Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. R. Bhat	NDS 85,415 (1998)	24-Sep-1998

Q(β^-)=−836.2 *5*; S(n)=7646.08 *4*; S(p)=10559.31 *21*; Q(α)=−7320.2 *4* 2012Wa38
Note: Current evaluation has used the following Q record −836.0 4 *7646.03 1010559*.1 *4* −7320.0 *4* 1995Au04.
Resonance parameters: see 1984Fi09, 1983Ma54, 1983Ka09, 1981MuZQ, and the (n,γ) and (γ,n) references cited below.

^{57}Fe Levels

Configuration: see discussion in (n,γ) E=thermal on the configurations of the g.s., 14.4, 1627.3 and 1725.4, and capture states.
Note: J^π arguments based on $\gamma(\theta)$ from (α,nγ) are considered tentative by the evaluator since a Gaussian distribution of the magnetic substates was assumed and this is model dependent (see (^{13}C,4nγ)).
B(E2): see Coulomb excitation.

Cross Reference (XREF) Flags

A	^{57}Mn β^- decay	G	^{55}Mn(t,nγ), ^{56}Fe(t,dγ):?	M	^{56}Fe(d,pγ) E=6 MeV
B	^{57}Co ε decay	H	^{55}Mn(α,pnγ) E=25,28.6 MeV	N	Coulomb excitation
C	^{57}Fe(γ,γ): Mossbauer	I	^{56}Fe(n,γ), (pol n,γ) E=thermal	O	^{58}Fe(p,d), (d,t), (^{3}He,α)
D	^{48}Ca(^{13}C,4nγ) E=25-65 MeV	J	^{56}Fe(n,γ) E=1151.5 eV res	P	^{59}Co(μ^-,2nγ), (π^-,Xγ),
E	^{56}Fe(n,n′γ)	K	^{56}Fe(d,p), ^{57}Fe(p,p′),	Q	^{58}Ni(^{14}C,^{15}O) E=72 MeV
F	^{54}Cr(α,nγ), (pol α,nγ)	L	^{56}Fe(pol d,p) E=10 MeV	R	^{60}Ni(p,Xγ), ^{62}Ni(p,Xγ)

E(level)[†]	J^π[&]	$T_{1/2}$[‡]	XREF	Comments
0.0	1/2⁻	stable	ABCDEFGHIJKLMNOPQR	μ=+0.09044 *7* (1989Ra17); T=5/2 J^π: J=1/2 from paramagnetic resonance (1976Fu06) and L(d,p)=1. Small spectroscopic factor in (d,p) implies that ^{57}Fe g.s. is deformed (1973De23). Additional information 1.
14.4129 *6*	3/2⁻	98.3 ns *3*	ABCDEFGHIJKLMNOP R	μ=−0.1549 *2* (1989Ra17) Q=+0.082 *8* (1989Ra17) T=5/2 J^π: M1+E2 to 1/2⁻. $T_{1/2}$: From ε decay. The internal conversion decay of this level in different ionic charge states was determined by 1989Ph01; The $T_{1/2}$ for two-electron ion was 100 ns *5* and for the total spin f=1 state of the one-electron ion was 79 ns *6*. Q: see review/evaluation by 1992Ru07 who estimate it to be 0.13-0.15 from an analysis of Mossbauer spectroscopy data.
136.4743 *5*	5/2⁻	8.7 ns *3*	ABCDEFGHIJKLMNOPQR	μ=+0.935 *10* (1989Ra17) J^π: L(d,p)=3; E2 to 1/2⁻. $T_{1/2}$: weighted av of 8.6 ns *3* from Coulomb excitation and 9.0 ns *7* from ^{57}Co ε decay.
366.759 *7*	3/2⁻	10.5 ps *14*	AB DEFGHIJKLMNOPQR	μ<0.6 (1989Ra17) J^π: M1+E2 to 1/2⁻. $T_{1/2}$: weighted av of 11 ps *2* from RDM in (^{13}C,4nγ) and 10 ps *2* from Coulomb excitation. Other: ≤4 ns from ε decay.
706.416 *16*	5/2⁻	4.1 ps *11*	AB DEFGHIJK MNOP R	J^π: L(d,p)=3; E2 to 1/2⁻. $T_{1/2}$: from DSAM in Coul. ex.
1007.13 *4*	7/2⁻	0.13[d] ps *7*	A DEF HI K M	J^π: 7/2 from $\gamma(\theta)$ in (α,nγ); π=− from M1+E2 to 5/2⁻. $T_{1/2}$: >1.0 ps in (n,n′γ) is inconsistent with adopted value.
1139.9? *10*			J	Based on existence of primary γ in res (n,γ).
1197.81 *13*	9/2⁻	2.9 ps *4*	DEF HI K M	J^π: 9/2 from $\gamma(\theta)$ in (α,nγ); π=− from E2 to 5/2⁻.

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Adopted Levels, Gammas (continued)

^{57}Fe Levels (continued)

E(level)[†]	J$^\pi$[&]	$T_{1/2}$[‡]	XREF	Comments
1265.52 *13*	$1/2^-$[c]	82 fs *19*	A E IJKLM OPQR	$T_{1/2}$: other: 100 fs *+60−30* from DSAM in (n,n′γ).
1356.83 *18*	$7/2^-$	0.18[d] ps *7*	DEF HI KLM	J$^\pi$: L(n)=3 in (d,p); J≠5/2 from γ(θ) in (α,nγ). Based on the excitation function of the 650γ, $J^\pi=3/2^-$ was assigned in (α,nγ).
1627.256 *24*	$3/2^-$[b]	56 fs *8*	A E IJKLM	$T_{1/2}$: weighted average of 53 fs *11* from centroid shift of γ-rays in (d,pγ), 62 fs *14* from DSAM in (n,n′γ), and 56 fs *20* from γ-ray induced Doppler broadening in (n,γ).
1725.38 *3*	$3/2^-$[b]	31 fs *4*	A E IJKLM	$T_{1/2}$: weighted average of 25 fs *8* from DSAM in (n,n′γ), 33 fs *6* from centroid shift in (d,pγ), and 35 fs *9* from γ-ray induced Doppler broadening in (n,γ).
1976.63 *20*	$(1/2^-,3/2,5/2^-)$		E I	J$^\pi$: γ′s to $1/2^-$, $5/2^-$ levels. $J^\pi=1/2^-$ from Hauser-Feshbach analysis in (n,n′γ).
1989.66 *20*	$9/2^-$	0.18[@] ps *+17−6*	DEF H	J$^\pi$: from γ(θ) and linear pol in (α,nγ), confirmed in (^{13}C,4nγ); π=− from E2 to $5/2^-$.
1991 *5*	$1/2^-,3/2^-$		K	
2113.11 *17*	$(1/2,3/2,5/2^-)$		I	J$^\pi$: γ to $1/2^-$.
2118.6 *5*	$5/2^-$[c]	46[@] fs *12*	E KLM	$T_{1/2}$: other: 69 fs *+74−35* from centroid shift in (d,pγ).
2206.88 *14*	$5/2^-$	10[@] fs *3*	E I KL O	J$^\pi$: $5/2^-$, $7/2^-$ from L(pol d,p)=3 at 2207; γ to $1/2^-$ rules out $7/2^-$.
2217.66 *18*	$(5/2^+)$		I K	J$^\pi$: $J^\pi\leq5/2^+$ from s-wave resonance primary γ. Nonexistence of p-wave primary γ implies $J^\pi=5/2^+$.
2220.2	$(7/2^-)$	>0.3[@] ps	E O	J$^\pi$: $(7/2^-)$ from Hauser-Feshbach analysis in (n,n′γ).
2330.41 *16*	$(1/2,3/2,5/2^+)$		IJ	J$^\pi$: primary capture gammas from s-wave resonance.
2355.96 *5*	$(11/2)^-$	0.06[d] ps *2*	DEF H	J$^\pi$: from γ(θ) and linear pol in (α,nγ). $T_{1/2}$: other: ≈0.42 ps from DSAM in (α,nγ), <0.14 ps from DSAM in (^{13}C,4nγ).
2358 *12*	$1/2^-,3/2^-$		K	
2455.55 *15*	$9/2^+$	>1.4[d] ps	DEF HI M	J$^\pi$: from γ(θ) in (α,nγ) and L(d,p)=4. $T_{1/2}$: other: <1.0 ps from DSAM in (n,n′γ).
2456 *5*	$1/2^+,7/2^+,9/2^+$		KL	J$^\pi$: L(d,p)=0+4 doublet.
2505.29 *12*	$5/2^+$[c]	78 fs *18*	E I KLM	$T_{1/2}$: unweighted average of 60 fs *10* from DSAM in (n,n′γ), and 95 fs *19* from centroid shift in (d,pγ).
2564.22 *21*	$3/2^-$[c]		I KL	
2574.5 *4*	$(1/2,3/2,5/2^-)$	18 fs *4*	E K M	$T_{1/2}$: unweighted average of 22 fs *8* from DSAM in (n,n′γ) and 15 fs *3* from centroid shift in (d,pγ). J$^\pi$: from γ′s to $1/2^-$, $3/2^-$; J=1/2 from Hauser-Feshbach analysis in (n,n′γ).
2593.6 *6*	$(3/2^-,5/2^-)$	37[@] fs *10*	E	J$^\pi$: from γ′s to $1/2^-$ and $7/2^-$; $J^\pi=3/2^-$ from Hauser-Feshbach analysis in (n,n′γ).
2599.4 *3*	$(1/2,3/2,5/2^+)$		I K	J$^\pi$: primary capture gammas from s-wave resonance.
2697.17 *17*	$1/2^-$[c]	6[#] fs *2*	E IJKLM Q	
2758.30 *11*			I K	
2821.07 *23*	$(1/2,3/2,5/2^+)$	60[@] fs *+20−10*	E I K	J$^\pi$: primary capture gammas from s-wave resonance.
2835.89 *7*	3/2,5/2		E IJK	J$^\pi$: J^π=3/2,5/2 from CP in (pol n,γ) E=thermal; $J^\pi=1/2^-$ from Hauser-Feshbach analysis in (n,n′γ), although $3/2^-$ does not seem to be definitely ruled out.
2855.0 *4*			I K	

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Adopted Levels, Gammas (continued)

^{57}Fe Levels (continued)

