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)†	Jπ&	$T_{1/2}$@	XREF	Comments
				XREF: H(2550)N(2566). $T_{1/2}$: From (p,p′γ). Jπ: from L=0 in (^{6}Li,d), (p,t).
2900	2^+		A	Jπ: 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). Jπ: from γ(θ), 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). Jπ: 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). Jπ: 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). Jπ: from L=4 in (p,t), (α,α′).
3344.8 *3*	3^+		AB DE I N Z	XREF: Others: AH XREF: A(3340). Jπ: from pγ(θ) and γγ(θ) 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	Jπ: 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). Jπ: 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 Jπ: 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 Jπ: from L=4 in (α,α′).
4071.6 *8*	3^+	0.058 ps *17*	B D F I	XREF: F(4060). Jπ: From (p,p′γ), but L=(5) in (p,p′).
4099.7 *11*	4^+		A E	Jπ: 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). Jπ: 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). Jπ: 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). Jπ: from L=2 in (α,α′), (^{3}He,n).

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)†	Jπ&	$T_{1/2}$@	XREF	Comments
4655.3 *8*			B DE I	XREF: Others: AH Jπ: J≤6, from γ′s to 4+.
4696? *3*			D I	Jπ: 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). Jπ: from L=3 in (α,α′), (e,e′).
4850	3−		A N	E(level): from (pol d,d′) and (e,e′). Jπ: 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). Jπ: 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	Jπ: from 3672γ to 2+, 5080γ to 0+.
5145 *6*	2+		B D GH	XREF: H(5120). Jπ: from L(^{6}Li,d)=2.
5233 *10*	0+		BC J	XREF: J(5200). Jπ: from L(^{3}He,n)=0.
5248 *6*			B D H	Jπ: J≤4, from γ to 2+.
5278.8 *11*			B DE	XREF: Others: AH Jπ: J≤4, from γ to 2+.
5313 *10*			B	
5325 *10*			B F	
5392 *6*	2+		BCD G	XREF: C(5380). Jπ: from L(^{3}He,n)=2.
5404 *10*			B	
5431.1 *13*			E	
5453 *7*	(1,2+)		B D	Jπ: from γ to 0+.
5461.2 *11*			E	
5482.0	3+,4+		B D	XREF: Others: AH Jπ: from 4074γ to 2+ and 1435γ to 4+, so 2+, 3+, 3−, and 4+ are likely, 2944γ (M1+E2) to 4+, Jπ=3+, 4+.
5506 *6*	(2+)		B D H	Jπ: from L(^{6}Li,d)=(2).
5523 *10*			B	
5539 *6*	3−		B D F	Jπ: L(α,α′)=3.
5592 *10*			B	
5621 *6*	(3−)		B D G J	XREF: J(5640). Jπ: from L(p,t)=(3).
5657 *5*	4+		B	Jπ: from L(p,p′)=4.
5666 *10*			B	
5703 *5*	4+		B V	XREF: V(5720). Jπ: from L(p,p′)=4.
5787 *10*			B	
5809 *7*	2+*c*		B D	
5828 *7*			B D	XREF: B(5837). Jπ: 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). Jπ: From 1895γ to 5+, 2979γ (M1+E2) to 6+.
5955 *8*	2+		B D	Jπ: from L(p,p′)=2.
6023 *10*			B	
6038 *8*	(1,2+)		B D	Jπ: from γ to 0+.
6057 *5*			B H	XREF: H(6050). Jπ: 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)†	Jπ&	$T_{1/2}$@	XREF	Comments
6128.7 *6*	1		B D H Y	Γ=0.027 eV *4*; $\Gamma_{\gamma 0}$=0.025 eV *4* (1976La02) Jπ: from 6129γ(θ) in (γ,γ′).
6156 *10*			B	
6192 *5*	2^+		B	Jπ: 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). Jπ: From γ to 6^+.
6341 *5*	3^-		B G JK M	XREF: M(6355). Jπ: from L(α,α′)=L(p,p′)=3.
6380.9 *11*	8^+	114 fs *+28−21*	E O QR TU	XREF: Others: AH Jπ: 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	Jπ: from L(^{3}He,n)=0.
6401 *10*	3^-		AB F J L N	XREF: J(6410). Jπ: 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. Jπ: 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	Jπ: from L(p,t)=3.
6724.1 *24*	9^+	≈41 ps	E O QR	XREF: Others: AH Jπ: 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 Jπ: From 3915γ (E2) to 6^+.
6881 *5*	4^+[c]		B	
6910 *20*			C	
6951 *5*			AB F J	XREF: F(6990)J(6970). Jπ: 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). Jπ: L(p,p′)=5,6, L(e,e′)=2.

