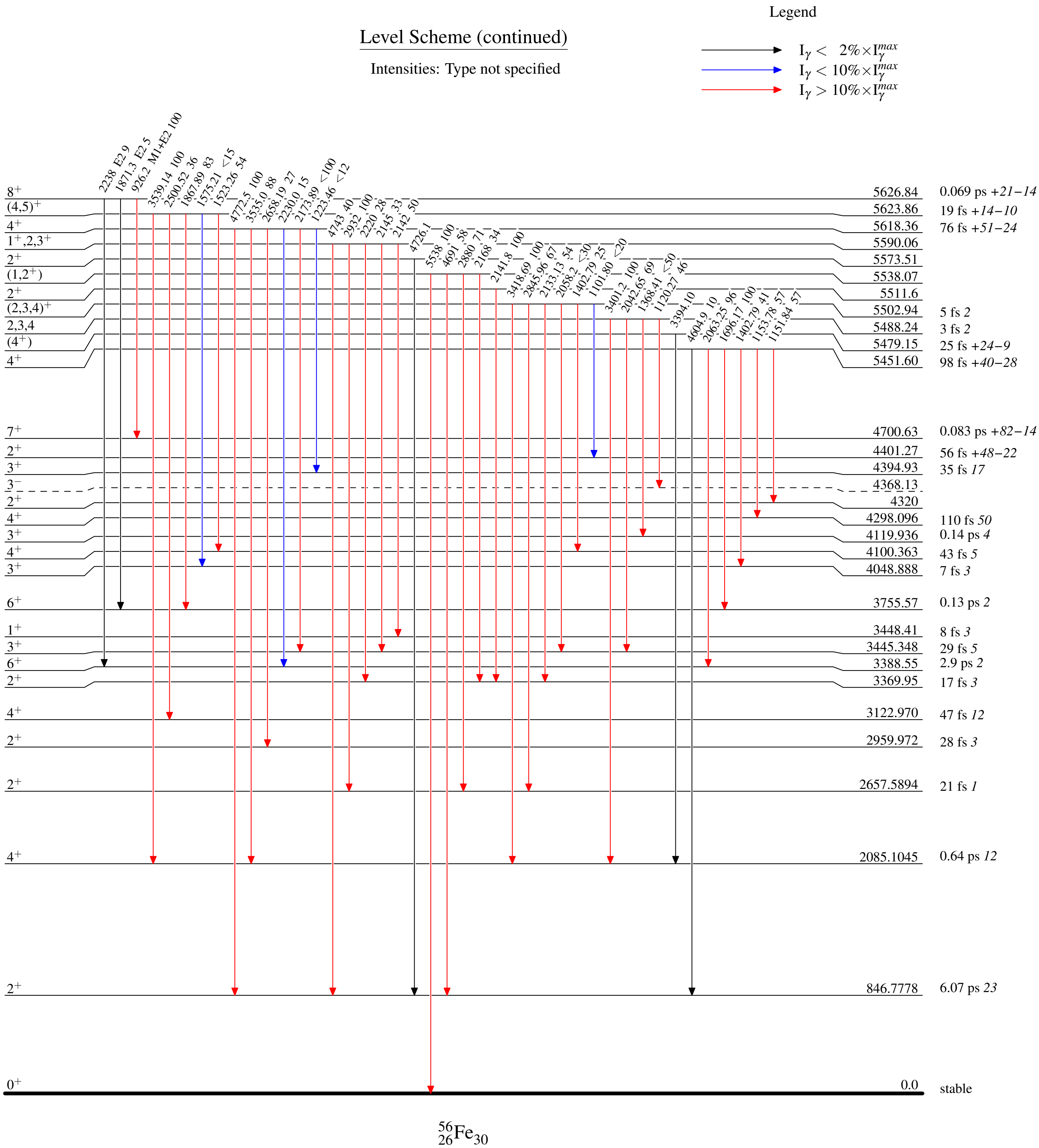
Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

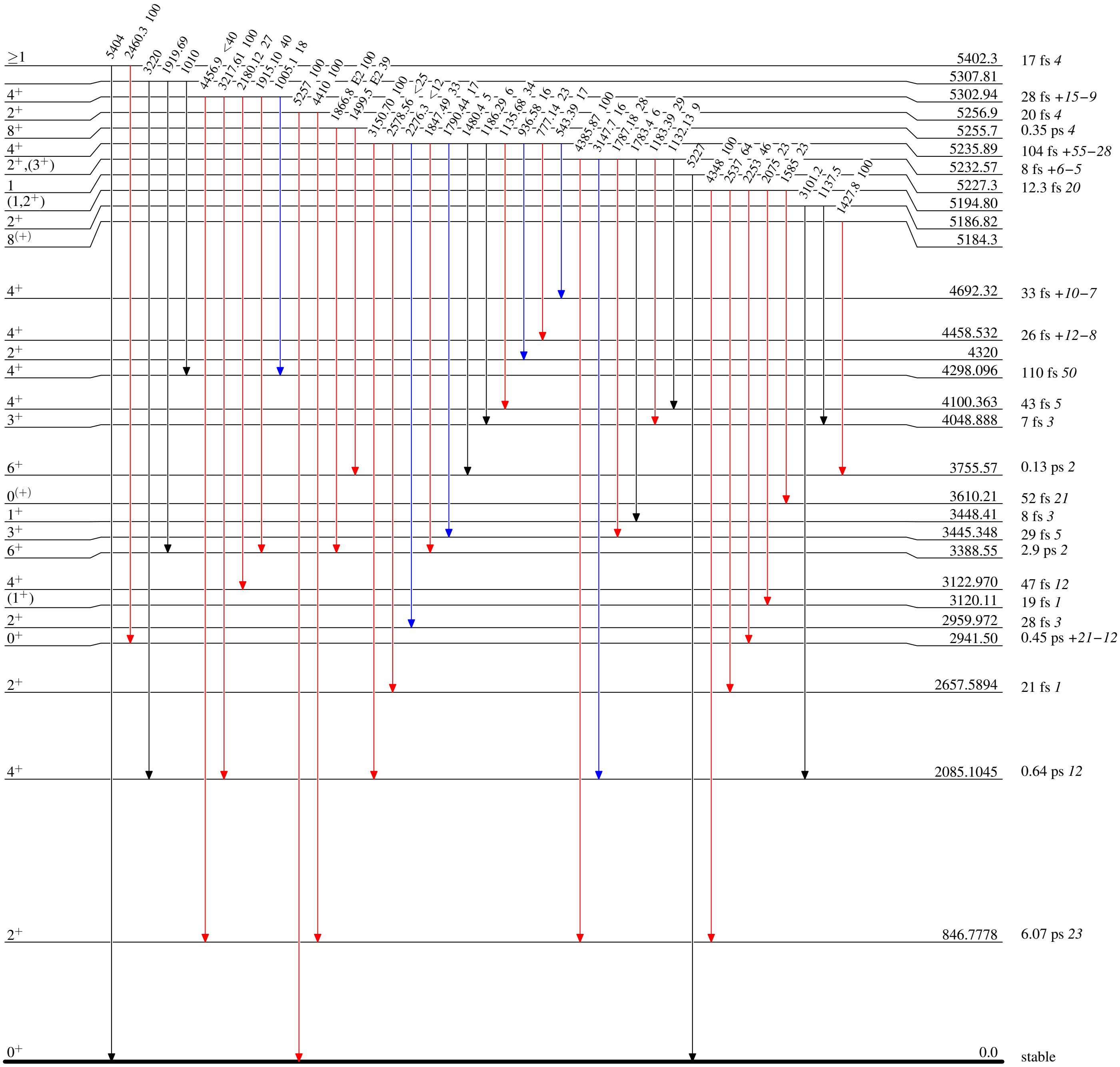
Intensities: Type not specified

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

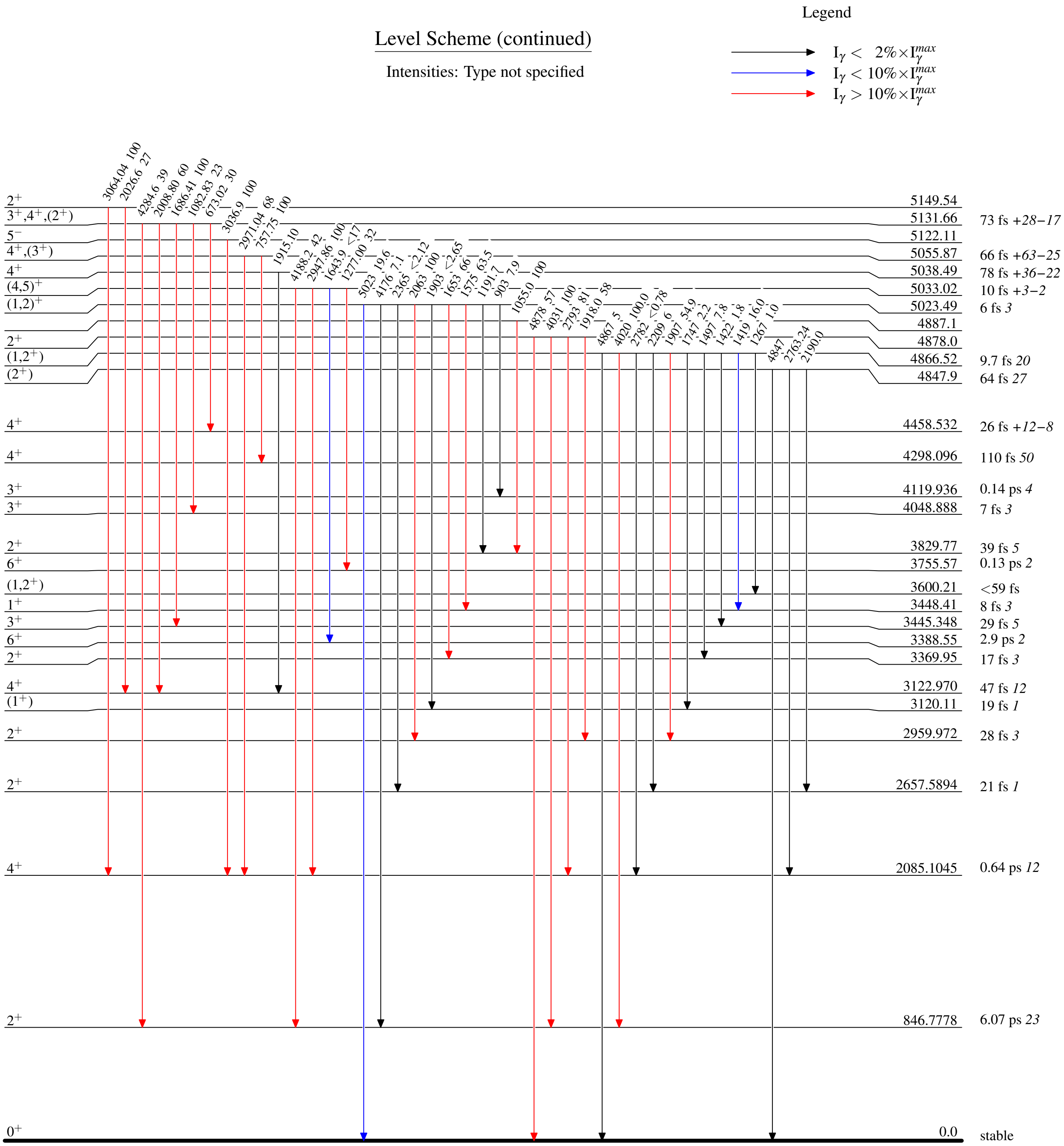


$^{56}_{26}Fe_{30}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



$^{56}_{26}Fe_{30}$

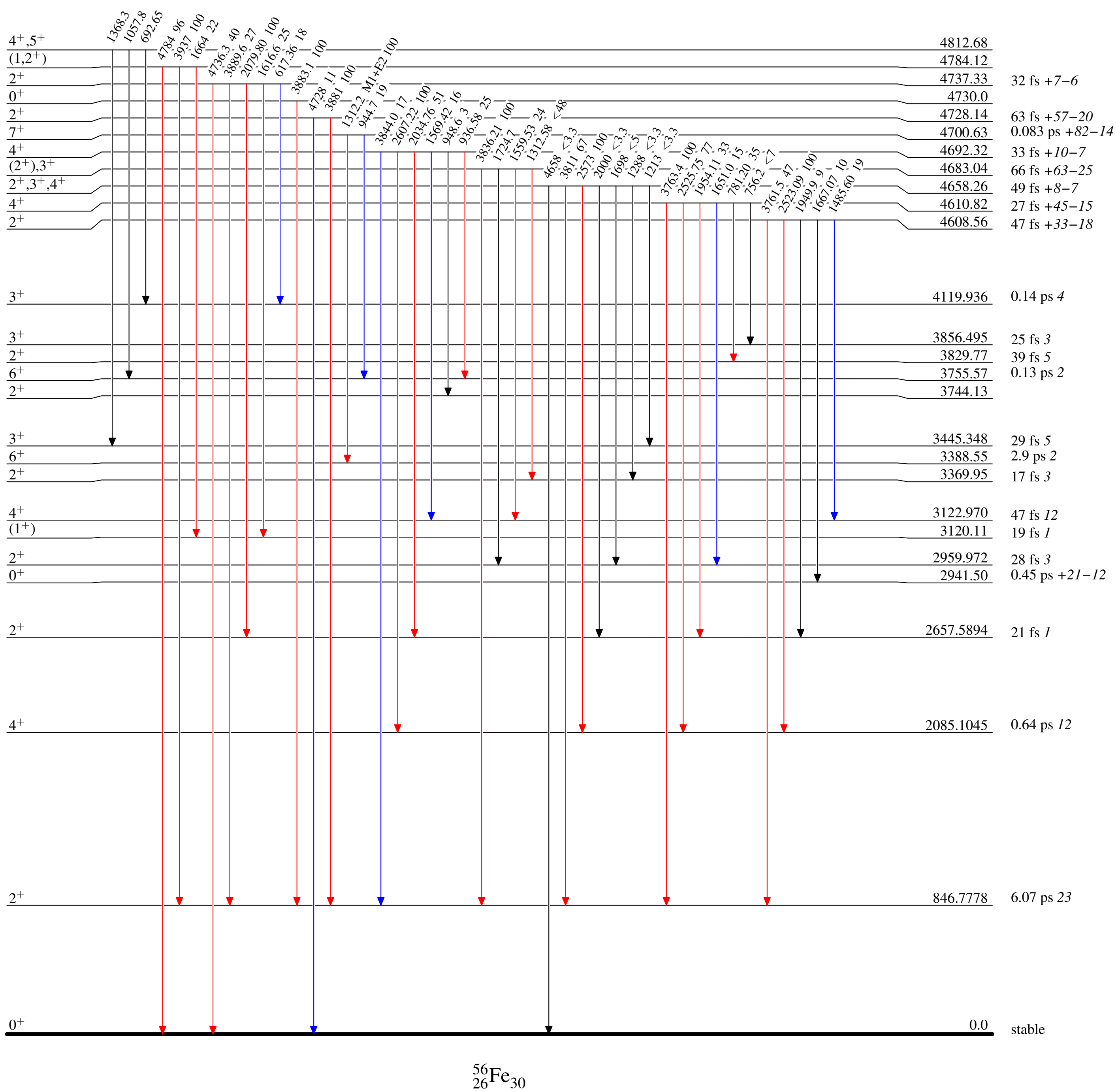
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Type not specified