E(level)[†]	J^{π}[&]	$T_{1/2}$[‡]	XREF	Comments
2878.7 *4*	$(13/2)^-$	<0.14 ps	DEF H	J^{π}: (13/2) from $\gamma(\theta)$ in (^{13}C,4nγ); π from E2 to $9/2^-$. $T_{1/2}$: other: ≤0.46 ps from DSAM in (α,nγ).
2904.28 *24*			E I	
2921.20 *10*	$1/2^-,3/2^-$	33[#] fs *6*	I KLM	
2970.89 *22*	$(1/2,3/2,5/2^+)$		IJK	J^{π}: primary capture γ from $1/2^+$.
2987.95 *15*	$(1/2,3/2,5/2^+)$		I K	J^{π}: primary capture γ from s-wave resonance.
3059.1 *3*	$1/2^+$		E I K	
3098.95 *15*			I k	L(n)=2+4 doublet in (d,p).
3110 *5*			k	
3122.76 *21*			I K	
3134.8 *4*	$(15/2)^-$	160 ps *7*	D F H	J^{π}: from $\gamma(\theta)$ in (^{13}C,4nγ); π from M1 to $(13/2)^-$.
3182.77 *20*	$1/2^-,3/2^-$		IJK	
3205.6 *5*	$5/2^-,7/2^-$		I K O	
3239.89 *12*	$1/2^+$		IJK M	
3269.26[e] *13*	$(13/2)^+$	0.37[d] ps *+21−11*	D F H	J^{π}: stretched-quadrupole radiation pattern in (^{13}C,4nγ) and E2 to $9/2^+$.
3284 *5*			K	
3301.77 *10*	$(5/2^-,7/2^-)$		I K	J^{π}: from γ's to $3/2^-$, $9/2^-$ levels.
3322.48 *11*	$1/2^-,3/2^-$		I K	
3336.59 *25*			I	
3340.33 *18*			I	
3345	$7/2^+,9/2^+$		K	J^{π}: L(d,p)=4. E(level): the 3340.33 level seen in (n,γ) is most likely different from this level with L(n)=4.
3371.11 *16*	$3/2^-$[c]		IJKL q	
3427.68 *8*	$3/2^-$[c]	3.0 fs *+6−29*	IJKLM q	$T_{1/2}$: from γ-ray induced Doppler broadening in (n,γ). Other: <3.5 fs from centroid shift in (d,pγ).
3452 *5*			K	
3473 *5*	$5/2^-,7/2^-$		K	
3513.8 *4*	(17/2)	<0.14 ps	D	J^{π}: from $\gamma(\theta)$ in (^{13}C,4nγ).
3535 *5*	$7/2^+,9/2^+$		K	L(n)=4 in (d,p) inconsistent with 1811γ to $3/2^-$ state. Therefore, state observed in (n,γ) is probably different.
3535.92 *18*			I	See comment on preceding state.
3548 *5*	$7/2^+,9/2^+$		K	
3561.34 *12*			I	
3608 *5*	$7/2^+,9/2^+$		K	J^{π}: L(d,p)=4. E(level): the 3608.51 level seen in (n,γ) is most likely different from this level with L(n)=4.
3608.51 *21*			I	
3661 *5*			K	
3752 *5*	$7/2^+,9/2^+$		K	
3784 *10*	$7/2^+,9/2^+$		K	J^{π}: L(d,p)=2+4, E=3784 *10*. γ's from 3792 *1/2*$^-$ and $5/2^-$ levels suggest J=1/2,3/2,5/2 making this a likely candidate for the L=2 component in (d,p). The 3784 *10* level is thus assigned as the L=4 component.
3791.59 *9*	$3/2^+$		IJ	J^{π}: see the comment on the 3784 level.
3827 *10*	$5/2^-,7/2^-$		K	
3862.42 *19*			I	
3881 *10*			K	
3902 *10*	$5/2^-,7/2^-$		K	J^{π}: L(d,p)=3.

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Adopted Levels, Gammas (continued)

^{57}Fe Levels (continued)

E(level)[†]	Jπ[&]	$T_{1/2}$[‡]	XREF	Comments
3926.0 *20*	(1/2,3/2,5/2⁻)		J	Jπ: γ's from Jπ=1/2⁻ p-wave resonance.
3936.1 *7*	5/2⁻,7/2⁻		I K	
3981.18 *24*	3/2⁻[c]	7[#] fs *12*	I KLM	
4042.60 *24*	5/2⁻,7/2⁻		I K	
4081 *10*			K	
4093 *10*			K	
4136.62 *10*	(1/2,3/2,5/2⁺)		I	Jπ: from γ to 1/2⁺.
4138.57 *18*	5/2⁺[c]	15[#] fs *8*	KLM	
4144.3 *5*	(1/2,3/2,5/2⁺)		I	Jπ: primary γ from 1/2⁺ in (n,γ).
4209.59 *12*	(3/2)⁻		I K	Jπ: L(n)=1 in (d,p). Jπ=(3/2⁻) from CP in (pol n,γ).
4239 *10*	3/2⁺,5/2⁺		K	
4316 *10*	7/2⁺,9/2⁺		K	
4363 *10*	5/2⁻,7/2⁻		K	
4378.68 *21*	(1/2,3/2,5/2⁻)		I	Jπ: γ to 1/2⁻; L(d,p)=1 at 4381 *10* and L(n)=(0)+(3) from pol(d,p) at 4382 disagree.
4379.44 *19*	(1/2,3/2,5/2⁻)	3[#] fs *4*	JKLM	Jπ: γ to 1/2⁻; L(d,p)=1 at 4381 *10* and L(d,p)=(0)+(3) at 4382 from pol(d,p) disagree.
4432.4 *8*		<0.14 ps	D F	
4459.70 *14*	5/2⁻,7/2⁻		I K Q	Jπ: L(d,p)=3.
4492	5/2⁺[c]		KL	
4525	7/2⁺,9/2⁺		K	Jπ: L(d,p)=4.
4525.54[e] *23*	(17/2⁺)	0.29 ps *9*	D F H	Jπ: stretched-quadrupole radiation pattern in (^{13}C,4nγ). $T_{1/2}$: unweighted av from 0.19 ps *6* from (α,pnγ) and 0.38 ps *14* (^{13}C,4nγ).
4544 *10*	1/2⁺		K	
4572.8 *5*	1/2⁺		I K	
4597.4 *3*	5/2⁺[c]	5[#] fs *8*	I KLM	
4652 *10*	5/2⁻,7/2⁻		K	
4680 *10*			K	
4691.75 *15*	(5/2⁺)		I K	Jπ: Jπ≤5/2⁺ from s-wave resonance primary γ. Nonexistence of p-wave primary γ implies Jπ=5/2⁺.
4719 *10*			K	
4753 *10*	5/2⁻,7/2⁻		K	
4771 *10*	3/2⁺,5/2⁺		K	
4823.9 *5*		<10[#] fs	KLM	Jπ=(1/2⁺) and (3/2⁺) from analyzing power(θ) and σ(θ) in (pol d,p) based on empirical curves. Data clearly show this level to be a doublet.
4902 *10*			K	
4922.9 *7*	5/2⁺[c]	7[#] fs *10*	KLM	
4970 *20*	(5/2⁻,7/2⁻)[a]		O	
4976 *10*	3/2⁺,5/2⁺		K	
5019 *10*	5/2⁻,7/2⁻		K	
5064 *10*	(1/2⁺)&(7/2⁻)		KL	Jπ: from analyzing power(θ) and σ(θ) in (pol d,p). Data clearly show this to be a doublet. Assignment based on empirical curves.
5085 *10*			K	
5099			K	
5115 *10*	1/2⁺		K	
5140.25 *20*	(1/2,3/2,5/2⁺)		I KL	Jπ: gammas to 1/2⁺ and 3/2⁻. L(pol d,p)=1 disagrees with L(d,p)=0.
5178.44 *25*	1/2⁺		I K	
5195			K	
5221.6 *3*	(1/2⁻,3/2,5/2⁺)		I K	Jπ: primary γ from 1/2⁺; γ to 5/2⁻.
5238.7 *4*	(1/2,3/2,5/2⁺)		I K	Jπ: primary γ from 1/2⁺.

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Adopted Levels, Gammas (continued)

^{57}Fe Levels (continued)

E(level)[†]	J$^{\pi}$[&]	$T_{1/2}$[‡]	XREF	Comments
5250	1/2$^+$		K	
5271 *10*	1/2$^+$		K	
5289	5/2$^+$[c]		KL O	
5334	7/2$^+$,9/2$^+$		K	
5362.1 *9*	5/2$^+$[c]	6[#] fs *+15−6*	KLM	
5404 *10*			K	
5422 *10*	3/2$^+$,5/2$^+$		K	
5445 *10*	7/2$^+$,9/2$^+$		K	
5472 *10*	3/2$^+$,5/2$^+$		K	
5500 *10*	1/2$^+$		K	
5512 *10*			K	
5525 *10*	1/2$^+$		K	
5545			K	
5564 *10*	3/2$^+$,5/2$^+$		K	
5590 *10*			K	
5623 *10*			K	
5641 *10*			K	
5675 *10*			K	
5688 *10*			K	
5721 *10*	1/2$^+$&(7/2$^+$,9/2$^+$)		K	
5737 *10*	1/2$^+$		K	
5769 *10*			K	
5802 *10*	3/2$^+$,5/2$^+$		K	
5825	3/2$^+$,5/2$^+$		K	
5844	1/2$^+$		K	
5864	3/2$^+$,5/2$^+$		K	
5900			K	
5918			K	
5936			K	
5956	3/2$^+$,5/2$^+$		K	
5983	3/2$^+$ to (9/2$^+$)		K	
6025	3/2$^+$,5/2$^+$		K	
6044	3/2$^+$,5/2$^+$		K	
6083			K	
6103	7/2$^+$,9/2$^+$		K	
6130	1/2$^+$		K	
6148			K	
6171	3/2$^+$,5/2$^+$		K	
6187.1[e] *3*	(21/2$^+$)	0.11[d] ps *4*	D H	J$^{\pi}$: stretched-quadrupole radiation pattern in (^{13}C,4nγ). $T_{1/2}$: other: <0.14 ps from (^{13}C,4nγ).
6194	7/2$^+$,9/2$^+$		K	
6212	1/2$^+$		K	
6230	3/2$^+$,5/2$^+$		K	
6252	7/2$^+$,9/2$^+$		K	
6270	7/2$^+$,9/2$^+$		K	
6305			K	
6323			K	
6340			K	
6370	3/2$^+$,5/2$^+$		K	
6408	3/2$^+$,5/2$^+$		K	
6427	3/2$^+$,5/2$^+$		K	
6496			K	
6512	3/2$^+$,5/2$^+$		K	
6542	1/2$^+$		K	
6571	3/2$^+$,5/2$^+$		K	

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Adopted Levels, Gammas (continued)

^{57}Fe Levels (continued)

E(level)[†]	J^{π}[&]	$T_{1/2}$[‡]	XREF	Comments
6589	$3/2^+,5/2^+$		K	
6640	$3/2^+,5/2^+$		K	
6672	$3/2^+,5/2^+$		K	
6703	$3/2^+,5/2^+$		K	
6725			K	
7646.7 *7*	$1/2^-$		J	J^{π}: p-wave resonance from transmission and scattering (Cf. 1981MuZQ). J=1/2 from $\gamma(\theta)$ and strong transition to g.s. (1970Ch10). $\gamma\Gamma_n\Gamma_\gamma/\Gamma$=68.7 meV *15*; $\sigma_0\Gamma_\gamma$=161 b×eV 4 from 1983Ma13; not consistent with 1981MuZQ.
8323.0[e] *5*	$(25/2^+)$	<0.14 ps	D H	J^{π}: stretched-quadrupole radiation pattern in (^{13}C,4nγ). $T_{1/2}$: same results from DSAM in (α,pnγ) and (^{13}C,4nγ).
10.45×10^3? *5*	$(7/2^-)$		O	J^{π}: from empirical shape of $\sigma(\theta)$ in (p,d). IAS?(^{57}Mn) from ^{58}Fe(p,d).