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Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)†	Jπ&	XREF	Comments
7074.8 *17*			XREF: Others: AH
7110 *20*	$(2^+,3^-)^b$	A	
7128 *10*	6^+	B H	Jπ: from L(^{6}Li,d)=6.
7155 *10*		B	
7180 *10*	$(1)^b$	A	
7200# *30*	4^+	A C F	Jπ: from L(e,e′)=4.
7260# *20*	3^-	AB K	XREF: B(7270)K(7250). Jπ: from L(p,p′)=3.
7310 *20*	$(2^+,3^-)^b$	A	
7351.5 *6*	(9^+)		XREF: Others: AH Jπ: 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 Jπ: From 780γ to 9^+.
7550 *20*	$(2^+)^b$	A	
7560 *20*	0^+	C	Jπ: from L(^{3}He,n)=0.
7565.8 *18*			XREF: Others: AH
7580 *25*	2^+	JK	E(level): from (p,t). Jπ: from L=2 in (α,α′) and (p,t).
7603 *10*	3^{-c}	AB	
7644 *10*	3^{-c}	AB F	
7674 *10*	$^+$	AB	Jπ: L(p,p′)=4, L(e,e′)=2.
7760 *20*	$(2^+)^b$	A	
7791 *10*		AB	Jπ: L(p,p′)=3, L(e,e′)=2.
7859‡ *10*		AB	XREF: A(7850)B(7868). Jπ: L(p,p′)=3, L(e,e′)=2.
7905 *10*		B	
7938 *10*	$^+$	AB	XREF: A(7930). Jπ: L(p,p′)=0, L(e,e′)=2.
7940 *20*	3^-	C	Jπ: from L(^{3}He,n)=3.
8005 *10*	3^-	AB H K	XREF: H(7970). Jπ: 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). Jπ: 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	Jπ: 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). Jπ: 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 Jπ: From 1994γ to 8^+.
8410 *10*		A C	E(level): from (^{3}He,n). Probably a doublet. Jπ: L(^{3}He,n)=0; excitation multipolarity E2 from (e,e′).
8440 *10*		AB H	Jπ: 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)†	Jπ&	XREF	Comments
			Jπ: L(p,p′)=3.
8521 *10*	5⁻,6+*c*	B	
8560 *10*	(1,2⁻)*b*	A	
8577.8 *7*	(10⁺)		XREF: Others: AH Jπ: 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 Jπ: 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	Jπ: from fit of squared inelastic form factor for 8⁻ to experimental data.
8952 *10*	3⁻	B	Jπ: 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). Jπ: 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 Jπ: 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	Jπ: from fit of squared inelastic form factor for 8⁻ to experimental data. Purely transverse and most probably magnetic transition, T=1.
9984 *10*		ABC	Jπ: 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)†	Jπ&	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 Jπ: From γ's to 11+.
10137 *10*	2+*c*	AB	XREF: A(10130)B(10144).
10180‡ *10*	1+*a*	AB	XREF: B(10160). Jπ: from a very forward-peaked angular distribution characteristic of a ΔL=0 (1983Dj05).
10213‡ *10*		AB	XREF: A(10220)B(10205).
10250 *20*	0+	BC	XREF: B(10256). Jπ: 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). Jπ: transverse excitation into state of low multipolarity, T=2.
10542.0 *7*	(11)		XREF: Others: AH Jπ: 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	Jπ: 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. Jπ: 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). Jπ: From 1248γ to 12+, 3074γ to 11+.
11113.6 *8*	(12)		XREF: Others: AH Jπ: 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). Jπ: 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).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{54}Fe Levels (continued)