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

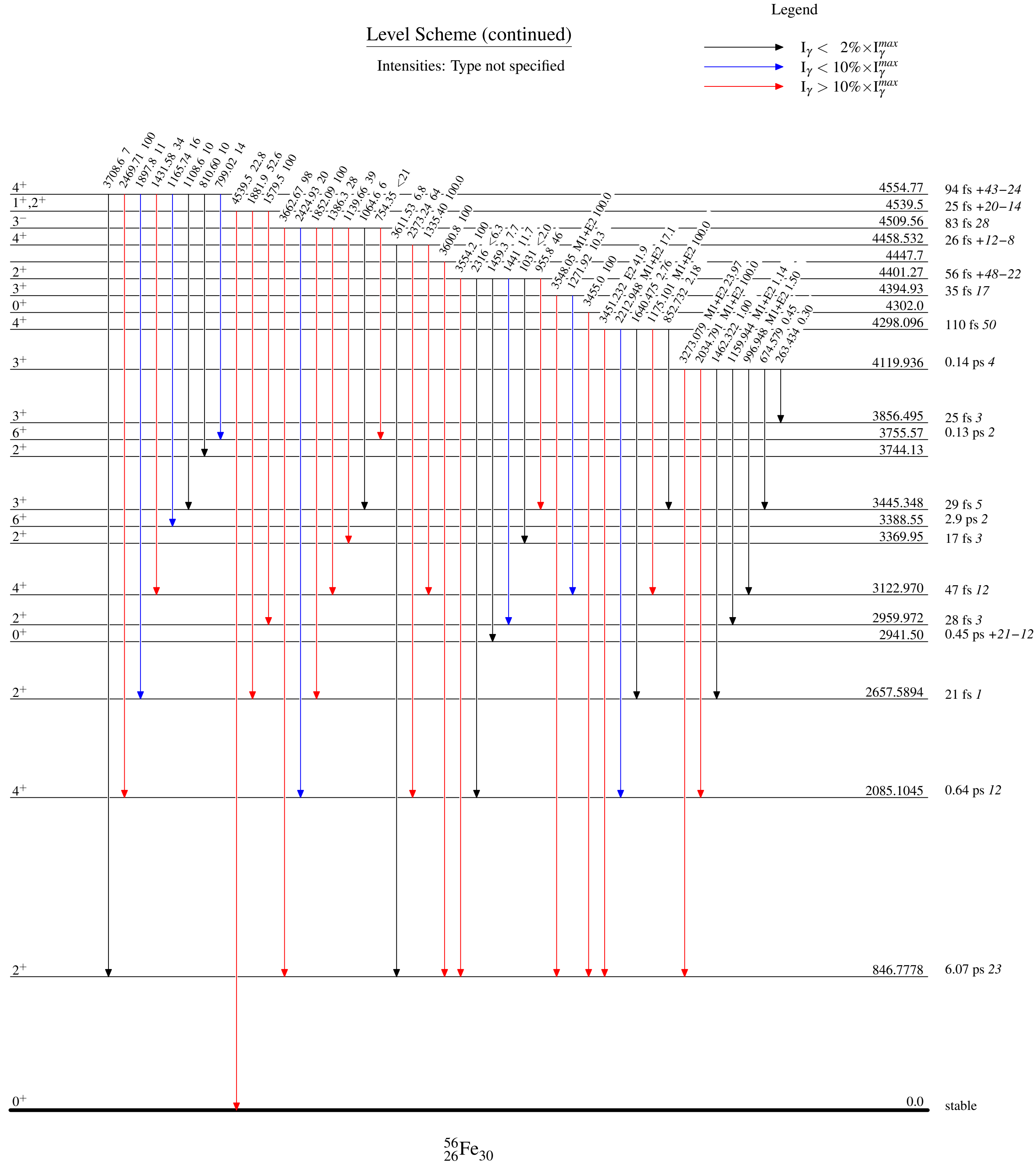


$^{56}_{26}Fe_{30}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



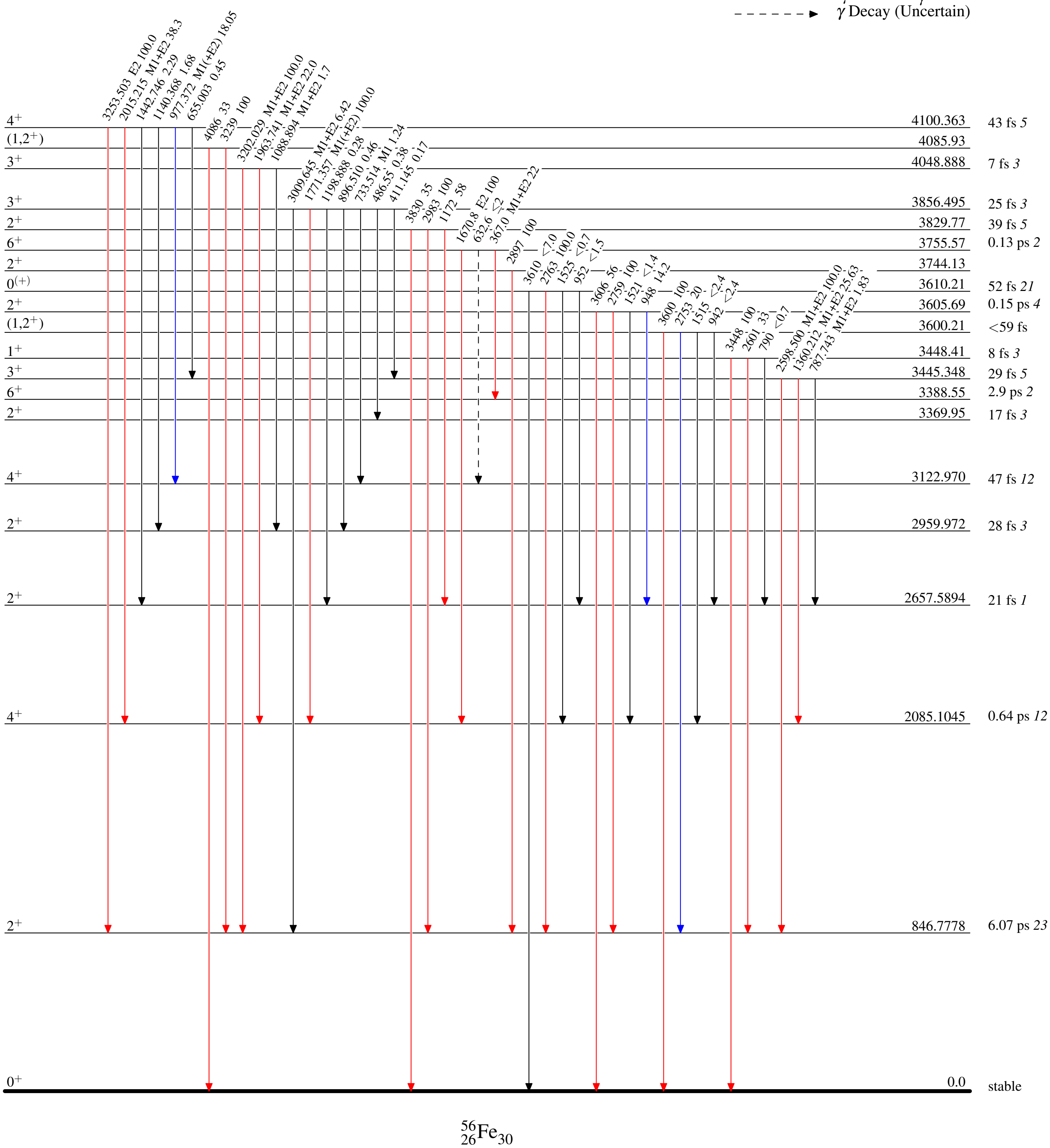
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Type not specified

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

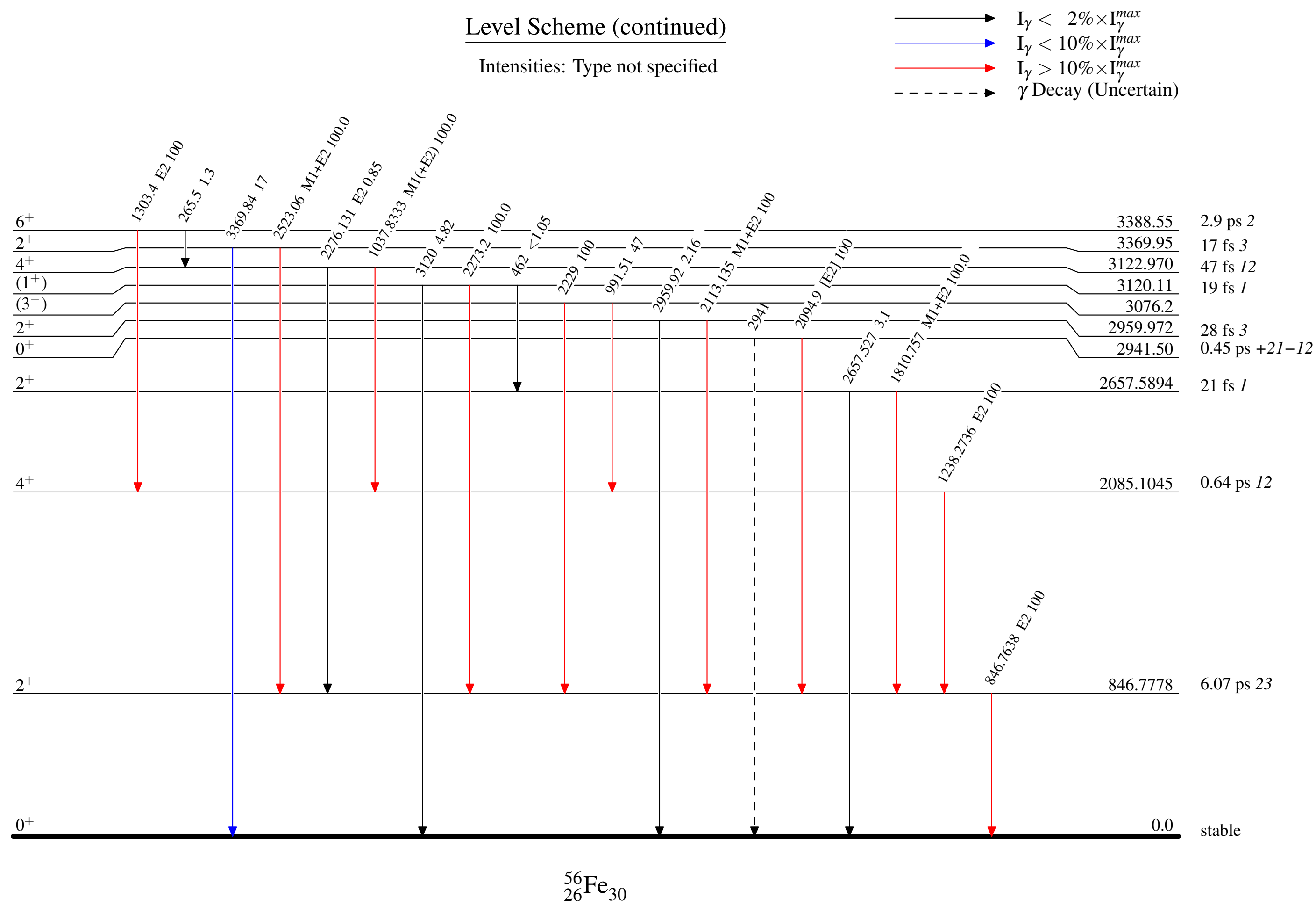


$^{56}_{26}Fe_{30}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Caroline D. Nesaraja, Scott D. Geraedts and Balraj Singh	NDS 111,897 (2010)	12-Jan-2010

Q(β^-)=−2307.9 *12*; S(n)=10044.60 *18*; S(p)=11957.3 *16*; Q(α)=−7645.7 *5* 2012Wa38
Note: Current evaluation has used the following Q record −2307.6 1210044.601811955.5 *19*−7645.8 *4* 2009AuZZ,2003Au03.
S(2n)=17690.69 *19*, S(2p)=21450.1 *21* (2009AuZZ).
Structure calculations (levels, transition probabilities, etc.): 2009Su20, 2004Ho08, 2002Ca48, 1997Na04, 1990Ha16, 1979Mc03, 1978Jo01, 1976La06, 1974Pa13, 1973Ba12.
Additional information 1.

^{58}Fe Levels

Cross Reference (XREF) Flags

A	^{58}Mn β^- decay (3.0 s)	J	^{57}Fe(n,γ),(n,n):resonances	S	^{59}Co(γ,p)
B	^{58}Mn β^- decay (65.4 s)	K	^{57}Fe(d,p),(pol d,p)	T	^{59}Co(μ^-,nγ)
C	^{58}Co ε decay (70.86 d)	L	^{58}Fe(e,e′)	U	^{59}Co(n,d)
D	^{48}Ca(^{13}C,3nγ)	M	^{58}Fe(n,n′γ)	V	^{59}Co(p,2p)
E	^{54}Cr(^{6}Li,d)	N	^{58}Fe(p,p′)	W	^{59}Co(d,^{3}He)
F	^{55}Mn(α,pγ)	O	^{58}Fe(d,d′),(pol d,d′)	X	^{62}Ni(^{3}He,^{7}Be)
G	^{56}Fe(t,p),(pol t,p)	P	^{58}Fe(^{3}He,^{3}He′)	Y	^{60}Ni(μ^-,νpnγ)
H	^{56}Fe(α,^{2}He)	Q	^{58}Fe(α,α′)	Z	Cu(K$^-$,γ)
I	^{57}Fe(n,γ) E=th	R	Coulomb excitation		

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0[a]	0$^+$	stable	ABCDEFGHI KLMNOPQRSTUVWXYZ	<r^2>$^{1/2}$=3.7748 fm *14* (2004An14,evaluation).
810.7662[a] *20*	2$^+$	6.54 ps *19*	ABCDEFG I KLMNOPQR TUVWXYZ	μ=+0.95 *11* (2009Ea02) Q=−0.27 *5* (1981Le02,1989Ra17) μ: g factor=+0.468 *56* from measured g(811,2$^+$,^{58}Ni)/g(847,2$^+$,^{56}Fe)= 0.920 *55* (2009Ea02) and measured g factor=+0.509 *53* (2009Ea01) for the 847, 2$^+$ state in ^{56}Fe. Using earlier measured ratio of 0.75 *24* (1977Br23), 2009Ea02 recommend averaged ratio of 0.912 *54* and g factor of +0.464 *56*. Further, 2009Ea02 recommend averaged g factor=+0.473 *51* by considering earlier measured (1969Si13, IPAC method) g factor=+0.514 *118*. 1989Ra17 give +0.92 *26* from 1977Br23 (transient- field integral PAC). See also 2005St24 compilation with quoted values from 1977Br23 and 1969Si13. Q: reorientation in Coulomb excitation (1981Le02). See also 2005St24 compilation. J$^\pi$: E2 γ to 0$^+$. T$_{1/2}$: from B(E2)=0.1234 *36* (1981Le02, Coul. ex.). 2001Ra27 evaluation gives 6.73 ps 22 based on adopted B(E2)=0.120 *4* from Coulomb excitation and DSA methods. Values of 2.4 ps *7* from DSAM in (α,pγ) and 8.6 ps *7* from B(E2) in (e,e′) are discrepant.
1674.731[b] *6*	2$^+$	1.6 ps *4*	BCDEFG I K MNO Q TUVWX	J$^\pi$: L(t,p)=2. Also M1+E2 γ to 2$^+$. T$_{1/2}$: from (α,pγ).
2076.52[a] *3*	4$^+$	0.28 ps *4*	B D F MN Q T WX	J$^\pi$: ΔJ=2, E2 γ to 2$^+$. T$_{1/2}$: weighted average of 0.24 ps 4 in (n,n′γ), 0.24 ps 7 and 0.37 ps +6−5 in (α,pγ).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
2133.895[b] *21*	3$^+$	2.2 ps *7*	B DEFG I K MN T	XREF: N(2123). T$_{1/2}$: from (α,pγ). J$^\pi$: ΔJ=1, M1+E2 γ to 2$^+$, ΔJ=1, dipole γ from 4$^+$. Significant excitation in (p,p′), (^{6}Li,d), and (t,p) suggests important role of indirect two-step processes, L=4 in (^{6}Li,d) from 1977Fu03 contradicts J=3$^+$.
2257.95 *21*	0$^+$[@]	>2.5 ps	EFG I K MN U	T$_{1/2}$: DSAM in (α,pγ).
2600.397[b] *25*	4$^+$	0.55 ps *18*	B DEFG K MNO Q WX	XREF: X(2573). J$^\pi$: ΔJ=2, E2 γ to 2$^+$; M1+E2 γ to 4$^+$. T$_{1/2}$: unweighted average of 0.37 ps +12−7 and 0.73 ps 14 in (α,pγ) Other: >0.28 ps in (n,n′γ).
2782.14 *19*	1$^+$	0.18 ps *3*	DEFG I K MN	XREF: D(?). E(level): population in (^{6}Li,d) is questionable. T$_{1/2}$: weighted average of 0.18 ps +3−2 in (α,pγ) and 0.20 ps +9−5 in (n,n′γ). Other: 0.062 ps 17 in (n,γ) is in disagreement. J$^\pi$: 1$^+$,2$^+$ from M1+E2 to 2$^+$ and primary γ D from 0$^-$,1$^-$ neutron resonance; $\gamma(\theta)$ in neutron capture excludes J=2.
2864.72 *12*	(5)	3.1 ps *14*	De n	J$^\pi$: ΔJ=1, dipole γ to 4$^+$; γ from (7). T$_{1/2}$: from (^{13}C,3nγ).
2876.34 *13*	2$^+$[@]	0.095 ps *14*	AB DeFG I K Mn T	XREF: D(?). T$_{1/2}$: weighted average of 0.094 ps 14 in (α,pγ) and 0.097 ps +21−14 in (n,n′γ). Other: 0.030 ps +17−8 in (n,γ) is in disagreement.
2970 *30*	(5$^-$)		N	J$^\pi$: L=(5) in (p,p′).
3083.69 *19*	2$^+$[@]	0.031 ps *6*	AB FG I K MN WX	XREF: N(3072)X(3030). T$_{1/2}$: weighted average of 0.025 ps +6−4 in (α,pγ), 0.033 ps +12−8 in (n,n′γ) and 0.047 ps *9* in (n,γ).
3134 *5*	4$^+$		G N	E(level): from (p,p′) with 11 keV correction added. J$^\pi$: L(p,p′)=4.
3233.26 *6*	2$^+$	0.22 ps *5*	B F K MN	XREF: N(3222). J$^\pi$: L=1+3 in (d,p). T$_{1/2}$: from (α,pγ).
3243.97 *23*	0$^+$[@]	31 fs *+67−14*	AB FG I M	T$_{1/2}$: from (n,γ).
3389 *30*	2$^+$		N U	J$^\pi$: L(p,p′)=2.
3449.7 *3*	(4$^+$)	0.36 ps *+13−8*	D F K MN	T$_{1/2}$: from (α,pγ). J$^\pi$: from σ analysis of (n,n′γ); ΔJ=1 γ to 3$^+$.
3537.97 *15*	1$^+$	8 fs *3*	FG I K M	T$_{1/2}$: weighted average of 6 fs 3 in (α,pγ) and 10 fs 3 in (n,n′γ). J$^\pi$: L=1, L+1/2 in (pol d,p), $\gamma\gamma(\theta)$ in (n,γ); γ(circ pol) in (n,γ).
3543 *5*	2$^+$		N	E(level): from (p,p′) with 11 keV correction added. J$^\pi$: L(p,p′)=2.
3596.90[a] *14*	6$^+$	0.20 ps *7*	D F M WX	J$^\pi$: ΔJ=2, E2 γ to 4$^+$; band assignment. T$_{1/2}$: unweighted average of 0.34 ps 4 and 0.15 ps +3−2 in (α,pγ); 0.11 ps +8−4 in (n,n′γ). Other: <3 ps in (^{13}C,3nγ).
3629.60 *23*	2$^+$[@]	8 fs *4*	B FG I K MNO	J$^\pi$: $\sigma(\theta)$ in (p,p′) inconsistent with L=2 which may imply a separate level near this energy. T$_{1/2}$: unweighted average of 6 fs 2 in (α,pγ), 15 fs 3 in (n,n′γ) and 2.6 fs +29−11 in (n,γ).