† For states connected by gammas, calculated using least-square adjustment procedures with the energy of the s- and p-wave capture states held fixed and uncertain gammas not included in the calculation. Uncertainty in ^{198}Au reference scale (±1.1 eV) for 122γ and 136γ added in quadrature after adjustment. Other energies from ^{56}Fe(d,p),^{57}Fe(p,p′),^{59}Co(d,α), except as noted.

‡ From DSAM or RDM in (^{13}C,4nγ), except as noted.

From centroid shift of γ-rays in coincidence with p in (d,pγ).

@ From DSAM in (n,n′γ).

& From angular momentum transfer in (d,p), except as noted.

a From angular momentum transfer in (p,d) and (d,p) and Coulomb excitation.

b L(n)=1 in (d,p). J≠1/2 from $\gamma\gamma(\theta)$ in (n,γ) E=thermal and CP in (pol n,γ) E=thermal.

c From angular momentum transfer and analyzing power in (d,p) and (pol d,p).

d From DSAM in (α,pnγ).

e Band(A): ΔJ=2 positive-parity band. Configuration=((^{56}Fe 0$^+$)(ν 1g$_{9/2}$)) (1985Ba16,1978Na06).

Adopted Levels, Gammas (continued)

$\gamma(^{57}Fe)$

See (^{13}C,4nγ), (α,nγ), and (n,γ) for unplaced gammas.
B(M1)(W.u.),B(E1)(W.u.),B(E2)(W.u.): calculated by evaluators from adopted $T_{1/2}$ and γ properties, except as noted.

E_i(level)	J_i^π	E_γ[†]	I_γ[†‡]	E_f	J_f^π	Mult.[#]	δ[#]	α[l]	Comments
14.4129	3/2⁻	14.4129[@] *6*	100[@]	0.0	1/2⁻	M1+E2	0.00223 *18*	8.56[@] *26*	α(K)=7.35 *19*; α(L)=0.779 *42*; α(M+..)=0.107 *10* B(M1)(W.u.)=0.0078 *3*; B(E2)(W.u.)=0.37 *7* E_γ: from ε decay. Mult.: from Γ and adopted J^π. See also 1984Pl05. δ: from $T_{1/2}$, B(E2)↑, Eγ, and α. Additional information 2. B(E2)(W.u.): from adopted B(E2)↑ and J.
136.4743	5/2⁻	122.0614[&] *4*	100 *10*	14.4129	3/2⁻	M1+E2	+0.120 *1*	0.0240[@] *14*	α(K)=0.0214 *12*; α(L)=0.00224 *20*; α(M+..)=0.00037 *5* B(M1)(W.u.)=0.00118 *17*; B(E2)(W.u.)=2.3 *4* Additional information 3.
		136.4743[&] *5*	12.0 *12*	0.0	1/2⁻	E2		0.137[@] *15*	α(K)=0.134; α(L)=0.0139 B(E2)(W.u.)=10.9 *16* Mult.: Q from $\gamma(\theta$,H,t) in ε decay and Coulomb excitation; E2 from RUL.
366.759	3/2⁻	230.29 *2*	9.2 *11*	136.4743	5/2⁻	(M1+E2)	+0.02 *8*		B(M1)(W.u.)=0.0124 *25*; B(E2)(W.u.)=0.2 *+15−2* Mult.: D+Q from $\gamma(\theta)$ in Coul. ex. and ε decay; and ΔJ^π. δ: weighted average of $\gamma(\theta)$ in Coul. ex. and ε. Other δ's excluded by comparison to RUL.
		352.36 *1*	100 *11*	14.4129	3/2⁻	M1+E2	+0.025 *9*		B(M1)(W.u.)=0.038 *8*; B(E2)(W.u.)=0.4 *3*
		366.75 *1*	17.7 *20*	0.0	1/2⁻	M1+E2	−0.45 *5*		B(M1)(W.u.)=0.0049 *10*; B(E2)(W.u.)=15 *4* δ: sign from Coul. ex. value from B(E2)↑ and $T_{1/2}$. B(E2)(W.u.): from B(E2)↑.
706.416	5/2⁻	339.54 *18*	1.7 *3*	366.759	3/2⁻	M1+E2	+0.083 *5*		B(M1)(W.u.)=0.0020 *7*; B(E2)(W.u.)=0.23 *9*
		569.92 *4*	11.0 *13*	136.4743	5/2⁻	M1+E2	+0.097 *8*		B(M1)(W.u.)=0.0027 *9*; B(E2)(W.u.)=0.15 *6*
		692.03 *2*	100 *11*	14.4129	3/2⁻	M1+E2	−0.465 *8*		B(M1)(W.u.)=0.011 *4*; B(E2)(W.u.)=10 *3*
		706.4 *2*	5.7 *24*	0.0	1/2⁻	[E2]			B(E2)(W.u.)=2.9 *15*
1007.13	7/2⁻	640.20[a] *14*	4.7[a] *32*	366.759	3/2⁻	E2[b]			B(E2)(W.u.)=9.E+1 *9*
		870.68[h] *5*	100.0[a] *16*	136.4743	5/2⁻	M1+E2	−0.6 *+2−5*		B(M1)(W.u.)=0.12 *7*; B(E2)(W.u.)=1.1×10^2 *9*
		992.68[h] *8*	51.6[a] *16*	14.4129	3/2⁻	E2[b]			B(E2)(W.u.)=1.1×10^2 *7*
1197.81	9/2⁻	1061.60[a] *17*	100[a]	136.4743	5/2⁻	E2[b]			B(E2)(W.u.)=11.1 *16*
1265.52	1/2⁻	898.4[d] *20*	100[d]	366.759	3/2⁻				
		1250.6[d] *22*	4.8[d] *7*	14.4129	3/2⁻				
		1265.0[d] *22*	2.7[d] *7*	0.0	1/2⁻				

$^{57}_{26}Fe_{31}$-7

$\gamma(^{57}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†‡]	E_f	J^π_f	Mult.[#]	δ[#]	Comments
1356.83	7/2⁻	650.4[d] *19*	100[d]	706.416	5/2⁻	M1+E2	+1.1 *+6−3*	B(M1)(W.u.)=0.11 *8*; B(E2)(W.u.)=6.E+2 *4*
		990.1[d] *21*	43[d] *7*	366.759	3/2⁻	E2[b]		B(E2)(W.u.)=6.E+1 *3*
		1342.7[d] *22*	40[d] *5*	14.4129	3/2⁻	E2[b]		B(E2)(W.u.)=12 *5*
1627.256	3/2⁻	920.85 *2*	14.1 *16*	706.416	5/2⁻			
		1260.60 *3*	46 *5*	366.759	3/2⁻			
		1612.78 *2*	100 *11*	14.4129	3/2⁻	M1+E2	−0.35 *5*	B(M1)(W.u.)=0.051 *10*; B(E2)(W.u.)=4.7 *16*
		1627.05 *8*	3.9 *5*	0.0	1/2⁻			
1725.38	3/2⁻	460.1 *4*	0.48 *17*	1265.52	1/2⁻			
		1019.02 *4*	27.6 *29*	706.416	5/2⁻			
		1358.71 *6*	14.3 *16*	366.759	3/2⁻			
		1710.2 *3*	4.0 *9*	14.4129	3/2⁻			
		1725.09 *6*	100 *11*	0.0	1/2⁻	M1+E2	+0.04 *5*	B(M1)(W.u.)=0.094 *18*; B(E2)(W.u.)=0.1 *+3−10*
1976.63	(1/2⁻,3/2,5/2⁻)	251.1 *3*	25[e]	1725.38	3/2⁻			
		1840.2[e]	100[e]	136.4743	5/2⁻			
		1976.4 *11*	24[e]	0.0	1/2⁻			
1989.66	9/2⁻	791.6[g]	66[e]	1197.81	9/2⁻			
		983.0[a] *3*	78[e]	1007.13	7/2⁻	M1+E2[c]	−4.5 *5*	B(M1)(W.u.)=0.0019 *19*; B(E2)(W.u.)=8.E+1 *8* δ: from (n,n′γ). Mult.: D+Q from $\gamma(\theta)$ in (n,n′γ); M1+E2 from RUL.
		1282.85[a] *27*	100[e]	706.416	5/2⁻	E2(+M3)	0.00 *2*	B(E2)(W.u.)=(3.E+1 *3*) I_γ: intensity ratios for these three gammas from (n,n′γ) do not agree with results from (α,pnγ) indicating that a different level is being populated in (n,n′γ) compared to other reactions. δ: from (n,n′γ). Mult.: Q(+O) from $\gamma(\theta)$ in (n,n′γ); E2(+M3) from RUL.
2113.11	(1/2,3/2,5/2⁻)	849.5 *5*	27 *8*	1265.52	1/2⁻			
		2113.4 *3*	100 *17*	0.0	1/2⁻			
2118.6	5/2⁻	1111.6	29[e]	1007.13	7/2⁻			E_γ: from (n,n′γ); added 0.75 to conform to (d,pγ) energy scale.
		1412.1[f] *5*	100[f] *15*	706.416	5/2⁻	M1+E2	−0.08 *5*	B(M1)(W.u.)=0.09 *3*; B(E2)(W.u.)=0.5 *7* δ: from (n,n′γ). Mult.: D+Q from $\gamma(\theta)$ in (n,n′γ); M1+E2 from RUL.
		2104.4[f] *11*	69[f] *13*	14.4129	3/2⁻			
2206.88	5/2⁻	942.0 *14*	8 *4*	1265.52	1/2⁻			
		1199.9[e]	42[e]	1007.13	7/2⁻			
		1841[dm] *3*		366.759	3/2⁻			
		2192.8 *4*	100 *19*	14.4129	3/2⁻			
		2206.8 *6*	84 *22*	0.0	1/2⁻			
2217.66	(5/2⁺)	1851.3 *4*	46 *10*	366.759	3/2⁻			
		2081.2 *3*	77 *17*	136.4743	5/2⁻			