E(level)†	Jπ&	XREF	Comments
11790 *10*		A	
11850 *30*	2^+	C	Jπ: from L(^{3}He,n)=2.
11920 *20*	1^+*a*	B	
11950 *20*	1^+*a*	B	
12040 *20*	0^+	C	Jπ: from L(^{3}He,n)=0.
12043.0 *9*	(13)		XREF: Others: AH Jπ: From 929γ to (12).
12100 *50*	2^+	C	Jπ: from L(^{3}He,n)=2.
12314.1 *8*	(14^+)		XREF: Others: AH Jπ: From 1220.7γ to 13^+, 2183γ to (12).
12953.3 *12*	(14^+)		XREF: Others: AH Jπ: From 1860γ to 13^+.
13000 *20*	1^+*a*	B	
13263 *10*	8^-	A	Jπ: 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	Jπ: from L(^{3}He,n)=0.
13730 *30*	4^+	C	Jπ: 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	Jπ: from L(^{3}He,n)=2.
14870 *20*	0^+	C	Jπ: 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 pγ(θ) and γγ(θ) 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)

γ(^{54}Fe)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	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+.

$^{54}_{26}Fe_{28}$-9

Adopted Levels, Gammas (continued)

γ(^{54}Fe) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	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

Adopted Levels, Gammas (continued)

γ(^{54}Fe) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	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,2pγ), 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$^+$				

$^{54}_{26}Fe_{28}$-11

Adopted Levels, Gammas (continued)

γ(^{54}Fe) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	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

Adopted Levels, Gammas (continued)

γ(^{54}Fe) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	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 pγ(θ) and γγ(θ) 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.

$^{54}_{26}Fe_{28}$-13

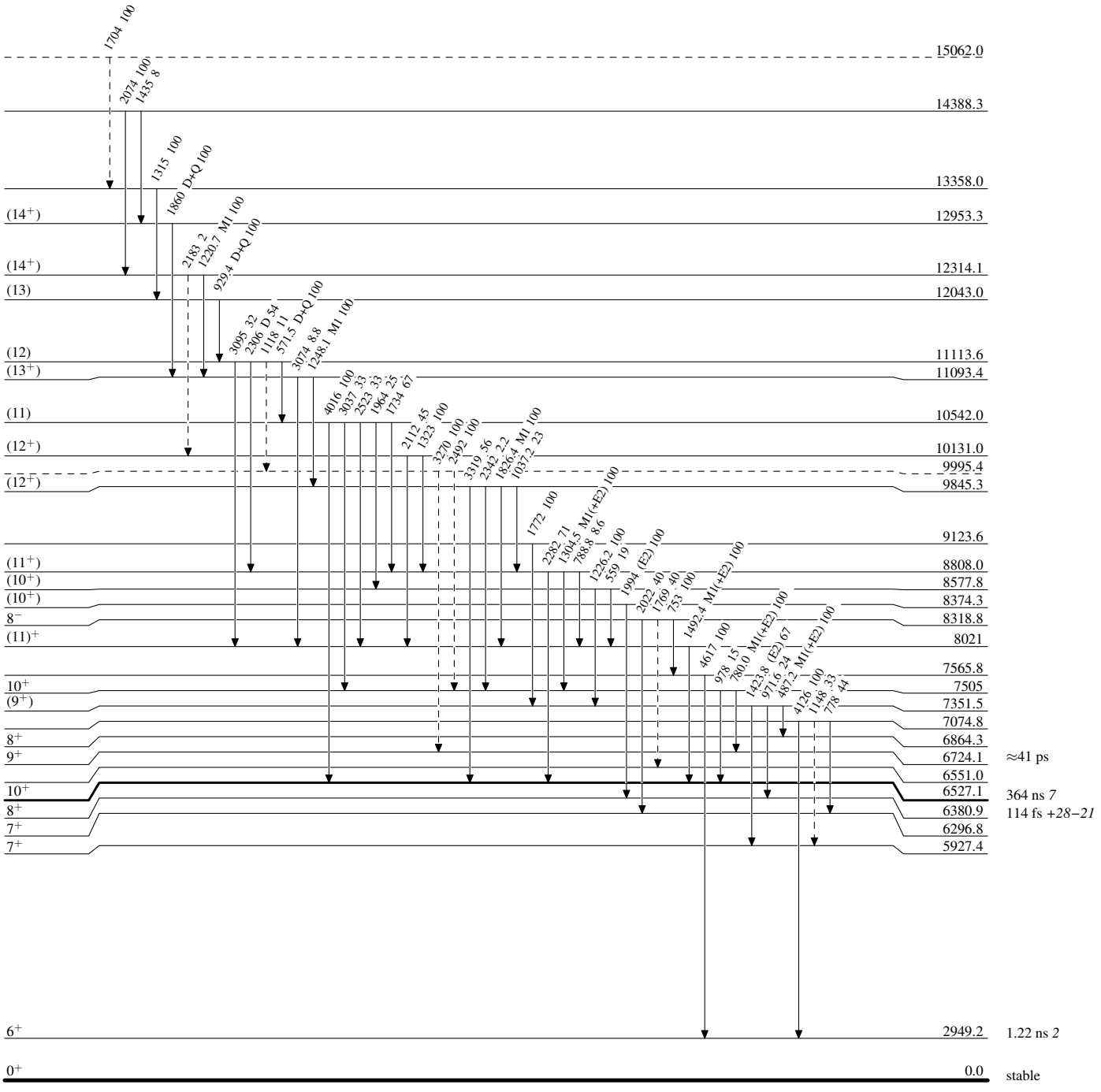
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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