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
3754.2 *4*	(4)$^+$	<0.013 ps	FG K W	J^{π}: L=(4) in (t,p), L=1+3 in (d,^{3}He). $T_{1/2}$: from (α,pγ).
3789.49 *18*	(5$^-$)[@]	0.026 ps *+6−4*	FG K M	$T_{1/2}$: from (α,pγ).
3854 *10*	2$^+$		K	J^{π}: L=1+3 in (d,p).
3860.9 *7*	3$^-$	0.090 ps *+35−21*	G LMNOPQ X	B(E3)↑=0.0139 *13* XREF: N(3845)P(3800). J^{π}: L(p,p′)=L(^{3}He,^{3}He′)=3. $T_{1/2}$: from (n,n′γ). B(E3) from (e,e′). See also 2002Ki06 evaluation.
3880.1 *3*	1$^+$	<4 fs	F I K M	$T_{1/2}$: from (α,pγ); other: 0.7 fs *7* (n,γ). J^{π}: 0$^+$,1$^+$ from CP of γ′s in polarized thermal (n,γ) and L(d,p)=1; γ to 0$^+$ excludes 0$^+$.
3886.40[e] *15*	6$^+$	0.48 ps *10*	D F M W	J^{π}: ΔJ=2, E2 γ to 4$^+$; ΔJ=0 γ to 6$^+$; L=3 in (d,^{3}He). $T_{1/2}$: weighted average of 0.49 ps *+15−7* (1977Ca28) and 0.47 ps +17−11 (1978Bo35) from (α,pγ). Other: 11.8 ps *14* in (^{13}C,3nγ) is in severe disagreement.
3901.62 *7*	(3)$^+$	0.031 ps *7*	B K M	$T_{1/2}$: from (n,n′γ). J^{π}: L=3 in (d,p), analysis of σ in (n,n′γ).
4010.8	2+[@]		G K M	
4015.01 *24*	1$^+$	0.008 ps *+4−3*	F I	$T_{1/2}$: from (α,pγ). J^{π}: from circular polarization of γ′s in polarized thermal (n,γ).
4088.49 *17*	4+[@]	0.06 ps *+8−3*	B G MN W	E(level),J^{π}: possibly a doublet in (p,p′) with L=3,4. $T_{1/2}$: DSAM in (n,n′γ).
4139.24 *25*	1$^+$	2.8 fs *21*	F I K	$T_{1/2}$: from (n,γ); other: <0.7 fs in (α,pγ). J^{π}: 0$^+$,1$^+$ from CP of polarized thermal (n,γ) and L(d,p)=1; γ to 0$^+$ excludes 0$^+$.
4158 *10*	0+[@]		G K	
4214.64[c] *15*	(5$^+$)	0.45 ps *+14−10*	D FG K M U	J^{π}: ΔJ=1 γ to 4$^+$. Positive parity is tentatively proposed in (α,pγ) and (^{13}C,3nγ) and from shell-model predictions (1978Na06,2000ApZW). The 1997 evaluation (1997Bh02) assigned negative parity, primarily based on L(p,p′)=5+3 for a 4230 *30* group, but this L value gives J^{π}=4$^-$ in contradiction to J=5 from angular distribution data in (α,pγ) and (^{13}C,3nγ) reactions. The L(t,p)=(6) and L(d,p)=(3) suggest positive parity but implied spins are in disagreement with 5$^+$. For (p,p′), a separate level is now proposed. $T_{1/2}$: from (α,pγ).
4230 *30*	4$^-$		N	J^{π}: L(p,p′)=3+5.
4237 *10*	(2$^+$)		K	J^{π}: L=(1+3) in (d,p).
4297.8 *5*	2$^+$	2.8 fs *21*	G I K n	$T_{1/2}$: from (n,γ). J^{π}: L=2 in (p,p′).
4312.92 *9*	2$^+$	11 fs *7*	B K Mn W	$T_{1/2}$: from (n,γ). J^{π}: L=1+3 in (d,p).
4322.5 *3*	1$^+$		I	J^{π}: from CP of γ′s in polarized thermal (n,γ).
4340 *20*	(5$^-$,4$^+$)[@]		G	

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
4348 *10*	2^+		K	J^{π}: L=1+3 in (d,p).
4350 *20*	(0^+)[@]		G	
4352.7 *7*	1^+		I	J=1 from CP of γ's in polarized thermal neutron capture.
4398 *10*			K	
4438 *10*	$2^-,3^-$		K n	J^{π}: L=2 and L+1/2 transfer in (pol d,p).
4440 *20*	$3^-,4^-$		G n W	J^{π}: L(d,^{3}He)=0. L(t,p)=(5,4) is inconsistent with $J^{\pi}=3^-,4^-$.
4444.3 *5*	1^+	6 fs *+28−6*	I M	$T_{1/2}$: from (n,γ). J^{π}: from CP of γ's in (n,γ).
4450 *20*	(0^+)[@]		G	
4468 *10*	3^-		G K n Q	J^{π}: L=3 in (α,α'); L(p,p')=3 for a 4441 *30* group.
4493.1 *3*			B K	
4514 *10*	$(3^+,2^+)$		K	J^{π}: L=(3) in (d,p), shell model.
4530.15 *23*	1,2		AB	J^{π}: γ to 0^+.
4550.37 *24*	1^+	21 fs *7*	I K T	$T_{1/2}$: from (n,γ). J^{π}: $0^+,1^+$ from CP of γ's in polarized thermal neutron capture; L=1, L-1/2 in (pol d,p); γ to 0^+ excludes 0^+.
4590.0 *4*	$(2^+,3,4^+)$		B K	J^{π}: γ's to 2^+ and 4^+.
4610 *20*	$3^-,4^-$		VW	XREF: V(4700). J^{π}: L=0 in (d,^{3}He) and (p,2p).
4620 *10*	2^+[@]		G K	
4661 *10*			K	
4669.38[c] *14*	(7^+)	0.38 ps *+12−6*	D FGH	E(level): unresolved doublet in (α,^{2}He) at 4650 *50* with (7^- and 5^-) from DWBA analysis. L(t,p)=2+8 for E=4670. J^{π}: ΔJ=2 γ, E2 γ to (5^+); ΔJ=1 γ to 6^+. $T_{1/2}$: from (α,pγ).
4711 *10*	$(2)^+$		K W	J^{π}: L=(1+3) in (d,p), L=1+3 in (d,^{3}He).
4720 *20*	1^-[@]		G	
4809 *10*	(5^-)		G K	J^{π}: L(t,p)=6,(5); L(d,p)=5 needed to give a $J^{\pi}=6^+$ is considered unlikely.
4833.89 *25*	$1^+,2^+$		B I K W	J^{π}: primary γ from $0^-,1^-$ neutron resonance. γ to 3^+. L(d,^{3}He)=3.
4890 *20*	2^+[@]		G	
4937 *10*	2^+[@]		G K W	J^{π}: L(t,p)=2 for E=4960 *20*.
4990	$(2^+,3^-)$		G	J^{π}: L(t,p)=2,(3).
5000.23 *18*	1^+	3.0 fs *10*	I K	XREF: K(4992). J^{π}: $0^+,1^+$ from CP of γ's in polarized thermal (n,γ); L=1, L-1/2 in (pol d,p); γ to 0^+ excludes 0^+. $T_{1/2}$: from (n,γ).
5020 *20*	5^-[@]		G	
5060 *20*	2^+[@]		G W	
5138 *10*	0^+[@]		G K	
5164 *10*			K w	
5213 *10*	2^+[@]		G K w	
5220.9 *5*	1,2	<0.38 ps	I M w	$T_{1/2}$: from (n,n'γ); other: <2.4 fs in (n,γ). J^{π}: dipole γ from $0^-,1^-$ (n,γ) resonance; γ to 0^+ excludes J=0.

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
5236 *10*			K w	
5254 *10*	3^-[@]		G K	
5294.8 *6*	$(1^+,2,3^+)$	3.5 fs *28*	G I K	$T_{1/2}$: from (n,γ). J^{π}: γ's to 1^+ and 3^+.
5315 *10*	$3^-,4^-$		K W	J^{π}: L=0+2 in (d,^{3}He).
5343.33[e] *22*	8^+	0.42 ps *+10−8*	D F	J^{π}: ΔJ=2 E2 γ to 6^+; band assignment. $T_{1/2}$: from (α,pγ).
5370 *10*	$(4^+,5^-)$[@]		G K x	
5400 *50*	$^-$		Wx	J^{π}: L=2 in (d,^{3}He), with J^{π}=1^- to 6^-. This peak could include the 5370 *10* level if J^{π}=5^-, and/or the 5414 level if J^{π}=2^-.
5406 *10*	0^+[@]		G K	
5417.6 *6*	$(1^+,2,3^-)$	<0.7 fs	I	J^{π}: γ's to 2^+ and 3^+; primary γ from $0^-,1^-$. E(level): 5418.1 keV obtained from the 4626.5 *5* primary neutron capture γ ray populating this level is discrepant with the level energy from a least-squares fit.
5462 *10*	(2^+)[@]		G K	
5502.9[a] *10*	(8^+)	<0.14 ps	D F	J^{π}: γ to 6^+; band assignment. $T_{1/2}$: from (^{13}C,3nγ).
5506 *10*			K	
5523.0 *22*	0^+[@]		G I K	
5620 *10*	0^+[@]		G K	
5655 *10*	2^+[@]		G K W	J^{π}: L=1+3 in (d,^{3}He) for 5600 *50* level.
5716 *10*	$3^-,4^-$		K W	J^{π}: L=0+2 in (d,^{3}He).
5734 *10*	2^+[@]		G K	
5763 *10*			K	
5788 *10*	$(2^+,3^-)$[@]		G K	
5817 *10*	$(2^-,3^-)$		K	J^{π}: L=(2) in (d,p), shell model.
5830 *20*	0^+[@]		G	
5832.08[c] *23*	(9^+)	0.40 ps *+15−4*	D F	J^{π}: ΔJ=2, E2 γ to (7^+). $T_{1/2}$: from 1977Ca28 in (α,pγ). Other: 0.8 ps *3* from (^{13}C,3nγ).
5857 *10*	$(2^-,3^-)$		K	J^{π}: L=(2) in (d,p).
5880 *20*	$(2^+,3^-)$[@]		G	
5887 *10*	$(0^-,1^-)$		K	J^{π}: L=(0) in (d,p).
5914 *10*			K	
5952 *10*	(2^+)[@]		G K	
5989 *10*			K	
6030 *10*			K	
6032.9[d] *5*	(9^+)		D	J^{π}: ΔJ=2 γ to (7^+); band assignment.
6054 *10*			G K	E(level): possible doublet in (t,p), (pol t,p).
6100 *50*	$3^-,4^-$		W	J^{π}: L=0 in (d,^{3}He).
6146 *10*	2^+[@]		G K	
6168 *10*	(0^+)[@]		G K	
6202 *10*	$3^-,4^-$		K W	J^{π}: L=0 in (d,^{3}He).
6238 *10*	$(1^-,2^+)$[@]		G K	
6279 *10*	$(1^-,2^+)$[@]		G K	
6282.7[e] *5*	(9^+)	<0.14 ps	D	J^{π}: ΔJ=1 γ to 8^+; band assignment. $T_{1/2}$: from (^{13}C,3nγ).

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
6295 *10*	(5$^-$)		H K	J^{π}: from DWBA analysis in (α,^{2}He).
6328 *10*			G K	E(level): possible doublet in (t,p), (pol t,p).
6348 *10*			K	
6370 *10*			K	
6400 *10*	(6$^+$,7$^-$)[@]		G K	
6436 *10*	1$^-$[@]		G K	
6450 *10*	0$^+$[@]		G K	
6476 *10*			K	
6532 *10*			K	
6558 *10*			K	
6580 *20*	(6$^+$)[@]		G	
6593 *10*			K	
6615 *10*			K	
6636 *10*			K	
6650 *20*	0$^+$[@]		G	
6679 *10*	(3$^-$,2$^-$)		K	J^{π}: L=(2) in (d,p), shell model.
6741 *10*			K	
6760 *20*	0$^+$[@]		G	
6771 *10*			K	
6789 *10*			K	
6842 *10*			G K	
6870 *20*	(5$^-$)[@]		G	
6909 *10*	1$^-$[@]		G K	
6953 *10*	2$^+$[@]		G K	
7023 *10*			K	
7028 *10*			K	
7048 *10*	(1$^-$,2$^+$)[@]		G K	
7060 *10*			K	
7094 *10*			K	
7124 *10*	0$^+$[@]		G K	
7166 *10*	1$^-$[@]		G K	
7199 *10*			K	
7230 *10*			K	
7242.6[e] *9*	(10$^+$)	<0.14 ps	D	J^{π}: ΔJ=1 γ to (9$^+$); band assignment. $T_{1/2}$: from (^{13}C,3nγ).
7272 *10*			K	
7289 *10*			K	
7351 *10*			K	
7380 *50*	(8$^+$)		H	J^{π}: from analysis of σ in (α,^{2}He).
7429 *10*	(0$^-$,1$^-$)		K	J^{π}: L=(0) in (d,p).
7456.7[d] *5*	(10$^+$)		D	J^{π}: ΔJ=1 γ to (9$^+$); band assignment.
7457 *10*			K	
7473 *10*			K	
7492 *10*			K	
7507 *10*			K	
7534 *10*			K	
7567 *10*			K	
7578 *10*			K	
7585 *10*			K	
7605 *10*			K	
7628 *10*			K	
7653 *10*			K	

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$[#]	XREF	Comments
7680? *10*			K	
7690? *10*			K	
7731.3[c] *5*	(11$^+$)	<0.14 ps	D	J$^{\pi}$: ΔJ=2, (E2) γ to (9$^+$); band assignment. $T_{1/2}$: from (^{13}C,3nγ).
7734 *10*			K	
7775 *10*			K	
7797 *10*			K	
7824 *10*			K	
7846 *10*			K	
7883 *10*			K	
7901 *10*			K	
7918 *10*			K	
7946 *10*			K	
7974 *10*			K	
7997 *10*			K	
8018 *10*			K	
8045 *10*			K	
8065 *10*			K	
8084 *10*			K	
8100 *10*			K	
8121 *10*			K	
8137 *10*			K	
8157 *10*			K	
8182 *10*			K	
8310 *50*	(6$^+$)		H	J$^{\pi}$: from analysis of σ in (α,^{2}He).
9444.8[d] *6*	(12$^+$)		D	J$^{\pi}$: ΔJ=2 γ to (10$^+$); band assignment.
9939.1 *9*			D	J$^{\pi}$: γ to (11$^+$) suggests (11,12,13$^+$).
9984.5 *7*	(12)		D	J$^{\pi}$: ΔJ=1 γ to (11$^+$).
10041.05 *18*	1$^-$[&]		J	
(10044.31 *19*)	1$^-$		I	J$^{\pi}$,E(level): for s-wave capture on ^{57}Fe(J^{π}=1/2$^-$). S(n)=10044.60 *18* (2009AuZZ).
10046.20 *18*	2$^+$[&]		J	
10048.48 *18*	0$^-$[&]		J	
10049.26 *18*	+[&]		J	
10050.71 *18*	1$^-$[&]		J	
10051.69 *18*	($^+$)[&]		J	
10052.40 *18*	($^+$)[&]		J	
10052.97 *18*	($^+$)[&]		J	
10053.64 *18*	($^+$)[&]		J	
10056.48 *18*	($^+$)[&]		J	
10057.17 *18*	($^+$)[&]		J	
10057.68 *18*	($^+$)[&]		J	
10058.30 *18*	1$^-$[&]		J	
10058.49 *18*			J	
10062.34 *18*	($^+$)[&]		J	
10062.52 *18*	($^-$)[&]		J	
10062.98 *18*	($^+$)[&]		J	
10065.28 *18*	($^+$)[&]		J	
10065.52 *18*	($^-$)[&]		J	
10065.6 *3*			J	