$^{57}_{26}Fe_{31}$-8

γ(^{57}Fe) (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[†‡]	E_f	J^{π}_f	Mult.[#]	δ[#]	Comments
2217.66	(5/2$^+$)	2202.7 *8*	100 *32*	14.4129	3/2$^-$			
2220.2	(7/2$^-$)	1853.3	10	366.759	3/2$^-$			
		2083.8	94	136.4743	5/2$^-$	(M1+E2)		Mult.: from $\gamma(\theta)$ in (n,n′γ) and ΔJ^{π}. δ: −0.04 *1* or −5.2 *3* from (n,n′γ).
		2205.8	100	14.4129	3/2$^-$			
2330.41	(1/2,3/2,5/2$^+$)	703.4 *4*	100	1627.256	3/2$^-$			
2355.96	(11/2)$^-$	1158.37[a] *18*	41[g] *4*	1197.81	9/2$^-$	M1+E2	−0.45 *5*	B(M1)(W.u.)=0.057 *21*; B(E2)(W.u.)=17 *7* I_{γ}: consistent with Iγ=43 in (α,nγ), but not with Iγ=92 in (^{13}C,4nγ) or Iγ=67 in (n,n′γ).
		1348.86[a] *19*	100[g] *10*	1007.13	7/2$^-$	(E2)[b]		B(E2)(W.u.)=1.1×10^2 *4*
2455.55	9/2$^+$	1448.52[a] *20*	100[a]	1007.13	7/2$^-$	(E1+M2)	0.00 *4*	B(E1)(W.u.)<0.00011 Mult.: M1+E2 (1978Kr19); disagrees with the adopted decay scheme.
2505.29	5/2$^+$	780.0[e]	5[e]	1725.38	3/2$^-$			
		1798.1[f] *3*	10[f] *2*	706.416	5/2$^-$			
		2138.63 *18*	100 *12*	366.759	3/2$^-$			
		2368.6[f] *3*	47[f] *2*	136.4743	5/2$^-$			
		2490.8 *13*	18 *6*	14.4129	3/2$^-$			
2564.22	3/2$^-$	837.9 *3*	100 *17*	1725.38	3/2$^-$			
		2562.4 *5*	57 *16*	0.0	1/2$^-$			
2574.5	(1/2,3/2,5/2$^-$)	2207.6[f] *8*	38[f] *15*	366.759	3/2$^-$			
		2574.4[f] *4*	100[f] *13*	0.0	1/2$^-$			
2593.6	(3/2$^-$,5/2$^-$)	1586.4[e]	82[e]	1007.13	7/2$^-$			
		1887.1[e]	100[e]	706.416	5/2$^-$			
		2593.5[e]	18[e]	0.0	1/2$^-$			
2599.4	(1/2,3/2,5/2$^+$)	2462.1 *7*	100 *17*	136.4743	5/2$^-$			
		2598.1 *11*	43 *15*	0.0	1/2$^-$			
2697.17	1/2$^-$	1991.0 *10*	7 *2*	706.416	5/2$^-$			
		2330.6[f] *5*	15[f] *2*	366.759	3/2$^-$			
		2682.5 *3*	100 *5*	14.4129	3/2$^-$			
		2696.6 *3*	65[f] *3*	0.0	1/2$^-$			
2758.30		1492.4 *4*	27 *5*	1265.52	1/2$^-$			
		2391.80 *20*	100 *14*	366.759	3/2$^-$			
2821.07	(1/2,3/2,5/2$^+$)	603.54 *19*	100 *16*	2217.66	(5/2$^+$)			
		1812.9 *5*	44 *13*	1007.13	7/2$^-$			
2835.89	3/2,5/2	723.0 *20*	1.5 *15*	2113.11	(1/2,3/2,5/2$^-$)			
		1828.9 *10*	4.5 *30*	1007.13	7/2$^-$			
		2129.48 *9*	100 *11*	706.416	5/2$^-$			
		2469.17 *16*	90 *17*	366.759	3/2$^-$			

From ENSDF

$^{57}_{26}Fe_{31}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{57}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†‡]	E_f	J^π_f	Mult.[#]	δ[#]	Comments
2835.89	3/2,5/2	2821.5 *6*	15 *3*	14.4129	3/2⁻			
		2835.43 *19*	37 *6*	0.0	1/2⁻			
2878.7	(13/2)⁻	1680.58[j] *21*	100[j]	1197.81	9/2⁻	(E2)		B(E2)(W.u.)>23 Mult.: from comparison to RUL and $\gamma(\theta)$ in (^{13}C,4nγ).
2904.28		2198.2 *5*	100 *26*	706.416	5/2⁻			
		2537.1 *5*	47 *13*	366.759	3/2⁻			
2921.20	1/2⁻,3/2⁻	1655.37[f] *19*	42[f] *3*	1265.52	1/2⁻			
		2216.2 *5*		706.416	5/2⁻			
		2554.3[f] *5*	31[f] *3*	366.759	3/2⁻			
		2906.0[f] *4*	45[f] *4*	14.4129	3/2⁻			
		2920.5[f] *4*	100[f] *9*	0.0	1/2⁻			
2970.89	(1/2,3/2,5/2⁺)	2603.1 *15*	100	366.759	3/2⁻			
2987.95	(1/2,3/2,5/2⁺)	657.56 *9*	76 *12*	2330.41	(1/2,3/2,5/2⁺)			
		1722.40 *13*	100 *14*	1265.52	1/2⁻			
		2618.9 *9*	15 *6*	366.759	3/2⁻			
3059.1	1/2⁺	2691.6 *5*	50 *16*	366.759	3/2⁻			
		2922.5 *10*	100 *10*	136.4743	5/2⁻			
3098.95		2091.85 *16*	100	1007.13	7/2⁻			
3122.76		2755.90 *21*	100	366.759	3/2⁻			
3134.8	(15/2)⁻	256.03[a] *11*	100	2878.7	(13/2)⁻	M1+E2	−0.07 *2*	B(M1)(W.u.)=0.0082 *4*; B(E2)(W.u.)=1.2 *7* Mult.: D+Q from $\gamma(\theta)$ in (α,nγ); M1+E2 from RUL.
3182.77	1/2⁻,3/2⁻	211.87 *9*	50 *8*	2970.89	(1/2,3/2,5/2⁺)			
		977.1 *7*	31 *19*	2206.88	5/2⁻			
		1457.4 *5*	25 *7*	1725.38	3/2⁻			
		1825.9 *3*	56 *14*	1356.83	7/2⁻			
		2815.0 *6*	56 *14*	366.759	3/2⁻			
		3166.9 *11*	100 *82*	14.4129	3/2⁻			
3205.6	5/2⁻,7/2⁻	988.2 *5*	100	2217.66	(5/2⁺)			
3239.89	1/2⁺	735.1 *3*	6.0 *16*	2505.29	5/2⁺			
		1022.0 *3*	7.5 *17*	2217.66	(5/2⁺)			
		1263.3 *3*	14.9 *21*	1976.63	(1/2⁻,3/2,5/2⁻)			
		2873.7 *3*	55 *6*	366.759	3/2⁻			
		3103.1 *4*	100 *15*	136.4743	5/2⁻			
		3225.3 *4*	45 *9*	14.4129	3/2⁻			
		3239.30 *20*	52 *7*	0.0	1/2⁻			
3269.26	(13/2)⁺	813.73[a] *15*	49[a] *3*	2455.55	9/2⁺	(E2)		B(E2)(W.u.)=1.1×10^2 *7* Mult.: Q from $\gamma(\theta)$ in (^{13}C,4nγ); E2 from RUL.
		913.37[a] *16*	100[a] *3*	2355.96	(11/2)⁻	(E1+M2)[c]	0.00 *3*	B(E1)(W.u.)=0.0011 *7* Mult.: M1+E2 (1978Kr19); disagrees with the adopted decay scheme.

Adopted Levels, Gammas (continued)

$\gamma(^{57}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†‡]	E_f	J^π_f
3301.77	(5/2⁻,7/2⁻)	1674.62 *13*	57 *15*	1627.256	3/2⁻
		2104.5 *5*	100 *24*	1197.81	9/2⁻
		2935.8 *8*	36 *15*	366.759	3/2⁻
3322.48	1/2⁻,3/2⁻	564.19 *6*	76 *8*	2758.30	
		1115.64 *15*	31 *5*	2206.88	5/2⁻
		1345.2 *5*	21 *4*	1976.63	(1/2⁻,3/2,5/2⁻)
		1965.3 *2*	100 *14*	1356.83	7/2⁻
3336.59		2970.0 *3*	100	366.759	3/2⁻
3340.33		884.78 *10*	100	2455.55	9/2⁺
3371.11	3/2⁻	1041.1 *5*	9 *3*	2330.41	(1/2,3/2,5/2⁺)
		1646.0 *3*	21 *4*	1725.38	3/2⁻
		3356.3 *2*	100 *12*	14.4129	3/2⁻
3427.68	3/2⁻	2721.17 *9*	85 *9*	706.416	5/2⁻
		3060.90 *17*	9.3 *16*	366.759	3/2⁻
		3291.1 *2*	19 *4*	136.4743	5/2⁻
		3414.3 *13*	100 *11*	14.4129	3/2⁻
3513.8	(17/2)	379.06[a] *13*	100[a]	3134.8	(15/2)⁻
3535.92		1810.51 *17*	100	1725.38	3/2⁻
3561.34		803.09 *8*	100 *11*	2758.30	
		1447.0 *3*	38 *10*	2113.11	(1/2,3/2,5/2⁻)
3608.51		1982.1 *4*	100	1627.256	3/2⁻
3791.59	3/2⁺	1460.9 *3*	16.3 *26*	2330.41	(1/2,3/2,5/2⁺)
		1584.6 *3*	14.3 *25*	2206.88	5/2⁻
		2066.17 *12*	100 *12*	1725.38	3/2⁻
		2164.69 *18*	41 *6*	1627.256	3/2⁻
		2526.2 *3*	59 *14*	1265.52	1/2⁻
		3776.6 *2*	16 *6*	14.4129	3/2⁻
		3791.7[m] *10*	33	0.0	1/2⁻
3862.42		1655.51 *12*	100	2206.88	5/2⁻
3936.1	5/2⁻,7/2⁻	3921.5 *7*	100	14.4129	3/2⁻
3981.18	3/2⁻	1159.5 *13*	15 *8*	2821.07	(1/2,3/2,5/2⁺)
		1284.0 *5*	77 *39*	2697.17	1/2⁻
		1381.7 *2*	100 *13*	2599.4	(1/2,3/2,5/2⁺)
		3615.3[f] *11*		366.759	3/2⁻
		3981.7 *4*	77 *17*	0.0	1/2⁻
4042.60	5/2⁻,7/2⁻	2415.1 *3*	100	1627.256	3/2⁻
4136.62	(1/2,3/2,5/2⁺)	575.09 *19*	90 *48*	3561.34	
		834.91 *8*	100 *11*	3301.77	(5/2⁻,7/2⁻)
		1077.3 *3*	19 *5*	3059.1	1/2⁺
		1215.38 *5*	48 *11*	2921.20	1/2⁻,3/2⁻
		1282.3 *6*	43 *20*	2855.0	