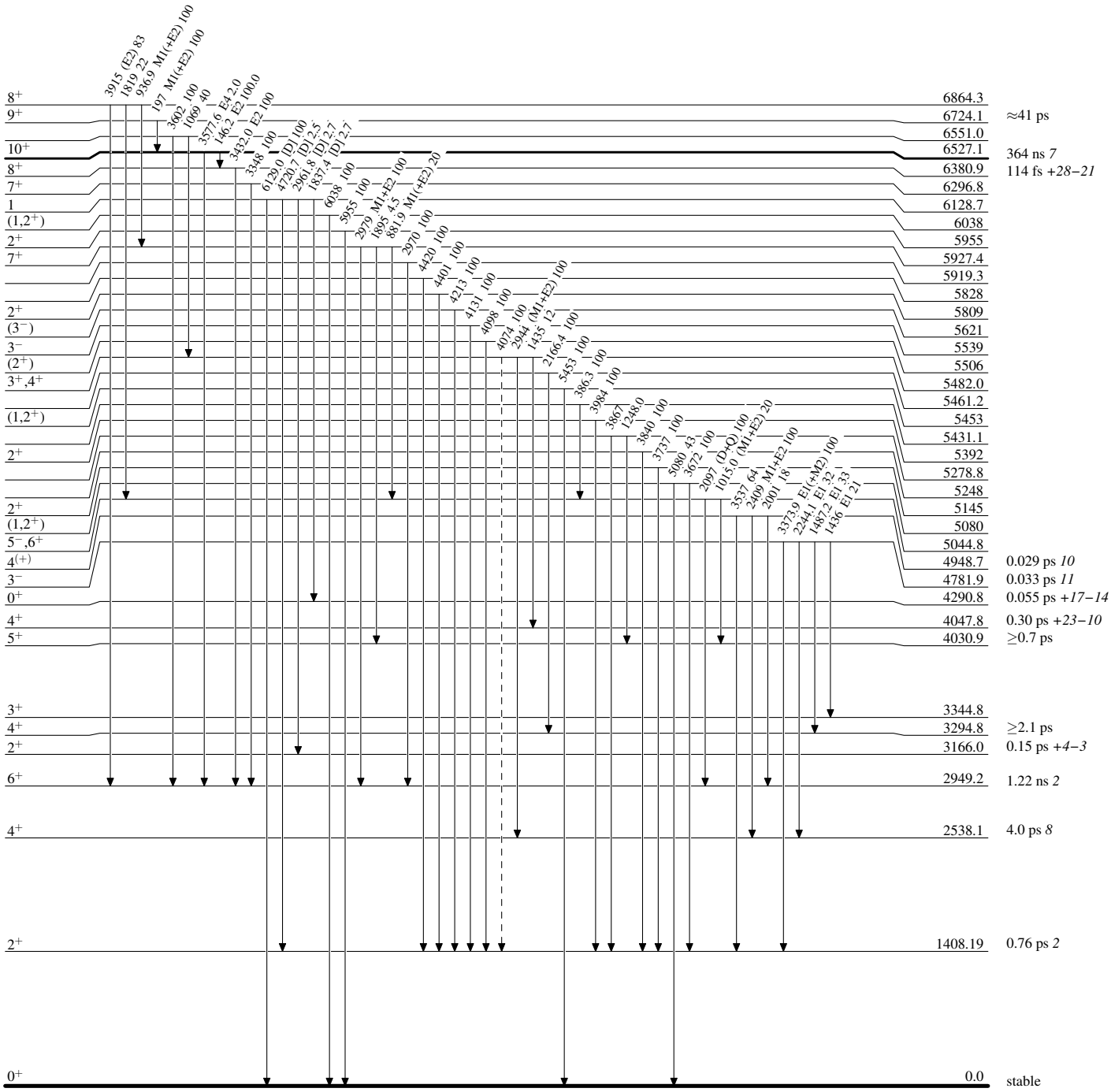
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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