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
10069.94 *18*			J	
10071.33 *18*	$(^{+})$[&]		J	
10072.73 *18*	$(^{-})$[&]		J	
10073.14 *19*	1^{-}[&]		J	
10075.4[c] *9*	(13^{+})	<0.14 ps	D	J^{π}: ΔJ=2, (E2) γ to (11^{+}); band assignment. $T_{1/2}$: from (^{13}C,3nγ).
10075.98 *18*	$(^{+})$[&]		J	
10079.18 *18*			J	
10081.07 *18*	$(^{+})$[&]		J	
10081.83 *18*	$(^{+})$[&]		J	
10083.30 *18*	$(^{-})$[&]		J	
10083.71 *19*	$(^{+})$[&]		J	
10085.28 *20*	1^{-}[&]		J	
10085.8 *18*	$(^{+})$[&]		J	
10086.2 *18*			J	
10087.4 *19*			J	
10090.8 *18*	1^{-}[&]		J	
10093.66 *19*	$(^{+})$[&]		J	
10094.64 *19*			J	
10096.39 *19*			J	
10096.56 *19*	$(^{-})$[&]		J	
10099.44 *19*	0^{-}[&]		J	
10099.80 *19*	$(^{+})$[&]		J	
10102.40 *19*			J	
10102.51 *18*			J	
10104.59 *22*	1^{-}[&]		J	
10105.53 *19*			J	
10105.77 *19*			J	
10106.49 *19*			J	
10107.44 *19*			J	
10107.71 *19*			J	
10110.19 *19*			J	
10111.48 *19*			J	
10114.80 *19*			J	
10116.03 *19*			J	
10117.60 *18*			J	
10120.16 *23*	1^{-}[&]		J	
10123.50 *20*			J	
10126.30 *20*			J	
10127.60 *20*			J	
10130.32 *20*			J	
10131.34 *20*			J	
10133.01 *20*			J	
10134.35 *20*			J	
10136.36 *20*			J	
10136.67 *20*	1^{-}[&]		J	
10136.93 *20*			J	
10137.65 *20*			J	
10139.22 *20*			J	
10140.99 *20*			J	
10141.73 *20*			J	

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
10142.73 *20*		J	
10143.94 *20*		J	
10144.63 *20*	$(^{+})$[&]	J	
10146.76 *20*		J	
10147.98 *21*		J	
10148.63 *21*		J	
10149.57 *21*		J	
10150.33 *21*		J	
10150.82 *21*		J	
10152.1 *3*	1^{-}[&]	J	
10152.9 *3*	1^{-}[&]	J	
10153.76 *21*		J	
10155.43 *21*		J	
10156.20 *21*		J	
10157.10 *22*		J	
10161.72 *22*	$(^{+})$[&]	J	
10163.98 *22*		J	
10166.42 *22*		J	
10167.4 *3*	1^{-}[&]	J	
10168.4 *3*	0^{-}[&]	J	
10169.09 *22*		J	
10171.84 *22*	1^{-}[&]	J	
10172.53 *22*		J	
10174.10 *22*		J	
10176.36 *22*		J	
10176.8 *3*	0^{-}[&]	J	
10177.52 *22*		J	
10182.9 *3*	0^{-}[&]	J	
10190.81 *23*		J	
10192.23 *23*		J	
10192.68 *23*		J	
10196.87 *23*		J	
10200.15 *24*		J	
10201.72 *24*		J	
10206.53 *25*		J	
10208.23 *25*		J	
10208.7 *4*	1^{-}[&]	J	
10208.99 *25*		J	
10210.46 *25*		J	
10210.66 *25*	1^{-}[&]	J	
10210.97 *23*		J	
10217.83 *25*	0^{-}[&]	J	
10221.37 *25*		J	
10227.1 *4*	1^{-}[&]	J	
10228.15 *3*		J	
10230.8 *3*		J	
10234.9 *3*		J	
10238.4 *3*		J	
10240.0 *3*		J	
10241.2 *3*		J	
10353.8 *9*		D	J^{π}: γ to (11^{+}) suggests $(11,12,13^{+})$.
11857.0[d] *8*	(14^{+})	D	J^{π}: γ to (12^{+}); band assignment.

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Adopted Levels, Gammas (continued)

^{58}Fe Levels (continued)

E(level)†	Jπ‡	XREF	Comments
11911.0 *9*		D	Jπ: γ to (12) suggests (12,13,14).
12813.3[c] *16*	(15+)	D	Jπ: γ to (13+); band assignment.

† From a least-squares fit to Eγ′s for levels populated in γ-ray studies. For levels populated in particle-transfer and/or inelastic scattering studies, the values are averaged over all available data. In addition poorly resolved groups are reported at 2.94, 3.24, 4.11, 4.75, 5.25, 5.68, 6.23 and 6.55 MeV with an uncertainty of 0.12 MeV in ^{59}Co(γ,p). These are not not included in cross reference (XREF) table.

‡ In in-beam γ-ray studies: ^{55}Mn(α,pγ) and ^{48}Ca(^{13}C,3nγ), ascending order of spins are assumed as the excitation energy rises. When J^π is deduced from L-transfers in particle transfer reactions, the target J^π′s are as follows: $1/2^-$ for ^{57}Fe in (d,p) reaction; $7/2^-$ for ^{59}Co in (d,^{3}He); 0^+ in (^{6}Li,d), (t,p) and (^{3}He,^{7}Be) reactions. The abbreviation CP in (n,γ) indicates circular polarization measurement.

\# For excited states, most values are from DSAM in the following reactions: ^{55}Mn(α,pγ); ^{57}Fe(n,γ) E=th and ^{58}Fe(n,n′γ). Selected values are also available from DSAM and recoil-distance method in ^{48}Ca(^{13}C,3nγ).

@ From L(t,p).

& From L-value in neutron resonances. See ^{57}Fe(n,γ),(n,n):resonances.

[a] Band(A): yrast band.

[b] Band(B): Band based on 2^+.

[c] Band(C): band based on (5^+).

[d] Band(D): band based on $9^{(+)}$.

[e] Band(E): band based on (6^+).

Adopted Levels, Gammas (continued)

$\gamma(^{58}\mathrm{Fe})$

E_i(level)	J^{π}_i	E_{γ}[‡]	I_{γ}[‡]	E_f	J^{π}_f	Mult.[†]	δ	α[@]	Comments
810.7662	2^+	810.7593 *20*	100	0.0	0^+	E2		3.32×10^{-4}	B(E2)(W.u.)=18.5 *6* Mult.: from $\gamma\gamma(\theta)$, $\gamma(\theta)$, RUL and measured α(K)exp.
1674.731	2^+	863.951 *6*	100	810.7662	2^+	M1+E2	−0.69 *5*		B(M1)(W.u.)=0.0082 *21*; B(E2)(W.u.)=10 *3* Mult.,δ: D+Q from $\gamma\gamma(\theta)$, $\gamma(\theta)$, RUL. δ: from ^{58}Co ε decay. Others: −0.57 *6* (n,γ), −0.50 *5* (n,n′γ).
		1674.725 *10*	76.4 *15*	0.0	0^+	[E2]			B(E2)(W.u.)=0.87 *22*
2076.52	4^+	1265.74 *5*	100	810.7662	2^+	E2			B(E2)(W.u.)=47 *7* Mult.: from $\gamma(\theta)$ in (α,pγ) and (^{13}C,3nγ) and RUL.
2133.895	3^+	459.160 *25*	36 *1*	1674.731	2^+	(M1)			B(M1)(W.u.)=0.027 *9*
		1323.09 *5*	100 *3*	810.7662	2^+	M1+E2	−0.40 *5*		B(M1)(W.u.)=0.0027 *9*; B(E2)(W.u.)=0.48 *19* δ: from $\gamma(\theta)$ in (n,n′γ). Other: −0.48 +*12*−*10* (n,γ). Mult.: from $\gamma(\theta)$ and RUL.
2257.95	0^+	1447.31 *25*	100	810.7662	2^+	[E2]			B(E2)(W.u.)<2.7
2600.397	4^+	466.48 *3*	34.3 *12*	2133.895	3^+	(M1)			B(M1)(W.u.)=0.053 *18*
		523.86 *3*	100 *3*	2076.52	4^+	M1+E2	−0.15 *5*		B(M1)(W.u.)=0.11 *4*; B(E2)(W.u.)=17 *13* Mult.: from $\gamma(\theta)$ in (n,n′γ) and RUL. δ: from (n,n′γ). Other: +6.3 in (α,pγ); mult=Q in (^{13}C,3nγ).
		925.68 *5*	45.5 *17*	1674.731	2^+	E2			B(E2)(W.u.)=20 *7* Mult.: from $\gamma(\theta)$ in (α,pγ), (^{13}C,3nγ) and RUL.
		1789.59 *8*	77.4 *24*	810.7662	2^+	E2			B(E2)(W.u.)=1.3 *5* Mult.: from $\gamma(\theta)$ in (α,pγ), (^{13}C,3nγ) and RUL.
2782.14	1^+	524.4 *3*	16.4 *8*	2257.95	0^+				
		1106.7 *3*	47 *3*	1674.731	2^+	M1+E2	−0.18 *3*		B(M1)(W.u.)=0.020 *4*; B(E2)(W.u.)=1.0 *4* Mult.: from $\gamma(\theta)$ in (n,γ) and RUL. δ: from $\gamma(\theta)$ in (n,γ).
		1971.6 *5*	100 *8*	810.7662	2^+	M1+E2	−0.17 *4*		B(M1)(W.u.)=0.0074 *15*; B(E2)(W.u.)=0.11 *6* Mult.: from $\gamma(\theta)$ in (n,γ) and RUL. δ: from $\gamma(\theta)$ in (n,γ).
		2781.9 *9*	47 *5*	0.0	0^+	[M1]			B(M1)(W.u.)=0.0013 *3*
2864.72	(5)	264.36 *12*	100	2600.397	4^+	D			Mult.: from $\gamma(\theta)$ in (^{13}C,3nγ).
2876.34	2^+	2065.59 *14*	100 *8*	810.7662	2^+	M1+E2	−0.33 +*8*−*11*		B(M1)(W.u.)=0.022 *5*; B(E2)(W.u.)=1.1 *6* δ: from (n,γ); −0.13 *3* in (n,n′γ). Mult.: from $\gamma(\theta)$ in (n,γ) and RUL.
		2876.3[#b]	≤17[#]	0.0	0^+				
3083.69	2^+	2272.99 *23*	100	810.7662	2^+	M1+E2	−0.05 *1*		B(M1)(W.u.)=0.052 *13*; B(E2)(W.u.)=0.048 *23* Mult.: from $\gamma(\theta)$ in (n,n′γ) and RUL. δ: from (n,n′γ).
		3083.6[#b]	≤33[#]	0.0	0^+				
3233.26	2^+	632.71 *10*	50 *5*	2600.397	4^+				
		1156.77 *7*	94 *4*	2076.52	4^+				

Adopted Levels, Gammas (continued)

$\gamma(^{58}Fe)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[†]	δ	Comments
3233.26	2^+	1558.71 *19*	46 *2*	1674.731	2^+			
		2422.45 *17*	100 *2*	810.7662	2^+			
		3233.2[#b]	≤2.4[#]	0.0	0^+			
3243.97	0^+	2433.05 *25*	100	810.7662	2^+	[E2]		B(E2)(W.u.)=16 +*8*−*16*
3449.7	(4^+)	849.7 *4*	100 *16*	2600.397	4^+			
		1315.6 *4*	45 *7*	2133.895	3^+	(M1)		B(M1)(W.u.)=0.0083 +*25*−*35*
		1373[b]		2076.52	4^+			Weak γ ray.
3537.97	1^+	1862.2 *5*	22 *3*	1674.731	2^+	M1+E2	−0.59 +*14*−*11*	B(M1)(W.u.)=0.047 *20*; B(E2)(W.u.)=9 *5* Mult.: from $\gamma(\theta)$ in (n,γ) and RUL. δ: from (n,γ).
		2727.24 *16*	100 *10*	810.7662	2^+	M1+E2	−0.57 +*7*−*5*	B(M1)(W.u.)=0.07 *3*; B(E2)(W.u.)=6 *3* Mult.: $\gamma(\theta)$ in (n,γ) and RUL. δ: from (n,γ).
		3540 *3*	25 *4*	0.0	0^+	[M1]		B(M1)(W.u.)=0.011 *5*
3596.90	6^+	1520.45 *20*	100 *4*	2076.52	4^+	E2		B(E2)(W.u.)=26 *10* Mult.: from $\gamma(\theta)$ in (α,pγ) and (^{13}C,3nγ) and RUL.
3629.60	2^+	2818.5[&] *3*	100[&] *3*	810.7662	2^+			
		3629.8 *4*	8.3 *21*	0.0	0^+			
3754.2	$(4)^+$	1677.7 *4*	100	2076.52	4^+			
3789.49	(5^-)	1712.94 *17*	100	2076.52	4^+			
3860.9	3^-	2186.0	100	1674.731	2^+			
		(3860.8)		0.0	0^+	[E3]		B(E3)(W.u.)=9.9 *9*
3880.1	1^+	1097.4 *3*	25 *6*	2782.14	1^+			
		3071 *2*	100 *19*	810.7662	2^+	(M1+E2)	+0.15 *9*	B(M1)(W.u.)>0.085 δ: from (n,γ).
		3881.4 *7*	88 *19*	0.0	0^+	[M1]		B(M1)(W.u.)>0.039
3886.40	6^+	289.49 *12*	55 *3*	3596.90	6^+	(M1(+E2))	<0.14	B(M1)(W.u.)>0.46 δ: deduced by the evaluators by requiring RUL(E2)=300. Not given in (^{13}C,3nγ).
		437.9 *11*	9	3449.7	(4^+)			
		1285.4 *3*	10.0 *11*	2600.397	4^+			
		1810.3 *7*	100.0 *18*	2076.52	4^+	E2		B(E2)(W.u.)=2.6 *6* Mult.: Q in (^{13}C,3nγ); E2 from RUL.
3901.62	$(3)^+$	1301.10 *11*	22 *1*	2600.397	4^+			
		1767.74 *8*	100 *4*	2133.895	3^+			
		1825.1[#b]	≤1.1[#]	2076.52	4^+			
		2226.88 *18*	9.4 *22*	1674.731	2^+			
		3090.7 *4*	3.1 *6*	810.7662	2^+			
		3901.5[#b]	≤0.6[#]	0.0	0^+			
4015.01	1^+	3204.10 *26*	100	810.7662	2^+			

$^{58}_{26}Fe_{32}$-12

$\gamma(^{58}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[‡]	I_γ[‡]	E_f	J^π_f	Mult.[†]	δ	Comments
4088.49	4^+	458.5[b] *3*		3629.60	2^+			
		1488.17 *20*	100 *22*	2600.397	4^+			
		2011.7 *3*	<100	2076.52	4^+			
4139.24	1^+	4139.1 *3*	100	0.0	0^+	[M1]		B(M1)(W.u.)=0.11 *9*
4214.64	(5^+)	1614.16 *21*	100 *6*	2600.397	4^+	D		
		2138.2 *4*	23 *7*	2076.52	4^+	D		
4297.8	2^+	3486 *3*	100 *20*	810.7662	2^+			
		4298.1 *6*	100 *20*	0.0	0^+	[E2]		B(E2)(W.u.)=5 *4*
4312.92	2^+	1436.5[#b]	≤2.6[#]	2876.34	2^+			
		1712.21 *26*	5.3 *20*	2600.397	4^+			
		2179.08 *14*	36 *3*	2133.895	3^+			
		2236.33 *15*	26 *1*	2076.52	4^+			
		2638.15 *20*	100 *3*	1674.731	2^+			
		3501.9 *8*	1.3 *13*	810.7662	2^+			
		4312.7[#b]	≤1.3[#]	0.0	0^+			
4322.5	1^+	1238.7 *7*	5.7 *29*	3083.69	2^+			
		1446.3 *4*	100 *9*	2876.34	2^+			
		4322.1 *6*	60 *11*	0.0	0^+			
4444.3	1^+	1662.5 *6*	100 *22*	2782.14	1^+			
		4443 *2*	78 *22*	0.0	0^+			
4493.1		2818.5[&] *3*	100[&]	1674.731	2^+			
		3681.7 *5*	8.3	810.7662	2^+			
4530.15	1,2	1446.53 *27*	100 *18*	3083.69	2^+			
		2855.2 *3*	64 *9*	1674.731	2^+			
		4531.0 *15*	36 *18*	0.0	0^+			
4550.37	1^+	410.9 *5*	1.40 *18*	4139.24	1^+			
		1306.0 *5*	14.0 *18*	3243.97	0^+			
		1674.2 *3*	67 *25*	2876.34	2^+	(M1+E2)	+0.17 *+10−9*	B(M1)(W.u.)=0.08 *4*; B(E2)(W.u.)=1.5 *+20−15* I_γ: from (n,γ) where this γ is multiply placed and undivided intensity is given. δ: from (n,γ).
		2876 *2*	100 *11*	1674.731	2^+	(M1+E2)	−0.31 *5*	B(M1)(W.u.)=0.021 *9*; B(E2)(W.u.)=0.48 *24* $I\gamma(2876)/I\gamma(1674)$=0.07 *9* in ($\mu^-n\gamma$) is in severe disagreement with adopted ratio of 1.5 *6*. δ: from (n,γ).
		3740[a] *3*	≈5[a]	810.7662	2^+			
4590.0	$(2^+,3,4^+)$	2513.9[b] *4*	35 *12*	2076.52	4^+			
		3778.1 *6*	100 *12*	810.7662	2^+			
4669.38	(7^+)	454.73 *14*	33.2 *19*	4214.64	(5^+)	E2		B(E2)(W.u.)=1000 *+107−330* is larger than RUL by a factor of 2 to 4. This suggests that either the reported $T_{1/2}$ is too small or branching is too large. Note that this γ is not reported in (α,pγ).