From ENSDF

$^{57}_{26}Fe_{31}$-11

γ(^{57}Fe) (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[†‡]	E_f	J^{π}_f	Mult.[#]	Comments
4136.62	(1/2,3/2,5/2$^+$)	1300.9 *4*	43 *10*	2835.89	3/2,5/2		
		1931.8 *7*	29 *10*	2206.88	5/2$^-$		
4138.57	5/2$^+$	1632.94[f] *16*	100[f] *6*	2505.29	5/2$^+$		
		2783.8[f] *5*	81[f] *15*	1356.83	7/2$^-$		
		3774.0[f] *8*	22[f] *5*	366.759	3/2$^-$		
		4002.4[f] *9*	17[f] *4*	136.4743	5/2$^-$		
4144.3	(1/2,3/2,5/2$^+$)	2517.0 *5*	100	1627.256	3/2$^-$		
4209.59	(3/2)$^-$	601.3 *2*	48 *8*	3608.51			
		1026.4 *3*	17 *4*	3182.77	1/2$^-$,3/2$^-$		
		1110.9 *3*	17 *4*	3098.95			
		1305.3 *3*	24 *7*	2904.28			
		1705.0 *8*	38 *8*	2505.29	5/2$^+$		
		2097 *2*	17 *10*	2113.11	(1/2,3/2,5/2$^-$)		
		2582.0 *3*	31 *8*	1627.256	3/2$^-$		
		2943.4 *5*	28 *7*	1265.52	1/2$^-$		
		3842.4 *3*	100 *12*	366.759	3/2$^-$		
		4073.3 *3*	72 *10*	136.4743	5/2$^-$		
		4194.8 *4*	45 *11*	14.4129	3/2$^-$		
		4210.2 *10*	24 *7*	0.0	1/2$^-$		
4378.68	(1/2,3/2,5/2$^-$)	335.9 *3*	25 *7*	4042.60	5/2$^-$,7/2$^-$		
		1006.9 *5*	19 *7*	3371.11	3/2$^-$		
		1255.5 *8*	13 *7*	3122.76			
		2654.3 *4*	31 *13*	1725.38	3/2$^-$		
		4378.3 *4*	100 *16*	0.0	1/2$^-$		
4379.44	(1/2,3/2,5/2$^-$)	1458.09[f] *21*	22[f] *3*	2921.20	1/2$^-$,3/2$^-$		
		1681.3[f] *5*	12[f] *4*	2697.17	1/2$^-$		
		4013.6[f] *4*	100[f] *9*	366.759	3/2$^-$		
4432.4		1297.8[a] *5*	100[a]	3134.8	(15/2)$^-$		
4459.70	5/2$^-$,7/2$^-$	1119.8 *6*	3.8 *19*	3340.33			
		1351.8 *10*	9.4 *39*	3110			
		1700.8 *3*	21 *4*	2758.30			
		2348.9 *9*	11 *6*	2113.11	(1/2,3/2,5/2$^-$)		
		2734.2 *3*	28 *5*	1725.38	3/2$^-$		
		2832.46 *18*	100 *13*	1627.256	3/2$^-$		
4525.54	(17/2$^+$)	1256.27[a] *19*	100[a]	3269.26	(13/2)$^+$	(E2)[i]	B(E2)(W.u.)=48 *15*
4572.8	1/2$^+$	1973.4 *4*	100	2599.4	(1/2,3/2,5/2$^+$)		
4597.4	5/2$^+$	2033.2 *2*	100	2564.22	3/2$^-$		
		2870.8[f] *11*		1725.38	3/2$^-$		
4691.75	(5/2$^+$)	1355.6 *4*	100 *25*	3336.59			

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$\gamma(^{57}Fe)$ (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†‡]	E_f	J_f^π	Mult. [#]	Comments
4691.75	(5/2+)	1369.1 2	100 18	3322.48	1/2−,3/2−		
		1487.2 9	23 8	3205.6	5/2−,7/2−		
		1836.4 4	46 9	2855.0			
		1855.9 4	46 9	2835.89	3/2,5/2		
		2186.4 4	31 8	2505.29	5/2+		
		2486.0 6	62 17	2206.88	5/2−		
		4555.3 3	69 17	136.4743	5/2−		
4823.9		1584.0[f] 4	100	3239.89	1/2+		
4922.9	5/2+	2418.3[f] 10	100[f] 13	2505.29	5/2+		
		3565.4[f] 8	70[f] 9	1356.83	7/2−		
5140.25	(1/2,3/2,5/2+)	1899.5 5	55 20	3239.89	1/2+		
		2574.3 3	100 21	2564.22	3/2−		
		3027.55 15	100 14	2113.11	(1/2,3/2,5/2−)		
5178.44	1/2+	1197.27 7	100 11	3981.18	3/2−		
		2480.2 6	17 6	2697.17	1/2−		
		5042.1 8	50 15	136.4743	5/2−		
5221.6	(1/2−,3/2,5/2+)	2385.3 4	75 18	2835.89	3/2,5/2		
		3014.7 3	100 19	2206.88	5/2−		
		4856.6 13	83 34	366.759	3/2−		
5362.1	5/2+	2856.7[f] 9	100[f]	2505.29	5/2+		
6187.1	(21/2+)	1661.54[a] 20	100[g] 10	4525.54	(17/2+)	(E2)[i]	B(E2)(W.u.)=31 12
7646.7	1/2−	3267.0[m] 20	1.9 10	4379.44	(1/2,3/2,5/2−)		
		3721.3[m] 20	1.9 12	3926.0	(1/2,3/2,5/2−)		
		3854.3 35	1.9 11	3791.59	3/2+	E1[k]	
		4217.9 25	1.2 8	3427.68	3/2−	M1,E2[k]	
		4276.5 30	1.7 8	3371.11	3/2−	M1,E2[k]	
		4408.0 30	1.3 8	3239.89	1/2+	E1[k]	
		4463.5 20	5.5 10	3182.77	1/2−,3/2−	M1,E2[k]	
		4810.0[m] 30	1.5 10	2835.89	3/2,5/2		
		4950.1 20	5.0 14	2697.17	1/2−	M1[k]	
		5920.8 30	5.6 13	1725.38	3/2−	M1,E2[k]	
		6017.8 30	1.1 5	1627.256	3/2−	M1,E2[k]	
		6381.8 20	35 5	1265.52	1/2−	M1[k]	
		6507.0[m] 10	<1.0	1139.9?			
		7279.6 30	1.9 7	366.759	3/2−	M1,E2[k]	
		7508.8 20	5.2 8	136.4743	5/2−	E2[k]	
		7631.7 20	100 4	14.4129	3/2−	M1,E2[k]	

$\gamma(^{57}Fe)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†‡]	E_f	J^π_f	Mult.[#]	Comments
7646.7	1/2$^-$	7645.5 *20*	41 *4*	0.0	1/2$^-$	M1[k]	
8323.0	(25/2$^+$)	2135.9[a] *3*	100[g] *17*	6187.1	(21/2$^+$)	(E2)[i]	B(E2)(W.u.)>7.0

† From (n,γ) E=thermal, except as noted. The estimated systematic uncertainty of 25 ppm (1980Ve05) was added in quadrature to obtain ΔE(γ). 10% uncertainty in efficiency calibration included in quadrature in ΔIγ. Primary γ's from (n,γ) E=1151.5 eV res.

‡ Relative-photon branching from each level.

\# As recommended by 1978Kr19, except as noted.

@ From ε decay.

& Recommended γ-ray calibration energy from ε decay.

a From (^{13}C,4nγ).

b From comparison to RUL and ΔJ^π.

c From $\gamma(\theta)$ in (α,nγ) and (pol α,nγ) and final J^π.

d From γ-inelastic scattering.

e From (n,n$'\gamma$).

f From (d,pγ).

g From (α,pnγ).

h From ^{57}Mn β^- decay.

i Stretched-quadrupole radiation pattern in (^{13}C,4nγ).

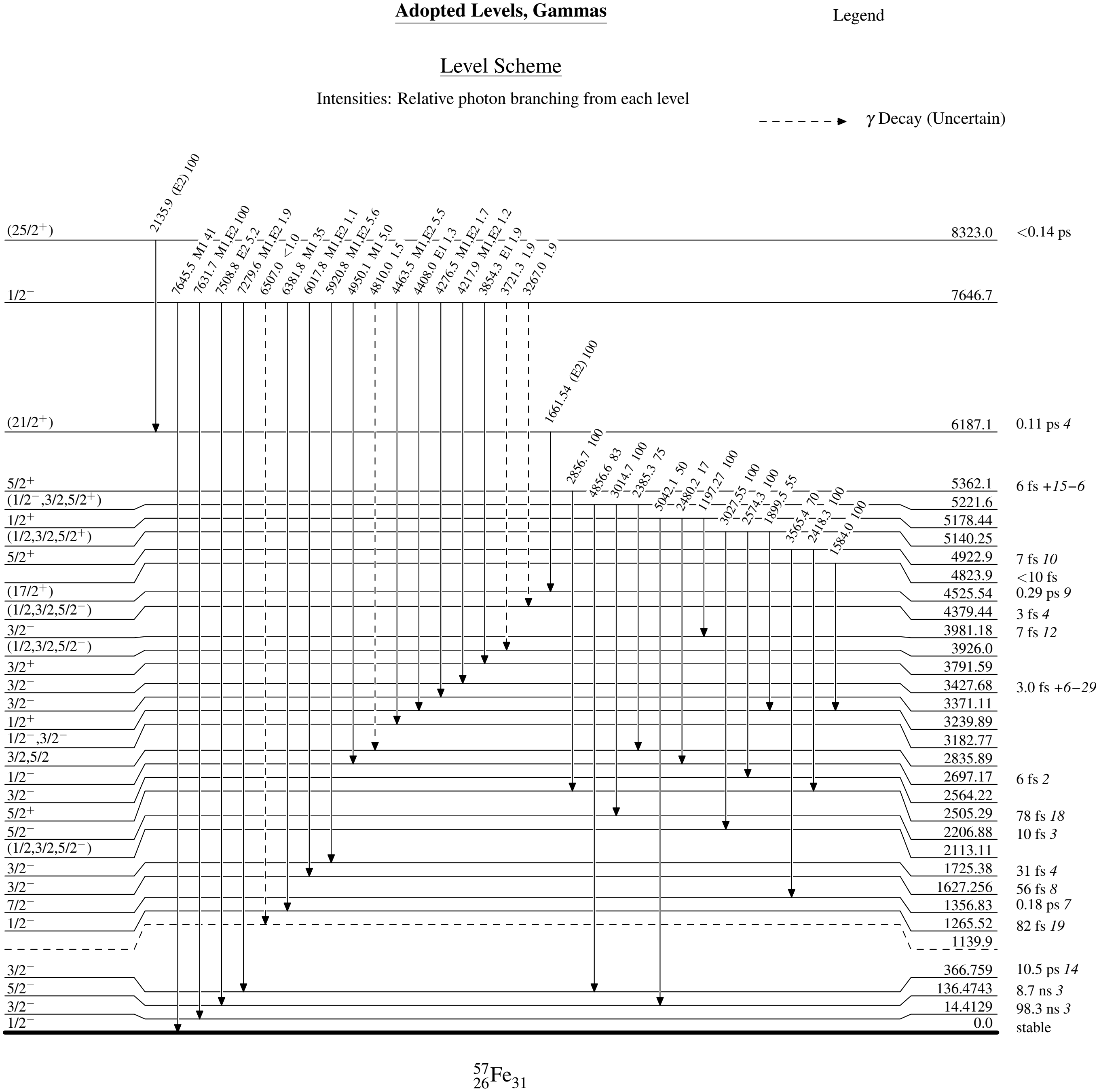
j From (α,nγ).

k From ΔJ^π and systematics of primary gammas. 1978We09 and 1970Ch10 note that the 7509γ is one of the very rare primary E2 transitions and that most of the other transitions appear to be magnetic dipoles in contrast to s-wave capture where most transitions appear to be electric dipoles.

l 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.

m Placement of transition in the level scheme is uncertain.