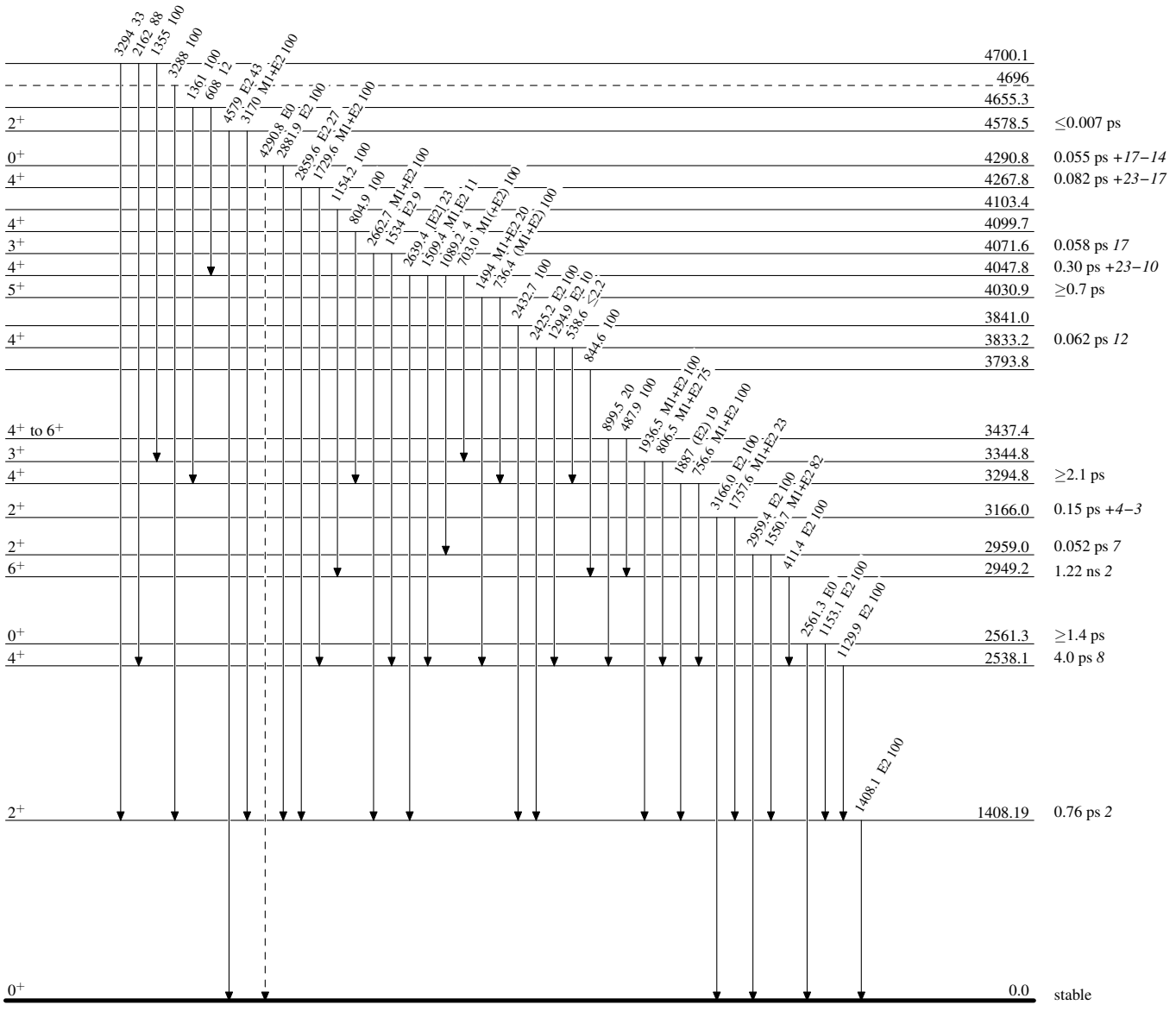
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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