$^{58}_{26}Fe_{32}$-13

$\gamma(^{58}Fe)$ (continued)

E_i(level)	J^π_i	E_γ‡	I_γ‡	E_f	J^π_f	Mult.†	δ	Comments
4669.38	(7^+)	782.84 *16*	100.0 *25*	3886.40	6^+	(M1(+E2))	−0.06 *+16−10*	B(M1)(W.u.)=0.063 *+11−20*; B(E2)(W.u.)=1 *+4−1* δ: from $(\alpha,p\gamma)$.
		1072.55 *17*	48 *3*	3596.90	6^+	(M1+E2)	−0.10 *+20−15*	B(M1)(W.u.)=0.0117 *+21−38*; B(E2)(W.u.)=0.2 *+8−2* δ: from $(\alpha,p\gamma)$.
		1219[b]		3449.7	(4^+)			I_γ: very weak, observed only in $(\alpha,p\gamma)$.
		1804.9 *3*	9.6 *9*	2864.72	(5)			Not reported in $(\alpha,p\gamma)$.
4833.89	$1^+,2^+$	2699.94 *25*	100	2133.895	3^+			
5000.23	1^+	3326 *2*	100 *9*	1674.731	2^+	(M1+(E2))	−0.02 *4*	B(M1)(W.u.)=(0.15 *6*); B(E2)(W.u.)=(0.011 *+43−11*) δ: from (n,γ).
		4189.2 *2*	5.3 *18*	810.7662	2^+			
		5001.0 *7*	25 *4*	0.0	0^+			
5220.9	1,2	2137.6 *7*	6.6 *19*	3083.69	2^+			
		4411 *3*	4.7 *19*	810.7662	2^+			
		5223 *3*	100 *3*	0.0	0^+			
5294.8	$(1^+,2,3^+)$	2513.5 *10*	100 *19*	2782.14	1^+			
		3162 *3*	88 *19*	2133.895	3^+			
		4483 *2*	31 *13*	810.7662	2^+			
5343.33	8^+	672[b]	≈28	4669.38	(7^+)			
		1456.90 *20*	100 *6*	3886.40	6^+	E2		B(E2)(W.u.)=9.3 *+21−25* Mult.: from $\gamma(\theta)$ in $(^{13}C,3n\gamma)$ and RUL.
		1746.4 *3*	37 *3*	3596.90	6^+	E2		B(E2)(W.u.)=1.4 *4* Mult.: from $\gamma\gamma(\theta)$ in $(^{13}C,3n\gamma)$ and RUL.
5417.6	$(1^+,2,3^-)$	3280 *3*	38 *25*	2133.895	3^+			
		3740[a] *3*	100[a] *38*	1674.731	2^+			
5502.9	(8^+)	1906.0 *10*	100	3596.90	6^+	[E2]		B(E2)(W.u.)>12
5523.0	0^+	4712 *3*	100	810.7662	2^+			
5832.08	(9^+)	1162.64 *18*	100	4669.38	(7^+)	E2		B(E2)(W.u.)=50 *+5−19* Mult.: from $\gamma(\theta)$ in $(^{13}C,3n\gamma)$ and RUL.
6032.9	(9^+)	1364.0 *6*	100	4669.38	(7^+)	Q		
6282.7	(9^+)	939.4 *4*	100	5343.33	8^+	D		Mult.: from $\gamma(\theta)$ in $(^{13}C,3n\gamma)$.
7242.6	(10^+)	959.9 *7*	100	6282.7	(9^+)	D		Mult.: from $\gamma(\theta)$ in $(^{13}C,3n\gamma)$.
7456.7	(10^+)	1424.1 *4*	100 *7*	6032.9	(9^+)	D		
		1625.7 *5*	62 *5*	5832.08	(9^+)	D		
7731.3	(11^+)	1898.3 *4*	100	5832.08	(9^+)	(E2)		B(E2)(W.u.)>12 Mult.: from $\gamma(\theta)$ in $(^{13}C,3n\gamma)$ and RUL.
9444.8	(12^+)	1710.6 *7*	25 *7*	7731.3	(11^+)			E_γ: poor fit, quoted energy may be a misprint. Level-energy difference=1716.7.
		1989.4 *5*	100 *7*	7456.7	(10^+)	Q		
9939.1		2207.7 *7*	100	7731.3	(11^+)			
9984.5	(12)	2253.1 *5*	100	7731.3	(11^+)	D		
(10044.31)	1^-	4521 *3*	6.8 *17*	5523.0	0^+			

$^{58}_{26}Fe_{32}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{58}Fe)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[†]	Comments
(10044.31)	1^-	4626.3 *5*	28 *2*	5417.6	$(1^+,2,3^-)$		
		4749.6 *6*	25 *2*	5294.8	$(1^+,2,3^+)$		
		4823.7 *6*	20 *2*	5220.9	1,2		
		5043.8 *5*	91 *7*	5000.23	1^+		
		5212 *3*	5.1 *25*	4833.89	$1^+,2^+$		
		5493.6 *6*	92 *8*	4550.37	1^+		
		5599.9 *6*	9.3 *17*	4444.3	1^+		
		5691.3 *6*	21 *2*	4352.7	1^+		
		5721.5 *6*	21 *2*	4322.5	1^+		
		5746.7 *6*	20 *2*	4297.8	2^+		
		5905.3 *7*	21 *3*	4139.24	1^+		
		6028.7 *6*	10.2 *17*	4015.01	1^+		
		6162.7 *6*	28 *3*	3880.1	1^+		
		6413.9 *7*	13.6 *17*	3629.60	2^+		
		6506.0 *7*	58 *7*	3537.97	1^+		
		6960.3 *7*	89 *9*	3083.69	2^+		
		7163 *5*	5.1 *17*	2876.34	2^+		
		7261.7 *8*	97 *11*	2782.14	1^+		
		8369.1 *9*	100 *13*	1674.731	2^+		
		9232.9 *10*	19 *3*	810.7662	2^+		
		10043.2 *12*	23 *4*	0.0	0^+		
10075.4	(13^+)	2344.0 *8*	100	7731.3	(11^+)	(E2)	B(E2)(W.u.)>4.3 Mult.: from $\gamma(\theta)$ in (^{13}C,3nγ) and RUL.
10353.8		2622.4 *7*	100	7731.3	(11^+)		
11857.0	(14^+)	2412.2 *6*	100	9444.8	(12^+)		
11911.0		1926.5 *6*	100	9984.5	(12)		
12813.3	(15^+)	2737.8 *13*	100	10075.4	(13^+)		

[†] The mult=Q and D correspond to ΔJ=2 and ΔJ=1, respectively. The mult=D+Q correspond to ΔJ=1, but in some cases it may Be ΔJ=0. When mult=E2, M1, M1+E2 or E1 is given, it follows from $\Delta(J^\pi)$. When given in square brackets, multipolarity is assumed from ΔJ^π in the present level scheme.

[‡] Values represent averages of all available data.

[#] γ looked for but not seen in ^{58}Co ε decay (1974Ti01), an upper limit of intensity is given.

[@] 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.

[&] Multiply placed with undivided intensity.

[a] Multiply placed with intensity suitably divided.

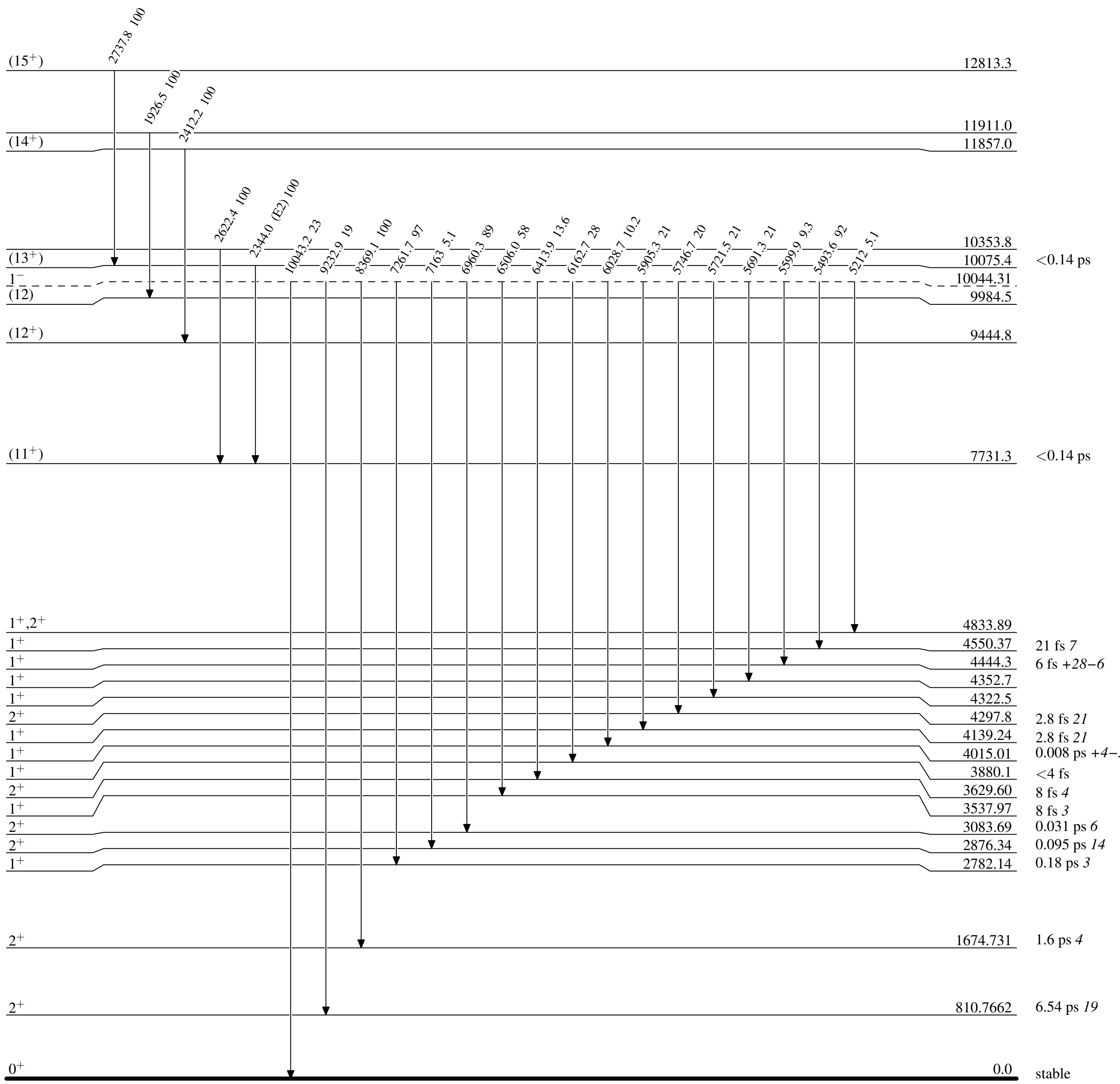
[b] Placement of transition in the level scheme is uncertain.

From ENSDF

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

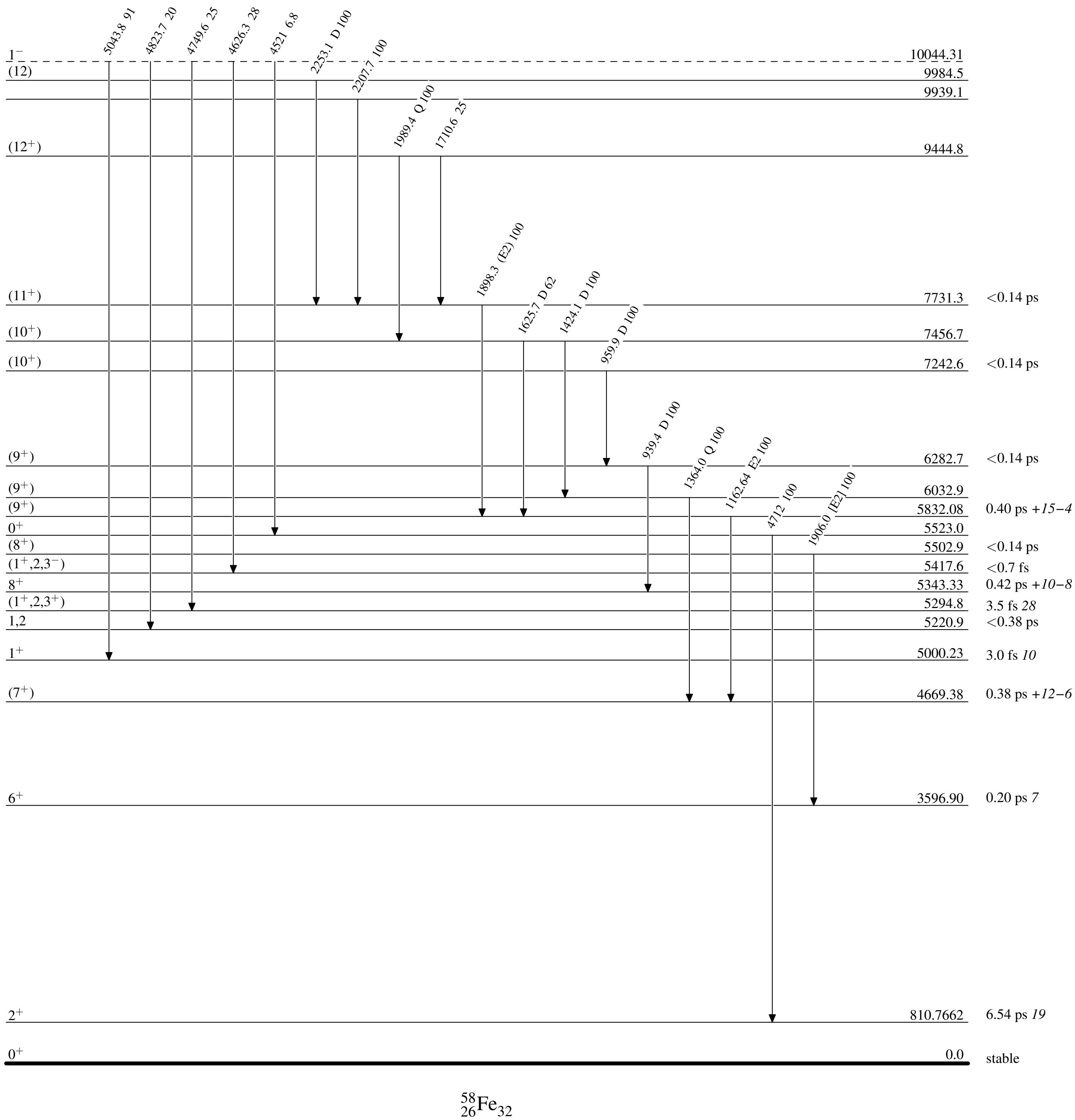


$^{58}_{26}Fe_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



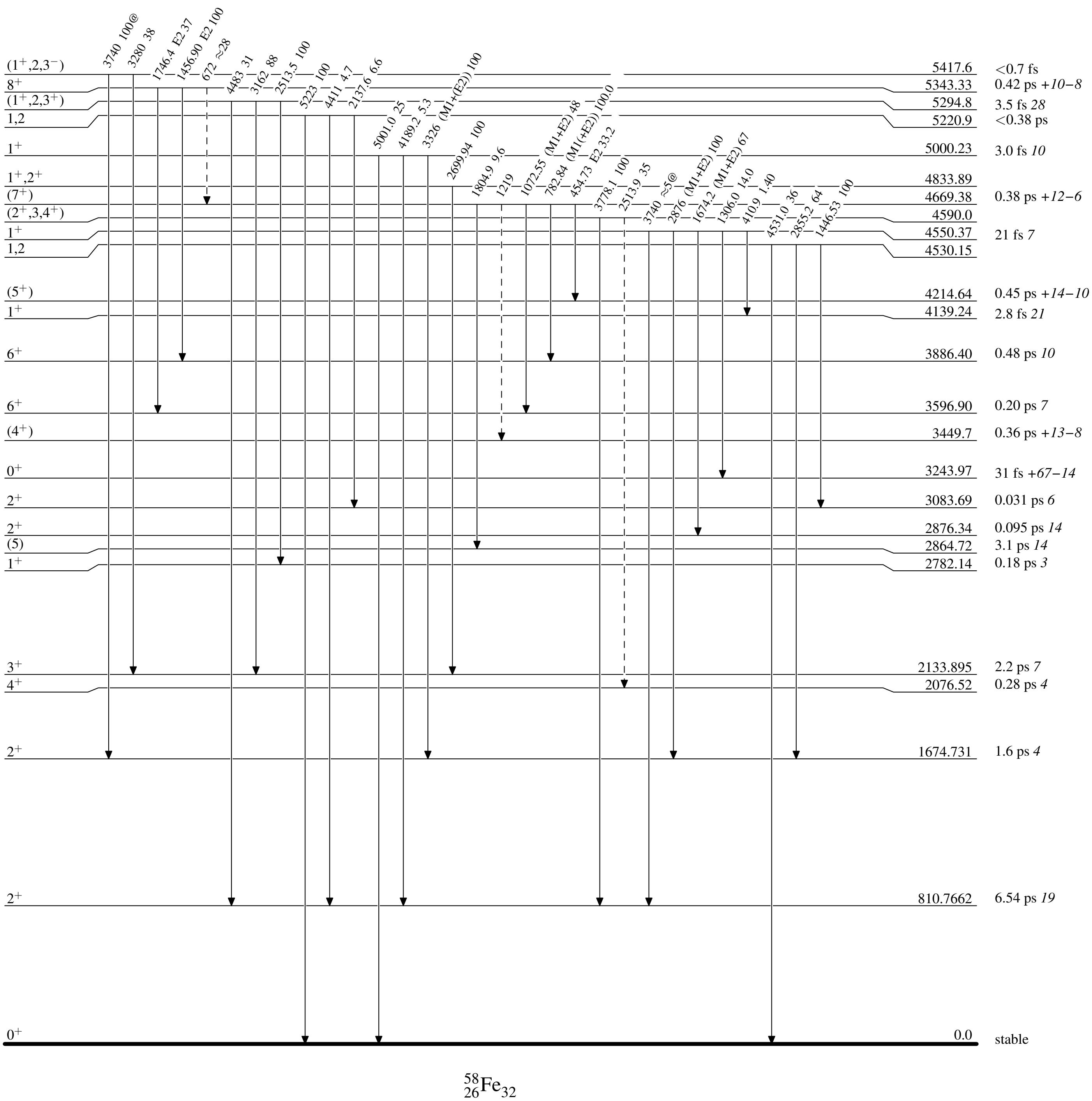
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