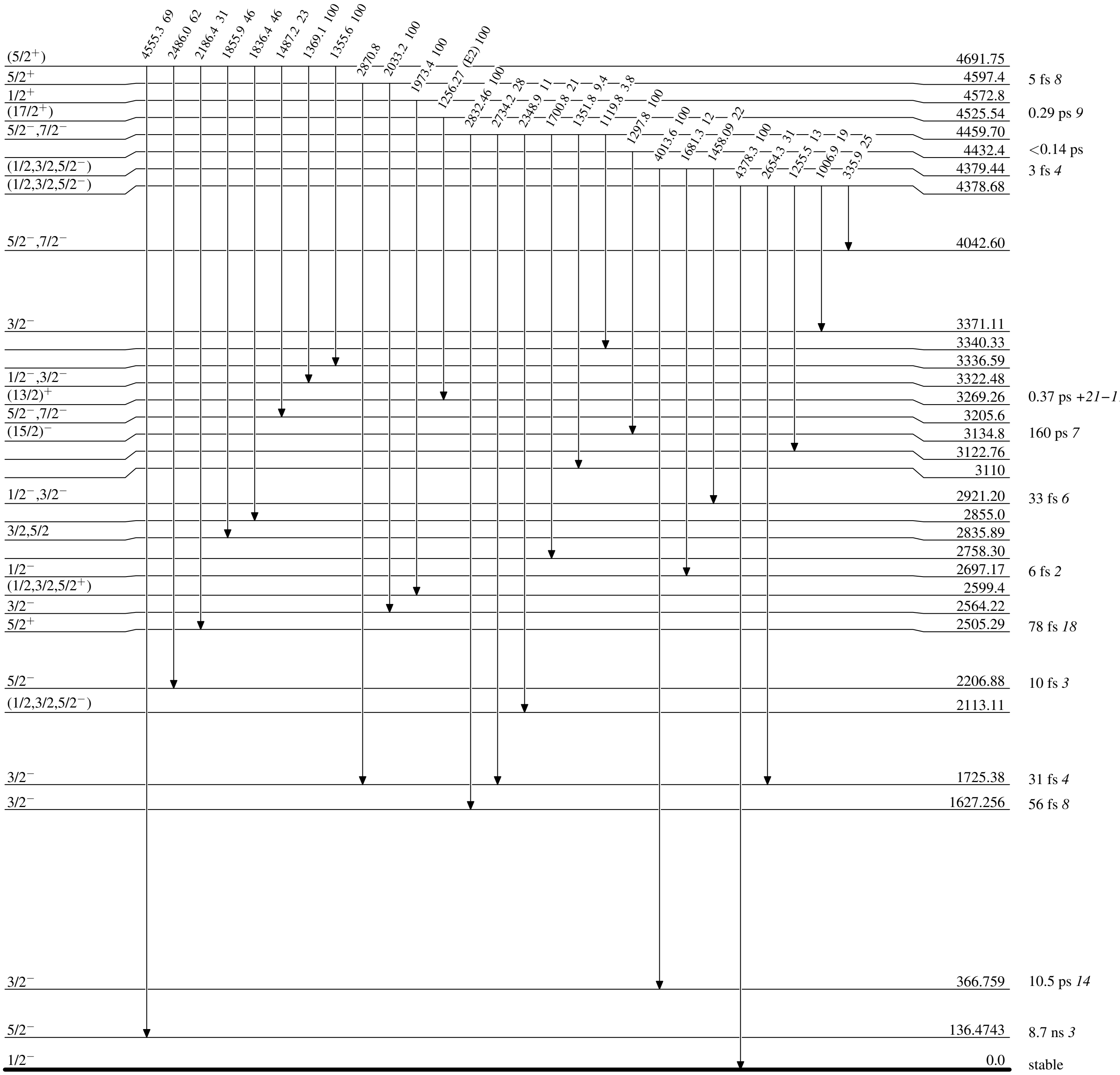
Adopted Levels, Gammas



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

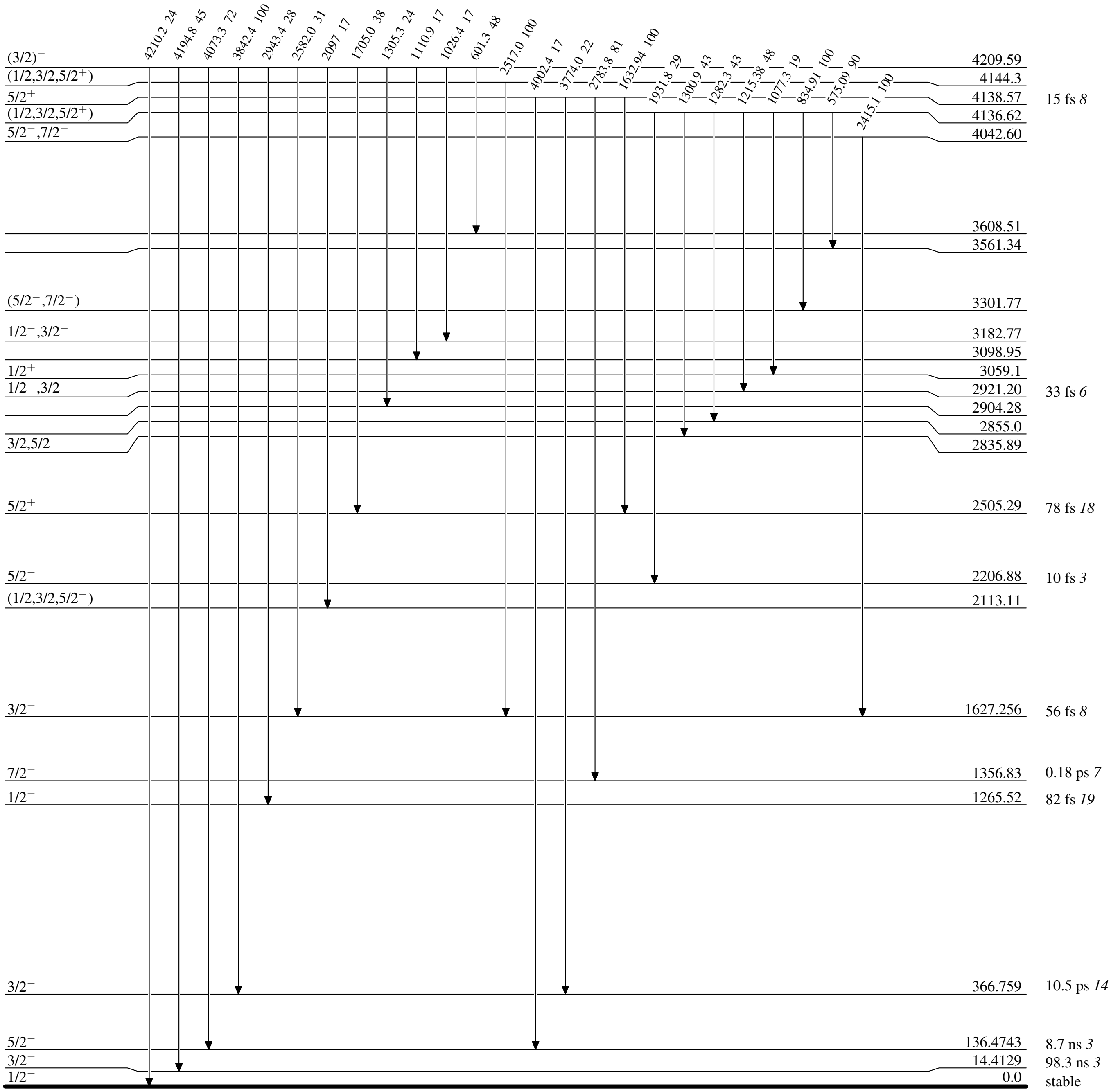


$^{57}_{26}Fe_{31}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

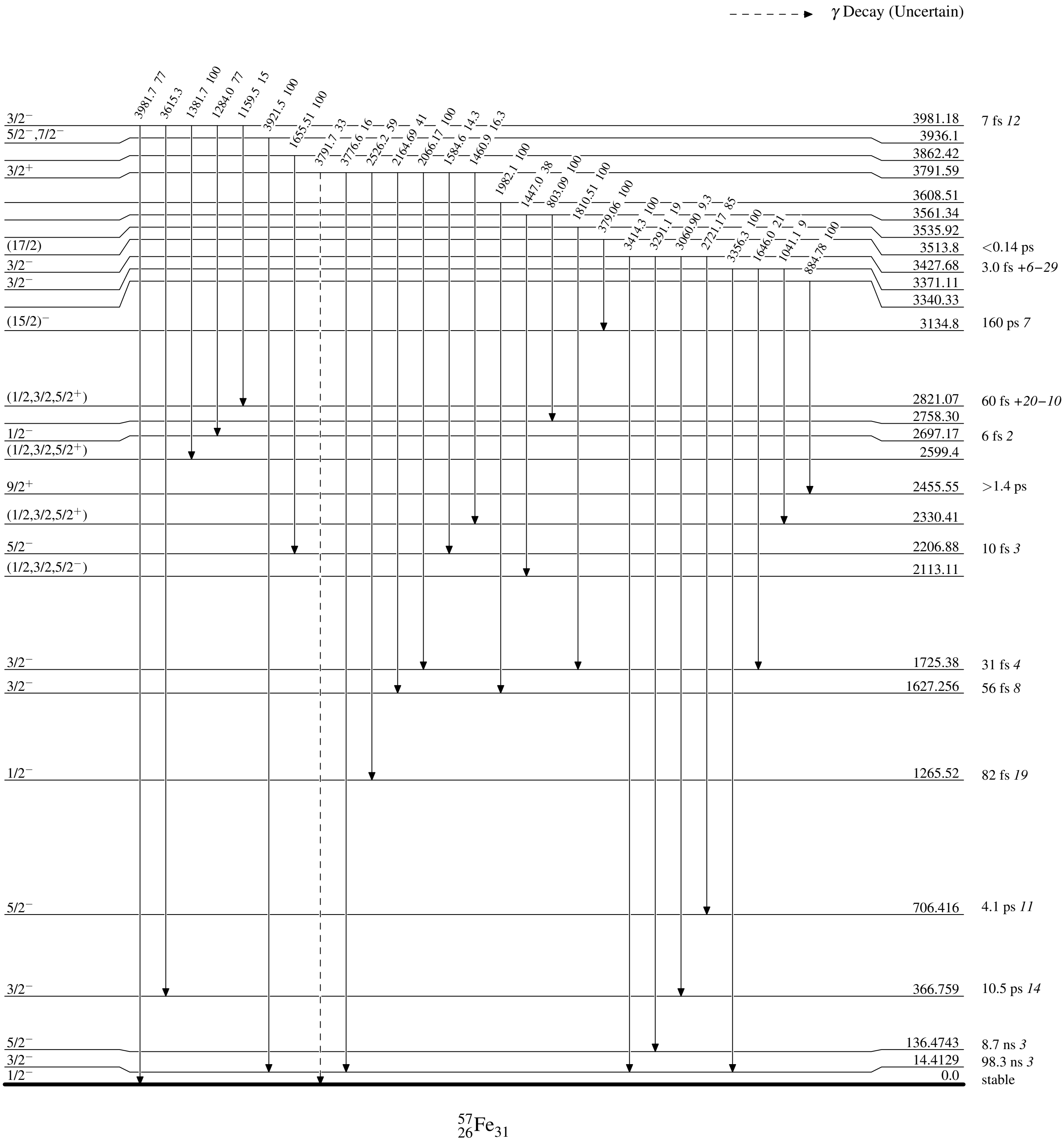


$^{57}_{26}Fe_{31}$

Adopted Levels, Gammas

Level Scheme (continued)

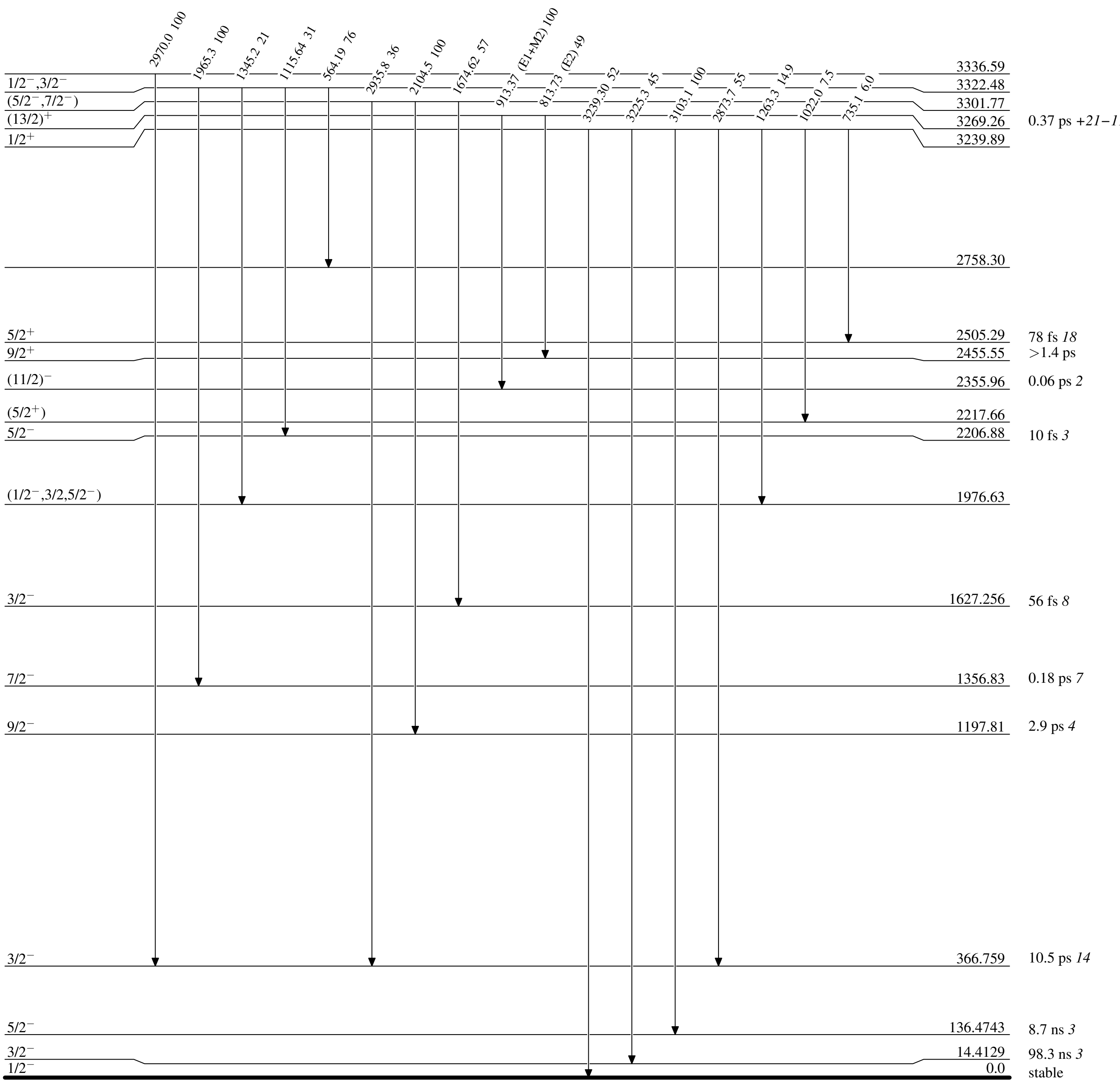
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