Legend

γ Decay (Uncertain)



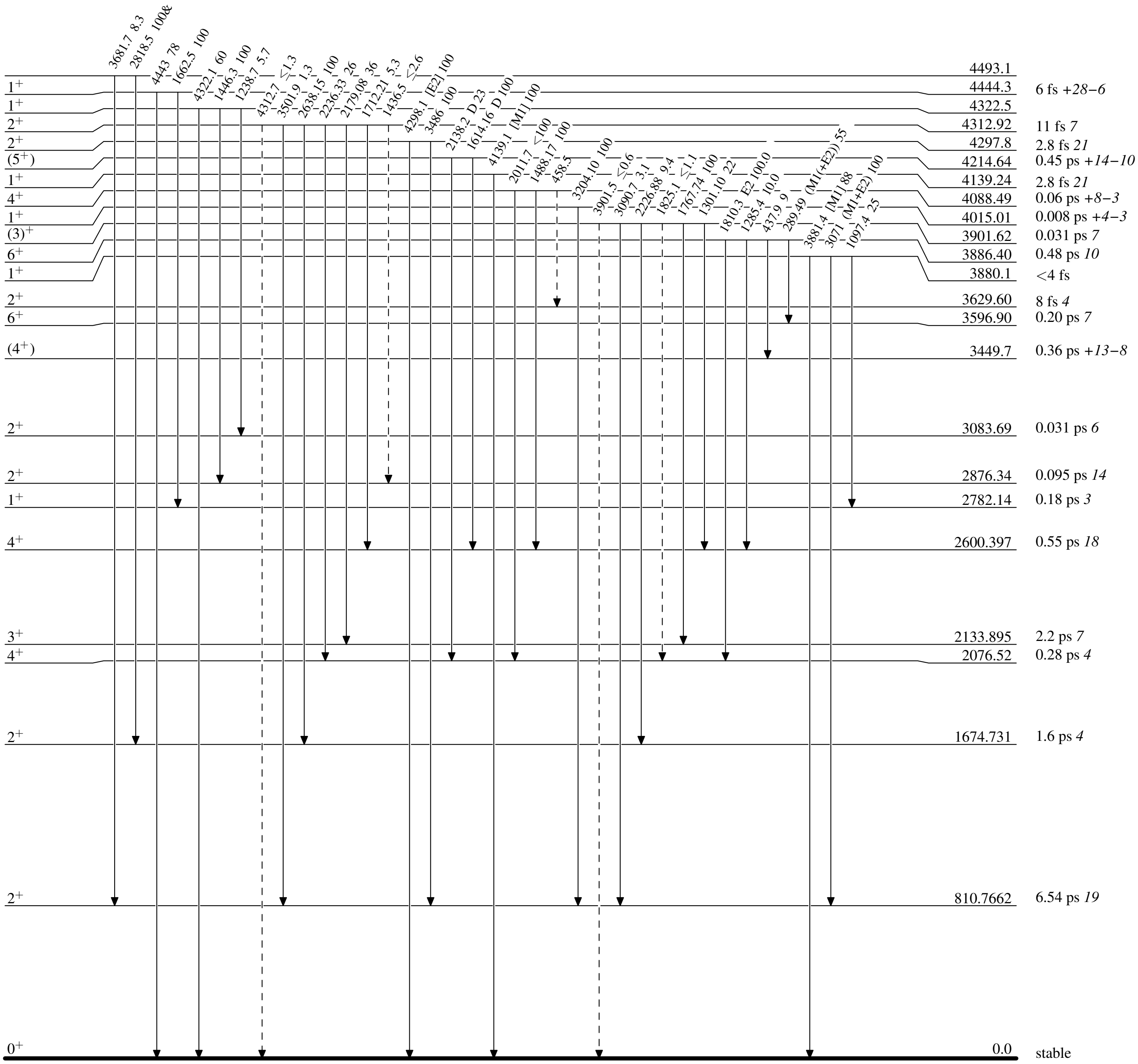
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

γ Decay (Uncertain)



$^{58}_{26}Fe_{32}$

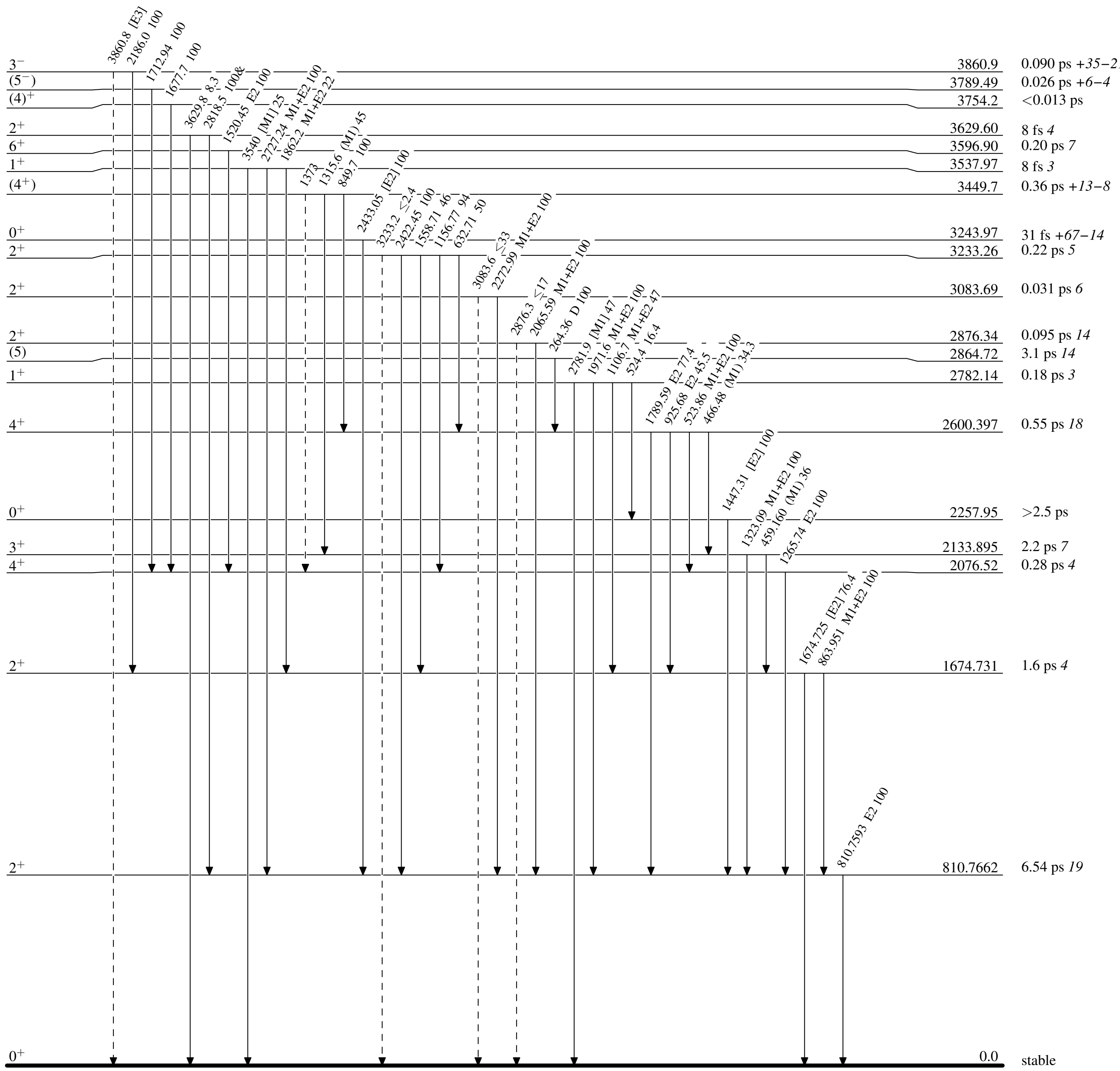
Adopted Levels, Gammas

Level Scheme (continued)

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

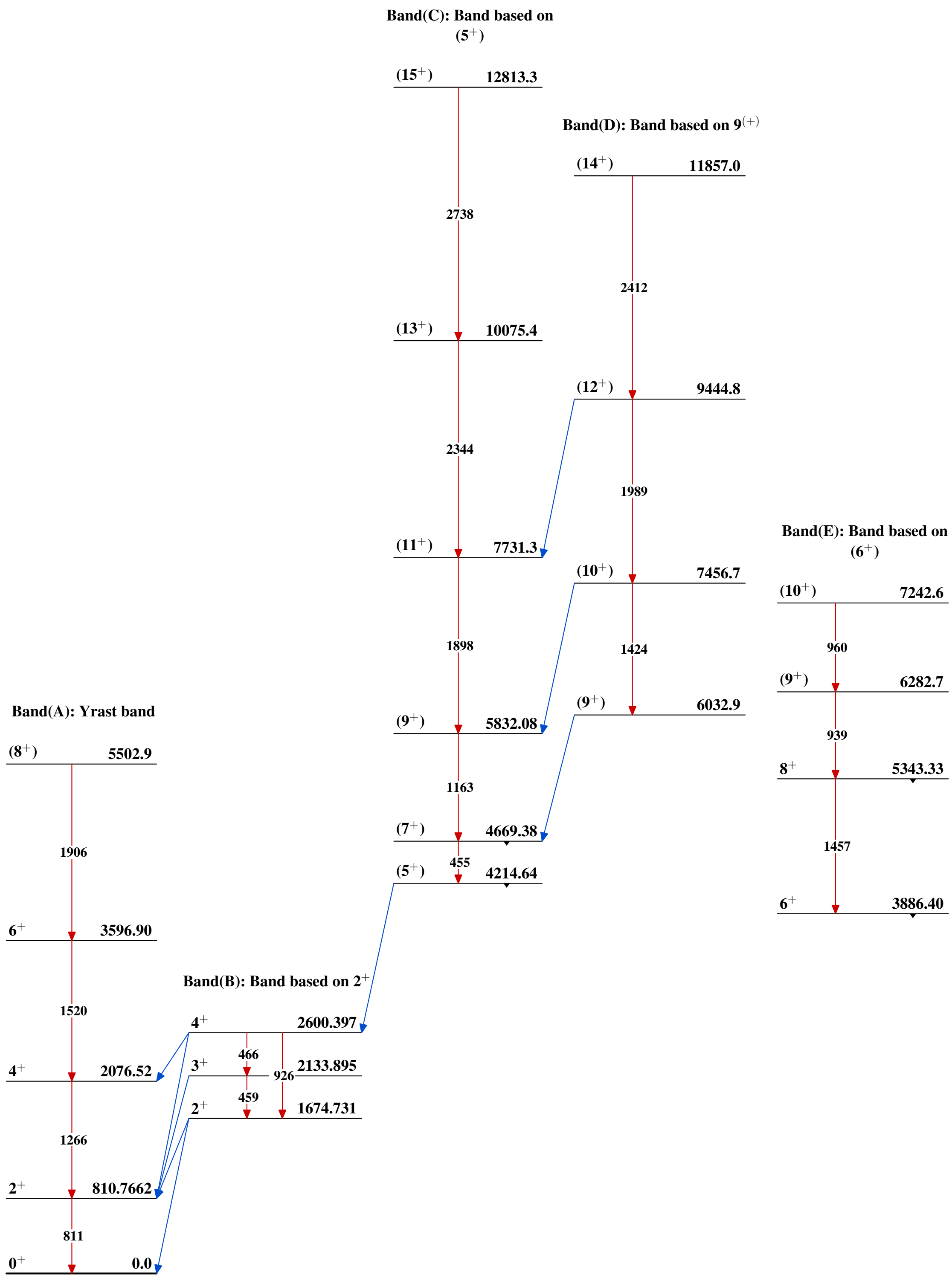
Legend

γ Decay (Uncertain)



$^{58}_{26}Fe_{32}$

Adopted Levels, Gammas



$^{58}_{26}Fe_{32}$

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 114, 1849 (2013)	31-Dec-2012

$Q(\beta^-)$=237 *3*; S(n)=8820 *4*; S(p)=13176 *4*; $Q(\alpha)$=−8556 *4* 2012Wa38
Additional information 1.
Others:
Nuclear structure.
2012Lo04, 2012Mu09, 2011Ba39, 2011Ut01, 2009Su20, 2007Al45, 2007Mo15, 2005Al47, 2005Ch12, 2005Pu04, 2004Ag02, 2004Mi54, 2004Pa04, 2002Ca48, 1985Bl11.
Nuclear reactions: 2011Su04, 2006Sc16, 2003Kn01.
Effect of strong magnetic field on ^{60}Co ε decay: 2007Li49.
Compilations.
B(E2) values: 2012Go17, 2012Pr08, 2011PrZZ.
Half-lives: 2011Ch65.
Discovery of element iron: 2007Li49.

Arguments for J^π assignments

E(level)	L(t,p)#	$\gamma(\theta)$ in (t,pγ)	$\gamma(\theta)$ in (^{48}Ca,2nγ)	L(α,^{2}He)#	(^{64}Ni,Xγ)	Adopt
0	0				0^+	0^+
824	2	2			2^+	2^+
1974	0					0^+
2115	4	2,4			4^+	4^+
2300	2	2			2^+	a
2356	0					0^+
2673	2	1,2,3				2^+
2756	2					2^+
2793					4^+	4^+
3039	2	1,2,3				2^+
3072	4	2,4		4		4^+
3293	3					3^-
3308		1,2,3,4				
3499	4					(4^+)
3516				4,5	(5^+)	(5^+)
3520			(6^+)		(6^+)	(6^+)
3520			(4^+)		(4^+)	(4^+)
3562	(3)					(3^-)
3582			(6^+)			(6^+)
3635	2					2^+
3698	0					0^+
3867	3					3^-
3904			(6^+)			(6^+)
3929	2					2^+
3932			6^+			6^+
3958			$6^{(-)}$			$6^{(-)}$
3959			(7^+)		(7^+)	(7^+)
4053	3					3^-
4176	2					2^+
4280	3					3^-
4296			$7^{(-)}$			$7^{(-)}$
4358			$7^{(-)}$	7		$7^{(-)}$
4359	5					5^-
4440	3					3^-
4451			6^+			6^+
4503	4					4^+
4650	2					2^+

4755	(3)			(3^-)
4958	4			4^+
5006		$8^{(-)}$		$8^{(-)}$
5029	4			4^+
5103	2			2^+
5218	3			3^-
5310	(5)		5,7	(5^-)
5333		$8^{(+)}$		$8^{(+)}$
5529		$9^{(-)}$		$9^{(-)}$
5550		8^+		8^+
5620	(7)		7,5	(7^-)
5755		9^-		9^-
6475		10^+		10^+
6550		$10^{(-)}$		$10^{(-)}$
6620	(8,6)		8+6	$(8^+,6^+)$
6740		(9,10)		(9,10)
7250		$11^{(-)}$		$11^{(-)}$
7632		$11^{(-)}$		$11^{(-)}$
7890		11		11
8059		12^+		12^+
8536		$12^{(-)}$		$12^{(-)}$
9503		(13^-)		(13^-)
9996		14^+		14^+
10721		(14^-)		(14^-)
11810		15		15
12116		(15^-)		(15^-)
12319		(16^+)		(16^+)
12833		(16^-)		(16^-)
14583		(17^-)		(17^-)
14985		(18^+)		(18^+)
17956		(20^+)		(20^+)

\# J^π of ^{58}Fe(g.s.) is 0^+.
a $J^\pi=2^+$ not consistent with log*ft* in β- decay.