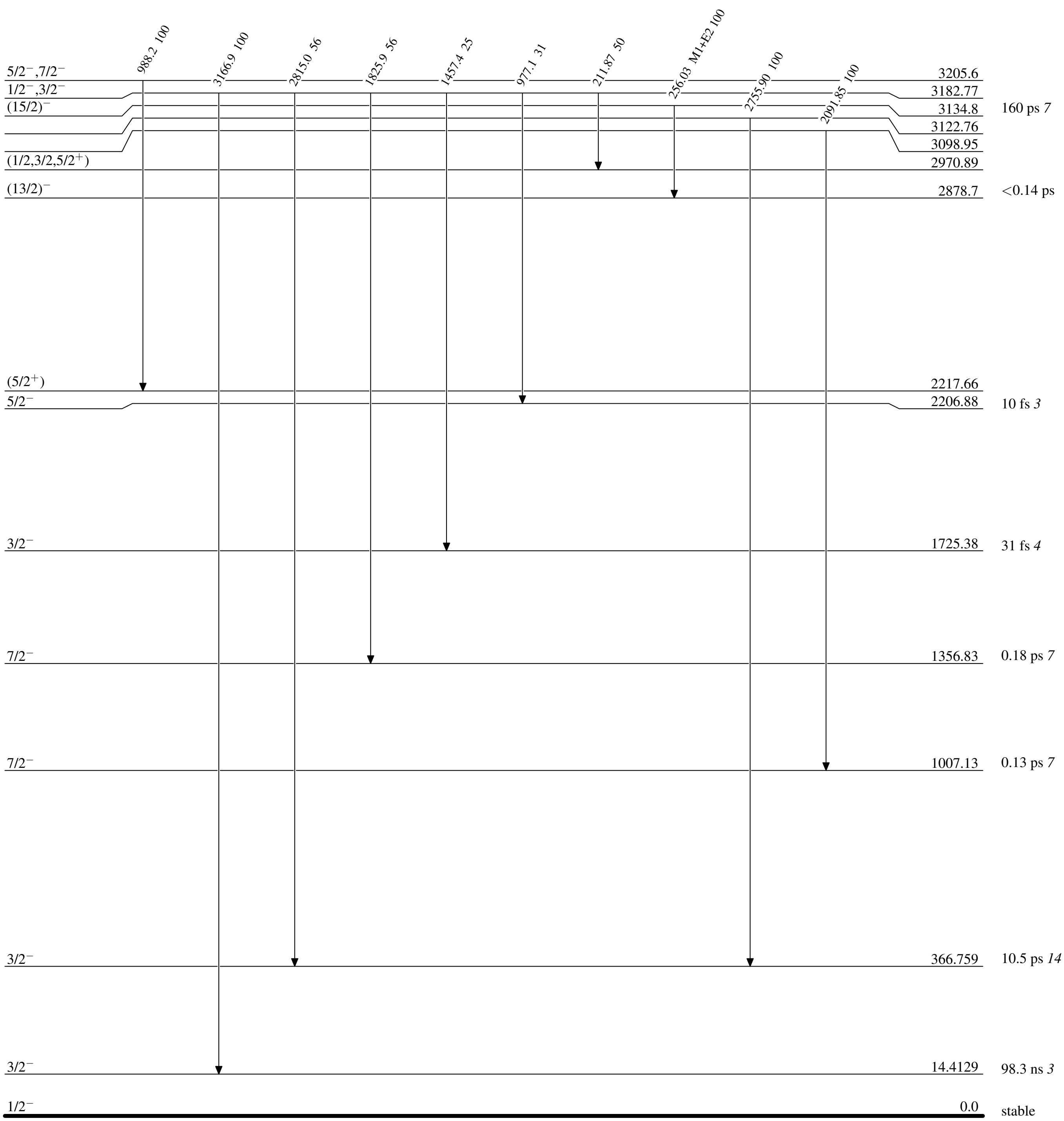


$^{57}_{26}Fe_{31}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

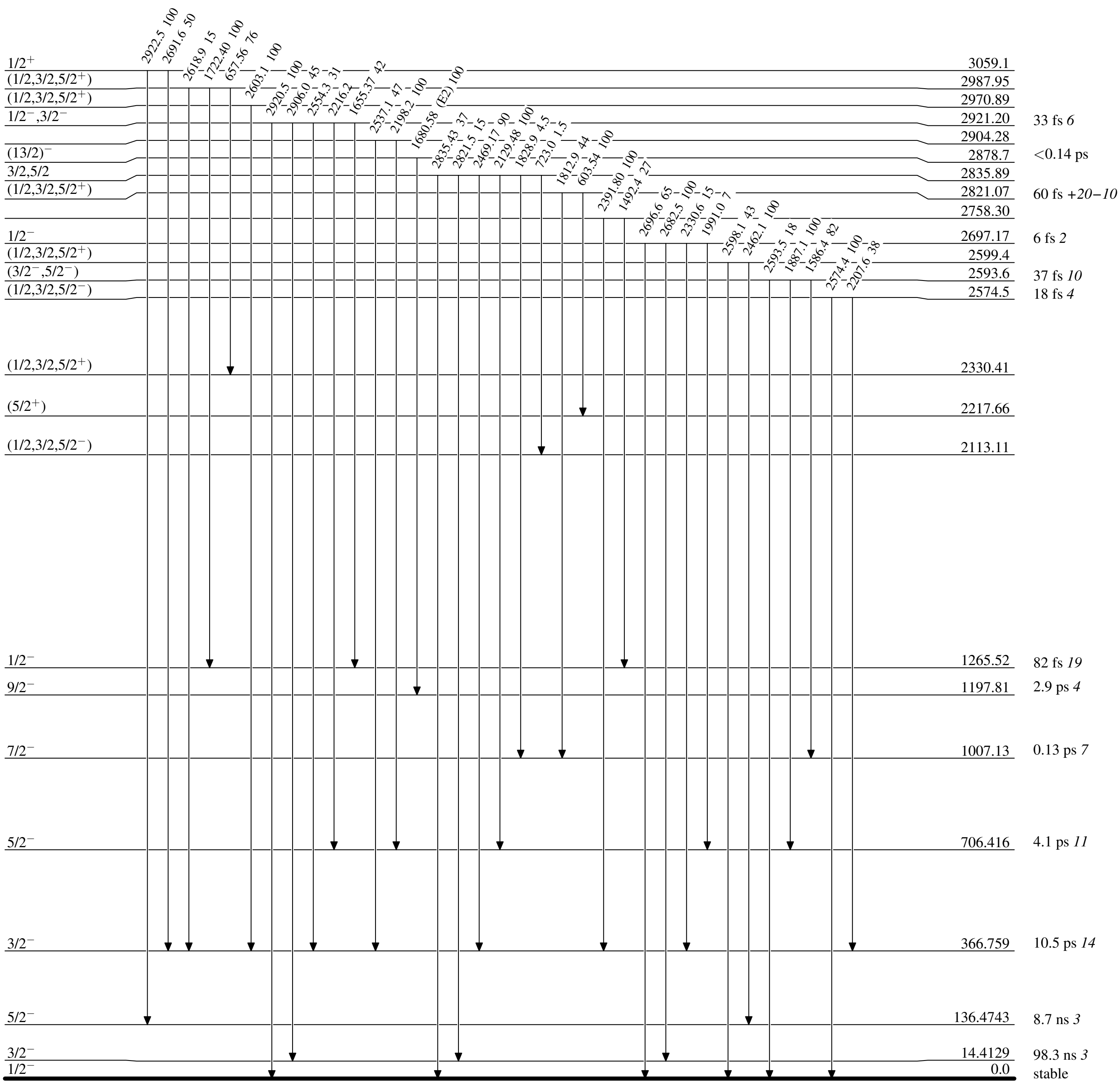


$^{57}_{26}Fe_{31}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{57}_{26}Fe_{31}$

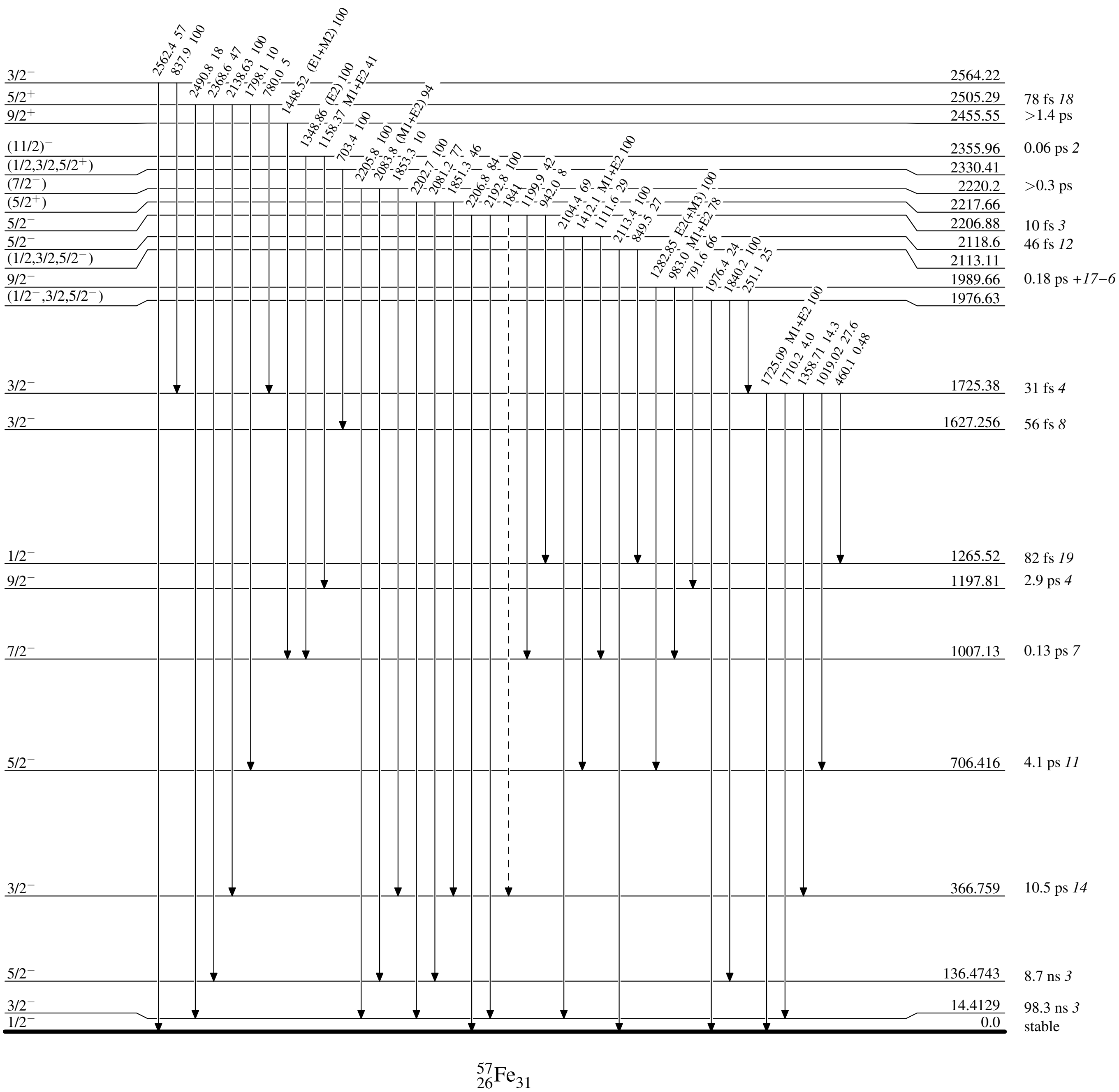
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

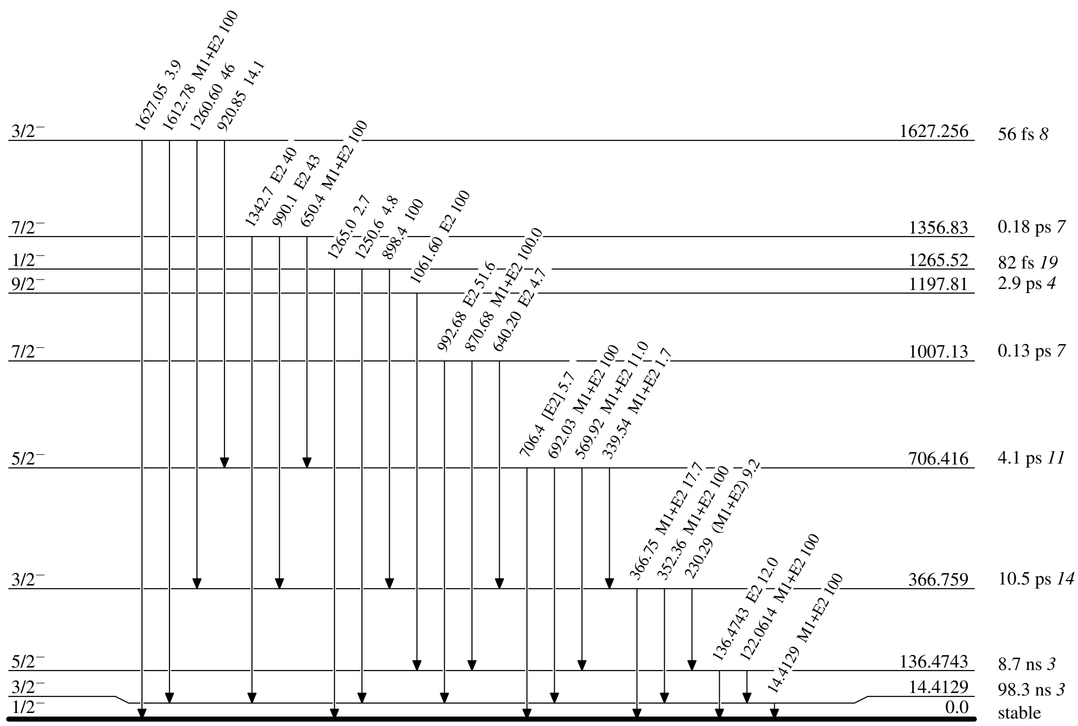
γ Decay (Uncertain)



Adopted Levels, Gammas

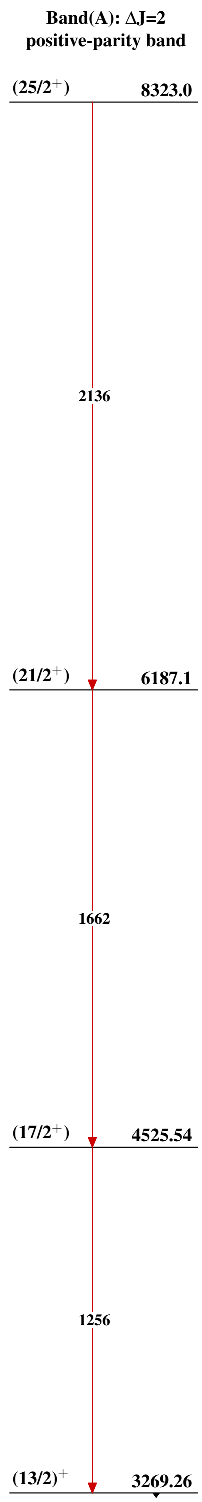
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{57}_{26}Fe_{31}$

Adopted Levels, Gammas



$^{57}_{26}Fe_{31}$