^{60}Fe Levels

Cross Reference (XREF) Flags

A	^{60}Mn β^- decay (1.77 s)	E	^{58}Fe(t,pγ)	I	^{64}Ni(^{3}He,^{7}Be)
B	^{60}Mn β^- decay (0.28 s)	F	^{64}Ni(d,^{6}Li)	J	^{62}Ni(^{14}C,^{16}O)
C	^{14}C(^{48}Ca,2nγ)	G	^{48}Ca(^{15}N,2npγ),(^{18}O,2n$\alpha\gamma$)	K	^{208}Pb(^{64}Ni,Xγ)
D	^{58}Fe(t,p)	H	^{58}Fe(α,^{2}He)	L	^{64}Ni(^{238}U,X)

E(level)†	J^π‡	$T_{1/2}$#	XREF	Comments
0.0[a]	0^+	2.62×10^6 y *4*	ABCDEFGHIJKL	$\%\beta^-=100$ $T_{1/2}$: From 2009Ru08. Specific activity measurement. Measured activity of ^{60}Fe in the source, its isotopic composition, and the number of iron atoms in the source. $T_{1/2}$: Other values: 1.49×10^6 y *27*, specific activity measurement and radioisotope concentration (1984Ku28). 3×10^5 y (1957Ro54). $T_{1/2}$: a larger sample material and a more accurate determination of the number of atoms suggests the result in 2009Ru08 is the most accurate. $T_{1/2}$: The half-life of ^{60}Fe plays a prominent role in various astrophysical matters.
823.83[a] *9*	2^+	7.9 ps *8*	ABCDEFG IJKL	$T_{1/2}$: From 2010Lj01 in ^{64}Ni(^{238}U,X). Other value: 8.0 ps *15* (1977Wa10).
1974.0 *5*	0^+		B DE	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{60}Fe Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$[#]	XREF	Comments
2114.60[a] *12*	4$^+$	0.83 ps *21*	A CDEFG I K	
2299.67 *11*			A DE K	J$^{\pi}$=2$^+$ from 1476γ M1 to 2$^+$, and 2300γ E2 to 0$^+$. However, log *ft*=5.0 to 2300-keV level is not consistent with β$^-$ decay from ^{60}Mn(4$^+$) to ^{60}Fe(2$^+$).
2356.2 *10*	0$^+$		B D F	
2672.9[&] *9*	2$^+$		DE	
2755.9[&] *10*	2$^+$		DE	
2792.68 *11*	3$^+$,4$^+$		A K	J$^{\pi}$: J$^{\pi}$=3$^+$ from (M1) γ rays to J$^{\pi}$=2$^+$, 4$^+$ levels in ^{60}Fe. J$^{\pi}$=4$^+$ from ^{208}Pb(^{64}Ni,Xγ).
3038.9[&] *10*	2$^+$		DEF	
3072.01 *23*	4$^+$		A DE HI	
3193.51 *24*			A	
3293 *4*	3$^-$		D	
3307.9[&] *9*			EF	
3352.9 *6*			A	
3486.02 *24*			A	
3498.6? *10*	(4$^+$)		A D	
3516.15[b] *18*	(5$^-$)	49 ps *21*	C GH K	XREF: H(3520). $T_{1/2}$: assignment to 3516 level is uncertain.
3520[@] *50*	(4$^+$)		H	
3520.12[a] *22*	6$^+$		C K	
3562 *5*	(3$^-$)		D	
3582.21 *18*	(6$^+$)		C K	
3635 *4*	2$^+$		D F	
3647.9[&] *9*			E	
3698 *5*	0$^+$		D	
3713.9[&] *10*			E	
3867 *5*	3$^-$		D	
3874.9[&] *9*			E	
3904.5 *3*	(6$^+$)		C	
3929.9 *10*	2$^+$		DE	
3931.87 *18*	6$^+$		C	
3958.20[c] *18*	6$^{(-)}$	>0.4 ps	C G	
3959.13 *25*	(7$^+$)		K	
4053 *8*	3$^-$		D	
4176 *8*	2$^+$		D	
4280 *8*	3$^-$		D	
4296.49 *18*	7$^{(-)}$	>0.4 ps	C G	
4298.2 *4*			K	
4358.30[b] *18*	7$^{(-)}$		C H	
4359.5 *3*	5$^-$		D G K	
4440 *10*	3$^-$		D	
4451.4 *3*	6$^+$		C	
4503 *10*	4$^+$		D	
4650 *10*	2$^+$		D	
4755 *9*	(3$^-$)		D	
4958 *9*	4$^+$		D	
5006.08[c] *19*	8$^{(-)}$	0.8 ps *+13−4*	C G	
5029 *10*	4$^+$		D	
5103 *10*	2$^+$		D	
5218 *16*	3$^-$		D F	
≈5310[@]	(5$^-$)		H	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{60}Fe Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
5333.39[a] *19*	8^+	C	
5434 *17*		D	
5528.75[b] *20*	$9^{(-)}$	C	
5549.6 *5*	8^+	C K	
5596 *18*		D	
≈5620[@]	(7^-)	H	
5754.62 *19*	9^-	C	
6314.7 *5*		C	
6475.27[a] *21*	10^+	C	
6550.10[c] *21*	$10^{(-)}$	C	
6578.62 *22*		C	
≈6620[@]	$(8^+,6^+)$	H	J^{π}: configuration=$(\nu\ g_{9/2})^2 8^+$ or $((\nu\ g_{9/2})(\nu\ d_{5/2}))6^+$.
6740.1[d] *4*	(9,10)	C	
6944.4 *5*		C	
7003.4 *6*		C	
7243.13 *24*		C	
7250.07[b] *23*	$11^{(-)}$	C	
7631.9 *4*	$11^{(-)}$	C	
7664.9 *3*		C	
7890.41[d] *22*	11	C	
8059.49[a] *23*	12^+	C	
8536.5[c] *3*	$12^{(-)}$	C	
8920.2 *5*		C	
8974.4 *7*		C	
9503.2[b] *4*	(13^-)	C	
9559.43[d] *25*	13	C	
9995.83[a] *25*	14^+	C	
10670.4 *13*		C	
10721.0[c] *8*	(14^-)	C	
11810.5[d] *6*	15	C	
12116.2[b] *11*	(15^-)	C	
12319.0[a] *16*	(16^+)	C	
12833.1[c] *17*	(16^-)	C	
14583.4[b] *15*	(17^-)	C	
14984.6[a] *17*	(18^+)	C	
17956[a] *4*	(20^+)	C	

[†] Levels connected by γ's are from least-squares fit to Eγ, others are from (t,p), unless stated otherwise.

[‡] See separate table. See ^{58}Fe(t,p) and ^{58}Fe(α,^{2}He) references for level configurations used in DWBA calculations.

[#] From ^{48}Ca(^{15}N,2npγ),(^{18}O,2n$\alpha\gamma$); recoil distance method for levels below 3.6 MeV and DSA method for levels above this energy, except the g.s.

[@] From ^{58}Fe(α,^{2}He).

[&] From ^{58}Fe(t,pγ) (1977Wa10). Kept fixed in least-squares fit.

[a] Band(A): Yrast band.

[b] Band(B): Band based on $J^{\pi}=5^{(-)}$.

[c] Band(b): Band based on $J^{\pi}=6^{(-)}$.

[d] Band(C): Band based on J^{π}=(9,10).

Adopted Levels, Gammas (continued)

$\gamma(^{60}Fe)$

E_i(level)	J^{π}_i	E_γ	I_γ[b]	E_f	J^{π}_f	Mult.	α[†]	Comments
823.83	2^+	823.8 *1*	100	0.0	0^+	[E2]	0.000319 *5*	B(E2)(W.u.)=13.6 *14* α=0.000319 *5*; α(K)=0.000287 *4*; α(L)=2.75×10^{-5} *4*; α(M)=3.78×10^{-6} *6*; α(N+..)=1.740×10^{-7} *25* α(N)=1.740×10^{-7} *25*
1974.0	0^+	1150.2 *4*	100	823.83	2^+			
2114.60	4^+	1290.8 *1*	100	823.83	2^+	[E2]	0.0001356 *19*	B(E2)(W.u.)=14 *4* α=0.0001356 *19*; α(K)=9.84×10^{-5} *14*; α(L)=9.36×10^{-6} *14*; α(M)=1.289×10^{-6} *18*; α(N+..)=2.65×10^{-5} α(N)=5.98×10^{-8} *9*; α(IPF)=2.65×10^{-5} *4*
2299.67		1475.8[&] *1*	80[&] *4*	823.83	2^+	(M1)	0.0001331 *19*	α=0.0001331 *19*; α(K)=6.70×10^{-5} *10*; α(L)=6.35×10^{-6} *9*; α(M)=8.74×10^{-7} *13*; α(N+..)=5.89×10^{-5} *9* α(N)=4.08×10^{-8} *6*; α(IPF)=5.88×10^{-5} *9*
		2299.7[&] *2*	100[&] *7*	0.0	0^+			Mult.: (E2) from ΔJ^{π} in 2010Ho13 not consistent with β^- decay.
2356.2	0^+	1532.4	100	823.83	2^+			
2672.9	2^+	1849[@]	100[@]	823.83	2^+			
2755.9	2^+	1932[@]	100[@]	823.83	2^+			
2792.68	$3^+,4^+$	493.0[&] *1*	36.2[&] *19*	2299.67		(M1)	0.000697 *10*	α=0.000697 *10*; α(K)=0.000628 *9*; α(L)=6.02×10^{-5} *9*; α(M)=8.29×10^{-6} *12*; α(N+..)=3.84×10^{-7} *6* α(N)=3.84×10^{-7} *6*
		678.1[&] *1*	5.1[&] *6*	2114.60	4^+	(M1)	0.000348 *5*	α=0.000348 *5*; α(K)=0.000314 *5*; α(L)=3.00×10^{-5} *5*; α(M)=4.13×10^{-6} *6*; α(N+..)=1.92×10^{-7} *3* α(N)=1.92×10^{-7} *3*
		1968.8[&] *1*	100[&] *5*	823.83	2^+	(M1)	0.000285 *4*	α=0.000285 *4*; α(K)=4.00×10^{-5} *6*; α(L)=3.78×10^{-6} *6*; α(M)=5.21×10^{-7} *8*; α(N+..)=0.000241 *4* α(N)=2.43×10^{-8} *4*; α(IPF)=0.000241 *4*
3038.9	2^+	2215[@]	100[@]	823.83	2^+			
3072.01	4^+	279.6[&] *7*	11[&] *7*	2792.68	$3^+,4^+$	M1	0.00260 *4*	α=0.00260 *4*; α(K)=0.00234 *4*; α(L)=0.000226 *4*; α(M)=3.11×10^{-5} *5*; α(N+..)=1.431×10^{-6} *22* α(N)=1.431×10^{-6} *22*
		957.5[&] *3*	48[&] *7*	2114.60	4^+	M1	0.0001708 *24*	α=0.0001708 *24*; α(K)=0.0001540 *22*; α(L)=1.464×10^{-5} *21*; α(M)=2.02×10^{-6} *3* α(N)=9.39×10^{-8} *14*
		2248.0[&] *3*	100[&] *22*	823.83	2^+	E2	0.000471 *7*	α=0.000471 *7*; α(K)=3.35×10^{-5} *5*; α(L)=3.17×10^{-6} *5*; α(M)=4.36×10^{-7} *7*; α(N+..)=0.000434 *6* α(N)=2.03×10^{-8} *3*; α(IPF)=0.000434 *6*
3193.51		401.0[c] *10*	7 *7*	2792.68	$3^+,4^+$			
		1078.9 *2*	100 *14*	2114.60	4^+			

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Adopted Levels, Gammas (continued)

$\gamma(^{60}Fe)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.	α[†]	Comments
3307.9		635[@]	100[@] *20*	2672.9	2^+			
		2484[@]	100[@] *20*	823.83	2^+			
3352.9		1238.3[&] *5*	100[&]	2114.60	4^+			
3486.02		1371.4[&] *2*	100[&]	2114.60	4^+			
3498.6?	(4^+)	1384.0[&c] *10*	100[&]	2114.60	4^+	M1	0.0001201 *17*	α=0.0001201 *17*; α(K)=7.55×10^{-5} *11*; α(L)=7.15×10^{-6} *10*; α(M)=9.86×10^{-7} *14*; α(N+..)=3.65×10^{-5} *6* α(N)=4.60×10^{-8} *7*; α(IPF)=3.64×10^{-5} *6*
3516.15	(5^-)	1401.56[#] *19*	100	2114.60	4^+	[E1]	0.000233 *4*	B(E1)(W.u.)=0.32×10^{-5} *14* α=0.000233 *4*; α(K)=4.17×10^{-5} *6*; α(L)=3.95×10^{-6} *6*; α(M)=5.44×10^{-7} *8*; α(N+..)=0.000187 *3* α(N)=2.53×10^{-8} *4*; α(IPF)=0.000187 *3*
3520.12	6^+	1405.4[‡] *3*	100	2114.60	4^+			
3582.21	(6^+)	1467.4[‡] *3*	100	2114.60	4^+			
3647.9		2824[@]	100	823.83	2^+			
3713.9		2890[@]	100	823.83	2^+			
3874.9		227[@]		3647.9				
		3051[@]		823.83	2^+			
3904.5	(6^+)	1789.1[a] *7*	100[a]	2114.60	4^+			
3929.9	2^+	3106	100	823.83	2^+			
3931.87	6^+	349.5[a] *1*	15.6[a] *16*	3582.21	(6^+)			
		1817.4[a] *2*	100[a] *5*	2114.60	4^+			
3958.20	$6^{(-)}$	375.9[a] *1*	27[a] *1*	3582.21	(6^+)			
		437.9[a] *3*	100[a] *3*	3520.12	6^+			
		441.9[a] *1*	47[a] *2*	3516.15	(5^-)			
		1843[a] *5*	1.3[a] *7*	2114.60	4^+			
3959.13	(7^+)	377.0[‡] *3*		3582.21	(6^+)			
		439.0[‡] *3*		3520.12	6^+			
		442.9[‡] *3*		3516.15	(5^-)			
4296.49	$7^{(-)}$	338.2[a] *1*	100[a] *4*	3958.20	$6^{(-)}$			
		364.5[a] *1*	37[a] *1*	3931.87	6^+			
		714.4[a] *1*	53[a] *2*	3582.21	(6^+)			
		780.6[a] *10*	99[a] *4*	3516.15	(5^-)			
4298.2		339.1[‡] *3*	100	3959.13	(7^+)			
4358.30	$7^{(-)}$	399.9[a] *1*	5.7[a] *6*	3958.20	$6^{(-)}$			
		426.4[a] *4*	1.1[a] *6*	3931.87	6^+			
		453.7[a] *2*	2.9[a] *6*	3904.5	(6^+)			
		842.3[a] *1*	100[a] *4*	3516.15	(5^-)			
4359.5	5^-	843.3[#] *2*	100	3516.15	(5^-)			
4451.4	6^+	2336.9[a] *20*	100[a]	2114.60	4^+			
5006.08	$8^{(-)}$	647.7[a] *2*	4.7[a] *6*	4358.30	$7^{(-)}$			
		1047.9[a] *1*	100[a] *3*	3958.20	$6^{(-)}$	[E2]	0.0001749 *25*	B(E2)(W.u.)=40.1 α=0.0001749 *25*; α(K)=0.0001577 *22*; α(L)=1.503×10^{-5} *21*; α(M)=2.07×10^{-6} *3* α(N)=9.57×10^{-8} *14*
5333.39	8^+	882.0[a] *2*	22[a] *1*	4451.4	6^+			
		1036.8[a] *1*	100[a] *3*	4296.49	$7^{(-)}$			

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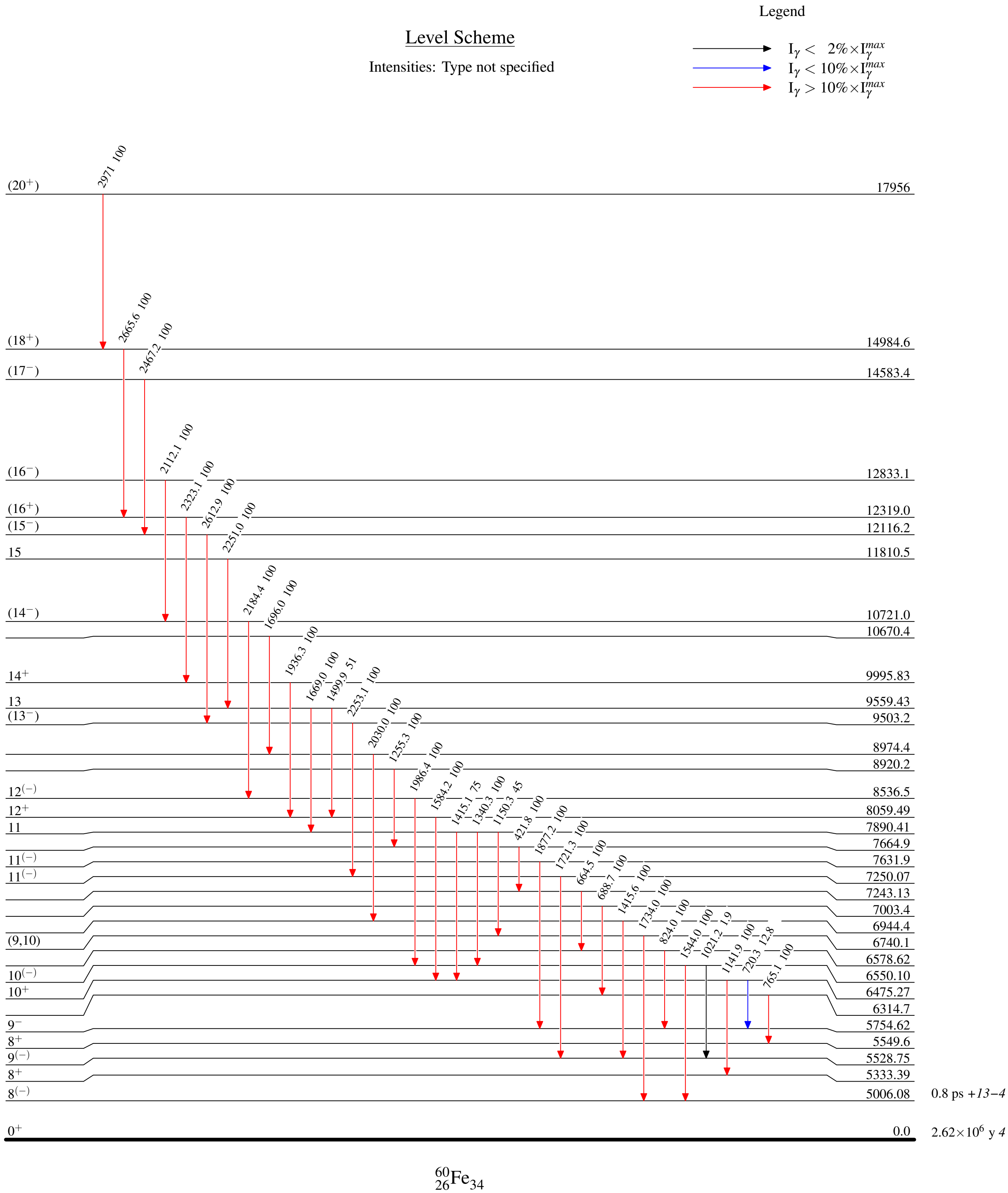
Adopted Levels, Gammas (continued)

$\gamma(^{60}Fe)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f
5333.39	8^+	1751.6[a] 2	58[a] 2	3582.21	(6^+)
		1813.4[a] 4	21[a] 1	3520.12	6^+
5528.75	$9^{(-)}$	522.8[a] 2	4.6[a] 7	5006.08	$8^{(-)}$
		1170.4[a] 1	100[a] 3	4358.30	$7^{(-)}$
		1232.3[a] 6	4.6[a] 7	4296.49	$7^{(-)}$
5549.6	8^+	1967.4[a] 4	100[a]	3582.21	(6^+)
5754.62	9^-	748.5[a] 1	18[a] 1	5006.08	$8^{(-)}$
		1458.1[a] 1	100[a] 3	4296.49	$7^{(-)}$
6314.7		765.1[a] 2	100[a]	5549.6	8^+
6475.27	10^+	720.3[a] 3	12.8[a] 6	5754.62	9^-
		1141.9[a] 1	100[a] 3	5333.39	8^+
6550.10	$10^{(-)}$	1021.2[a] 15	1.9[a] 9	5528.75	$9^{(-)}$
		1544.0[a] 1	100[a] 3	5006.08	$8^{(-)}$
6578.62		824.0[a] 1	100[a]	5754.62	9^-
6740.1	(9,10)	1734.0[a] 5	100[a]	5006.08	$8^{(-)}$
6944.4		1415.6[a] 4	100[a]	5528.75	$9^{(-)}$
7003.4		688.7[a] 3	100[a]	6314.7	
7243.13		664.5[a] 1	100[a]	6578.62	
7250.07	$11^{(-)}$	1721.3[a] 1	100[a]	5528.75	$9^{(-)}$
7631.9	$11^{(-)}$	1877.2[a] 3	100[a]	5754.62	9^-
7664.9		421.8[a] 1	100[a]	7243.13	
7890.41	11	1150.3[a] 3	45[a] 5	6740.1	(9,10)
		1340.3[a] 1	100[a] 5	6550.10	$10^{(-)}$
		1415.1[a] 10	75[a] 5	6475.27	10^+
8059.49	12^+	1584.2[a] 1	100[a]	6475.27	10^+
8536.5	$12^{(-)}$	1986.4[a] 2	100[a]	6550.10	$10^{(-)}$
8920.2		1255.3[a] 4	100[a]	7664.9	
8974.4		2030.0[a] 5	100[a]	6944.4	
9503.2	(13^-)	2253.1[a] 3	100[a]	7250.07	$11^{(-)}$
9559.43	13	1499.9[a] 2	51[a] 3	8059.49	12^+
		1669.0[a] 2	100[a] 3	7890.41	11
9995.83	14^+	1936.3[a] 1	100[a]	8059.49	12^+
10670.4		1696.0[a] 11	100[a]	8974.4	
10721.0	(14^-)	2184.4[a] 7	100[a]	8536.5	$12^{(-)}$
11810.5	15	2251.0[a] 5	100[a]	9559.43	13
12116.2	(15^-)	2612.9[a] 10	100[a]	9503.2	(13^-)
12319.0	(16^+)	2323.1[a] 15	100[a]	9995.83	14^+
12833.1	(16^-)	2112.1[a] 15	100[a]	10721.0	(14^-)
14583.4	(17^-)	2467.2[a] 10	100[a]	12116.2	(15^-)
14984.6	(18^+)	2665.6[a] 7	100[a]	12319.0	(16^+)
17956	(20^+)	2971[a] 3	100[a]	14984.6	(18^+)

† Additional information 2.
‡ From (^{64}Ni,Xγ).
# From ^{48}Ca(^{15}N,2npγ).
@ From ^{58}Fe(t,pγ). Energy from level separation, not included in energy fit.
& From ^{60}Mn β-decay (1.77 s).
a From ^{14}C(^{48}Ca,2nγ) (2007De56).
b Relative photon branching from each level.
c Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



Adopted Levels, Gammas

Level Scheme (continued)

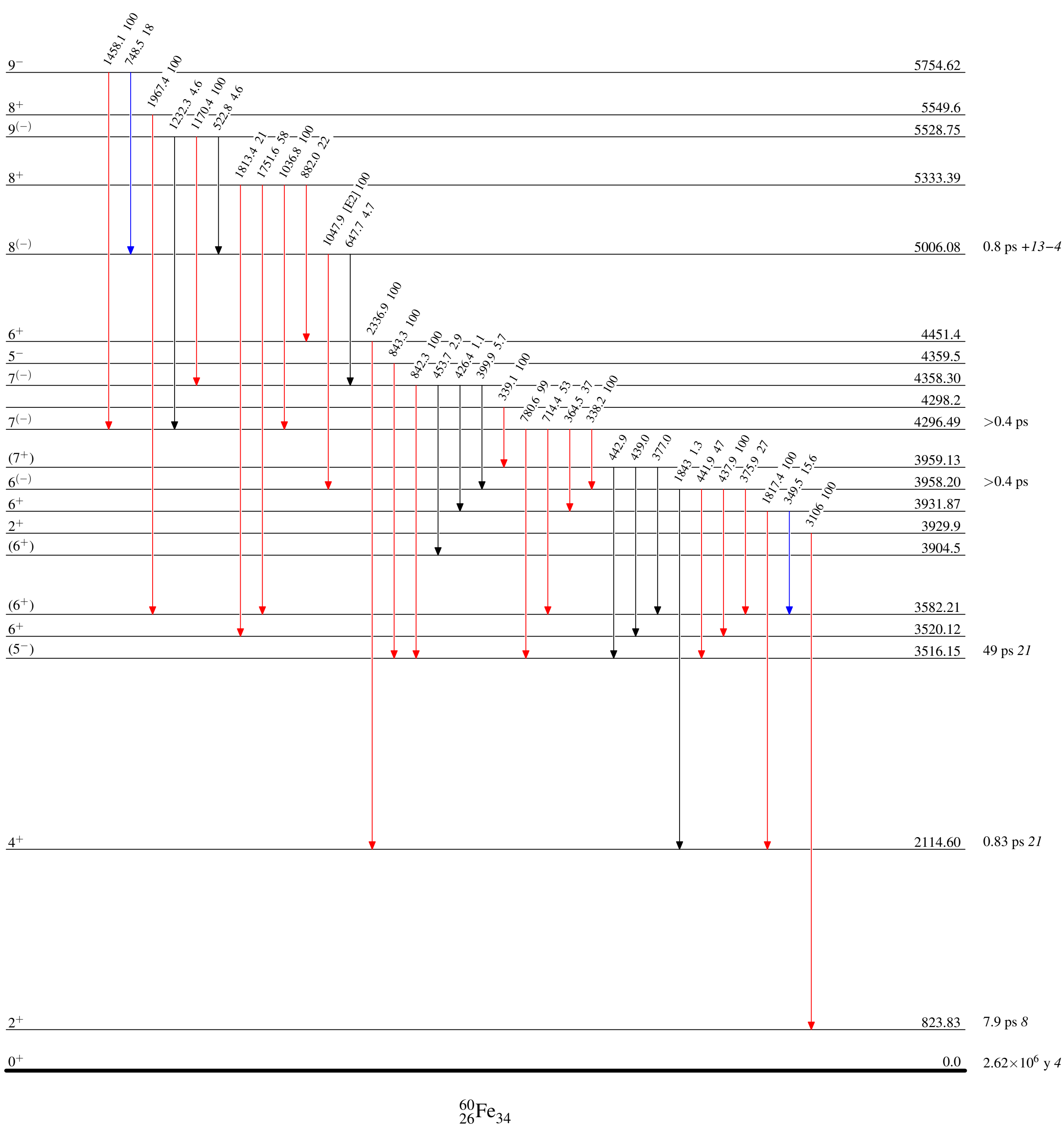
Intensities: Type not specified

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

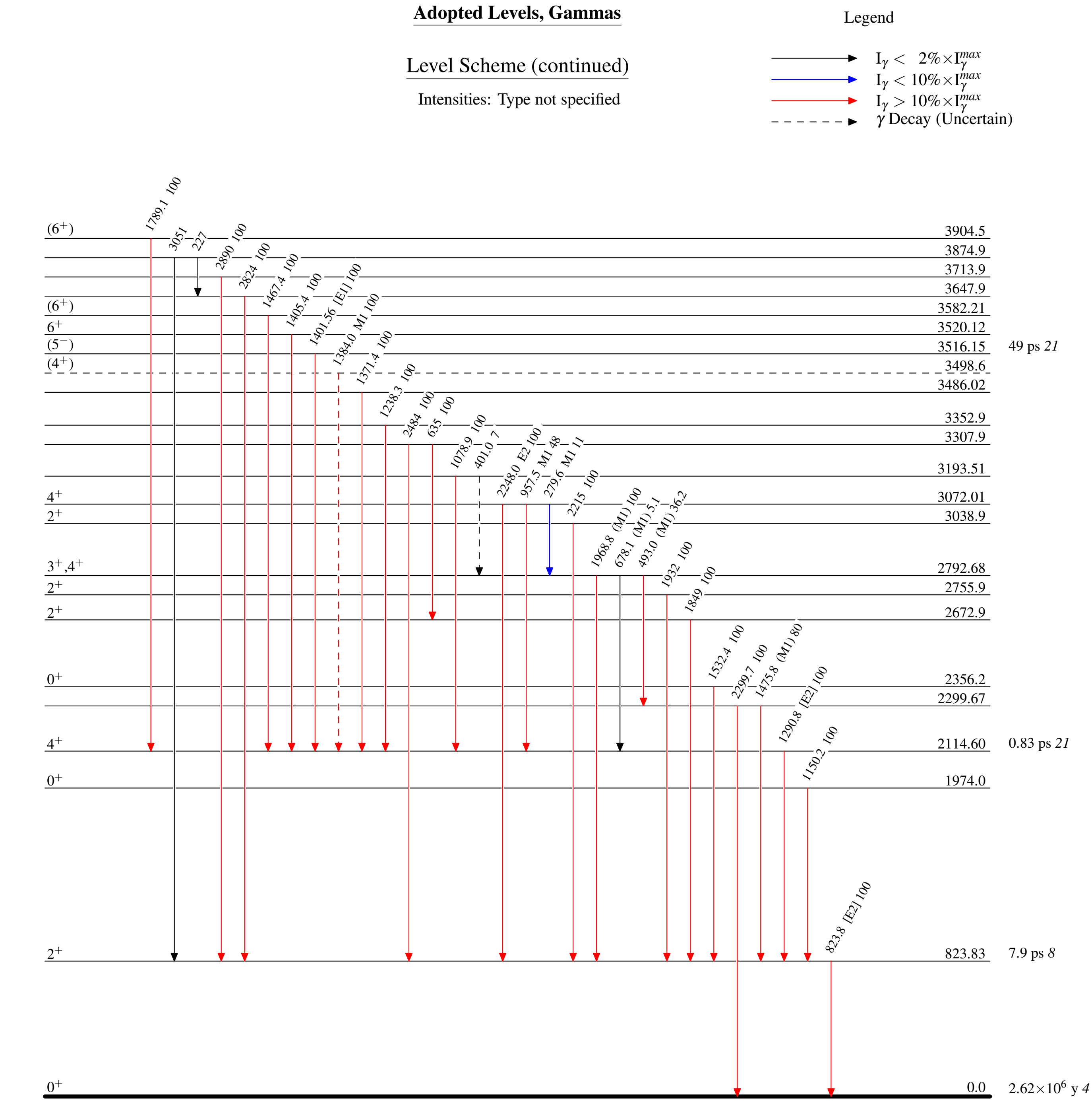
$I_\gamma > 10\% \times I_\gamma^{max}$



Adopted Levels, Gammas

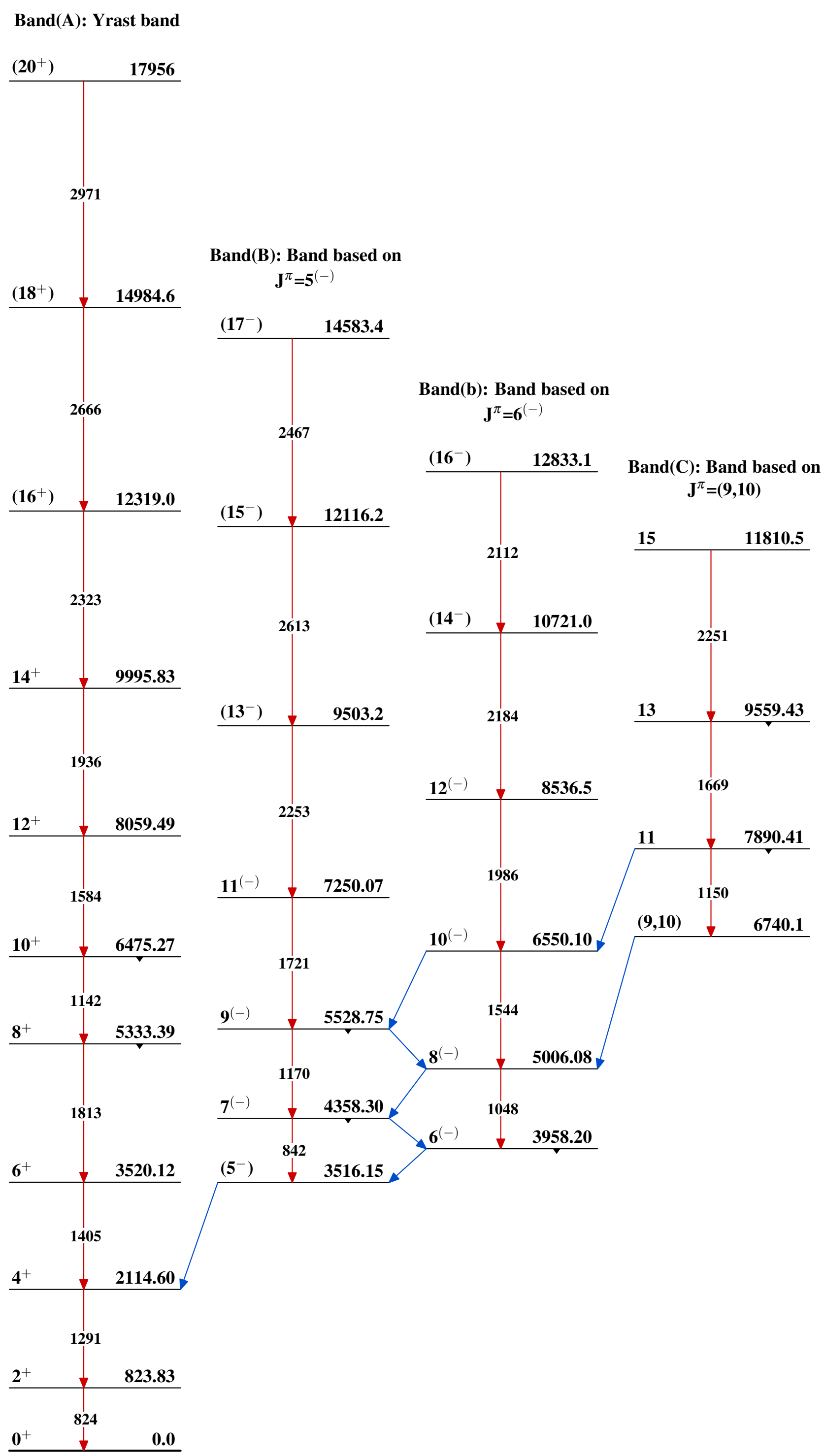
Level Scheme (continued)

Intensities: Type not specified



$^{60}_{26}Fe_{34}$

Adopted Levels, Gammas



$^{60}_{26}Fe_{34}$